

Rain Bird Valve Troubleshooting Matrix

May 15th, 2013 Revision (CPEng, CH)

Problem	Cause	Valve Model														
		APAS	BPE/ BPES	CP/ DV	CPF/ DVF	CP-JTV/ JTV	DAS/ ASVF	EFB-CP	GB	HV	HVF	JTV-AS	JTV-ASF/ JTV-AVB	JTVF	PEB/ PESB	PGA
External Leaking	External Leaking - Bleed Screw	Damaged bleed screw tip	--	X	X	X	X	X	X	X	X	X	X	X	X	--
	Damaged bleed screw seat in bonnet	--	X	X	X	X	X	X	X	X	X	X	X	X	X	--
	Damaged bleed screw threads	--	X	X	X	X	X	X	X	X	X	X	X	X	X	--
	Bleed screw loose	--	X	X	X	X	X	X	X	X	X	X	X	X	X	--
	Damaged bleed screw thread on bonnet	--	X	X	X	X	X	X	X	X	X	X	X	X	X	--
	Missing bleed screw o-ring	--	X	--	--	--	--	X	X	--	--	--	--	--	X	--
	Damaged bleed screw o-ring	--	X	--	--	--	--	X	X	--	--	--	--	--	X	--
	Debris inside bonnet bleed screw hole	--	X	X	X	X	X	X	X	X	X	X	X	X	X	--
	Bleed screw tip has plastic flash	--	--	X	X	X	X	X	--	--	X	X	X	X	X	--
	Bonnet bleed screw hole has plastic flash	--	--	X	X	X	X	X	--	--	X	X	X	X	X	--
	Bleed screw broken off in bonnet hole	--	X	X	X	X	X	X	X	X	X	X	X	X	X	--
	Damaged bleed screw/bonnet threads	--	X	X	X	X	X	X	X	X	X	X	X	X	X	--
	External Leaking - Solenoid	Solenoid o-ring damaged	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Solenoid o-ring missing	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Damaged bonnet around center solenoid hole	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Damaged solenoid threads	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Damaged thread on bonnet for solenoid	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Loose solenoid	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Solenoid o-ring out of groove	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Solenoid o-ring bunched/ crimped	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Solenoid o-ring swollen/ stretched-out	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Solenoid o-ring groove has plastic flash	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
External Leaking - Body/Bonnet	Outer sealing area of diaphragm damaged	--	X	X	X	X	X	X	X	X	X	X	X	X	X	
Bonnet loose	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Bonnet/ body threads damaged	X	--	--	--	X	--	--	--	--	--	X	X	X	--	--	
Bonnet screws/ studs broken	--	X	X	X	--	X	X	X	X	X	--	--	--	X	X	
Body/ bonnet o-ring missing	X	--	--	--	--	--	--	--	--	--	--	--	--	--	X	
Body/ bonnet o-ring damaged	X	--	--	--	--	--	--	--	--	--	--	--	--	--	X	
Body damaged on sealing surface	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Diaphragm filter in-between body/ bonnet	--	--	--	--	X	--	--	--	--	--	X	X	X	--	--	
External Leaking - Inlet	Inlet pipe not connected properly	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Incorrectly glued inlet slip connection	--	--	X	X	X	--	--	--	X	X	--	--	X	--	--	
Cracked body near inlet pipe connection	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Damaged inlet threads	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Inlet thread insert cracked	--	--	--	--	--	X	--	--	--	--	--	--	--	--	--	
Leaking between body and thread insert	--	--	--	--	--	X	--	--	--	--	--	--	--	--	--	
Warped body near inlet	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
External Leaking - Flow Control Stem	Bonnet cracked around flow control stem	X	X	--	X	--	X	X	X	--	X	--	X	X	X	
Flow control stem pushed-in	X	X	--	X	--	X	X	X	--	X	--	X	X	X	--	
Damaged flow control stem o-ring	X	X	--	X	--	X	X	X	--	X	--	X	X	X	--	
Missing flow control stem o-ring	X	X	--	X	--	X	X	X	--	X	--	X	X	X	--	
Debris on F/C stem o-ring or in groove	X	X	--	X	--	X	X	X	--	X	--	X	X	X	--	
External Leaking - Breaker Shield	Breaker piston gasket missing	X	--	--	--	--	X	--	--	--	X	X	--	--	--	
Breaker piston gasket dirty/ corroded	X	--	--	--	--	X	--	--	--	--	X	X	--	--	--	
Breaker piston gasket damaged	X	--	--	--	--	X	--	--	--	--	X	X	--	--	--	
Valve installed backwards inlet-to-outlet	X	--	--	--	--	X	--	--	--	--	X	X	--	--	--	
Valve installed too low - violates 6in. Rule	X	--	--	--	--	X	--	--	--	--	X	X	--	--	--	
Debris lodged under piston inside cap	X	--	--	--	--	X	--	--	--	--	X	X	--	--	--	
Not meeting min. required water flow	X	--	--	--	--	X	--	--	--	--	X	X	--	--	--	
External Leaking - Breaker Cap	Breaker cap gasket missing	X	--	--	--	--	X	--	--	--	X	X	--	--	--	
Breaker cap gasket dirty/ corroded	X	--	--	--	--	X	--	--	--	--	X	X	--	--	--	
Breaker cap gasket damaged	X	--	--	--	--	X	--	--	--	--	X	X	--	--	--	
Breaker cap broken	X	--	--	--	--	X	--	--	--	--	X	X	--	--	--	
External Leaking - Body	Body cracked/ broken	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Body joint not welded properly	X	--	--	--	--	X	--	--	--	--	X	X	--	--	--	
Body plug missing	--	X	--	--	--	--	--	--	--	--	--	--	--	--	X	
Body plug cracked	--	X	--	--	--	--	--	--	--	--	--	--	--	--	X	
Body plug threads damaged	--	X	--	--	--	--	--	--	--	--	--	--	--	--	X	
Damaged thread on body for body plug	--	X	--	--	--	--	--	--	--	--	--	--	--	--	X	
External Leaking - Dump Tube	Tube connectors loose in body	--	--	--	--	--	--	X	--	--	--	--	--	--	--	
Tube connectors damaged	--	--	--	--	--	--	--	X	--	--	--	--	--	--	--	
Tube not inserted completely	--	--	--	--	--	--	--	X	--	--	--	--	--	--	--	
Dump tube damaged	--	--	--	--	--	--	--	X	--	--	--	--	--	--	--	
Dump tube missing	--	--	--	--	--	--	--	X	--	--	--	--	--	--	--	
External Leak - Outlet	Outlet pipe not connected properly	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Incorrectly glued outlet slip connection	--	--	X	X	X	--	--	--	X	X	--	--	X	--	--	
Cracked body near outlet pipe connection	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Damaged outlet threads	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Outlet thread insert cracked	--	--	--	--	--	X	--	--	--	--	--	--	--	--	--	
Leaking between body and thread insert	--	--	--	--	--	X	--	--	--	--	--	--	--	--	--	
External Leak - Fluid Resistor Side Screw	Resistor screw o-ring missing	--	--	--	--	--	--	X	--	--	--	--	--	--	--	
Resistor screw o-ring damaged	--	--	--	--	--	--	--	X	--	--	--	--	--	--	--	
External Leak - Bonnet	Bonnet broken from overtight screws	--	X	X	X	--	X	X	X	X	--	--	--	X	X	

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Noise/ Vibration	Noise and Vibration	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Water hammer - F/C is unbalancing flow	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Water hammer - Ext. leak (enter leak also)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Water hammer - Other	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Chatter - F/C is creating unbalanced flow	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Chatter - External leak (enter leak also)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Chatter - Other	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Squeal/ honk - F/C is unbalancing flow	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Squeal/ honk - External leaking (see leak also)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Squeal/ honk - Other	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Will Not Close	Will Not Close	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Debris on diaphragm/ piston sealing surface	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Center black solenoid seal ring damage	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Damaged diaphragm/piston	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Still has signal from controller	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Solenoid loose	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Solenoid defective - short/ open/ no seal	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Not enough upstream pressure or flow	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	External leaking (enter leak also)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Valve installed backwards (inlet-to-outlet)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Piston-ring broken and stuck - APAS only	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Plugged/ clogged filter	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Debris clogging dump tube/ fittings/ paths	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Debris clogging bonnet holes under solenoid	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Debris in diaphragm stop holes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Debris inside the paths behind the filter	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Debris clogging internal passages	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Flat piston fins are folded over - APAS only	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Solenoid seal (filter retainer) missing	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Solenoid seal (filter retainer) loose	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
No piston/ diaphragm spring	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Diaphragm installed upside-down	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Damaged solenoid hole seal in bonnet	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Solenoid center seal missing/ damaged	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Will Not Open	Will Not Open - Valve w/ F/C	X	X	-	X	-	X	X	X	-	X	-	X	X	X	-
	Flow-Control closed-off	X	X	-	X	-	X	X	X	-	X	-	X	X	X	-
	Solenoid defective - short/ open/ no seal	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	No signal from controller	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Diaphragm/ piston torn	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	SxS install - PVC glue over dump hole in body	-	-	X	X	X	-	-	-	X	X	-	-	X	-	-
	Piston-ring broken and stuck - APAS only	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Water supply shut off	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Debris clogging bonnet holes under solenoid	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Valve installed backwards (inlet-to-outlet)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Missing solenoid filter	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Broken solenoid filter	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Debris clogging the dump hole in the body	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Debris clogging internal passages	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
F/C Problems	Flow-Control Problems	X	X	-	X	-	X	X	X	-	X	-	X	X	X	-
	Broken F/C handle	X	X	-	X	-	X	X	X	-	X	-	X	X	X	-
	F/C handle won't turn - stem broken	X	X	-	X	-	X	X	X	-	X	-	X	X	X	-
	F/C won't turn - debris in bonnet by stem	X	X	-	X	-	X	X	X	-	X	-	X	X	X	-
	Won't close-off flow - pilot flow ok	X	X	-	X	-	X	X	X	-	X	-	X	X	X	-
	F/C doesn't change flow - no piston	X	X	-	X	-	X	X	X	-	X	-	X	X	X	-
	F/C doesn't change flow - no diaphragm	X	X	-	X	-	X	X	X	-	X	-	X	X	X	-
	Missing F/C handle	X	X	-	X	-	X	X	X	-	X	-	X	X	X	-