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INTRODUCTION

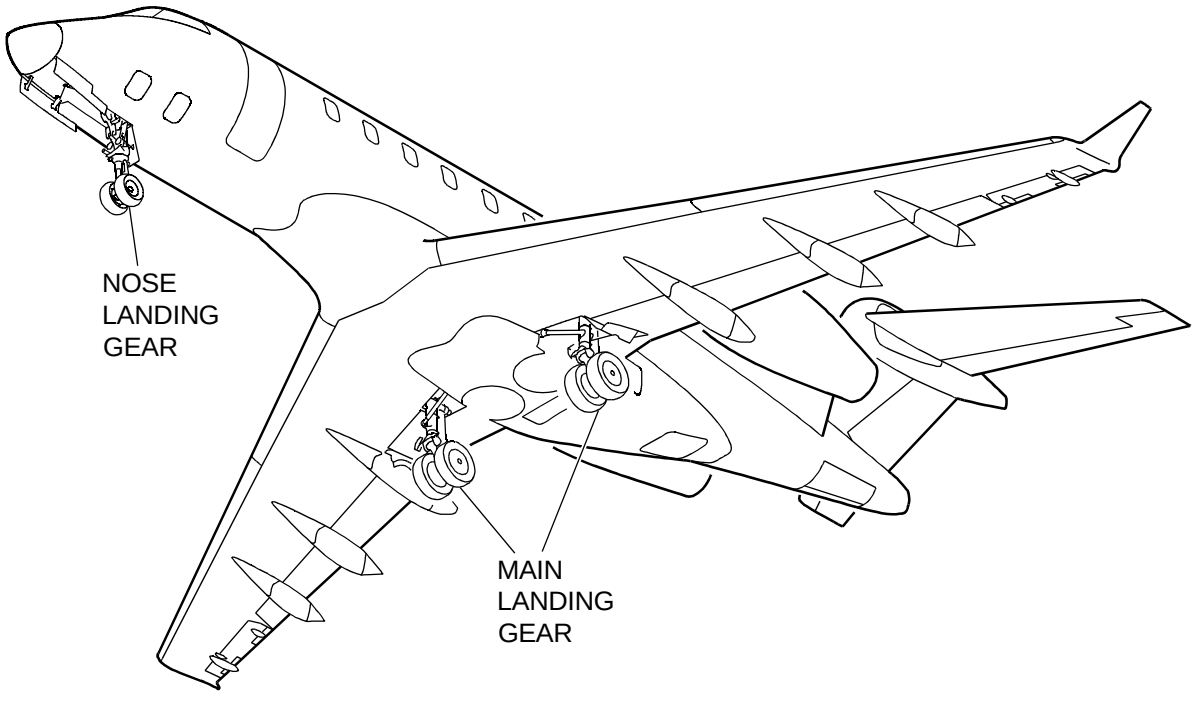
The landing gear system for the Challenger 300 is arranged in a retractable tricycle configuration consisting of two main landing gear assemblies and a steerable nose landing gear assembly. Each landing gear assembly has twin wheels and tires.

Normal extension and retraction of the landing gear is powered by the aircraft's left hydraulic system. The Manual Release System (MRS) is used to deploy the landing gear, if normal extension of the landing gear is inoperative. Landing gear position monitoring is a provided by the Proximity Sensor System (PSS) and displayed through a combination of EICAS messages and aural alerts.

Each of the main landing gear is equipped with self-adjusting multidisc carbon brakes. The left hydraulic system powers the brakes of the inboard wheels, the right hydraulic system powers the brakes of the outboard wheels. Anti-skid control and locked-wheel protection is provided. The PARK/EMER BRAKE operates both the inboard and outboard brakes, however, anti-skid is not available when utilizing emergency brakes.

Associated subsystems include:

- Main Landing Gear and Doors
- Nose Landing Gear and Doors
- Gear Extension and Retraction System
- Manual Release System
- Steering Control System
- Proximity Sensing System
- EICAS Messages and Audio Alerts
- Brake System



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PROXIMITY SENSING SYSTEM

DESCRIPTION

The Proximity Sensing System (PSS) consists of the Proximity Sensing Electronic Unit (PSEU) and proximity sensors. The PSS sequences the landing gear operation. It also monitors the aircraft doors, thrust levers, and spoiler position.

COMPONENTS AND OPERATION

The PSEU receives data from the LANDING GEAR selector handle and various proximity sensors.The PSEU processes the information to sequence the landing gear and program other aircraft configurations for flight and ground operations. The PSEU also monitors the position of the landing gear, uplocks, and downlocks. It also electrically controls the hydraulic selector valves during normal landing gear extension and retraction. After takeoff, the PSEU disables the normal brakes and nose wheel steering systems. At touchdown, it re-arms the systems for use during the landing roll and taxi.

The sensors measure the physical relationship between two aircraft components. If the components are close, the sensors provide a “near” signal. If the components are separated, a “far” signal is generated. The PSEU processes this information to command landing gear and other aircraft systems operation.

NOTE: Dual proximity sensors, installed on each of the landing gear, supply the PSEU with weight-on-wheels (WOW) information. The dual main landing gear WOW sensors and dual nose landing gear WOW sensors provide redundancy if a failure of any one WOW proximity sensor fails.

LANDING GEAR POSITION AND WARNING SYSTEM

The status of the landing gear is determined by the PSEU using inputs from various proximity sensors. The resulting output is sent to the EICAS which monitors the condition and position display of each item.

A GEAR DISAGREE caution message is posted if any of the following conditions occur:

- Any one gear remains in-transit for more than 28 seconds
- The position of at least one gear does not agree with landing gear control lever except during normal transit
- The landing gear control handle is left in the up position during manual extension

The gear down, in-transit, and disagree conditions are displayed as long as the condition exists. The gear and flaps display is removed from the primary page 30 seconds after the flaps are retracted and the gear is up.

The AURAL — GEAR is non-mutable if the following conditions are met:

- Any of the gear not down and locked AND
- Radio Altimeter valid and Radio Altimeter < 500 feet AND
- Left and Right Thrust Levers < 26° Thrust Lever Angle OR
- Flaps $\geq$ 27°.

If the radio altimeter is inoperative, the “GEAR” voice warning is a mutable condition. The logic resulting in a “GEAR” voice warning when the radio altimeter is inoperative is:

- Any gear not down and locked AND
- Radio Altimeter invalid AND
- Left and Right Thrust Levers < 26° Thrust Lever Angle AND
- Altitude < 15 000 feet OR
- Airspeed < 170 KIAS AND Flaps < 3°, OR
- Airspeed < 160 KIAS with Flaps < 13°, OR
- Airspeed < 155 KIAS with Flaps > 13°.

Both the mutable and the non-mutable voice warnings are accompanied by the GEAR (W) CAS message and the affected gear icon(s) turning red. These visual cues will remain and can not be suppressed as long as the conditions triggering the original warning persist, regardless of whether valid muting command has been applied. When permitted, muting of the voice warning is accomplished by pressing the Master Warning/Master Caution switch on the glareshield. The warning automatically resets in the event that the condition no longer exists. The warning will become active again on a subsequent landing attempt if the logic conditions are met.
The logic driving the mutable and non-mutable warnings are designed to ensure adequate time to either lock the gear down or perform a go-around.

PROXIMITY SENSING SYSTEM (Cont)

LANDING GEAR POSITION AND WARNING SYSTEM (Cont)

The PSEU monitors all gear functions. Any deviation from the selected gear configuration or failure of the uplocks or downlocks is annunciated on the EICAS in the form of visual and aural messages

LANDING GEAR

MAIN LANDING GEAR

DESCRIPTION

The Main Landing Gear (MLG) consists of two shock strut type, trailing link assemblies. The MLG retracts toward the centerline of the fuselage. The MLG is hydraulically actuated by the left hydraulic system and electrically controlled by the PSS.

The MLG are hydraulically retracted into the MLG bay, located in the wing underside, by a side brace actuator. This actuator is a hydraulic piston-cylinder actuator with an internal segmented down locking mechanism. Each gear is held in the up lock position with a MLG Uplock Assembly.

COMPONENTS AND OPERATION

Each main landing gear assembly consists of:

- Main Landing Door Mechanism
- Main Fitting
- Side Brace Actuator Assembly
- Nitrogen gas/oil filled Shock Strut
- Trailing Arm Assembly
- Axle with Carbon Brake Assemblies
- Dual Wheels
- Uplock Mechanism
- Extension and Retraction actuator
- Auxiliary Extend Assembly
- Electrical Harnesses and Hydraulic Dressings

MAIN GEAR DOOR

The main gear door is mechanically linked to the main landing gear assembly and moves with the gear during extension and retraction. Each main gear door is attached to the wing structure with two hinges. The main door structure is made from a clad-aluminum alloy sheet. A nylon door brush is installed on the bottom edge of the door to create a seal between the tire and fuselage.

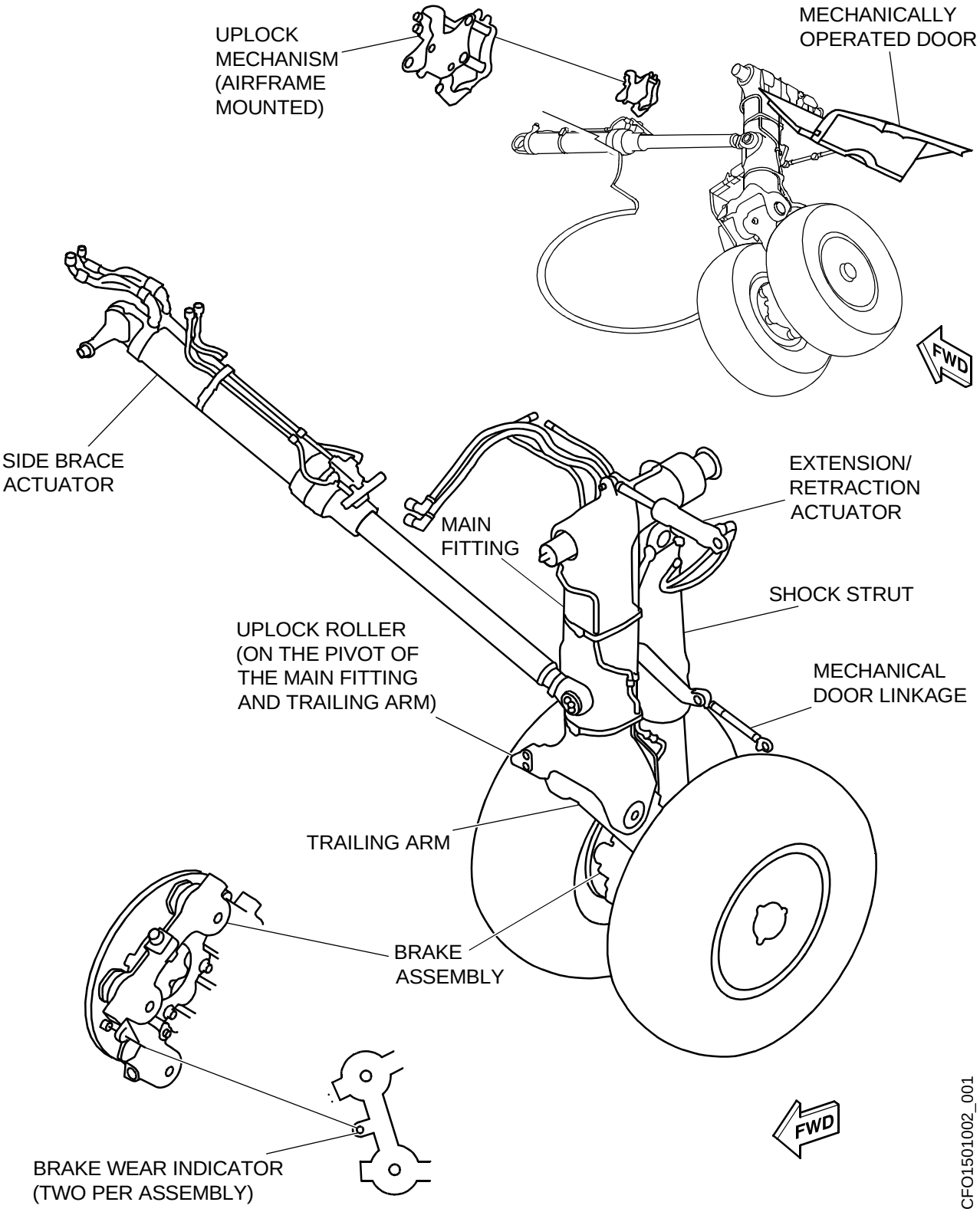
MAIN WHEEL BINS

Each main gear assembly retracts inward into wheel bins that are recessed into the main landing gear bay. The wheel bins isolate the wheels from the main landing gear bays and prevent tire-thrown debris from damaging the equipment located within the main landing gear bay. Each wheel bin contains a single loop overheat detection wire to provide a CAS warning should a wheel overheat. The bins can be removed to allow maintenance personnel access to the main landing gear bay.

MAIN LANDING GEAR UPLOCKS AND DOWNLOCKS

The main landing gear is held in the up-and-locked position by mechanical uplocks. With the gear extended, locking mechanisms in the side-brace keeps lock the gear in the down position. On the ground, locking pins can be inserted into the side strut actuator.

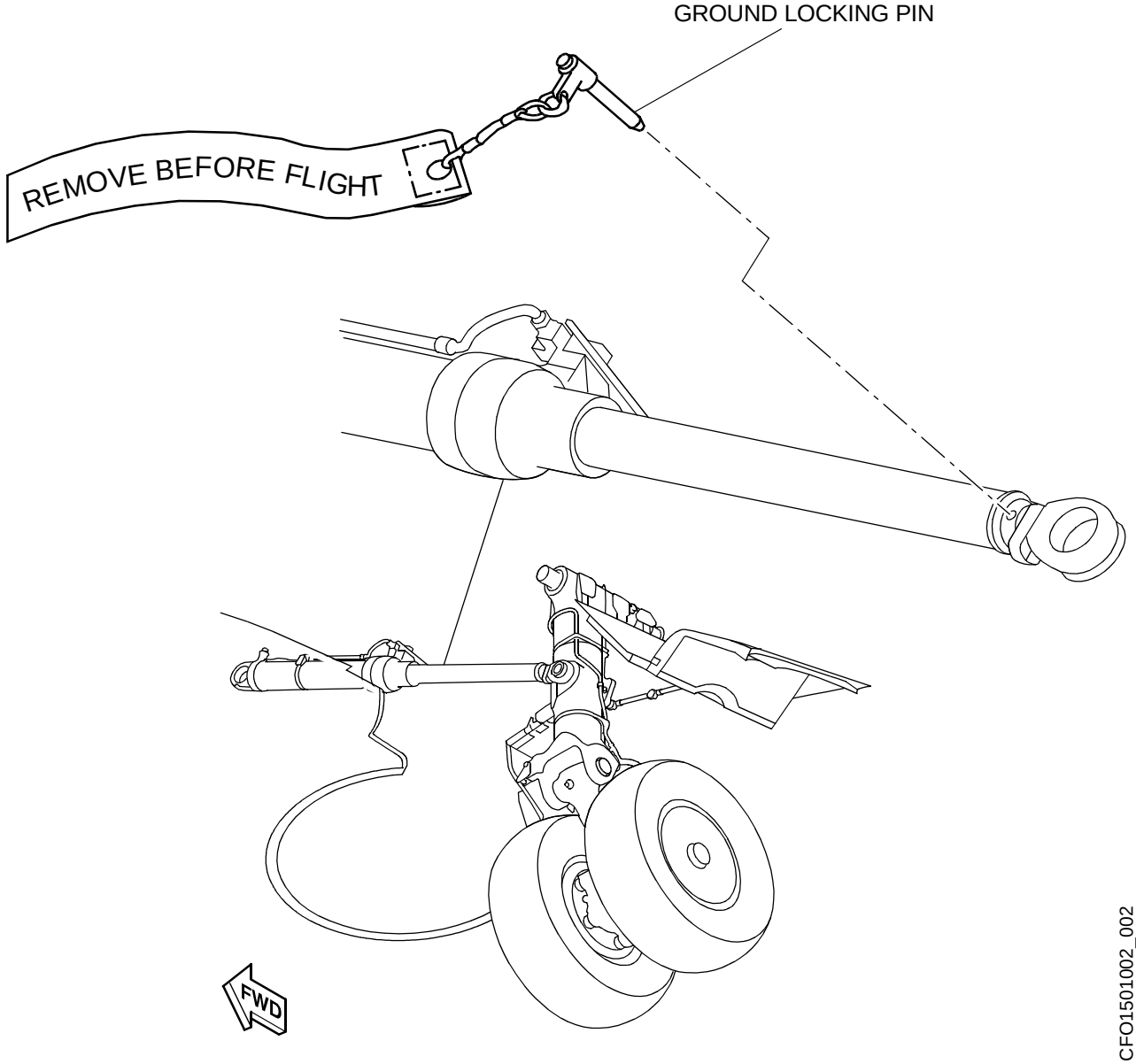
LANDING GEAR (Cont)



LANDING GEAR (Cont)

MAIN GEAR DOWNLOCK SAFETY PINS

A downlock safety pin at the end of the side brace assembly, secures each of the main landing gear in position while on the ground.



LANDING GEAR (Cont)

NOSE LANDING GEAR

The Nose Landing Gear (NLG) consists of a twin wheel forward retracting, cantilever shock strut, and folding drag strut that incorporates a mechanical downlock.

The major sub-assemblies of the NLG are shock strut, retraction actuator, wheel and tire, drag brace and harness assemblies, hydraulic hoses and taxi/landing lights.

The nose landing gear is actuated by the left hydraulic system and electrically controlled by the proximity sensor system (PSS) which includes the proximity sensor electronic unit (PSEU) and control handle. Normal operation of the landing gear extension and retraction system is initiated by selecting the desired landing gear position, UP or DOWN, using the landing gear control handle mounted on the main instrument panel.

In flight, the nose gear is electronically centered by the steering control unit (SCU), and mechanically centered by centering cams as the oleo extends with the assistance of the nitrogen filled strut and under the weight of the springs and wheel assemblies.

A spring-operated external lock mechanism on the drag brace mechanically locks the nose gear in the extended position. A NLG ground locking pin can be inserted into the upper drag brace sub-assembly to prevent inadvertent unlocking while the aircraft is on the ground.

The NLG also contains the steering manifold assembly and steering actuator which provides steering and castering functions for the NLG during ground maneuvers.

With the torque link attached, the gear can only be rotated 120° in either direction. Attempting to rotate beyond this causes a switch to trip, resulting in a NWS LIMIT EXCEEDED (C) CAS message and potential structural damage. In addition to the cockpit indication, the feedback mechanism also incorporates indicator pins at approximately $\pm 123^{\circ}$ of steering angle. If the steering angle exceeds this value during towing while the torque links are connected, these pins are designed to yield to indicate the need to inspect the feedback links and surrounding area as detailed in the AMM for possible damage.

For special hangar operations, the torque links may be disconnected to allow towing at any angle provided the NLG shock strut extension exceeds 3.50 inches of chrome showing.

NOSE DOORS

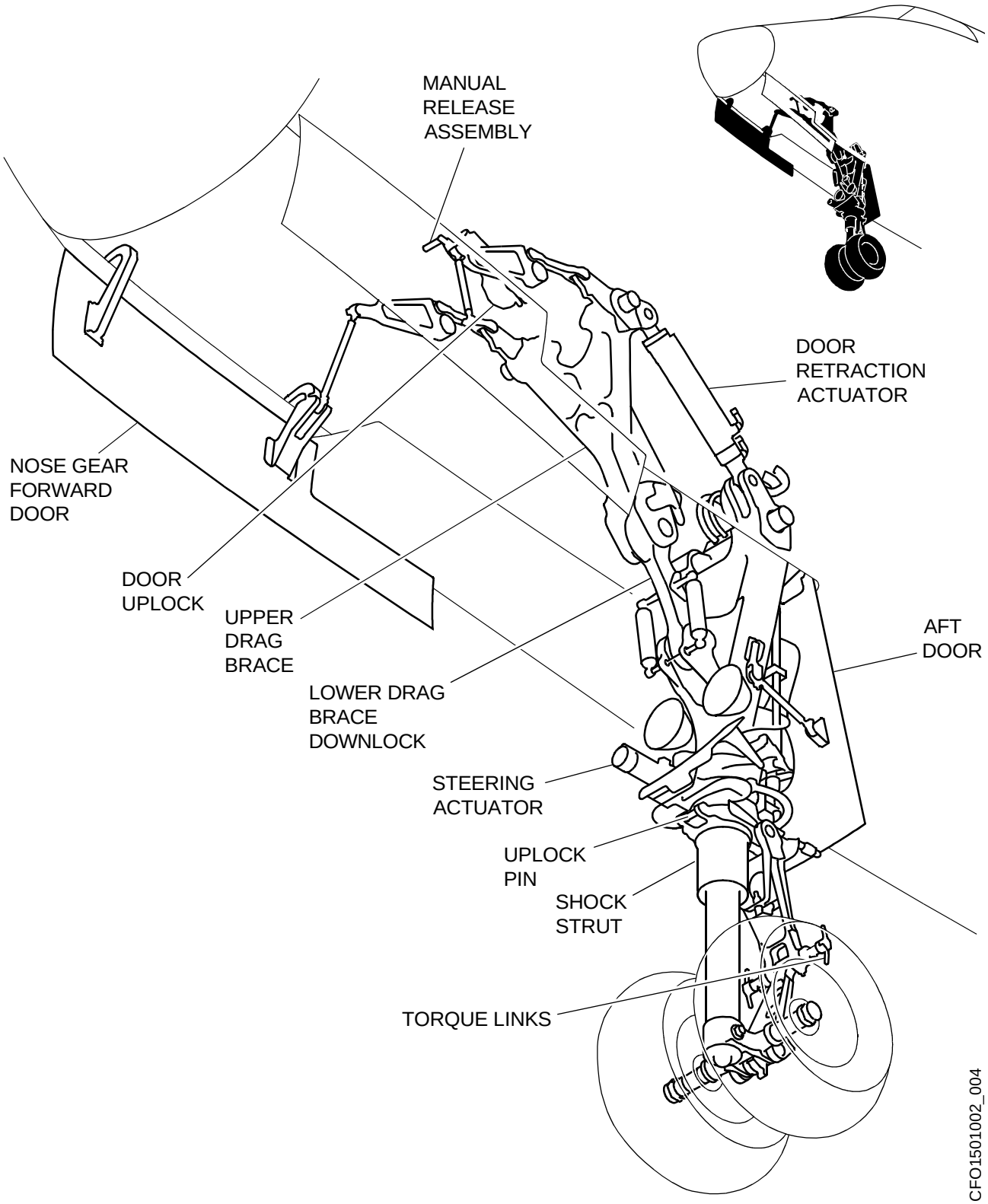
The nose gear doors give aerodynamic smoothness to the fuselage when the nose landing gear is retracted in the wheel well.

The aft door is mechanically attached to the landing gear assembly and provides partial enclosure of the gear. Two control rods attach the aft door to the nose gear shock strut. A hinge attaches the aft door to the aircraft structure.

The forward doors attach with hinges to the left and right sides of the wheel well and are mechanically linked and operated by the nose gear system. There are two forward-door mechanisms. Each of these mechanisms has a link which operates a bell crank and a control rod. When the nose gear is retracted, the mechanisms pull the two forward doors to the fully closed position.

When the nose gear is down, the forward doors and aft door will remain open.

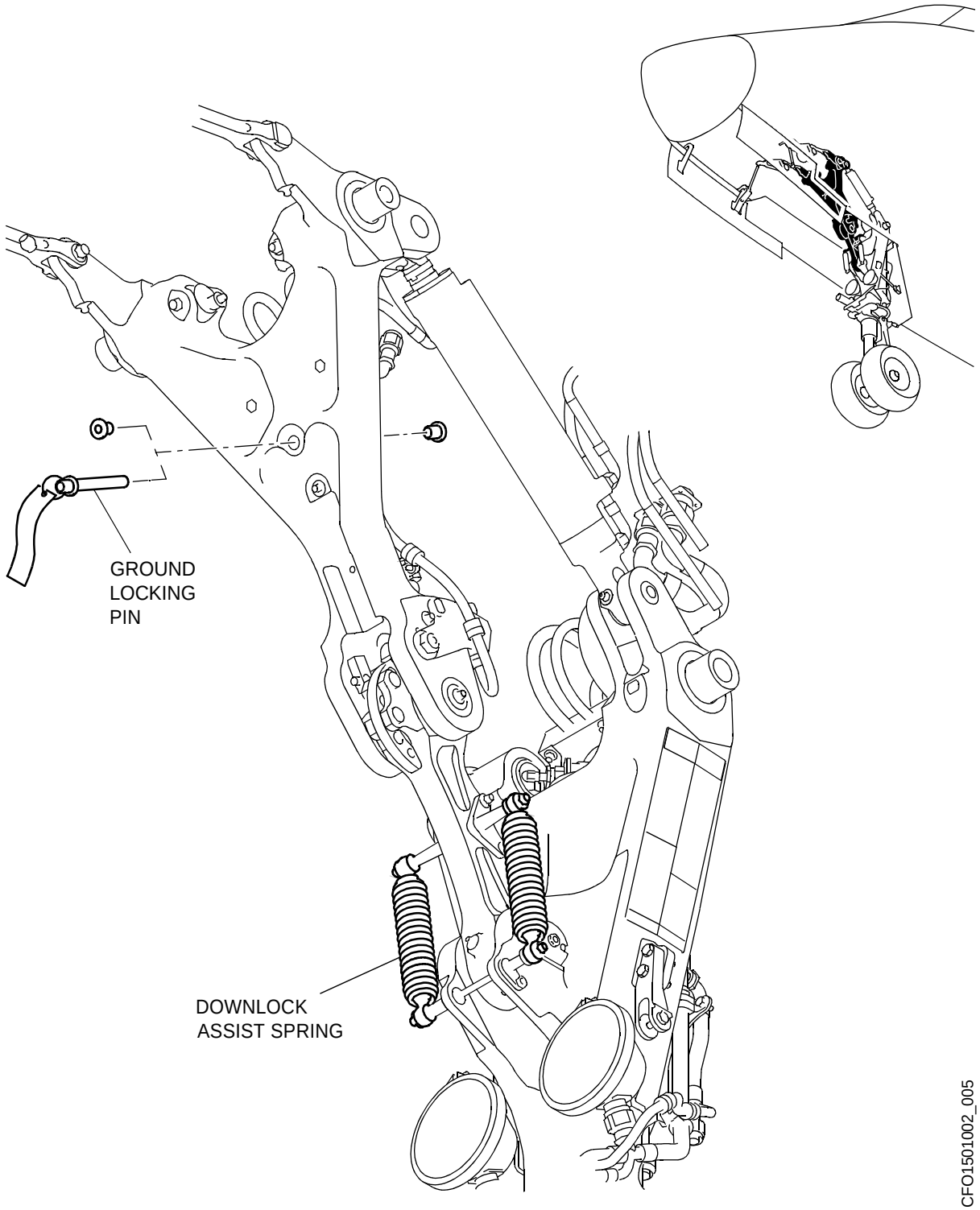
LANDING GEAR (Cont)



LANDING GEAR (Cont)

NOSE GEAR DOWNLOCK SAFETY PIN

A downlock safety pin, within the drag brace assembly, secures the nose landing gear in position while on ground.



LANDING GEAR (CONT)

NORMAL EXTENSION AND RETRACTION

Normal retraction and extension of the landing gear is initiated by selecting the landing gear switch UP or DN. The retraction or extension signal is sent to the PSS which monitors various landing gear proximity sensors and weight on wheels (WOW) inputs. If the correct parameters are met, the proximity system electronic unit (PSEU) energizes the selector valve to retract or extend the landing gear using the left hydraulic system.

GEAR EXTENSION

During gear extension, the NLG extends rearward and the MLG extends outward.

When the landing gear switch is manually selected to the DN position, the PSEU commands and monitors the following events:

- Landing gear selector valve is energized to direct hydraulic fluid to release the MLG uplocks and the nose over-center mechanism, extending the landing gear
- NLG and MLG downlocks are hydraulically and mechanically engaged to secure the landing gear in the extended position.

GEAR RETRACTION

During retraction, the nose gear retracts forward and the main gear retracts inward.

During landing gear retraction (no WOW signal), the PSEU commands and monitors the following events:

- Landing gear selector valve is energized to direct hydraulic fluid to release the respective downlocks and retract the NLG and MLG. The brake control unit (BCU) commands a brake pressure of 350 psi for four seconds during gear retraction to ensure the main wheels have stopped spinning as they enter the MLG bay.
- When the gear is fully up, uplocks for the MLG are engaged mechanically. The uplock mechanism consists of a housing bolted to the airframe structure containing a latch lever and hook that engages a roller attached to the steering cuff of the landing gear. The hook holds the NLG in the retracted position.
- A restrictor is located in the aft of the NLG wheel well. This restrictor is installed in the up hydraulic line. When the landing gear selector handle is selected UP, this restrictor will decrease hydraulic fluid flow which decreases the retraction speed and allows the NLG to retract smoothly and with less noise.

LANDING GEAR (Cont)

MANUAL RELEASE SYSTEM (MRS)

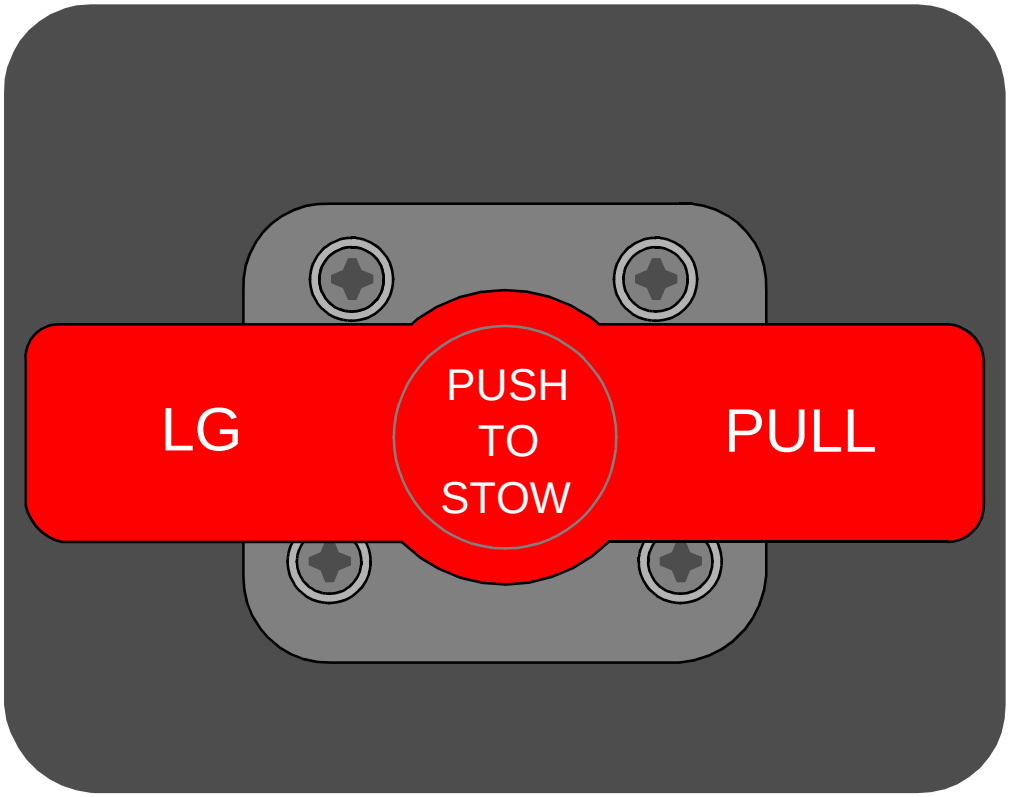
Should a failure occur with the landing gear control circuitry or the left hydraulic system, the manual release system is available to the crew as an alternate means to extend the landing gear. Upon release from the uplock, the nose landing gear will fully extend with the aid of gravity and spring forces, while the auxiliary extend actuators assist in the extension of the main landing gear.

The handle is located near the rear of the center pedestal on the copilot's side. When the manual release handle is operated by the aircrew, cable movement is transmitted through the main quadrant, by a closed loop cable assembly to the main landing gear quadrant, and MLG valve assemblies. The displacement of the spools on the two dump valves blocks the supply of hydraulic pressure and connects the downstream landing gear components via the return lines to the left hydraulic system reservoir and bypasses the landing gear actuators. The MLG quadrant operates the MLG uplock manual release levers via tension cables. Displacement of the uplocks releases the MLGs for gravity extension.

The manual selector valve, when activated by the MLG quadrant, admits pressure from the right hydraulic system (supported by an accumulator) to both auxiliary extend actuators to assist the main landing gear into downlock. The mechanical locks in the side brace actuator then engage and lock the gear down. During normal operation, the auxiliary extend actuators are bypassed to the right hydraulic system return and the piston moves freely as the landing gear extend and retract.

Manual release handle movement is transmitted from the main quadrant to the manual release lever on the NLG uplock. The uplock releases and the NLG extends to the down and locked position.

By moving the manual release handle to the stowed position the landing gear extension and retraction system is reset for normal operation. However, landing gear retraction will only be initiated when the landing gear handle is moved to the UP position. After an actual gear failure situation, the manual release handle should be stowed only after landing and the gear pins are installed.



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TIRES AND BRAKES

DESCRIPTION

The Challenger 300 uses dual wheel assemblies and brakes on each main landing gear. The speed limit of all tires is 182 kt.

The nose gear has two wheels and uses chine tires to eject the ground water away from the aircraft engines.

To prevent tire burst, each main wheel has four heat sensitive fusible plugs. They melt when heat buildup in the wheel/tire assembly exceeds a preset value, permitting the tire to deflate safely.

The PARK/EMER BRAKE handle, located on center pedestal, is controlled from within the flight compartment. Anti-skid is not available when utilizing emergency brakes.

Wheel and brake overheat protection is provided by the MLG bay overheat detection system and indicated by CAS messages.

COMPONENTS AND OPERATION

Each wheel of the main landing gear is equipped with self-adjusting multidisc carbon brakes that provide stable braking control under all operating conditions.

The brake control system is partitioned into two separate braking channels. One channel controls the braking and anti-skid operation for the inboard wheels while the second controls the outboard wheels. Each braking channel is powered by an independent hydraulic system and an independent electrical power source. The brake control system provides brake pressure application, antiskid protection, touchdown protection, locked wheel crossover protection, gear retract braking and pressure control functions.

The system is armed when the landing gear is selected down or when ground mode is detected, by energizing the inboard and outboard shutoff valves, permitting hydraulic pressure to reach the inboard and outboard brake control valves. Ground mode is established by confirmation of either left or right weight on wheels inputs from the proximity sensors that indicates ground for more than 5 seconds or when wheel spin-up of greater than 50 kts is achieved. Full braking authority and differential braking is available to both the pilot and copilot. The brake control unit (BCU) uses the greater input of the two for the pedal brake command. The system provides low initial pressure gain to provide suitable pedal force to brake torque characteristics for adequate directional control during taxi.

Each braked wheel is fitted with a wheel speed transducer. The BCU monitors the wheel speed transducers to provide independent ant-skid protection down to 10 kts to each of the main wheels and to determine wheel speed thresholds for spin-up override and locked wheel crossover protection. The BCU also uses the wheel speed transducers to provide wheel speed outputs for spoiler and thrust reverser deployment.

The BCU commands a brake pressure of 350 psi for 4 seconds during gear retraction to ensure the main wheels have stopped spinning as they enter the main landing gear bay.

The shutoff valves hydraulically disarm the BCS by removing hydraulic pressure to the brake control valves during flight when the following requirements have been met:

- Weight-off -wheel on both main landing gears
- Landing gear handle is up
- Wheel speeds and velocity reference equal zero

Two brake wear indicator pins installed on each brake assembly provide a visual indication of brake wear. Before conducting the visual indication of the brake wear indicator pins, the parking brake must be set. Service the brakes when the end of the wear indicator pin is flush with the top of the indicator housing.

NOTE: The brake wear indicator pins must be checked with the brakes applied and the left and right hydraulic systems pressurized.

TIRES AND BRAKES (Cont)

PARK/EMER BRAKE

The aircraft is equipped with an emergency/parking brake system for parking or braking the aircraft when the normal brakes are inoperative. The PARK/EMER BRAKE handle, when set will prevent the aircraft from rolling.

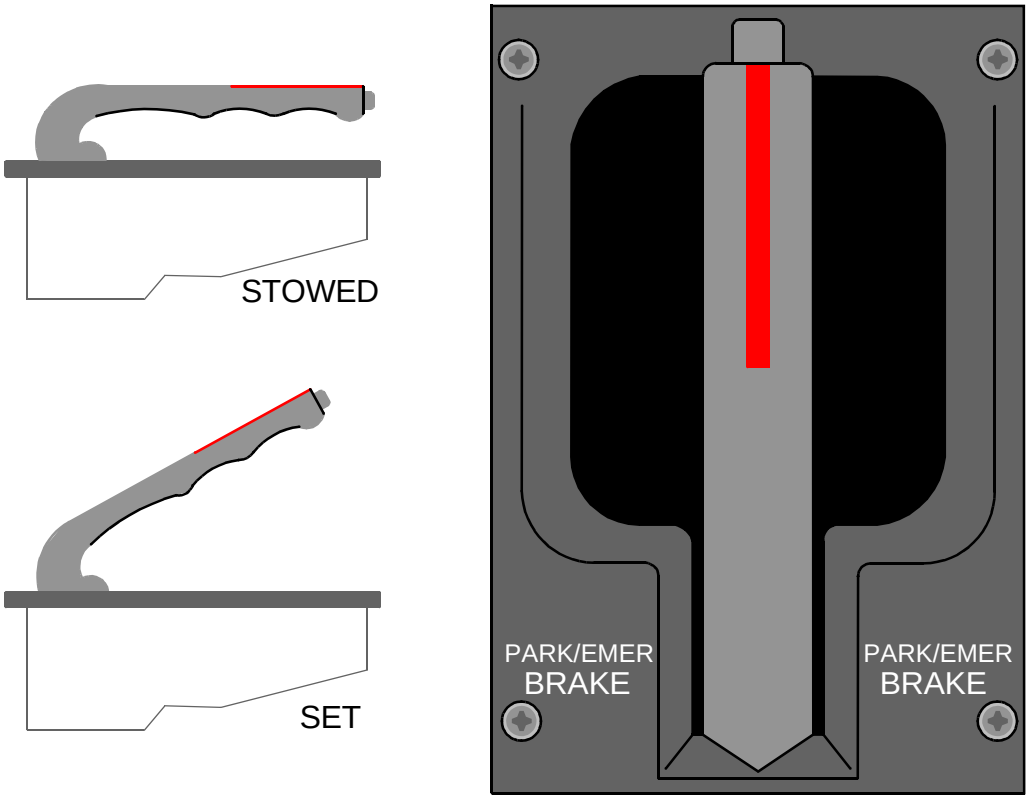
The emergency/parking brake control system is a hydro-mechanical system controlled by the PARK/EMER BRAKE handle mounted on the cockpit center pedestal. The PARK/EMER BRAKE handle increases brake pressure when pulled up and decreases brake pressure when allowed to return down. The park brake function is initiated by pulling the handle up until it latches. The handle is released from this position by pulling up, pushing and holding the button on the end, and allowing the handle to retract down.

The emergency/parking brake valve meters hydraulic system pressure to all four main wheel brakes as commanded by the flight crew through the handle. Hydraulic pressure from the emergency/parking brake valve is connected to each of the main wheel brakes by shuttle valves. Differential braking is not possible with PARK/EMER BRAKE handle, and does not provide anti-skid protection.

To prevent hydraulic fluid migration from the right system to the left system, setting and releasing the PARK/EMER BRAKE must be done in a specific sequence. If the toe brake pedals are depressed prior to setting the PARK/EMER brake, then the toe brake pedals should be depressed again prior to releasing the PARK/EMER BRAKE. If this sequence is not followed, eventually the left hydraulic system will become over-full and the right hydraulic system will be low. The reason for this is that if the toe brake pedals are depressed and then the PARK/EMER BRAKE is set, hydraulic fluid from the right system is used to pressurize the outboard brakes. If the toe brakes are released and then the PARK/EMER BRAKE is released, the trapped hydraulic fluid will return to the left hydraulic system.

The accumulator in the left hydraulic system allows extended parking, or at least six emergency brake pressure applications. Accumulator pressure information is provided to the flight crew by a pressure transducer.

The EICAS indicates normal parking brake engagement or any fault detected in the form of a visual/or aural message.



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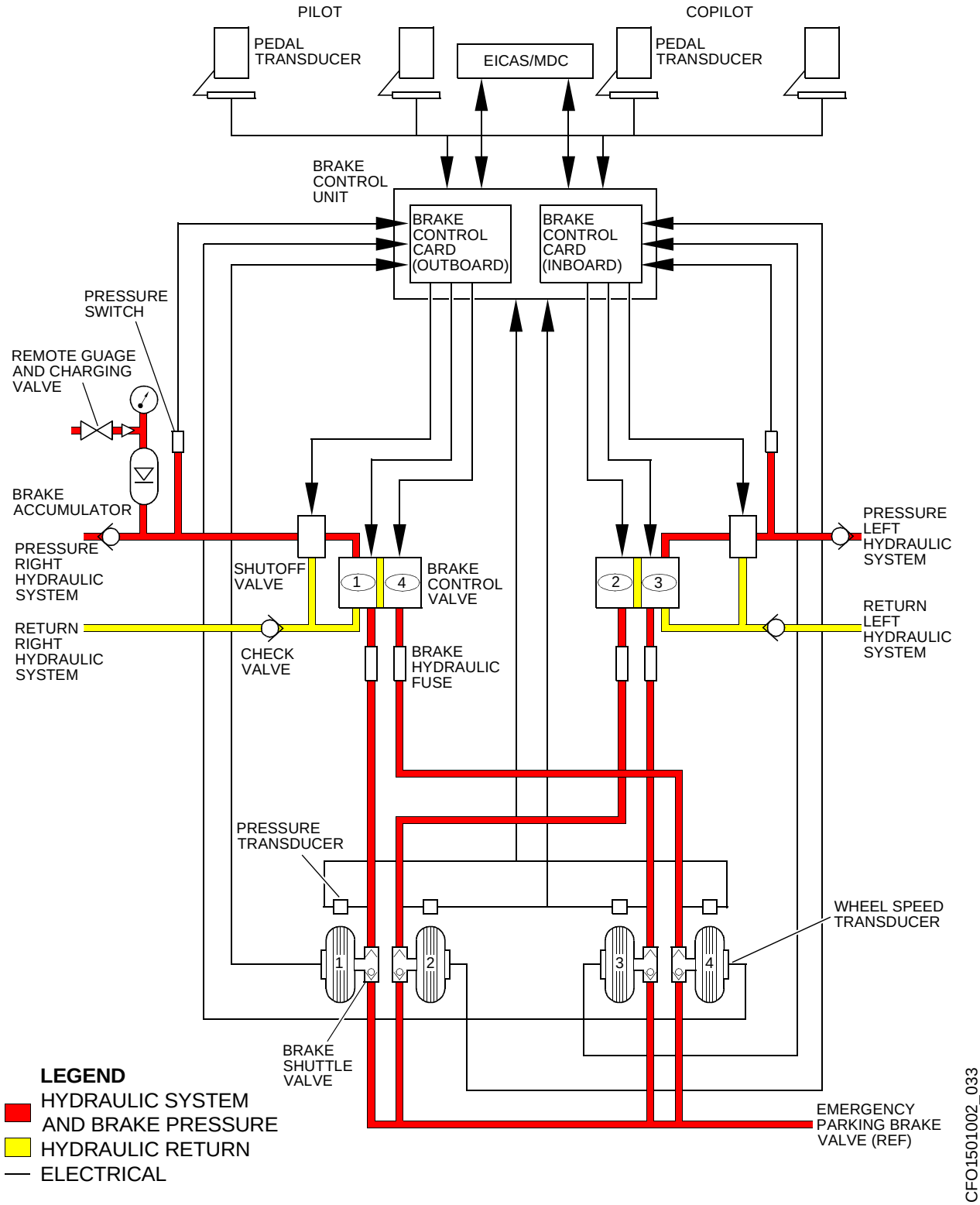
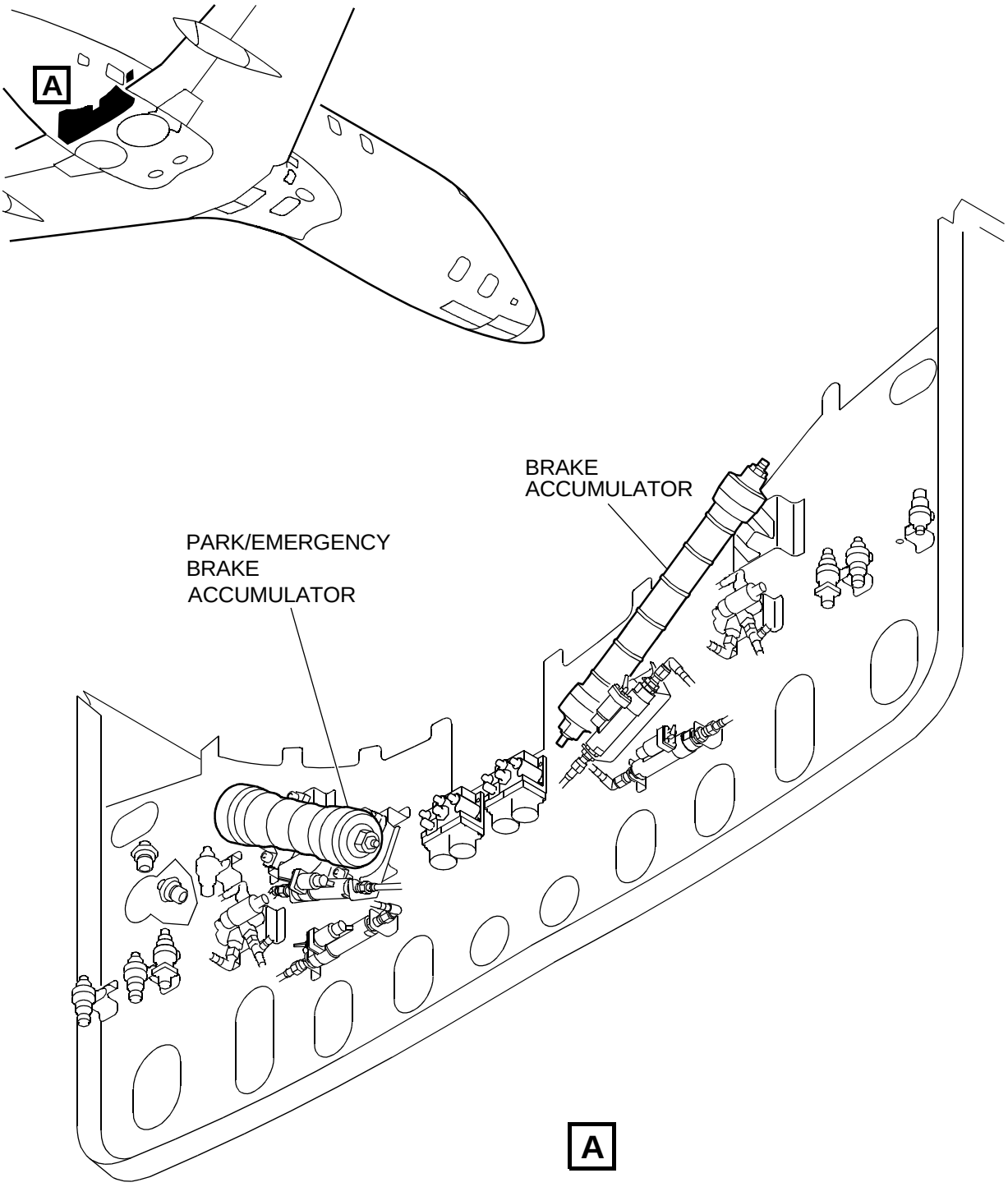
TIRES AND BRAKES (Cont)

BRAKE CONTROL SYSTEM



MAIN AND PARK/EMER BRAKE ACCUMULATORS

The main and park/emergency brake accumulators are located on the aft side of the underwing fairing support frame. The parking/emergency brake accumulator is connected to a gauge and charge valve that is located in the rear fuselage battery compartment.



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TIRES AND BRAKES (Cont)

ANTI-SKID

DESCRIPTION

The anti-skid function controls brake pressure to prevent skids.The brake control unit provides antiskid protection down to 10 kts to each of the main wheels. Rotation speed of each wheel and its rate of deceleration are sensed by the wheel speed transducers and this data is transmitted to the brake control unit. The brake control unit modulates the hydraulic pressure at the brake to prevent wheel lockup.

The system prevents lockup by comparing the speed of each wheel installed on the same landing gear assembly. It also compares the speed between each wheel of the same brake system, outboard or inboard. For example, if the right inboard wheel rotates at a significantly slower speed than the left inboard, the brake control unit releases the brake on the slower turning wheel. When both paired wheels return to the same speed, the brake control unit reapplies brake pressure.

NOSEWHEEL STEERING

DESCRIPTION

The nosewheel steering is designed to provide safe and reliable directional control of the aircraft during all phases of taxi, takeoff and landing. The nosewheel steering provides electrically controlled and hydraulically powered actuation of the nose landing gear steering actuator mounted on the nose gear assembly. When the nosewheel steering is not armed, or under failure conditions, the system continues to provide effective damping to ensure dynamic stability of the nose landing gear.

The Nosewheel Steering System (NWS) is armed by selecting the NWS switch on. The NWS switch is located on the LANDING GEAR control panel and is illuminated when it is in the OFF position. Steering commands are input to the steering control unit (SCU) through the pilot handwheel (full authority, ±65° at the nose wheel) and/or through the rudder pedals (limited authority, ±7° at the nose wheel). Position feedback is provided to the SCU from a position transducer on the NLG. There is no mechanical connection between the flight deck controls and the steering actuators. Nosewheel steering commands are transmitted electronically using “steer-by-wire” technology.

COMPONENTS AND OPERATION

STEERING CONTROL UNIT

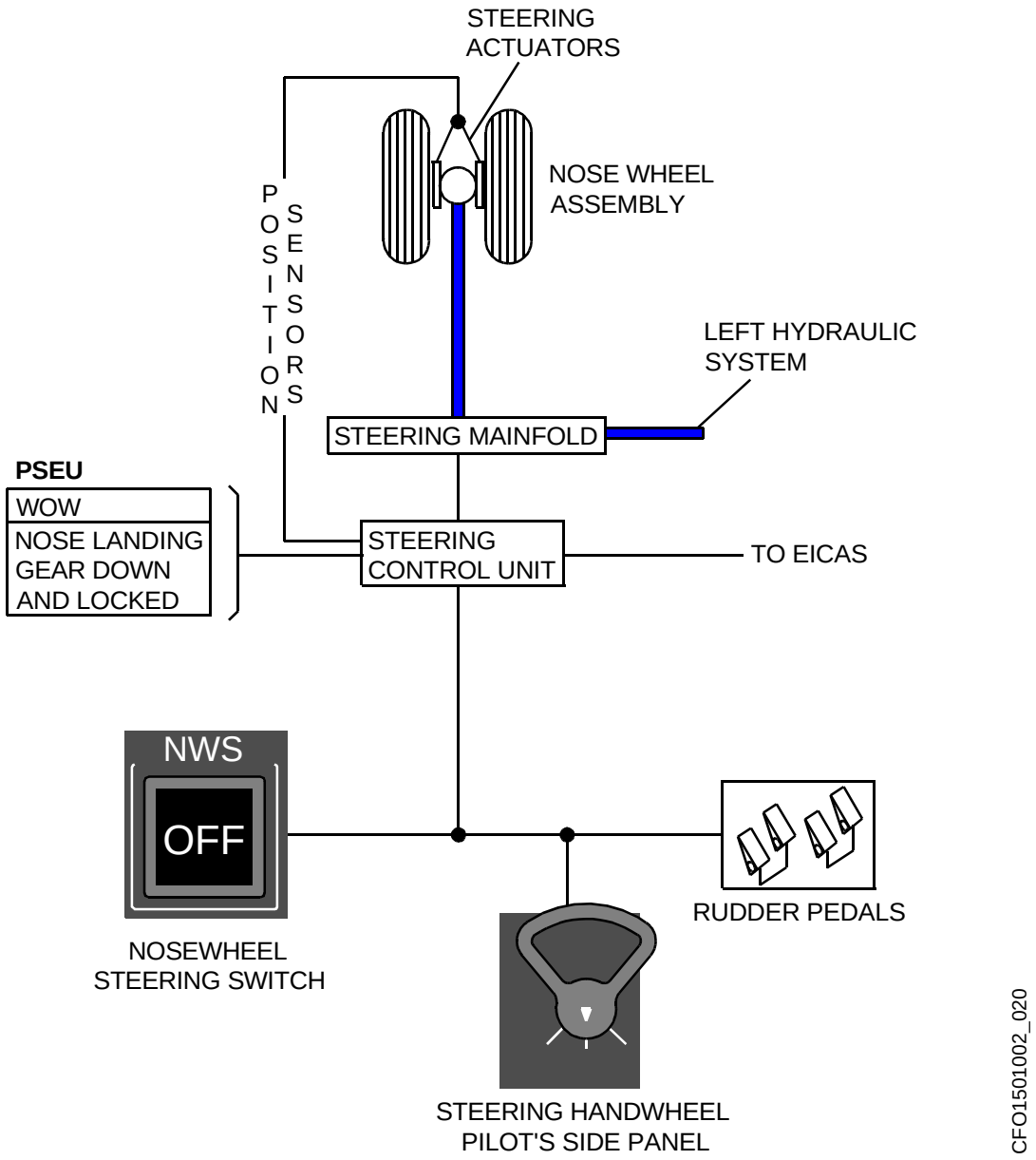
The steering control unit (SCU) controls the electro-hydraulic steering valve to port hydraulic fluid to either end of the steering actuator to turn the nose gear. Hydraulic pressure will move the rack, which in turn engages and rotates the pinion gear on the steering cuff. Mechanical torque links transmit the movement of the steering cuff to the nose landing gear axle. Nosewheel feedback is sent to the SCU from transducers mounted on the steering actuator. The SCU continuously monitors the NWS. Fault detection results in steering system shutdown. Any faults detected are annunciated as CAS messages. When the steering system is shutdown or disarmed, the SCU reverts the nosewheel steering to free-castering mode.

WARNING: - Prior to taxi, ensure that the nosewheel assembly is clear of personnel and towing equipment before selecting the nosewheel steering to the on position.

The system is operable when:

- Left hydraulic system is pressurized
- Nose landing gear is down
- The locked and a weight-on-wheels signal is present
- NWS selected on

STEERING CONTROL SYSTEM



LANDING GEAR INDICATIONS

The EICAS landing gear indications provide the pilots increased situational awareness regarding the position and condition of the landing gear.

LANDING GEAR DOWNLOCKED "SAFE":

ONE OF THE TWO REDUNDANT DOWNLOCK SENSORS DETECTS THAT THE GEAR IS DOWN AND LOCKED

LANDING GEAR UP:

UPLOCK SENSOR DETECTS GEAR UP AND BOTH DOWNLOCK SENSORS DETECT GEAR NOT DOWNLOCKED

GEAR UP AND NO GEAR WARNING AND EITHER NO GEAR DISAGREE OR GEAR DISAGREE WITH HANDLE UP

GEAR UP AND NO GEAR WARNING AND GEAR DISAGREE AND GEAR HANDLE NOT UP

GEAR UP AND GEAR WARNING

LANDING GEAR IN TRANSIT:

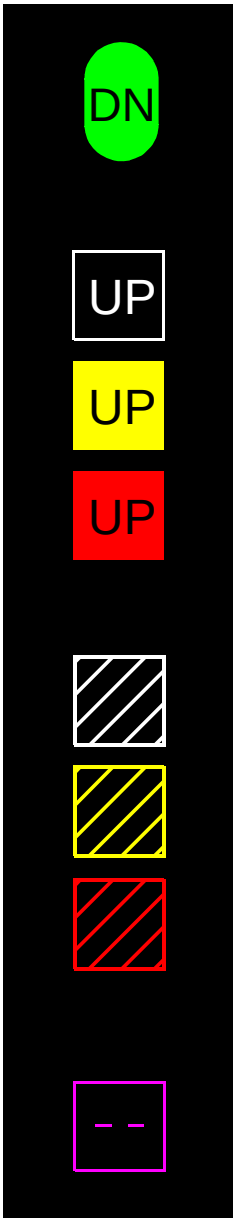
UPLOCK AND DOWNLOCK SENSORS DETECT GEAR IS NOT LOCKED

GEAR IN TRANSIT AND NO GEAR DISAGREE AND NO GEAR WARNING

GEAR IN TRANSIT AND GEAR DISAGREE AND NO GEAR WARNING

GEAR IN TRANSIT AND GEAR WARNING

DATA FROM BOTH PSS SUBSYSTEMS NOT AVAILABLE OR INVALID



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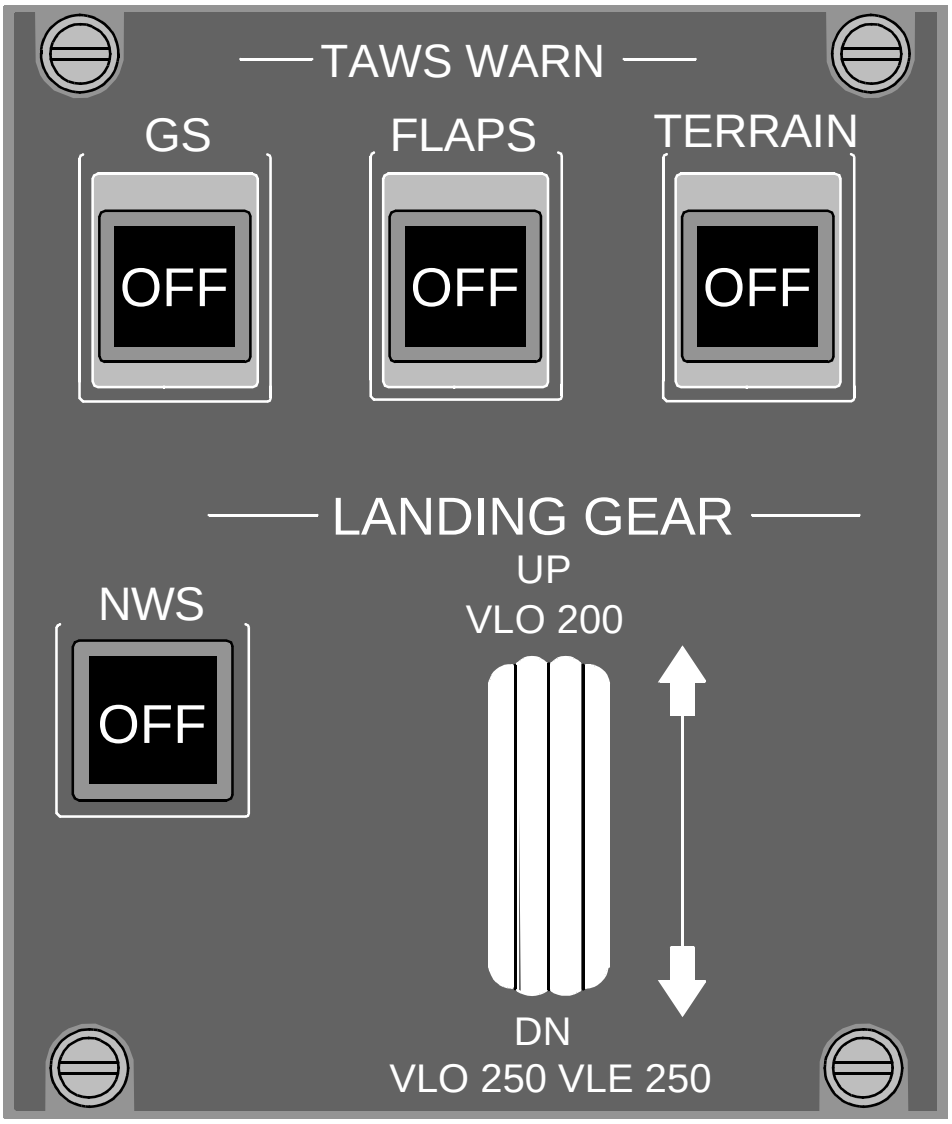
CONTROLS AND INDICATIONS

DESCRIPTION

Flight deck controls activate normal gear extension and retraction, emergency extension, nosewheel steering, and warning horn mute.

The EICAS presents indications of landing gear operation.



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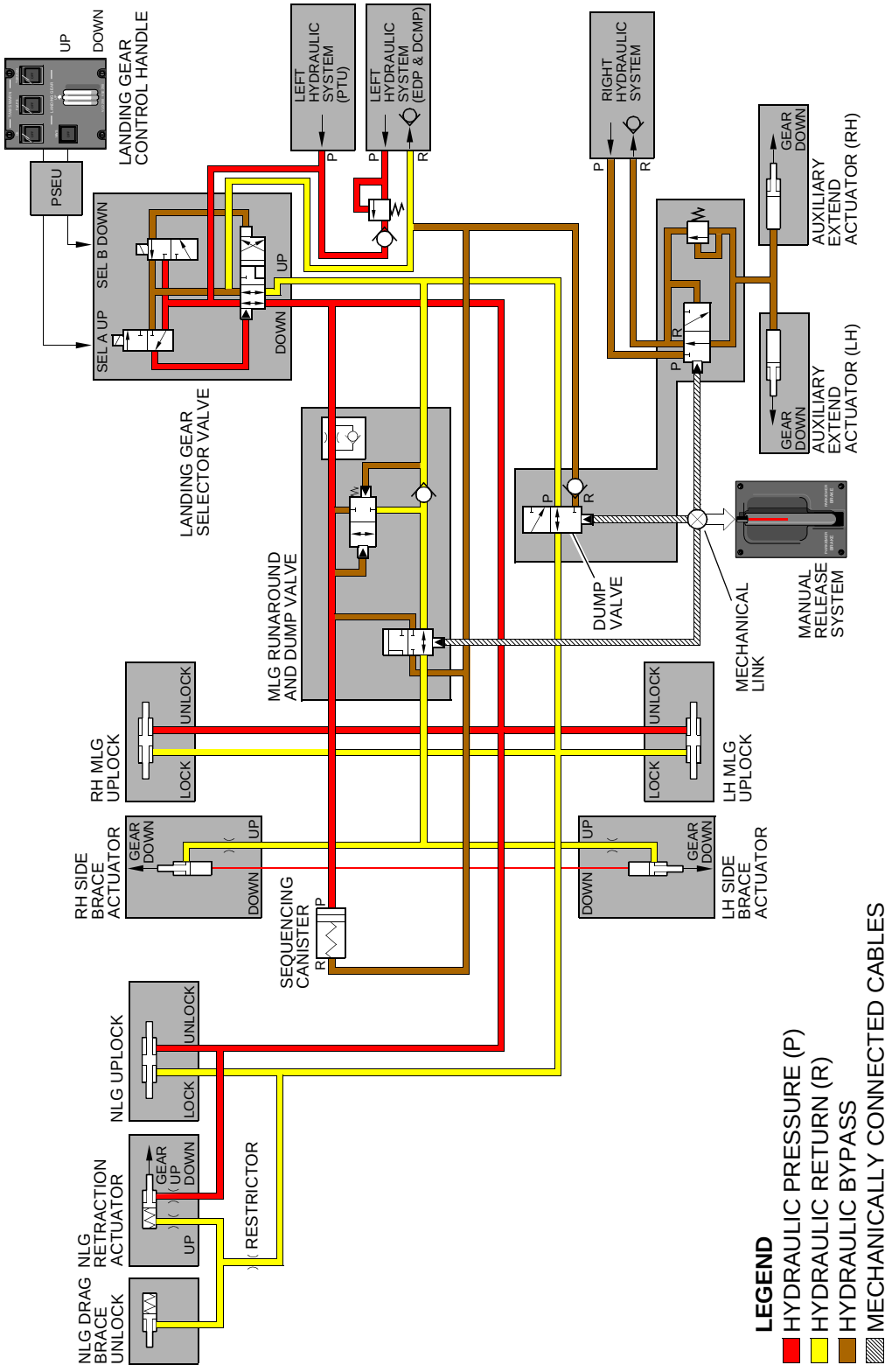
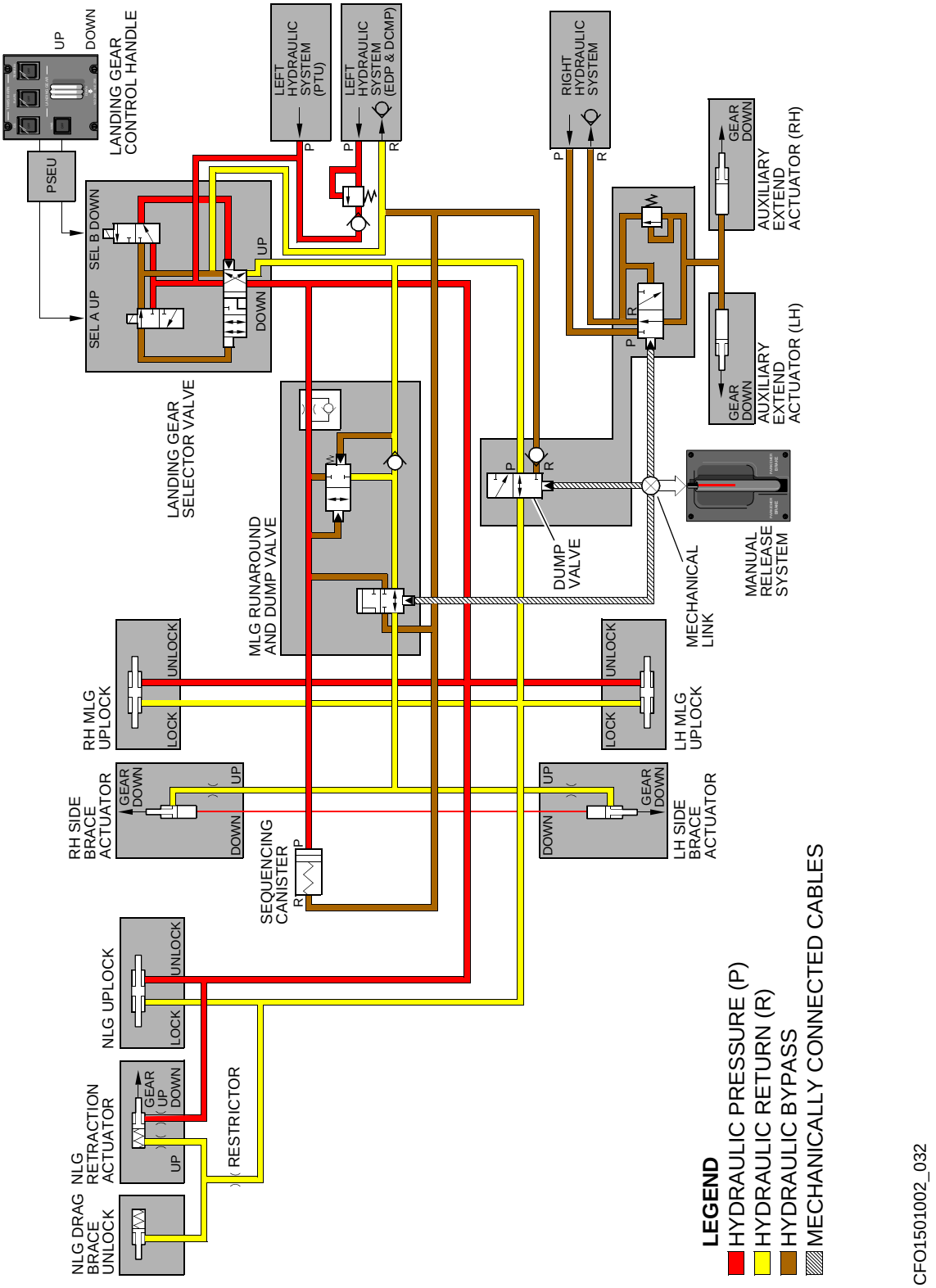
CONTROLS AND INDICATIONS (Cont)

LANDING GEAR (UP)



CONTROLS AND INDICATIONS (Cont)

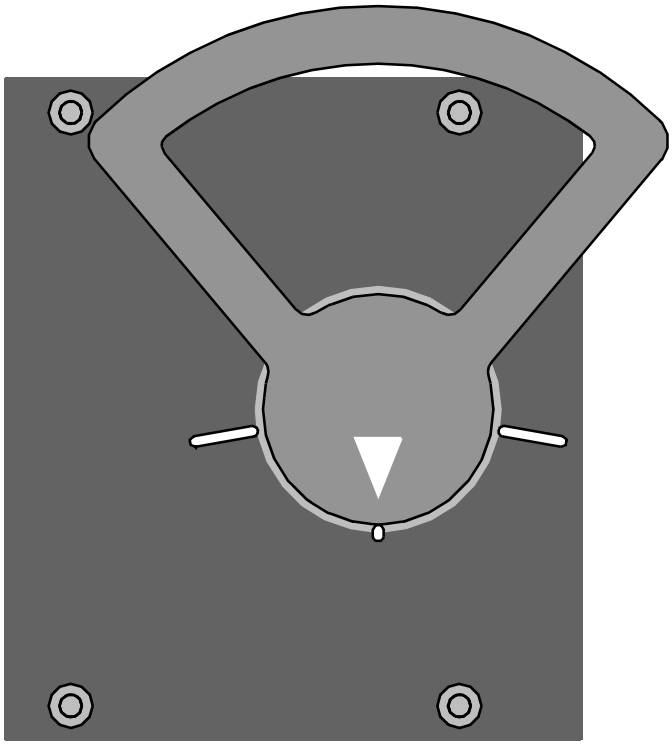
LANDING GEAR (DOWN)



CONTROLS AND INDICATIONS (Cont)

NWS SWITCH

NOSEWHEEL STEERING TILLER



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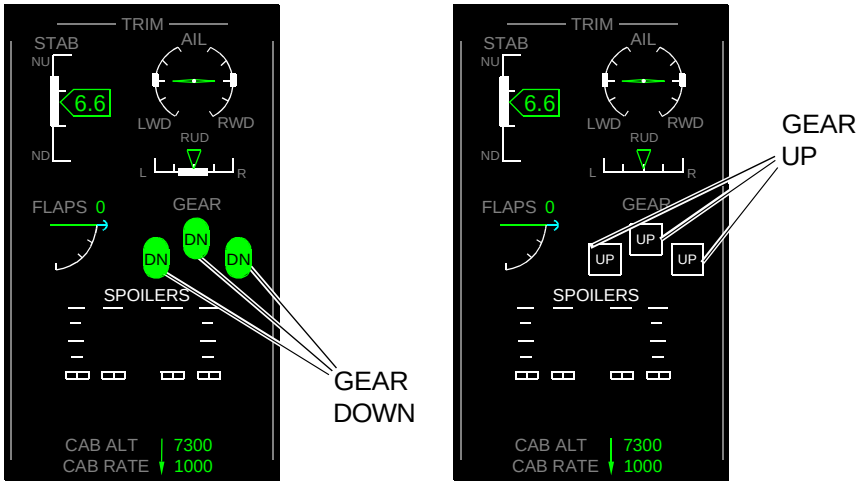
LANDING GEAR INDICATION

In flight, landing gear position indication is provided on the EICAS.



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EICAS MESSAGES

The landing gear system messages are shown on the EICAS. In the table below, the landing gear system messages, inhibits and aural warnings are listed. A brief explanation of each message is provided.

MESSAGE	INHIBITS	MEANING	AURAL WARNING
GEAR		The GEAR CAS will be accompanied by a gear icon on the MFD for each gear that is not down and locked	"Gear"
GEAR BAY OVHT	TO/LAND	An overheat condition has been detected in the main landing gear bays	
NORM BRAKES FAIL	TO	The NORM BRAKES FAIL CAS indicates that all normal brakes have failed.	"Normal brakes fail"
BRAKE FAULT	TO	One or both pairs (inboard and/or outboard) of the brake pressure transducers has failed	
CPLT BRAKE FAULT	TO	One or more of the copilot's brake pedal sensors (LVDTs) has failed	
GEAR DISAGREE		This indicates that the landing gear position and the LANDING GEAR switch position do not match after the 28 second delay	
GEAR SYS FAIL	TO	This indicates a complete failure of the gear control or the loss of the ARINC 429 signal from both channels. There is a potential for the loss of gear, door and/or spoiler indications	
L (R) INBD BRAKE FAIL	TO	The respective (left or right but not both) inboard normal system brake has failed	
INBD BRAKE PRESS LO	TO	The INBD brake accumulator pressure is less than 1400 psi	
INBD BRAKES FAIL	TO	Both inboard normal system brakes failed	
NOSE GEAR DOOR	TO/LAND	The nose gear doors are not closed and the nose gear is up	
NWS FAIL		The nose wheel steering system has failed. In the event the nose wheel steering system malfunctions, internal monitors should disconnect the system allowing the nose wheels to castor	
NWS LIMIT EXCEEDED		The nose wheel steering turning limit has been exceeded. There may be damage to the NLG feedback link	
L (R) OUTBD BRAKE FAIL	TO	The respective (left or right but not both) outboard normal system brake has failed	

EICAS MESSAGES (Cont)

MESSAGE	INHIBITS	MEANING	AURAL WARNING
OUTBD BRAKE PRESS LO	TO	The OUTBD brake accumulator pressure is less than 1400 psi	
OUTBD BRAKES FAIL	TO	Left and right outboard normal system brakes have failed	
PARK/EMER BRAKE ON	TO	Park brake pressure is sensed with weight-off-wheels. Do not cycle handle more than one time	
PK/EMER BRK PRESS LO	TO	The INBD brake accumulator pressure is too low for full PARK/EMER brake performance (below 1200 psi). Normal brakes should function properly	
PLT BRAKE FAULT	TO	One or more of the pilot's brake pedal sensors (LVDTs) has failed	
WOW FAIL	TO	One or more of the following conditions exist: - Failures have been detected in two or more Weight On Wheels (WOW) sensors - Any disagreement or hardware failure of one or more WOW outputs associated with a critical function	
BRAKE FAULT	TO/LAND	A minor brake system fault has occurred that does not affect brake performance. A subsequent brake failure could cause uncommanded braking	
NWS FAULT	TO/LAND	The nose wheel steering selector valve is open. The system will operate normally	
PROX SYS FAULT	TO/LAND	This indicates a failure in the proximity sensor channel or the loss of the signal from one of the channels	
NWS OFF		The nose wheel steering has been selected OFF	
PARK/EMER BRAKE ON		Park brake pressure is sensed while on the ground	