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Taxiing and Brake Use

By Don Weaver and Richard Bertoli

During the summer of 2005, it became apparent to members of the Cirrus Owners and Pilots Association (COPA) that SR20 and SR22 brake failures and actual brake fires were becoming an issue. Following field research by AirShares Elite's own Mac Little, Cirrus Design published a series of service bulletins and service advisories to address the problem. This was soon followed by an Airworthiness Directive (AD) issued by the FAA requiring brake inspection, O-ring replacement, and application of temperature sensitive indicators to the brake assemblies. The Cirrus instructor community was also urged to address the issue by modifying what Cirrus saw as improper use of the brakes during ground operations.

Overheated O-rings. Note the square profile... they're supposed to be round in cross-section!

Here is a five point outline of AirShares Elite recommended taxi instructions, or...

Best Practice for Maneuvering your Cirrus Aircraft on the Ground:

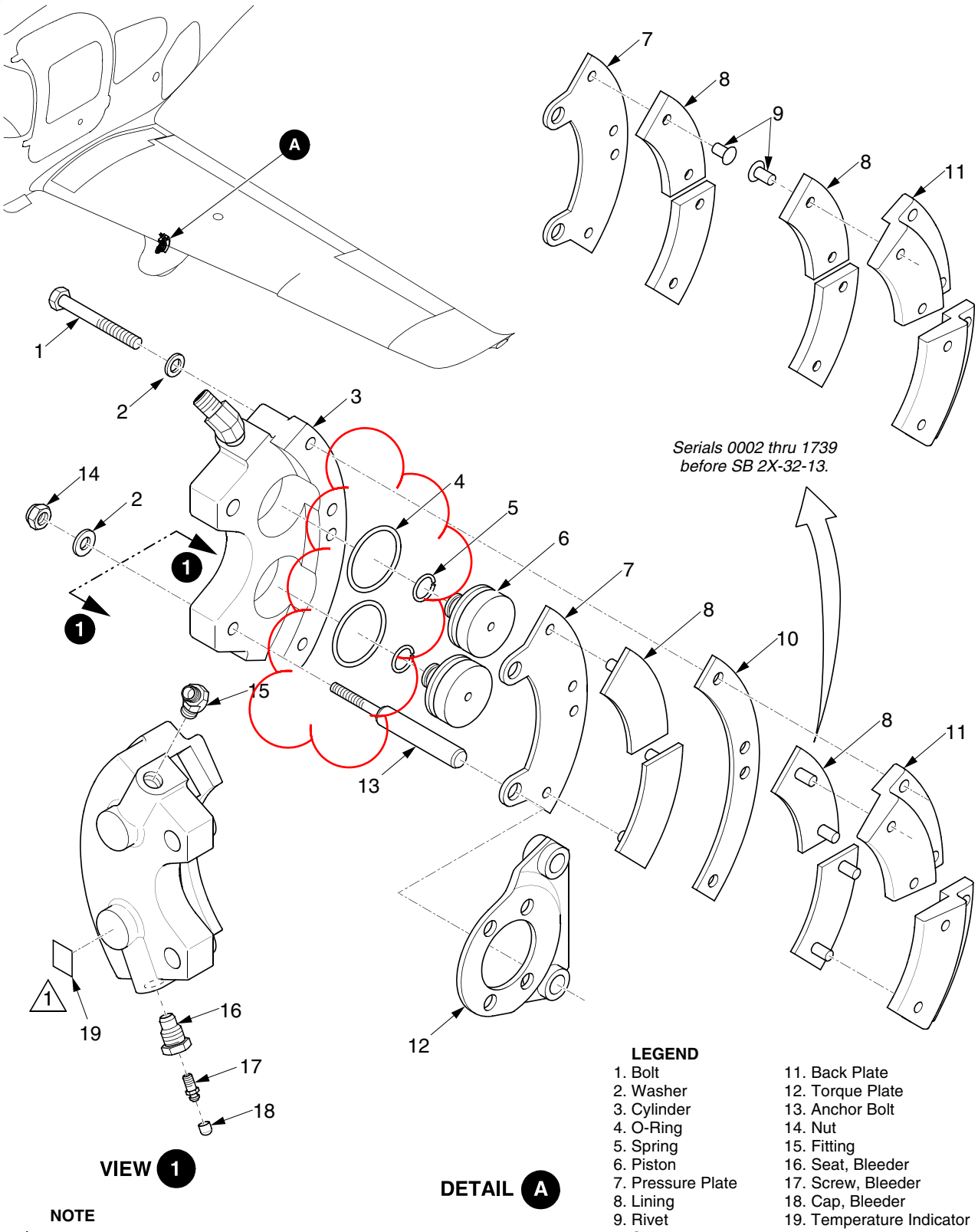
1. **Pedal to the Metal:** If you brake to steer or turn at any time without fully depressing the rudder pedal first, your feet are not positioned on the pedals properly and you're not making best use of the rudder itself to assist in the turn. Readjust the seat position, if necessary.

2. **Power Out:** NEVER brake to slow down while carrying power at the same time. You don't stop your car by stepping on the gas and brake at the same time, do you? Pull the throttle ALL the way back when slowing or stopping. It makes a huge difference in the momentum the brakes have to contend with. If you don't believe this, taxi on ice and see how fast the SR22 moves at 1000 RPM with the tires locked up! While stationary, 1000 RPM should be maintained for proper ALT 1 output.

3. **Use Rudder:** If on a long, straight taxiway, taxi fast enough to achieve rudder effectiveness. That could be rather slow when taxing into the wind and a little quick when in a strong quartering tailwind. Nothing new here; pilots have been doing this in tailwheel aircraft and Grummans for years already. Just see #2 when stopping at the end. Keep your eyes outside of the cockpit, please.

4. **Easy Does It:** The rest of the time – keep it slow; use minimum power to move or hold taxi speed, and don't ride a brake continuously to stay on a centerline. Better to brake a little, then drift while completely off the brakes for a bit to cool them. This may result in a little drunken weaving down the taxiway. Sometimes, just holding rudder deflection in one direction or the other is enough to stay straight, just be sure you holding rudder input only and not continuous brake.

5. **Landing Roll:** Don't rush slowing after landing unless it's absolutely necessary. If the tower requests you clear the runway at a taxiway that is going to require an undue amount of braking force, simply state, "unable," and roll to the next one. Use good judgment here and balance this recommendation with consideration for the air traffic flow; you won't make friends by rolling all the way to the end of your local 6000 foot runway on every arrival. Also, do NOT use the doors as air brakes. The distraction from directional control aside, the hinges were not designed to withstand this force, especially on the G2 and subsequent models.



LEGEND

1. Bolt
2. Washer
3. Cylinder
4. O-Ring
5. Spring
6. Piston
7. Pressure Plate
8. Lining
9. Rivet
10. Shim
11. Back Plate
12. Torque Plate
13. Anchor Bolt
14. Nut
15. Fitting
16. Seat, Bleeder
17. Screw, Bleeder
18. Cap, Bleeder
19. Temperature Indicator

NOTE

1. If temperature indicator is black and/or shows signs of adhesion loss, replace the temperature indicator.

SR22_MM32_1392B

Figure 32-421
Brake Assembly