

Original GTO 389 Engine Rebuild - Dyno Runs 02/01/22

<u>PULL</u>	<u>CARB</u>	<u>HP</u>	<u>@ RPM</u>	<u>TQ</u>	<u>@ RPM</u>	<u>AFR 1</u>	<u>AFR 2</u>
1	1	312	4400	435	3400	12.8	12.6
2	1	318	4500	440	3400	13.1	12.7
3	1	316	4400	438	3400	13.1	12.6
4	2	316	4500	432	3500	13.2	13.0
5	2	323	4400	442	3400	12.9	13.1
6	2	322	4500	440	3500	13.1	13.4
7	3	324	4500	440	3400	13.4	13.4
8	3	no data for this run - dyno software malfunction					
9	3	320	4400	437	3400	13.3	13.3

Notes:

- Carb 1 = random hodge-podge of AFB parts tuned by me for modern pump gas
- Carb 2 = bone-stock 4033S ('66 GTO man trans); Carb 3 = bone-stock 4034S ('66 GTO auto trans)
- Initial lifter and piston coating break-in consisted of (3) 10-minute no-load runs at 2300 RPM followed by a 10-minute variable light-loading run; 20-minute cool-downs between each run.
- Pulls 1 thru 3 timing was only 20° max. Forgot to recheck it after initially firing the engine.
- Pulls 4 thru 9 timing was 32° max.
- Vacuum was not connected to the distributor during these runs.

Perishables:

Fuel = Shell V93

Oil = Driven BR30

Filter = PF24

Hard Parts:

Block = original 389, bored 4.125 at this point, cyl 6 & 8 sleeved (Adams Engines, Howell)

Crank = original 389, still 010/010 from first overhaul in 1972 (Sir Auto, Kalamazoo)

Cam = original 389 "P" code, 9779067

Lifters = new Hylift-Johnson "R" code hydraulic flat tappet

Heads = original 389, 093 cast code, 68cc, 1-pc stainless valves (SI Ind, Simi Valley, CA)

Pistons = DSS 4032 custom with 17.6cc dish (results in 9.5 SCR), L2L coating

Rods = Crower Sportsman, forged, full floating

Ignition = stock distributor with Pertronix conversion; Pertronix coil full 12V no-ballast

Butler 461 BBP - Static Compression Analysis

	At rest:	At speed:	
BORE DIA, in. (4.120 + 0.037)	4.157	4.155	
STROKE, in.	4.25	4.25	
(1) BORE VOLUME, cc	945.24	944.33	
PISTON DECK HEIGHT, in.	0.000	-0.005 (rod & piston growth)	
PISTON DECK VOLUME, cc	0.00	-1.11	
PISTON RING LAND, cc	3.14	2.82 (land growth)	
GASKET VOLUME, cc (Fel-Pro 1016, .039")	9.40	9.40	
HEAD VOLUME, cc	70.00	70.00	RAII R96A
VALVE RELIEF VOLUME, cc	30.00	30.00	
(2) CHAMBER VOLUME, cc	112.54	111.11	
(3) TOTAL VOLUME, cc (1+2)	1057.78	1055.43	
STATIC COMPRESSION RATIO (3/2)	9.40	9.50	

GTO 461 - Static Compression (bore-by-bore)

	CYLINDER LOCATION							
	1	3	5	7	2	4	6	8
BORE DIA, in.	4.157	4.157	4.157	4.157	4.157	4.157	4.157	4.157
STROKE, in.	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25
(1) BORE VOLUME, cc	945.24	945.24	945.24	945.24	945.24	945.24	945.24	945.24
PISTON DECK HEIGHT, in.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
PISTON DECK VOLUME, cc	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PISTON DISH VOLUME, cc	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00
PISTON RING LAND, cc	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14
GASKET VOLUME, cc (0.039" Fel-Pro)	9.40	9.40	9.40	9.40	9.40	9.40	9.40	9.40
HEAD VOLUME, cc	70.00	69.80	69.60	69.80	69.60	69.80	69.60	69.40
(2) CHAMBER VOLUME, cc	112.54	112.34	112.14	112.34	112.14	112.34	112.14	111.94
(3) TOTAL VOLUME, cc (1+2)	1057.78	1057.58	1057.38	1057.58	1057.38	1057.58	1057.38	1057.18
STATIC COMP. RATIO (3/2)	9.40	9.41	9.43	9.41	9.43	9.41	9.43	9.44
AVE. PISTON DECK HGT:	0.000	COMPOSITE SCR: 9.42						
AVE. PISTON DECK VOLUME:	0.00	HIGH CYL. (#8): 9.44						
AVE. HEAD VOLUME:	69.70	LOW CYL. (#1): 9.40						