D&D F1000/ F1200 big bore trail engine

Glenn Hall was delivering this sled from D&D to a customer in Minnesota, and before he finalized the single pipe Boondocker map he broke the bolts on D&D's dyno drive shaft. With no time to repair the damage to the dyno (the sled was fine) Dale Roes asked me to give the sled a quick dyno session to final tune the Boondocker and show a DTR number. Saturday Morning Glenn arrived along with Dead 1 Dave Craiglow who came to give a hand muscling the sled around and doing the dyno hookups etc.

Glenn explained that this sled is their typical trail performance package (about $1900 exchange for cylinders pistons and head). This kit uses the stock head, desirable for low cost and stealth effect, plus the advantage of low volume, high velocity stock cooling passages. This engine has a 11.8/1 compression ratio, just a bit higher than stock. To complete the package, the big engine needs an offset key, Vforce 16 petal reeds w/o stuffers and modified throttle body boots. Also, an oversize Ypipe, freer breathing single pipe and can muffler are required. The D&D dyno showed good HP at higher revs and lower airflow CFM with the quiet stock muffler, but that combo hasn't been trail tested yet. Our single pipe tests were with D&D can for this engine. Also the single pipe data includes two Boondocker settings, one safer than the other, all tests were done on pump gas, WOT for 12-14 seconds surely like ¼ to ½ mile on the lake with the thremostat open but coolant temp not much higher than 100 deg F.

Coolant temp is something that F1200 owners should probably monitor closely, since we're asking the stock cooling system to deal with about 60-70 extra HP worth of heat at WOT. The thermostats are said to open at 80 degrees F, and the closer one can keep the coolant temp to that temperature the greater the reliability. Those who insist on doing lake hotlaps and expecting the computer to ensure safeness with 180 degree F coolant are asking for trouble. This is true not only with these powerful engines but also sleds that have been perked up from stock to 180 plus with only Ypipe and airbox mods. Most savvy lakeracers monitor their coolant temps and when temperature rises from hard running, they let their sleds rest and cool before resuming.

The twin pipes Glenn had on the sled were stamped/ welded individual pipes that connected to a single can muffler, free breathing enough for the high flowing twin pipes = louder than stock.

This sled also has a Boondocker N2O kit on it—Dave and I lobbied for a small hit N2O dyno run, but Glenn overrode our majority decision because he had no race gas to test with and he surely wanted to deliver this sled running on Sunday. Glenn's theory is that N2O allows pump gas engines to make race engine HP, and race engines need race gas. Sensible advice.

Here are three dyno runs on the F1200 engine, the single pipe was first run with the Boondocker set the way it had been dynod at D&D before dyno shaft troubles. Then we came up with a leaner setting (only three numbers lower mid and high above 6500) because Dale was hoping for 225 plus with the single. Three numbers was all it took.

Single pipe leaner

EngSpd RPM	STPTrq Clb-ft	STPPwr CHp	FulA+B lb/hr	BSFC lb/hph	FulA+B lb/hr	TsTim2 second	A/FA-B Ratio	Air1+2 scfm
6200	113.1	133.4	62.9	0.494	62.9	0	11.04	152
6300	129.1	154.7	69.7	0.472	69.7	3.2	15.89	242
6400	130.6	159.1	70.4	0.464	70.4	3.4	15.85	244
6500	141.2	174.8	96.9	0.581	96.9	4.6	12.38	262
6600	142.9	179.6	99.8	0.583	99.8	5.2	12.41	271
6700	144.3	184.1	101.7	0.579	101.7	5.6	12.42	276
6800	147.9	191.5	106.5	0.583	106.5	6.4	12.21	284
6900	150.6	197.8	109.3	0.579	109.3	7.1	12.05	288
7000	153.6	204.7	110.5	0.566	110.5	7.7	12.03	290
7100	156.3	211.3	113.3	0.562	113.3	8.5	11.75	291
7200	158.8	217.7	115.4	0.556	115.4	9.3	11.61	292
7300	160.3	222.8	115.5	0.544	115.5	10.1	11.71	295
7400	159.8	225.2	113.9	0.531	113.9	10.8	11.99	298
7500	158.8	226.7	113.9	0.527	113.9	11.3	12.05	300
7600	153.9	222.7	114.1	0.537	114.1	12.4	12.01	299

Single pipe, richer setting

EngSpd RPM	STPTrq Clb-ft	STPPwr CHp	FulA+B lb/hr	BSFC lb/hph	FulA+B lb/hr	FuelP psig	A/FA-B Ratio	Air1+2 scfm
5900	118.3	132.8	63.5	0.502	63.5	44.2	14.38	199
6000	118.1	134.9	65.8	0.513	65.8	44.2	15.07	217
6100	122.3	142.1	66.6	0.493	66.6	44.2	15.53	226
6200	127.5	150.5	67.8	0.473	67.8	44.1	15.73	233
6300	129.7	155.6	70.3	0.475	70.3	44.1	15.68	241
6400	130.5	159.1	70.8	0.468	70.8	44.1	15.68	242
6500	137.9	170.7	94.1	0.579	94.1	43.7	12.49	256
6600	140.8	176.9	98.7	0.586	98.7	43.6	12.48	269
6700	143.7	183.3	102.9	0.589	102.9	43.6	12.31	277
6800	145.1	187.8	105.6	0.591	105.6	43.6	12.19	281
6900	149.2	196.1	110.3	0.591	110.3	43.4	11.92	287
7000	152.3	203.1	114.8	0.594	114.8	43.4	11.47	288
7100	154.3	208.6	116.7	0.587	116.7	43.3	11.31	288
7200	157.5	216.1	119.5	0.582	119.5	43.3	11.11	290
7300	158.9	220.9	119.4	0.567	119.4	43.3	11.28	294
7400	158.2	222.9	118.2	0.557	118.2	43.3	11.46	296
7500	157.1	224.2	116.2	0.544	116.2	43.3	11.72	297
7600	151.9	219.8	116.3	0.557	116.3	43.3	11.67	296

Twin pipes

EngSpd RPM	STPTrq Clb-ft	STPPwr CHp	FulA+B lb/hr	BSFC lb/hph	AirTmp degF	LAMAF1 Ratio	A/FA-B Ratio	Air1+2 scfm
5900	117.2	131.6	69.8	0.556	36	18.3	16.95	258

6000	117.5	134.2	70.8	0.553	36	18.9	16.86	261
6100	117.6	136.6	70.9	0.545	37	18.9	16.93	262
6200	121.4	143.3	73.1	0.535	37	18.9	16.73	267
6300	122.5	147.1	73.5	0.525	37	18.9	16.69	268
6400	124.4	151.6	74.1	0.512	37	18.9	16.66	269
6500	125.5	155.3	74.5	0.504	37	18.9	16.61	270
6600	138.6	174.2	105.3	0.635	38	15.1	12.12	279
6700	140.9	179.8	107.5	0.627	37	14.1	12.15	285
6800	141.5	183.2	109.5	0.627	37	14.5	12.01	287
6900	144.7	190.1	113.9	0.631	38	14.7	11.76	293
7000	147.3	196.3	118.3	0.633	38	14.7	11.42	295
7100	149.6	202.2	119.2	0.619	37	14.7	11.38	296
7200	154.3	211.5	122.2	0.606	37	15.7	11.25	300
7300	156.1	216.9	124.6	0.603	37	16.3	11.11	302
7400	157.3	221.7	124.7	0.591	37	15.8	11.25	306
7500	157.7	225.2	124.5	0.581	36	16.4	11.36	309
7600	159.8	231.2	127.3	0.577	36	17.2	11.27	313
7700	160.1	234.7	128.1	0.572	36	17.7	11.24	314
7800	158.2	235.1	128.2	0.572	36	17.7	11.26	315
7900	155.2	233.5	129.1	0.579	36	17.4	11.18	315
8000	152.8	232.8	127.9	0.577	37	18.4	11.31	316