

TROTTER CONTROLS FORT WORTH, TEXAS	PROCESS SPECIFICATION		NUMBER	REVISION
	REPORT ORDER	<input checked="" type="checkbox"/>	PS-0030	A
TITLE FRDS GENII - Pressure Relief Valve Adjustment	BY	CHK'D	MODEL	
	Len Averyt	VT	802	
	DATE		SERIAL	
	01/11/10		802-0307 & SUBS	
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Overview

This document outlines adjustment of the Hydraulic Pressure relief valve for second generation Fire Retardant Dispersal Systems (FRDS GENII) provided as OEM equipment on Air Tractor AT802F aircraft.

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Summary

The pressure relief valve is located on the hydraulic manifold located underneath the front fairing of the gatebox.

The pressure relief valves primary function is to relieve hydraulic pressure in the event that the hydraulic pressure becomes excessive due to a system fault.

The mechanical pressure relief valve is not a precision unit and its actual relief pressure can vary based on temperature, oil viscosity, spring creep, thermal expansion of the metals used in the valve and other factors.

The pressure relief setting must be set higher than the working pressure of the system to ensure that flow is not bypassed before the pump reaches its normal operating pressure of 3050 PSI. The pressure relief valve should be set between 3400 ~ 3600 PSI (3400 PSI is nominal) to ensure the relief valve does not relieve pressure during normal operation.

If the pressure relief valve cannot be adjusted to a minimum relief setting of 3400 PSI, the pressure relief valve will need to be replaced.

Adjustment of the pressure relief valve pressure setting is detailed in the following sections.

Monitoring the Pressure:

The pressure can be monitored in three ways.

- Watch the hydraulic pressure readout on the Pilot Interface panel. This is a convenient way to quickly verify that the relief pressure is within range.
- Use analog inputs menu (under MAINT) to monitor the pressure on the Pilot Interface panel.

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Setting the Pressure Relief Valve:

The RUN PUMP switch can be used to manually force the pump to run and cause the pump to intentionally over pressure the hydraulic system. The pressure relief valve should open to limit the maximum pressure that can be attained when the pump is forced to operate past the nominal design pressure of 3050 PSI.

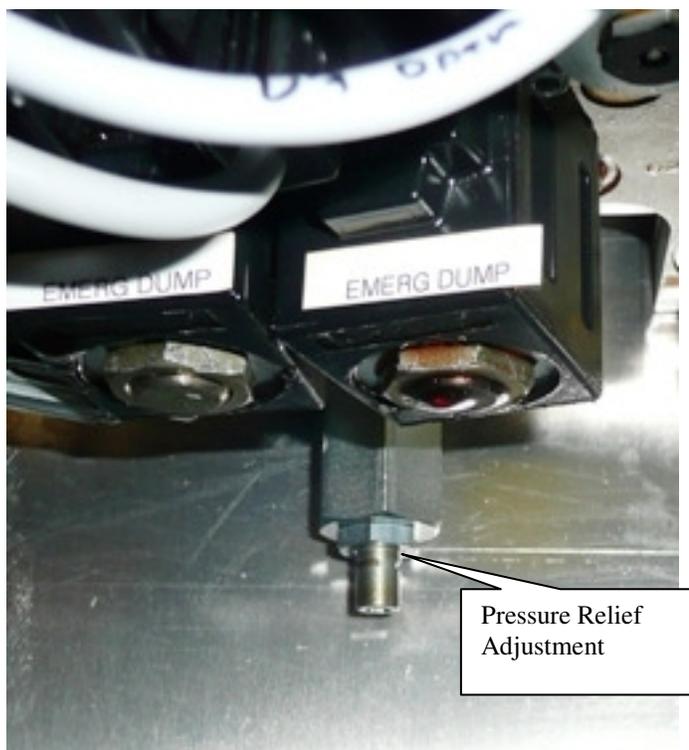


Figure 1 ~ Pressure relief valve adjustment

To check and adjust the pump pressure relief valve perform the following steps:

1. Make sure all personnel are clear of the doors at all times.
2. Make sure the pump is reasonably cool before adjustment.
3. Verify that the battery charge is a minimum of 24 volts.
4. Set the switches on the Pilot Interface to the following
 - Hydraulic Power switch to ON
 - Mode switch to AUTO or MAN

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- ARM switch to OFF
5. Allow the system to build pressure normally. If the system is unable to build 3050 PSI then the relief valve will need to be adjusted to a higher pressure.
 6. Press and hold the RUN PUMP toggle switch on the Pilot interface to force the pump to run.
 7. Allow the pump to run about 1 minute and observe the maximum pressure attained. The pump should make a high-pitched sound as the pressure relief valve starts bypassing pressure.
 8. Observe the maximum pressure attained. If the pressure indicated is 3400~3600 PSI, no adjustment is required. You are finished.
 9. If the pressure is lower than 3400 PSI, release the adjustment screw locknut and adjust the pressure relief adjustment screw clockwise in 1/16 ~ 1/8 turn increments using an 5mm Allen Driver. Note that adjusting the screw clockwise (CW) causes the pressure setting to increase.
 10. Repeat steps 1~9 as required.
 11. When proper pressure setting is achieved, tighten the adjustment screw locknut
 12. Repeat steps 1~9 and verify proper operation.
 13. If you are unable to attain a relief pressure of 3400 PSI, the pressure relief valve may need replacing (see Relief Valve Replacement), the battery voltage may be low, or the pump may need replacement.
 14. Verify battery voltage is at least 24 volts and repeat steps 1~9 if battery voltage is low.
 15. If you are still unable to attain a minimum of 3400 PSI, replace the pressure relief valve (see below). Repeat steps 1~9.
 16. If you are unable to attain a relief pressure of 3400 PSI after replacing the relief spring, the pump itself may be bad and incapable of delivering sufficient pressure.

Relief Valve Replacement

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1. The entire Hydraulic pressure relief valve is removed as an assembly.
2. Make sure power is off and pressure has bleed off completely.
3. Note that some oil will be lost while changing the pressure relief valve.
4. Remove the pressure relief valve taking care not to lose the o-ring seals. These should come out with the old pressure relief valve
5. Install the new pressure relief valve.
6. Fill the hydraulics reservoir with specified hydraulic oil to replace any oil lost during the valve replacement process.
7. Adjust the relief pressure as specified in the previous sections and tighten the locking nut.

Support:

If you have questions or comments regarding this document contact Trotter Controls at the following numbers or the Air Tractor service department.

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