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## SOME POINTERS IN SELECTING AN ENGINE By L. D. GOFF in "Gas Review"

T HE life of a good engine is shortened by poor handling, and the life of a poor engine is lengthened by good handling, but the life of a good engine properly handled will exceed by far the life of a poor engine accorded the same treatment.

A little experience I recently had with an engine that had gone wrong set me to thinking about the folly of buying cheap engines. The reading of the letter by C. E. Cushing, which appeared in the February number of "Gas Review" set me to writing and, contrary to the usual custom, I am opening rather than closing with the moral.

Without a doubt the engine Mr. Cushing is operating was purchased at a price

that enabled the manufacturer to build a real engine, and ability and ingenuity were concentrated in building a serviceable engine. While the first cost of the engine was high compared to some present day prices, his upkeep expense has been low. The service this engine has given must be of considerable satisfaction to Mr. Cushing.

Now his neighbor, because of false economy in employing cheap help to operate a similar engine, has not had the same satisfactory service but under adverse circumstances it did service for some length of time. The question is, what would have been the life of a c h e a p, poorly constructed engine under

the same conditions and with the many more, requiring but very same handling. It little attention. Of course, all of

My recent experience was with a smaller engine, rated at 15horse power, to be more definite, and it stopped. As the man operating it knew but little about a gas engine other than operating it, I was called in and I found the compression was being lost through the exhaust valve. Following my instructions the cylinder head was removed and I found that the seat of the exhaust valve was practically worn out as well as the valve itself, also the valve stem guide was worn so that the head of the valve had worn downward on its seat and the valve stem had also worn the guide downward.

It appeared like a bad case, but

I noticed a feathered edge of metal on the valve seat and straight away started to examine it with the aid of a cold chisel and hammer. I soon removed what was left of the seat in the form of a ring, so the matter of providing a new seat was a very small machine job. In my hasty examination I had overlooked two screws on the cylinder head. which I later found served to hold in place the valve stem guide. This was also easily replaced, and it was a small job to make a new valve. About four hours' work put the engine back in service with this particular part as good as new. This engine has already plugged away daily six days a week for ten years and is good for many.

or less distinct and a person in the market for an engine, after a little investigating, should have no trouble in separating the classes.

The first class is the well designed engine built for long time service, incorporating refinements that go toward economical operation and satisfactory service. The engines mentioned in the fore part of this article are examples of this class. Where a person is contemplating the installation of an engine for steady all-day service, he should look to this class and if the price frightens him bear in mind that the money asked is represented in the engine in quality of material, extra fine fitting and workmanship and, lastly, service. He may never have an occasion to gine is shut down and the trouble corrected while such a case, where the engine is used for running a small factory or for work on a construction gang, will make a hole in the profits.

I do not wish to imply that these engines I have put in the second class will necessarily give trouble, for such is not the case. They are designed and built for service yet with an eye for economical construction that they may be marketed at an economical price considering, the use to which they are to be put. These engines will give service and good Nine times out of ten service they will be put out of commission by abuse and neglect rather than by wear and this would occur to the engines in the first class

if accorded the same treatment.

And, again, as in the first class, the engine represents full value for the price asked with, of course, a reasonable profit. Before going further, let me impress the reader with the fact that there are no unreasonable profits made on engines of the above classes. Competition is altogether too keen for that. It is the aim of the average manufacturer to reduce his cost that he may reduce the selling price and increase his volume of business rather than to make a big profit on a single engine.

Somewhat reluctantly I will start on the third class. I am afraid I will not be able to do this class justice without resorting to lan-

guage not permitted in print but will try, hoping that at least one or two prospective engine buyers will get the point I am endeavoring to convey.

To the third class belong the low priced engines, cheap engines, cheap in price, cheap in quality of material, cheap in quantity of material, cheap construction, cheap workmanship, cheap finish, cheap equipment, cheap, cheap, cheap. Now the buyers of these engines do not come under P. T. Barnum's class of those who "like to be humbugged," but belong to a peculiar class who have yet to learn the truth of the saying, you cannot get something for nothing. The truth about these cheap engines is never told. On the con-Continued on page 48

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little attention. Of course, all of the parts could have been purchased from the manufacturer had no machine shop been available.

But this engine was built to run. The company making it are still making engines, in fact, have an enormous engine business and as far as price is concerned their engines are among the top notchers. Hundreds of cases similar to the above is the reason they can build a real, honestly good engine and get a price that, compared to prices asked for engines put out by other companies, seem outrageous.

There are, to my mind, three classes of engines on the market to-day. These classes are more

call for the service the manufacturers stand ready to give, but he has the satisfaction of knowing if anything goes wrong he can get quick assistance, and a long expensive shut-down will b e avoided.

To the second class belongs the engine of moderate price. Because of the price such engines cannot incorporate the fine workmanship, extra refinements, etc., found in engines of the first class. Further, engines to be used for intermittent service such as farm work, are not subjected to the wear and tear that an engine in constant service will get and the cost of construction can be reduced accordingly. Again, if some little adjustment is required, there will be little or no loss if the en-

