Timeline Discussion of the 18000 Watt Engine

TIME msec	COMBUSTION SIDE	SUPERCHARGER SIDE

Of Note: Other than that for an engine cycling at 80bpm (beats per minute) then
0 msec (msec = milliseconds) is the start of cycle and 750 msec is the end of cycle
All other msec values are based on just guessing or intuition

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TIME msec	COMBUSTION SIDE	SUPERCHARGER SIDE
80 bpm = 1000msec x 60 sec = 60000 msec/min 60000msec/80 bpm = 750 msec/beat		
0 msec	combustion piston at TDC which is about 2 inches below the top of the cylinder The air charge is in the volume above the piston head air charge 23atm and 70 deg F	Compression piston is at TDC pressure is 1 atm temp is 70 deg F
245msec	Fuel injection stopped pressure is 176 psi temp 380 degF	
600msec	Piston at BDC pressure 27 psi temp 125 deg F	Compression piston is at TDC pressure is 1 atm temp is 70 deg F
602 msec	Valve between Combustion and Supercharger Compression Chambers is opened	
614msec	Adiabatic Expansion #1 occurs Gas temp 90 degF gas pressure is ???	Adiabatic Expansion #1 occurs Gas temp 90 degF gas pressure is ???

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TIME msec	COMBUSTION SIDE	SUPERCHARGER SIDE
618msec	Piston remains at BDC Pressure is ??? Temp is ????	Compression Piston begins to move from TDC to BDC total stroke is 8 inches has moved ??? inches Air charge piston is at TDC pressure is 1 atm Temp is 70 deg F
700msec	Piston remains at BDC Pressure is ??? Temp is ????	Compression Piston is at essentially BDC Pressure is ???? Temp is ???? Air charge piston is at TDC temp is 450 deg F pressure is 23 atm there is essentially no air present as it has all gone through the one way valve and this air is now in the air accumulator at 23 atm and 450 deg F
704 msec	Piston remains at BDC Pressure is ??? Temp is ????	Valve opens to push the compression piston from BDC back to TDC
706msec	Valve opens to push the combustion piston from BDC back to TDC	

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TIME msec	COMBUSTION SIDE	SUPERCHARGER SIDE
704msec	Valve between Combustion Chamber to the Intercooler is opened The output of the intercooler is connected to the Exhaust piping, there is no valve there Exhaust piping contains air at 70 deg F and 1 atm The end of the exhaust piping is open to the air	The compression chamber is venting its gases through the open valve into the combustion chamber temp 90 deg F pressure ??? temp and pressure begin dropping
	Exhaust gases flow into the combustion chamber from the compression chamber	
	The gases in the combustion chamber flow through the intercooler to the exhaust piping intake input	
	The second adiabatic expansion occurs Temp in this combustion chamber is dropping now at 83 deg F	
718msec	The combustion piston is moving from BDC to TDC it is about 1/2 way there	The compression piston is moving from BDC to TDC is is about 1/2 way there
740msec	Combustion piston is at complete TDC pressure is 1 atm temp is 10 deg F	Compression piston is at TDC pressure is 1 atm temp is 10 deg F
742msec	Valve from air accumulator to combustion chamber is opened. Air Charge begins flowing into combustion chamber.	

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TIME msec	COMBUSTION SIDE	SUPERCHARGER SIDE
743msec	Air charge air is moving from the air accumulator through the intercooler into the combustion chamber Air charge pressure is 23 atm Air charge temp entering the intercooler is 451 deg F Air charge temp entering the combustion chamber is 70 degF pressure is ???? Intercooler temp is rising	Compression piston is at TDC pressure is 1 atm temp is 70 deg F
748msec	Intercooler is now at 70 degF no air is flowing through it The combustion chamber is eased down to about 2 inches below completely at the top of the chamber as the air charge is entering the combustion chamber. Air charge pressure is ???? temp is 70 degF. Combustion chamber reaches its desired location it is now at TDC and a new cycle can begin soon	Compression piston is at TDC pressure is 1 atm temp is 70 deg F
749msec	The air charge accumulator piston is now at BDC Its intake valve is opened. Its inner spring pushes its piston from BDC to TDC. It refills itself with fresh air via a one way intake valve. Pressure is 1 atm temp is 70deg F	Compression piston is at TDC pressure is 1 atm temp is 70 deg F
750msec	A new cycle can begin	A new cycle can begin