BOMBARDIER

Toronto Site

PROPRIETARY INFORMATION

PPS 13.09

PRODUCTION PROCESS STANDARD

INSTALLATION AND REMOVAL OF AIRCRAFT TIRES

Issue 17
- This standard supersedes PPS 13.09, Issue 16.
- Vertical lines in the left hand margin indicate technical changes over the previous issue.
- Direct PPS related questions to christie.chung@aero.bombardier.com or (416) 375-7641.
- This PPS is effective as of the distribution date.

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1 SCOPE

1.1 This Production Process Standard (PPS) specifies the procedure and requirements for the installation and removal of aircraft tires (split-wheel assemblies).

1.1.1 This PPS complements the engineering drawings that specify its use as an authorized instruction. The procedure specified in this PPS shall be followed to ensure compliance with all applicable specifications. In general, if this PPS conflicts with the engineering drawing, follow the engineering drawing. The requirements specified in this PPS are necessary to fulfil the engineering design and reliability objectives.

1.1.2 Refer to PPS 13.26 for the subcontractor provisions applicable to this PPS.

1.1.3 Procedure or requirements specified in a Bombardier BAPS, MPS, LES or P. Spec. do not supersede the procedure or requirements specified in this PPS. Similarly, the procedure and requirements specified in this PPS are not applicable when use of a BAPS, MPS, LES or P. Spec. is specified.

2 HAZARDOUS MATERIALS

2.1 Before receipt at Bombardier Toronto, all materials shall be approved and assigned Material Safety Data Sheet (MSDS) numbers by the Bombardier Toronto Environment, Health and Safety Department. Refer to the manufacturer's MSDS for specific safety data on any of the materials specified in this PPS. If the MSDS is not available, contact the Bombardier Toronto Environment, Health and Safety Department.

3 REFERENCES

3.1 PPS 13.26 - General Subcontractor Provisions.

3.2 PPS 14.01 - Torquing & Tightening.

3.3 PPS 31.17 - Solvent Usage.

4 MATERIALS AND EQUIPMENT

4.1 Materials

4.1.1 Enamel, polyurethane, white, to DHMS C4.04.

4.1.2 Grease, to MIL-G-81322 or MIL-S-8660.

4.1.3 Thread compound, to MIL-T-5544.

4.1.4 French chalk or commercial talcum powder.

4.1.5 Compressed nitrogen, filtered, dry.

4.1.6 Red lacquer, cellulose nitrate; pigmented (Finish Code F2), to A-A-3165.

4.1.7 Soap solution for checking tire leaks.

4.1.8 Lubricant, petrolatum (e.g., Vaseline).

4.2 Equipment

4.2.1 Valve tools, core key, deflator cap, broken valve remover and tube valve finishing tool.

4.2.2 Valve extension, Schrader screw-on fitting and extension hose, pressure gauge.

4.2.3 Safety cage, Alberth Aviation Tire Cage TC36, equipped with 200 maximum psi adjustable pressure regulator and gauge fixed to the top.

4.2.4 Tire bead-breaker tool, Rockwell Tire Changer #F2A, serial no. 720.

4.2.5 Wheel clamping tool, #83210001-057-96.

4.2.6 Marker, water soluble, Project 91 or 440.

5 PROCEDURE

5.1 General

5.1.1 Tires are marked at their lightest point with a red spot on the sidewall.

5.1.2 Vent holes exist in the tire sidewall to relieve pressure build-up in the tire carcass. These vent holes are regularly spaced every few inches and are marked with coloured spots, usually white, aluminum or green.

5.1.3 Tubes are marked at their heavy point with a yellow stripe or similar marking. If there is no heavy-point marking, consider the tube valve to be at the heavy point.

5.1.4 In some split-wheel assemblies, the light point of each wheel half is indicated with an “L” symbol stamped on the flange.

5.1.5 Unless otherwise specified on the engineering drawing, inflate tires to the pressure specified in Table II, according to this PPS, using dry pressurized, filtered nitrogen gas.

5.1.6 If specified on the engineering drawing, install tire fill valve gauges according to section 5.2.4.

5.1.7 Perform any specified torquing according to PPS 14.01.

5.2 Preparation of Parts

5.2.1 Wheels

5.2.1.1 For tubeless tire installations, solvent wipe the bead seat areas and O-ring seat areas of the wheel halves according to PPS 31.17.

5.2.2 Tubeless Tires and O-Rings

5.2.2.1 Prepare tubeless tires and O-rings for installation as follows:

Step 1. Ensure that the inside surface of the tire is free of dirt and foreign matter.

Step 2. Inspect the bead area for damage.

Step 3. Solvent wipe the bead according to PPS 31.17.

Step 4. Lubricate the O-ring seal with a light coating of grease (see paragraph 4.1.2) and carefully install the O-ring in the retaining groove on the applicable wheel half, taking care not to twist or stretch the seal.

Step 5. Check that the valve locking nut is secure.

5.2.3 Tube and Tire Assemblies

5.2.3.1 Prepare tube and tire assemblies for installation as follows:

Step 1. Ensure that the inside surface of the tire is free of dirt and foreign matter and inspect the tire for damage.

Step 2. Uniformly sprinkle French chalk or commercial talc onto the inside of the tire.

Step 3. Insert the tube into the tire, with the yellow stripe (or valve if there is no heavy-point marking) adjacent to the red balance spot (light-point marking) on the tire. Partially inflate the tube to round it out.

5.2.4 Fill Valve Gauge

5.2.4.1 Only if specified on the engineering drawing, install tire fill valve gauges as follows:

Step 1. Completely deflate the tire and remove the valve stem (see paragraph 7.3.1).

Step 2. Apply a thin coat of petrolatum (see paragraph 4.1.8) to the O-ring and screw in the tire fill valve gauge by hand (see Table I for appropriate valve gauge).

Step 3. Dry torque to 50 to 70 in-lbs.

Step 4. Perform duration leak testing according to section 5.5.

TABLE I - DASH 8 S400 FILL VALVE GAUGE DATA

TIRE SIZE	FILL VALVE GAUGE
22 x 6.50-10	GP10-126-89
32 x 8.8	GP10-126-227 (Green)
34 x 10.75-16	GP10-126-141 (Blue)

5.3 Mounting of Tires

5.3.1 Bead Lubrication

5.3.1.1 When mounting tubeless tires or tube/tire assemblies, the application of clean water to the bead is recommended to facilitate the mounting and seating of the bead to the wheel flange. Do not use oil, grease, soap, etc., for lubrication purposes, as this could result in eventual leakage or tire slippage.

5.3.2 Tubeless Tires

5.3.2.1 Place the tire on the wheel half containing the O-ring seal, being careful not to disturb the seal, with the red balance spot on the tire adjacent to the wheel valve.

5.3.2.1.1 For DASH 8 S400 tubeless tires, alignment of the red balance spot with the wheel valve is recommended but not mandatory.

5.3.2.2 Install the dust sleeves, where fitted, in the applicable wheel half.

5.3.2.3 Place the mating wheel half inside the tire and align the wheel halves in one of the following orientation:

- Always install wheels with an “L” symbol stamped on each flange in such a way that these symbols are positioned 180° apart, regardless of corresponding marks.
- When assembling wheels that do not have “L” symbols stamped on the flanges, align the corresponding marks applied at the time of disassembly (see Step 6 in paragraph 5.6.1).

5.3.2.4 If suitable, use a wheel clamping tool (see paragraph 4.2.5) to draw wheel halves together as follows:

Step 1. Insert the threaded rod of the tool through the centre of the hub of the outer wheel half so that it protrudes through the centre of the hub of the inner wheel half. Ensure that the padded side of the top plate of the tool seats evenly against the hub of the outer wheel half.

Step 2. Thread the base plate onto the protruding end of the rod until the padded side of the base plate seats evenly against the hub of the inner wheel half.

Step 3. If possible, use “T” handle alignment pins (approximately 3/8" diameter X 6" length) to align the bolt holes in the inner and outer wheel halves.

Step 4. Rotate the ball handle on the wheel clamping tool, until the wheel halves seat, taking care not to over-tighten.

5.3.2.5 Install the wheel bolts as follows:

Step 1. Install 4 wheel bolts (at 90° intervals), washers and nuts, ensuring the nuts are placed on the same half as the inflation valve stem end. If it is not suitable to use the wheel clamping tool according to paragraph 5.3.2.4, draw up evenly until the wheel halves seat. If lube-torque is specified, apply a light film thread compound (see paragraph 4.1.3) to the bearing surfaces of washers and nuts, under the bolt heads and to the threads of bolts before installation. If countersunk washers are used in order to accommodate the fillet radii on high strength bolts, ensure that the countersink is toward the head of the bolt. The threads of self-locking nuts shall allow engagement of the bolts by hand, but only up to the self-locking device. Discard any nuts that permit bolts to pass through the self-locking portion by hand tightening.

Step 2. Install the remaining bolts, washers and nuts and, if necessary, draw up.

Step 3. Torque the bolts in a criss-cross sequence to approximately 75% of the torque value stamped on the wheel rim or as specified on the engineering drawing.

Step 4. Apply final torque (according to PPS 14.01) to the values stamped on the wheel rim or as specified on the engineering drawing.

Step 5. Apply a torque witness stripe of red lacquer (see paragraph 4.1.6) to all torqued wheel nuts/bolts.

5.3.2.6 The threaded end of the bolt shall protrude beyond the nut at least 1/32" or 1-1/2 threads (see Figure 1).

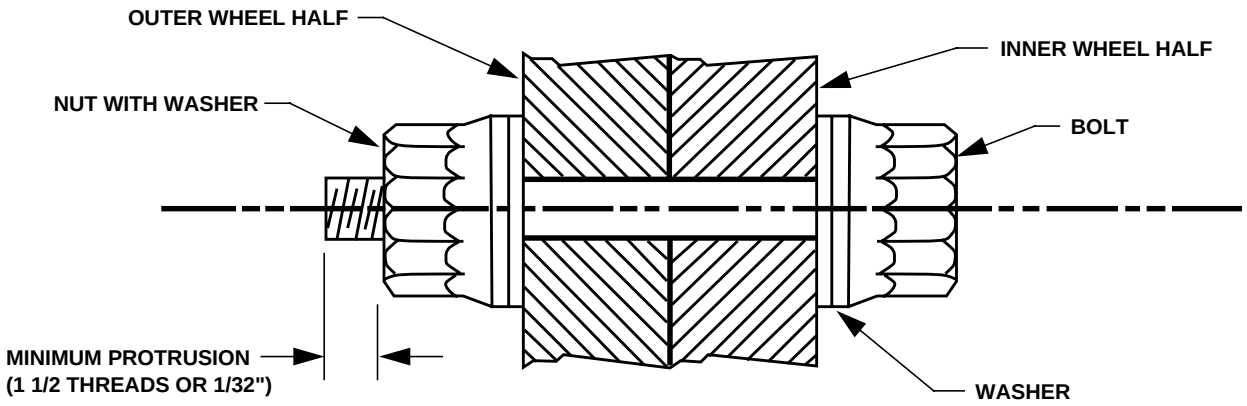


FIGURE 1 - WHEEL BOLT PROTRUSION REQUIREMENT

5.3.2.7 Install the tire valve core and valve stem extension (see paragraph 4.2.2) and enclose the tire assembly in the safety cage (see paragraph 4.2.3).

5.3.2.8 Using dry pressurized, filtered nitrogen through the safety cage regulator, inflate the tire to the operating pressure specified in Table II according to section 5.4.

5.3.2.8.1 If it is necessary to seat tire beads against wheel flanges, the valve core may be removed and a quick inflation surge-pressure (maximum of 50% above operating pressure) applied according to paragraph 5.3.2.8. At the moment the tire beads seat, immediately allow the tire to deflate and re-inflate it according to paragraph 5.3.2.7 and paragraph 5.3.2.8. Install the valve cap and firmly tighten using finger pressure.

5.3.2.8.2 Tires shall be enclosed in the safety cage at all times while being inflated.

5.3.2.9 After being inflated, check all tires for leakage according to section 5.5.

5.3.3 Tube and Tire Assemblies

5.3.3.1 Mount tube and tire assemblies as follows:

Step 1. Place the tire containing the inner tube on the wheel half that has the inflation valve hole, and then insert the valve stem through the hole in the wheel.

Step 2. Place the mating wheel half inside the tire and align the wheel halves using one of the following methods:

- Always assemble wheels with an “L” symbol stamped on each flange in such a way that these symbols are positioned 180° apart, regardless of corresponding marks.
- When assembling wheels that do not have “L” symbols stamped on the flanges, align the corresponding marks applied at the time of disassembly (see Step 6 in paragraph 5.6.1).

Step 3. If suitable, use a wheel clamping tool to draw wheel halves together according to paragraph 5.3.2.4.

Step 4. Install wheel bolts according to paragraph 5.3.2.5.

Step 5. Install the valve stem extension (see paragraph 4.2.2) and enclose the tire assembly in the safety cage (see paragraph 4.2.3).

Step 6. Ensuring that the tube is not trapped under the bead of the tire and is seated on both wheel flanges, inflate to the operating pressure specified in Table II, using dry pressurized, filtered nitrogen through the safety cage regulator according to section 5.4.

Step 7. After inflation, deflate the tire completely to equalize the distribution of the tube.

Step 8. Install the valve core and re-inflate the tire slowly, over a 5 minute period (to dispel trapped air), to the operating pressure specified in Table II. Install the valve cap and firmly tighten using finger pressure. Tires shall be enclosed in the safety cage at all times while being inflated.

Step 9. To enable the detection of tire slippage during braking, paint a slippage mark on one side of the tire and flange, or flange cover plate, using white polyurethane enamel (see paragraph 4.1.1). The mark shall be 1" in width and 2" in length, extending 1" across the tire sidewall and 1" across the flange rim.

5.3.3.2 After inflating and marking, check all tires for leakage according to section 5.5.

5.4 Tire Cage TC36 Operation

5.4.1 Operate tire cage TC36 as follows:

Step 1. Open lock plate by pulling lever to complete open position. Swing lock plate out away from tire cage lock blocks.

Step 2. Using grab handles, open primary and secondary doors.

Step 3. Ensure all residual pressure from the nitrogen line has been cleared (gauge should read zero).

Step 4. Attach nitrogen supply line from inside tire cage to tire/wheel assembly to be filled.

Step 5. Roll tire/wheel assembly into the tire cage leaving it in the upright position.

Step 6. Close primary and secondary doors.

Step 7. Swing lock plate into primary door lock blocks and pull lever to complete locked position.

Step 8. Attach shop regulated nitrogen source to Shrader fill port at far right side of gauge panel. Set the appropriate pressure as indicated in Table II.

Step 9. Gradually inflate the tire/wheel to the operating pressure as specified in Table II.

Step 10. When tire/wheel assembly has reached proper operating pressure, close the valve to the shop regulated nitrogen source and remove tire/wheel assembly from the tire cage.

Step 11. Ensure all residual pressure from the nitrogen line has been cleared (gauge should read zero).

5.4.2 Refer to the Alberth Aviation TC36 Owner's Manual for additional information.

FIGURE 2 - ALBERTH AVIATION TC36 TIRE CAGE

5.5 Duration Leak Testing (See Flow Chart 1)

5.5.1 Perform duration leak testing as follows:

Step 1. Inflate tires to the operating pressure as specified in Table II.

Step 2. Allow tires to stand undisturbed (on jacks/stands) for 3 hours.

Step 3. Check and record tire pressure. Perform one of the following depending on the outcome of the pressure check:

- If the measured tire pressure drops 0.5% or less of the inflation (operating) pressure, re-inflate the tire to the operating pressure and allow the tire to stand for 12 hours.
- If the measured tire pressure drops more than 0.5% of the inflation (operating) pressure, apply a soap solution to suspect areas and inspect for telltale bubbles. After check, wash off soap solution with clean water. Fix any leaks found and re-inflate tire to the operating pressure and allow the tire to stand for 12 hours.

Step 4. Re-check the tire pressure, if the pressure loss is 2.5% or less of the operating pressure specified in Table II, the tire is acceptable to proceed for the final 12 hour dwell time. However, if the tire pressure drop is more than 2.5% of the operating pressure, then repeat Step 3 to detect and fix possible leaks.

Step 5. Allow the tire to stand for 12 hours. Re-check the tire pressure. The maximum allowable pressure loss during the 24 hour period (excluding the 3 hour period specified in Step 2) is as specified in Table II. If the limit specified is exceeded, proceed back to Step 3.

5.5.2 Except as noted in paragraph 5.5.2.1, re-inflate the tires to the operating pressure upon completion of successful leak testing.

5.5.2.1 For tires mounted on wheel assemblies that will be stored for long periods (i.e., not assembled for current production aircraft) or shipped (e.g., spares orders), inflate to 10 - 20 psi.

5.5.3 Ensure that valve caps are installed and firmly tightened using finger pressure.

5.6 Removal of Tires

5.6.1 Remove aircraft tires as follows:

Step 1. Completely deflate the tire and remove the valve core according to paragraph 7.3.1.

Step 2. Remove the hub-cap and axle nut.

Step 3. Remove the wheel from the axle.

Step 4. Release the tire beads from both flanges by applying pressure evenly around the entire sidewall, keeping as close to the bead as possible. Before breaking the bead on tube and tire assemblies, remove the valve stem locking nut and push the valve stem away from the seat. Take special care when freeing tire beads from wheel flanges. Do not use tire levers or incorrect tools, as damage to the beads and wheel flanges may result. Pressing with a 2 foot length of 2" X 4" wood, close to the bead, or tapping with a rubber mallet is generally sufficient. If necessary, a mechanical bead-breaking tool (see paragraph 4.2.4) may be used.

Step 5. Remove the nuts, washers and bolts securing the wheel halves.

Step 6. Separate the wheel halves and remove the tire or tire/tube assembly. On tubeless tire wheels, take care not to damage the O-ring or adjacent metal surfaces. To ensure correct match-up during re-assembly, mark wheel halves with a water soluble marker before separation.

5.6.2 Before re-installation, carefully inspect O-ring seals for damage before cleaning and lubrication. Discard damaged or questionable O-rings.

6 REQUIREMENTS

6.1 General

6.1.1 On inner tubes, the balance mark (or valve if there is no balance mark) on the tube shall always be aligned with the balance mark on the tire (red spot).

6.1.2 O-ring seals that are damaged, or deteriorated in any way, shall not be used.

6.1.3 Oil, grease, soap or anything other than clean water shall not be used for bead lubrication purposes.

6.1.4 Unless otherwise specified on the engineering drawing, tires shall be inflated to the pressure specified in Table II, according to this PPS, using dry pressurized, filtered nitrogen.

6.1.5 After assembly and inflation, all tires shall be leak tested according to section 5.5.

6.2 Visual Inspection

6.2.1 Except DASH 8 S400 (see paragraph 5.3.2.1.1), on tubeless tire assemblies, the red balance spot on the tire shall always be aligned with, and adjacent to, the wheel valve.

6.2.2 Wheel halves with an “L” symbol stamped on each flange shall always be assembled in such a way that these symbols are positioned approximately 180° apart.

6.2.3 Wheel bolts shall be torqued according to PPS 14.01 to the values stamped on the wheel rim or as specified on the engineering drawing.

6.2.3.1 If the torque values on the wheel rim differ from those specified on the engineering drawing, the engineering drawing will govern.

6.2.3.2 Where lube-torque is specified, a light film of thread compound (see paragraph 4.1.3) shall be applied to the bearing surfaces of washers and nuts, under bolt heads and to bolt threads before installation.

6.2.3.3 If countersunk washers are used to accommodate the fillet radii on high strength bolts, the countersink shall be toward the head of the bolt.

6.2.4 The thread protrusion of wheel bolts shall be according to Figure 1.

6.2.5 All valves shall have a valve cap installed. The cap shall be screwed on firmly using finger pressure.

7 SAFETY PRECAUTIONS

7.1 Observe general shop safety precautions when performing the procedure specified herein.

7.2 Refer to PPS 31.17 for the safety precautions for handling and using solvents.

7.3 Tires shall always be totally deflated before removal.

7.3.1 Exercise caution when unscrewing valve cores. Use a deflator cap or suitable tool to release most of the pressure before removing the valve core.

7.4 When inflating a newly mounted tire, use a screw-on Schrader fitting and suitably long extension hose to enable the operator to stand back during inflation.

7.5 Place the wheel and tire assembly in a safety cage (see paragraph 4.2.3) before inflation, as serious injury could result if the assembly flies apart due to a casting defect or incorrect mounting.

7.5.1 The tire cage should not be bolted or fastened to the floor in any way.

7.5.2 The tire cage should be at least four feet away from any wall or other equipment.

7.5.3 Stand a minimum distance of 6 feet from the tire cage during inflation procedure.

7.5.4 Wear Bombardier approved eye and ear protection when operating the tire cage.

7.5.5 Do not place tools or other items on the tire cage, they could become projectiles if a tire fails.

7.5.6 Never re-use a tire cage that has had a tire/wheel assembly failure. It is designed to contain only one failure.

7.6 Control the nitrogen supply used for tire inflation by a tamper-proof, fixed pressure regulator (set at a maximum of 200 psi), a pressure gauge and an adjustable pressure regulator.

8 PERSONNEL REQUIREMENTS

8.1 Personnel responsible for mounting and removal of aircraft tires shall have a good working knowledge of the applicable procedure and requirements as specified herein and shall have exhibited their competency to their supervisor.

9 HANDLING AND STORAGE

9.1 Shop Handling Practices

9.1.1 Keep tubes in their original cartons, whenever possible, until required for installation.

9.1.1.1 If tubes are removed from their original cartons, dust tubes with French chalk or commercial talc and wrap tubes in heavy Kraft paper.

9.1.1.2 Tubes may be temporarily stored by inflating slightly, to not more than 1 psi, dusting with French chalk or commercial talc and inserting into the mating tire. Before installing such stored assemblies, the tube shall be removed and the inside of the tire carefully examined for any foreign material which may have become trapped.

9.1.2 Tubes shall never be hung over nails, pegs or other objects which will form a crease in the tube. Such a crease will eventually produce a crack in the rubber.

9.1.3 Take care to ensure that tires and tubes do not come into contact with oil, gasoline, hydraulic fluids, etc., as these materials will cause deterioration of the rubber.

9.1.4 Wherever wheel halves are likely to come into contact with a surface such as a workbench or the floor, which could cause damage to the anti-corrosive treatment, the wheel halves shall be placed on mats made of rubber, felt or a similar material.

9.2 Storage

9.2.1 Store tires in a manner to facilitate issuance on the “First-In/First-Out” (FIFO) basis.

9.2.2 The storage area shall be dry and free from excessive air currents, direct sunlight, fluorescent lights, electric motors, generators, battery chargers, welding equipment or other similar equipment which create ozone during operation and contribute to the premature aging of rubber compound.

9.2.3 The storage temperature shall be 0°C to 27°C (32°F to 80°F).

9.2.4 Tires not mounted on wheel assemblies shall be stored in a vertical position.

9.2.5 Tires stored in the vertical position shall be rotated every 30 days by 6" to 8" (approximately 90°) such that the part of the tire which is in contact with the supports of the rack is changed to preclude the formation of “flat spots” on the tires.

9.2.6 Storage racks shall be made from steel tubing or scaffolding to provide adequate support for storing tires in a vertical position (i.e., side by side).

9.2.6.1 The surface, upon which the tires rest, shall be flat and constructed of materials no less than 4" wide. Alternatively, a round surface, such as pipe or tubing, may be used when the tire is supported at a minimum of two points of contact.

9.2.6.2 Cover the tire racks with heavy black plastic to reduce premature aging of the rubber compound.

9.2.7 Tires mounted on wheel assemblies may be stacked horizontally provided the stacking is limited to 4 high and the tires are inflated to a minimum of 10 psi.

9.2.7.1 Tires mounted on wheel assemblies for current production aircraft may be inflated to the operating pressure, as specified in Table II, following assembly and before installation on the aircraft.

9.2.7.2 If wheel assemblies are stacked for long term storage, the tire pressure shall be checked every 6 months and maintained at 10 - 20 psi. Maintain records of tire pressure checks so as it is readily available upon Quality's request.

9.2.7.3 To ensure protection of stacked wheel assemblies, cardboard interleaves shall be placed on each side of the wheel.

10 SHIPPING

10.1 For shipping purposes, inflate tires on assemblies to 10 - 20 psi.

TABLE II - TIRE PRESSURES

AIRCRAFT TYPE	LANDING GEAR	TIRE SIZE	OPERATING PRESSURE (PSI) (NOTES 1 & 2)	PRESSURE LOSS IN 24 HOURS (PSI) (NOTE 3)
DASH 8 SERIES 100	NOSE	18.00 x 5.50-8 (DSC 226) (STANDARD)	83 (A/C ON GROUND)	4
			80 (A/C OFF GROUND)	
		22.00 x 6.50-10 (DSC 261, DSC 429) (IMPROVED FLOTATION)	50 (A/C ON GROUND)	3
			48 (A/C OFF GROUND)	
	MAIN	26.50 x 13 (DSC 224) (STANDARD)	136 (A/C ON GROUND)	7
			131 (A/C OFF GROUND)	
		31.00 x 9.75-13 (DSC 225) (IMPROVED FLOTATION)	81 (A/C ON GROUND)	4
			86 (A/C ON GROUND) (POST MOD 8/1728 ONLY)	
			77 (A/C OFF GROUND)	
			83 (A/C OFF GROUND) (POST MOD 8/1728 ONLY)	

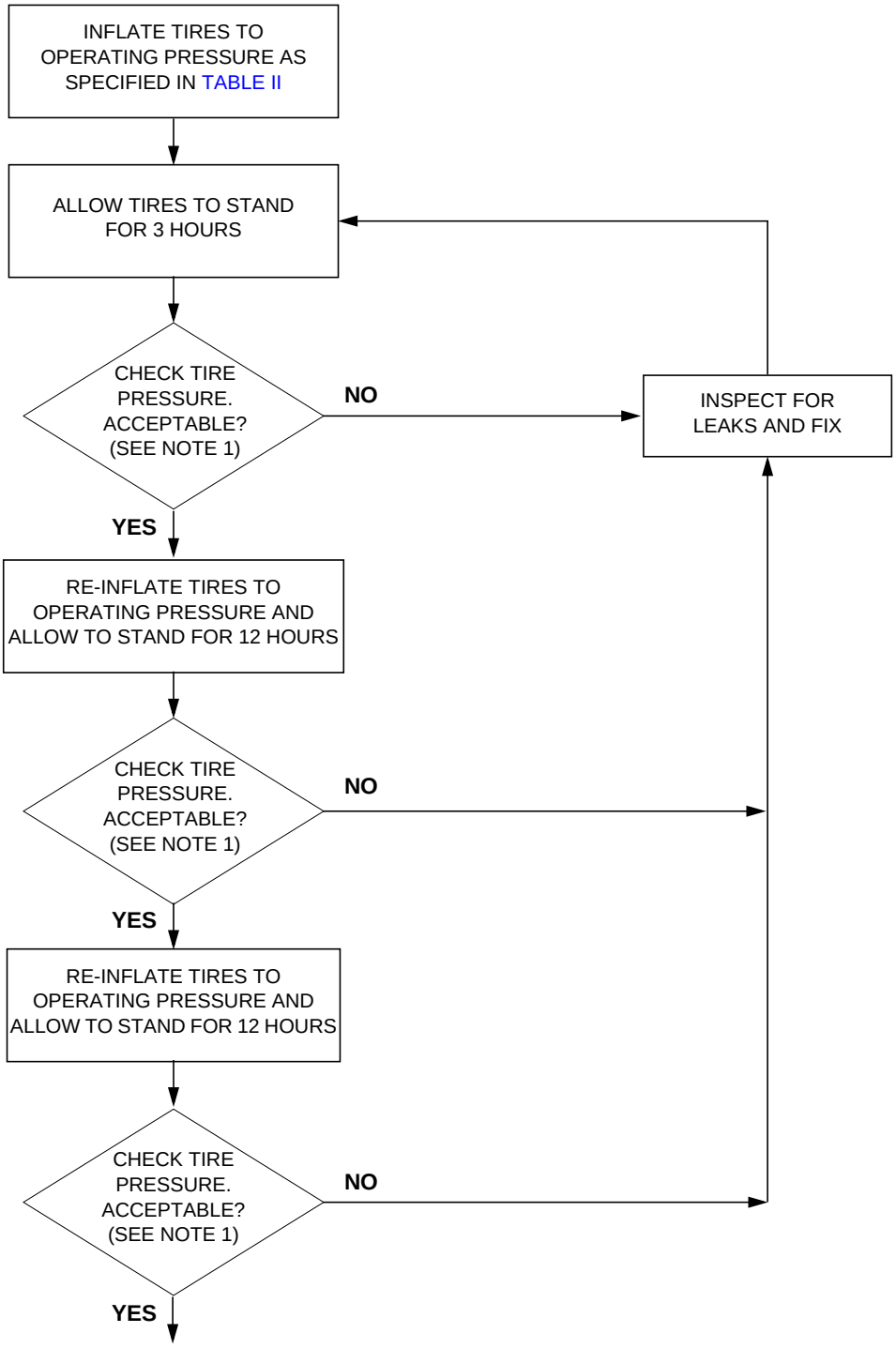
NOTES: 1. Tires not to be mounted on aircraft at Bombardier Toronto (i.e., spares orders) shall be inflated to 10 - 20 psi.
2. The tire pressure shown are for normal operating conditions. Different pressures may be used by aircraft operators, according to the maintenance manuals, for special conditions such as soft, unprepared runways or extremely cold climates.
3. Maximum acceptable 24 hour pressure loss after initial 12 hour tire growth period (see section 5.5).

TABLE II - TIRE PRESSURES

AIRCRAFT TYPE	LANDING GEAR	TIRE SIZE	OPERATING PRESSURE (PSI) (NOTES 1 & 2)	PRESSURE LOSS IN 24 HOURS (PSI) (NOTE 3)
DASH 8 SERIES 200	NOSE	18 x 5.50-8 (DSC 476) (STANDARD)	99 (A/C ON GROUND)	5
			95 (A/C OFF GROUND)	
	MAIN	31 x 9.75-13 (DSC 475) (STANDARD)	99 (A/C ON GROUND)	4
			88 (A/C OFF GROUND)	
DASH 8 SERIES 300 MODEL 301	NOSE	22.0 x 6.50-10 (DSC 261)	62 (A/C ON GROUND)	3
			60 (A/C OFF GROUND)	
	MAIN	31.00 x 9.75-14 (DSC 394)	101 (A/C ON GROUND)	3
			97 (A/C OFF GROUND)	
DASH 8 SERIES 300 MODEL 311	NOSE	22.0 x 6.50-10 (DSC 429)	62 (A/C ON GROUND)	3
			60 (A/C OFF GROUND)	
	MAIN	31.00 x 9.75-14 (DSC 428)	101 (A/C ON GROUND)	3
			97 (A/C OFF GROUND)	
DASH 8 SERIES 400	NOSE	22 x 6.50-10	89 (A/C ON GROUND)	4
			85 (A/C OFF GROUND)	
	MAIN	32 x 8.8	227 (A/C ON GROUND)	12
			218 (A/C OFF GROUND)	
	MAIN (OPTION)	34 x 10.75-16	141 (A/C ON GROUND)	7
			135 (A/C OFF GROUND)	
Learjet Model 45	MAIN	22 x 5.75-12	159 (UNLOADED)	8

NOTES: 1. Tires not to be mounted on aircraft at Bombardier Toronto (i.e., spares orders) shall be inflated to 10 - 20 psi.
2. The tire pressure shown are for normal operating conditions. Different pressures may be used by aircraft operators, according to the maintenance manuals, for special conditions such as soft, unprepared runways or extremely cold climates.
3. Maximum acceptable 24 hour pressure loss after initial 12 hour tire growth period (see section 5.5).

FLOW CHART 1 - DURATION LEAK TESTING



Note 1. Refer to paragraph 5.5.1 for the maximum acceptable pressure drop.