



YAMAHA 125/175 HOP-UP

Don Vesco tells all about how he transforms those small displacement singles into big performers

As close as we can tell, there are far more people out there who are really interested in hopping up their small displacement trail bikes than one might imagine. If you think about it for a while, the reason becomes clear. The initial cost is low, not to mention it need not cost an arm and a leg to replace a piston or a cylinder. Not only that, but the smaller bikes make an excellent training ground for those people who have ambitions toward some day tackling a more ambitious project.

Whatever the reasons are, a lot more parts are sold toward extracting more performance for under 250cc machines than any other size. The Yamaha AT1 or CT1 fall into this classification. The 125 AT1 and the 175 CT1 respond instantly to the modifications outlined here.

In an effort to find out exactly what the best route is, we contacted Don Vesco and he showed us exactly how he goes about putting together a race-winning combination after first deciding on what the motorcycle is to be used for. (This is absolutely necessary since what's fine for fast scrambles will be no good at all for motocross.)

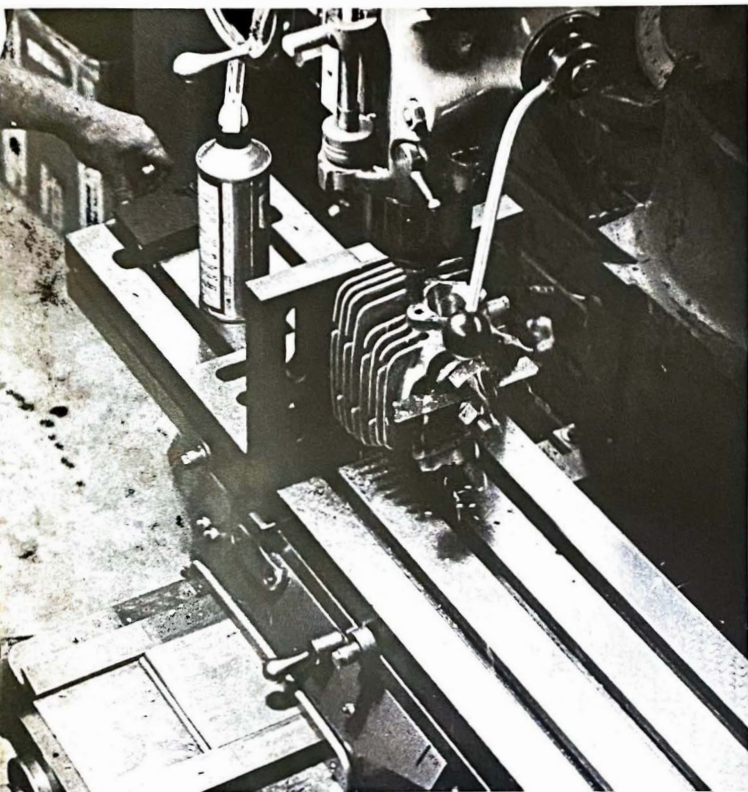
The top end of the engine is unzipped and checked for piston and cylinder wear. If the cylinder wear is nominal and the piston to cylinder fit is still acceptable, it will not be necessary to rebore the barrel, but should there be any appreciable wear, now would be a good time to replace the worn piston.

To start off with, it will be necessary to machine a certain portion of the cylinder as well as do some welding. By using the procedure outlined here, along with the information contained in this text, anybody can do more than a satisfactory job. If you find yourself unable to locate adequate facilities or knowledgeable people in your area, Don Vesco (765 El Cajon Boulevard, El Cajon, California 92020) has the tools and manpower to do the necessary metal transformation shown here.

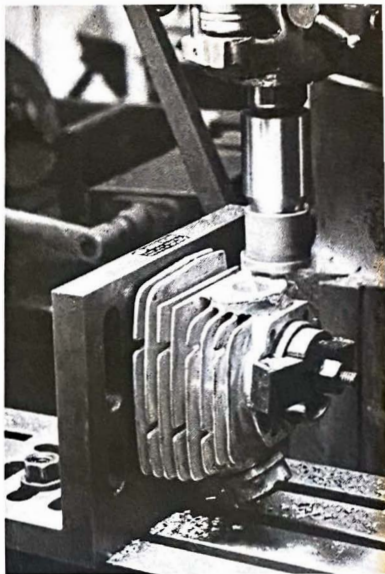
It's really very simple when you boil the whole thing down, but like any other performance increasing modification, it's usually not the big things that make all the difference, but the little ones.

It's imperative that care be taken every step of the way to be sure ports are moved accurately, manifolds are lined up correctly and dimensions are adhered to as specified.

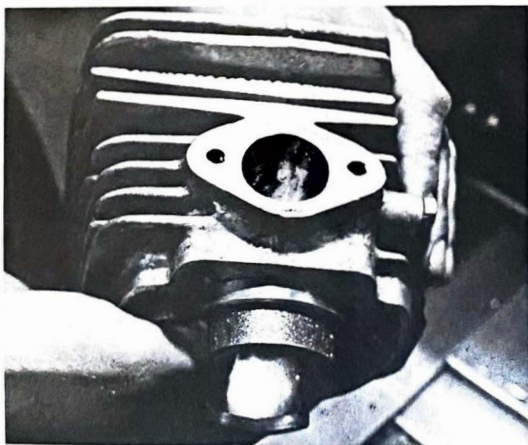
The first thing that should be done to the cylinder is lower the intake ports 5mm. If you own an MX model, leave the intake alone if it already measures 89mm from the top of the cylinder. With the 30mm road racing carburetor manifold (molded rubber) be sure



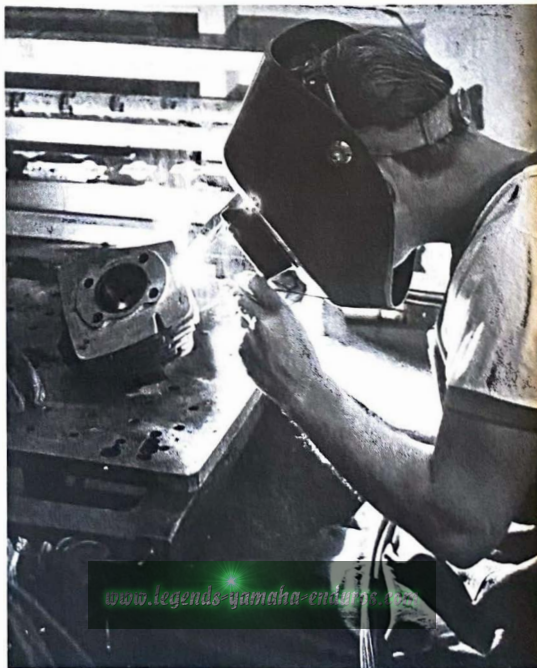
1.
The first step is to machine off $\frac{3}{8}$ " of the existing intake manifold flange. This should be done in the mill.



2.
Now it will be necessary to remove the two fins directly above the reworked flange.

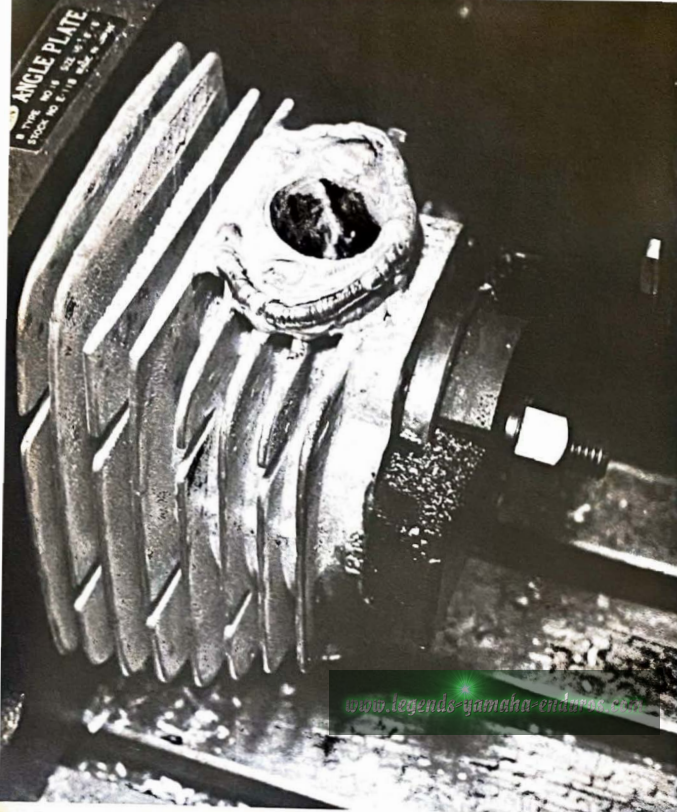


3.
This is what your cylinders should look like after the previous operations have been completed.



4.
With the aid of a heli-arc, fill in the existing stud holes and also—

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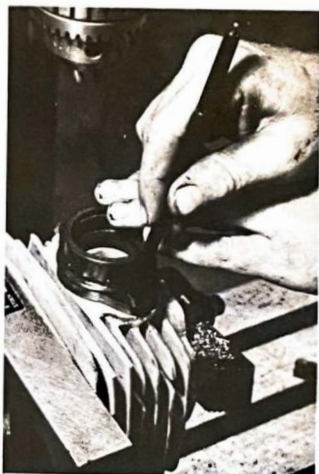
5.
build up an area around the perimeter of the flange.

the bore of the intake matches up perfectly with the inside bore of the new manifolds. This is vitally important. Also, enlarge the port as much as possible without raising or wiping it.

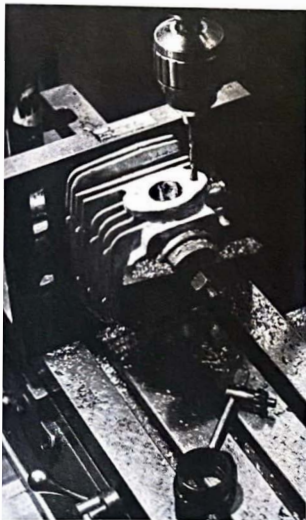
It's not necessary to go overboard on the polishing. Just be sure it is smooth and clean.

Moving up to the cylinders, the transfers are next on the agenda. Measure down 38mm from the cylinder's top surface. This is where the transfers now want to be. A good deal of care must be taken here since it is easy to make a mistake and remove too much metal. Work slowly and carefully. When the transfer ports are raised to the proper height, now is the time to go on the inside and clean them up so as to provide a smoother and more direct path for the incoming charge. Try to maintain the same shape on the roof of all the transfer ports as those found on a stock one.

With the transfer work out of the way the exhaust port should now get your undivided attention. Remove



6.
After again machining the surface flat, if you are using the road racing type carburetor, use the rubber manifold for a pattern to mark out the new stud location.



7.
If you are planning to use the DT-1-type carburetor, you can do the same thing. Now drill out and tap the flange for the relocated studs.



8.
With the larger carburetor it will be necessary to open up the intake to match the new manifold or carburetor bore size. Try to be as careful and workmanlike as possible.

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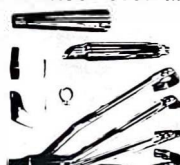
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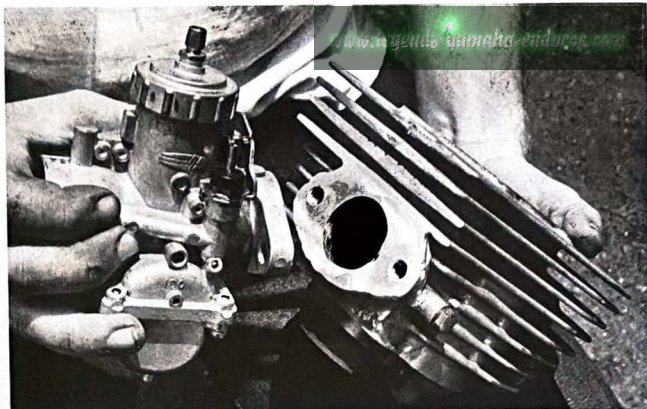


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9.

This is the finished product ready for installation. Use a thin phenolic heat shield between the carburetor and cylinder if a DT-1-type carburetor is used.

material from the top of the exhaust port until you have a dimension of 26mm from the top of the barrel. Also, while you are at it, the exhaust port width should measure 36mm. Remove an equal amount from each side.

If high speeds, scrambles or TT is your bag, you can cut the back skirt of the pistons an additional 2mm. For motocross, leave the piston as is. For competition purposes start with a motocross head and remove forty-thousandths if you are planning to use the bike for short motocross events or short track. For longer events just use a standard MX head.

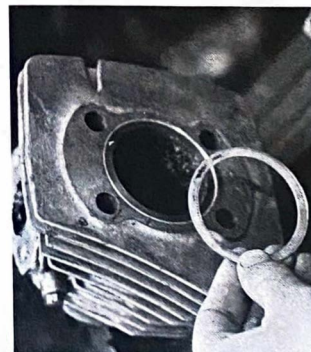
Set the timing at exactly 2mm and use a Champion E57R plug to start with. If you are using a 30mm road-racing carburetor in conjunction with the rubber manifold, put a 270 main jet in. If you are using a DT1X carburetor, just stick with the standard jet. Needless to say, these sizes are merely ball park figures, so it will be necessary to make plug checks to be sure the main jet size, priming, and plug heat range are correct for this application.

Regardless of how much time and effort are spent in building up the motorcycle, ultimate success depends on the final tuning. There are a lot of good parts wasted every day because people do not take the time to carefully tune the machine once it is running. Don't fall victim to this in your haste to go racing. Take your time and be sure everything is right and ready. Don't overlook the small details which usually make the difference between winning and losing.



10.

Check the text for the proper exhaust port dimensions. After reworking this area of the cylinder, this is what your port should look like.



11.

The top of the cylinder itself should be machined to receive the thin Yamaha TD-2-type circular head gasket in place of the stock one. This does a much better sealing job. CM