Note from the chart that supercharged and turbocharged engines ın richer air-to-fuel ratios that raise ıe BSFC number. They will typically eed higher flow injectors than the ıme horsepower engine that is naturally aspirated.

ıjector Duty Cycle

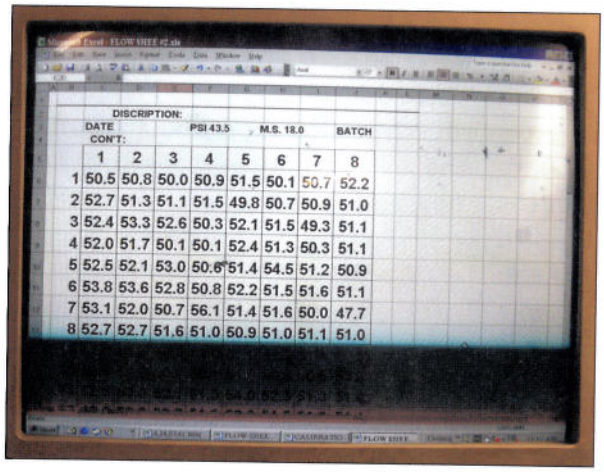
The duty cycle is the maximum ınount of time you want the injec-ırs to be open at a particular horse-ower level. In most cases you do ot want your injectors to be open ıore than 90 percent (0.9) of the me, and some tuners recommend ven less. Marine applications ıould lower that expectation to 80 ercent (0.8). However, injectors are ted in their flow at a 100 percent ıty cycle, which is static flow.

ılculating Injector Size

This process will ensure that you ıve selected injectors that will flow e proper amount of fuel to produce e horsepower intended. Let's sume you have a 300-hp V-8 gine that you are turbocharging to ake 450 hp (a 50 percent increase power). You will use the following rmula:

ıjector size = (Engine hp x BSFC) / (No. of injectors x Duty Cycle)

Injector size = (450 hp x .60) / (8 x .9) = 375 lbs/hr



DISCRIPTION:

DATE			PSI 43.5		M.S. 18.0		BATCH	
CON'T:								
	1	2	3	4	5	6	7	8
1	50.5	50.8	50.0	50.9	51.5	50.1	50.7	52.2
2	52.7	51.3	51.1	51.5	49.8	50.7	50.9	51.0
3	52.4	53.3	52.6	50.3	52.1	51.5	49.3	51.1
4	52.0	51.7	50.1	50.1	52.4	51.3	50.3	51.1
5	52.5	52.1	53.0	50.6	51.4	54.5	51.2	50.9
6	53.8	53.6	52.8	50.8	52.2	51.5	51.6	51.1
7	53.1	52.0	50.7	56.1	51.4	51.6	50.0	47.7
8	52.7	52.7	51.6	51.0	50.9	51.0	51.1	51.0

As seen on the screen on Precision Turbo and Engine's test bench, the same injectors will have a slight flow variation when static tested at 43.5 lbs of fuel pressure. The numbers across the top label each injector, 1 through 8, while the left hand axis is the test run. Note this set of injectors has just been flow tested and a variation on line 1 shows a low flow value of 50 and a high of 52.2. That's a flow variation of 4.4 percent. Precision will place each of these injectors into racks where the flow rating will be within .1 lb of each other to allow more precise fuel metering from cylinder-to-cylinder.

application are rated in steps that go from 35 lbs/hr to 40 lbs/hr, select the 40-lb/hr injectors. However, an equally sound approach is one that would select a bit more headroom and opt for 50 lb/hr injectors since there is complete tuning capabilities in your programmable EMS. This may give you room for further adjustments down the road if you ever plan to further raise your engine's potential beyond where you intend to start.

When building a high-performance or competition engine it is wise to purchase matched flow sets of injectors as well. Manufacturing tolerances and slight variations in injector assemblies will allow flow variations that reveal themselves