IDs / State	Valve Name / Sub State	2.2.2 Nitrogen Solenoid	2.2.12 LOX Pressure Relieve Solenoid	2.3.4 LOX Tank Solenoid	2.3.6 LOX Engine Solenoid	2.3.6 LOX Ejection Solenoid	2.2.12 Ethanol Pressure Relieve Solenoid	2.3.5 Ethanol Tank Solenoid	2.3.5 Ethanol Engine Solenoid	2.3.4 Ethanol Fill Valve	2.3.4 Ethanol Dump Valve	2.3.4 LOX Fill Valve	2.3.4 LOX Dump Valve	Fallback state	Remarks
Unfueled Unpressurized	-	Close	Close	Close	Close	Close	Close	Close	Close	Open	Open	Open	Open		
Nitrogen Pre-test Flush	1	Open	Close	Close	Close	Close	Close	Close	Close	Open	Open	Open	Open	Unfueled Unpressurized	
Philosphy : to flush top to	2	Open	Open	Close	Close	Close	Close	Close	Close	Open	Open	Open	Open	Unfueled Unpressurized	
bottom in order to save the	3	Open	Close	Open	Close	Close	Close	Close	Close	Open	Open	Open	Open	Unfueled Unpressurized	
nitrogen, and then do a full	4	Open	Close	Close	Open	Close	Close	Close	Close	Open	Open	Open	Open	Unfueled Unpressurized	
system flush in the end to	5	Open	Close	Close	Close	Open	Close	Close	Close	Open	Open	Open	Open	Unfueled Unpressurized	
ensure full nitrogen	6	Open	Close	Close	Close	Close	Open	Close	Close	Open	Open	Open	Open	Unfueled Unpressurized	
atmosphere	7	Open	Close	Close	Close	Close	Close	Open	Close	Open	Open	Open	Open	Unfueled Unpressurized	
	8	Open	Close	Close	Close	Close	Close	Close	Open	Open	Open	Open	Open	Unfueled Unpressurized	
	9	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Unfueled Unpressurized	
	10	Close	Close	Close	Open	Close	Close	Close	Open	Open	Open	Open	Open	Unfueled Unpressurized	
	End	Close	Close	Close	Close	Close	Close	Close	Close	Open	Open	Open	Open	Unfueled Unpressurized	
Fueling Safe State	-	Close	Open	Close	Close	Close	Open	Close	Close	Unknown	Unknown	Unknown	Unknown	-	Safe state in which fuelings go back to in case something goes wrong
Unpressurized, Eth fueling	Start	Close	Open	Close	Close	Close	Open	Open	Close	Open	Close	Close	Close	Fueling Safe State	
	Finish	Close	Open	Close	Close	Close	Open	Close	Close	Open	Close	Close	Close	Fueling Safe State	
Unpressurized, LOX fueling	Start	Close	Open	Open	Close	Close	Open	Close	Close	Close	Close	Open	Open	Fueling Safe State	
	Finish	Close	Open	Close	Close	Close	Open	Close	Close	Close	Close	Open	Open	Fueling Safe State	
Unpressurized, fueled	-	Close	Open	Close	Close	Close	Open	Close	Close	Open	Close	Open	Close	-	
Pre-chiling	-	The state is just a idle wait time of "Unpressurized, fueled" state. We expect some LOX loss. And might need to refill the LOX again													
Pressurized, fueled	-	Open	Close	Close	Close	Close	Close	Close	Close	Open	Close	Open	Open		
Test state	-	Open	Close	Close	Open	Close	Close	Close	Close	Open	Close	Open	Open	Engine Shut-down	
Engine Shut-down	-	Open	Close	Close	Close	Open	Close	Close	Close	Open	Close	Open	Open	-	
Pressurized, partially fueled	-	Open	Close	Close	Close	Close	Close	Close	Close	Open	Close	Open	Open	-	Not allowed to go back to Test State
	LOX & Eth	Open	Close	Open	Close	Close	Close	Open	Close	Open	Close	Open	Open	Pressurized, partially fueled	
	LOX	Open	Close	Open	Close	Close	Close	Close	Close	Open	Close	Open	Open	Pressurized, partially fueled	
Tank Dump	Eth	Open	Close	Close	Close	Close	Close	Open	Close	Open	Close	Open	Open	Pressurized, partially fueled	
Nitrogen Post-test Flush	1	Open	Close	Close	Close	Close	Close	Close	Close	Open	Open	Open	Open	Pressurized, partially fueled	
Philosphy : to flush top to	2	Open	Open	Close	Close	Close	Close	Close	Close	Open	Open	Open	Open	Pressurized, partially fueled	
bottom in order to save the	3	Open	Close	Open	Close	Close	Close	Close	Close	Open	Open	Open	Open	Pressurized, partially fueled	
nitrogen, and then do a full	4	Open	Close	Close	Open	Close	Close	Close	Close	Open	Open	Open	Open	Pressurized, partially fueled	
system flush in the end to	5	Open	Close	Close	Close	Open	Close	Close	Close	Open	Open	Open	Open	Pressurized, partially fueled	
ensure full nitrogen	6	Open	Close	Close	Close	Close	Open	Close	Close	Open	Open	Open	Open	Pressurized, partially fueled	
atmosphere	7	Open	Close	Close	Close	Close	Close	Open	Close	Open	Open	Open	Open	Pressurized, partially fueled	
	8	Open	Close	Close	Close	Close	Close	Close	Open	Open	Open	Open	Open	Pressurized, partially fueled	
	9	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Pressurized, partially fueled	
	10	Close	Close	Close	Open	Close	Close	Close	Open	Open	Open	Open	Open	Pressurized, partially fueled	
	End	Close	Close	Close	Close	Close	Close	Close	Close	Open	Open	Open	Open	Pressurized, partially fueled	