ADVISORY WIRE

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REFERENCE NO:	AW300-32-0136, Rev. 1	INFORMATION TYPE:	Maintenance Operational
ATA:	32-44	EFFECTIVITY:	Challenger 300 (20003 – 20999)

SUBJECT: **Parking Brake Pressure Depletion**

1. INTRODUCTION:

This Advisory Wire revision is to inform Operators that the investigation regarding the parking brake pressure depletion condition reported in the initial release of this Advisory Wire is complete.

2. DESCRIPTION:

Some Operators have reported having the PK/EMER BRK PRESS LO Caution message posted within a few minutes of setting the Parking Brake. The INBD BRAKE PRESS LO and OUTB BRAKE PRESS LO CAS messages can also be posted.

Our investigation into this issue revealed that when the Parking Brake is set, the hydraulic pressure can deplete through the Brake Control Valve (BCV) if the electrical power is ON and the left hydraulic system is not pressurized. In this condition, the Brake Shut Off Valve (BSOV) is energized in the open position allowing the hydraulic pressure to deplete due to the BCV inherent internal fluid leakage. When the electrical power is selected Off, the BSOV de-energizes in the closed position trapping the emergency/parking brake accumulator pressure which permits extended parking brake time.

To resolve this situation, a software change was introduced in the Brake Control Unit (BCU). To prevent the pressure from being depleted quickly through the BCV, the new logic will de-energize and shut the BSOV: whenever the wheel speed is zero, brake pedal LVDT is less than 7% and WOW is true. The new BCU software also introduces an improved BCV fault validation that will reduce brake failures and unnecessary removals of BCV.

The improved BCU P/N142-045-2 is available on attrition and listed in the IPC and installed on production from aircraft 20457 and up. Our BCU inventory has been upgraded to incorporate the changes. The software will be loaded on all BCU returned for repair.

3. ACTION:

Operators should be aware that parking brake pressure could deplete rapidly in the condition described above. In no circumstances should the aircraft should be left unattended on the ramp or the hangar without wheel chocks being installed.

To maintain the Parking Brake pressure with the electrical power ON and left Hydraulic System Off, the BSOV can be de-energized in the close position by pulling the Inboard Brakes circuit breaker. In this case, the INBD BRAKE FAIL (AMBER) CAS message will be posted.

There are no actions for Operators to take regarding the BCU. The new units are available through attrition. Aircraft equipped with BCU P/N142-045-2 do not require pulling the Inboard Brakes circuit breaker to hold the parking brake pressure when the electrical power is ON and the left hydraulic system is not pressurized.

As a reminder, a parking brake pressure depletion caused by a BCV inherent internal fluid leakage is not a reason for removal and Smartfix Plus procedures should be followed to accurately identify the faulty component, if any.