

TECHNICAL

DUCATI PANTAH TURBO

From Motociclismo, the Italian Magazine, from their Feb/81 issue. The piece was translated by Joe Borghese. I forgot who sent this piece in, but thank you anyway. Er, pardon me while I got get me another glass Chateau Le Teour DeBlanc. Ok, I'm back and here it is. If I may add, the little Pantahs are now available here in da US, and let me tell you, it is a fine machine, and everything they have written about it is true. The workmanship is superb. Unfortunately all the EPA restrictions that they have put on this machine to make it legal for export into the USA have slowed it down quite a bit. I am sure that the steps to making this this a race winner are few and easy to accomplish. Keith Harte, in Canada has been doin some racing with this machine and he is one guy to contact if you want to make your Pantah really fly. His address is Keith Harte Motorcycle Sales, RR #2, Hamilton, Ontario, Canada L8N 2Z7.

'What the Italian Technicians Say'

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The engineers Franco Lambertini specified, "The turbo-compressor is the most sure road for technical progress and for improving the power without having to necessarily turn to sophistications like the excessive fractionalization of the displacement (cylinder multiplication) or the addition to the head of four or more valves, solutions quite costly and always leading to an increase in the weight of the motor.

"Displacement compressors do not attain efficiencies better than 50 - 60%, besides absorbing from the motor which it operates a quality of energy which grows with the cube of the pressure rise.

"Centrifical compressors have efficiencies of 70 - 80%, and turbo-compressors also have the advantage of the traditional centrifical compressors, that is, they do not absorb energy, in as much as they use some that otherwise would be dispersed. The slight subtraction of power, due to the increase of the counterpressure of the exhaust, comes in part balanced by the push the compressed air exercises on the pistons. (This is also the case in displacement compressors and traditional centrifical compressors).

One of the most difficult problems to resolve when wanting to convert a normally aspirated engine to 'turbo' is the positioning of the carburetor, it may be 'blown' i.e. arranged between the compressor and the motor, as opposed to 'breathing', i.e. placed before the compressor. For reasons of simplicity of construction, (in the case of a 'blown' carburetor it is necessary to also add a fuel pump and a fuel pressure regulating valve) we have chosen the solution of a 'breathing/ carburetor, also because we were able to notice that, in this case, the air and fuel emerge better mixed. We then also thought that the lack of the pump and valve, besides lower

ring production costs, represent a noticeable contribution to simplicity of maintenance, a qualification not to under value when speaking of a production motorcycle.

Other parts to study accurately is the prevision of a 'turbo' are the pistons, and the division and gasketing of the head, while the exhaust pipes must no longer be thought of as common pipe, but as conduits of energy.

Limited to a production facility such as ours, with production in small numbers, the adoption of the turbo permits us to have another model, without having to develop a new motor. We will construct a 500 with the performance of a 900 and the consumption of a 650.

From his side the engineer Fabio Taglioni said to us, "There is still some distance between the turbo and the motorcycle. The principle motive is for us to research the slight adaptability of the models actually is found in the market, with respect to the particular demand in that sector of motorcycling.

"With the Pantah we have experimented with two turbos: the German KKK and the American Rajay. In the first case we had to mount the carburetor 'blown', since, if we had mounted the carburetor 'breathing, and not been successful to assure the holding of the lubrication oil on the pivot, the motor would have been fed a mixture of air, gas and oil. In the second case we were able to eliminate the pump and regulator, mounting the carburetor 'breathing'. The Rajay turbo is very much smaller than the KKK, and better lends itself to a motorcycling application, still, also with this the results had been inferior to expectations. With the production Pantah 500 we already have 60 HP at the wheel. We made this test: the Pantah was prepared for the mounting of the Turbo, but without having mounted it we placed the motor on the test bench, and the power verified in this condition was 48 HP without any problems, a tangible increment, but as one can see well away from the percent increments to support the turbo cost. In effect I think that 80HP can also be attained from pushing the Pantah with classical modifications, without having to confront all the complications of the turbo.

"The fact is that without adopting some particular cunning, like an intercooler or water injection to cool the air-fuel mixture that is introduced into the combustion chamber, it is not possible to better maintaining a minimum of trustworthiness in the motor, a boost pressure of 0.4 to 0.5 atmosphere.

"During the tests we also had to mount a pressure limiting valve on the intake manifold, and notwithstanding its presence, the explosions in the manifold due to backfiring were of such violence to deform that same manifold.

"In the course of the last test on the bench, the waste gate valve suddenly was blocked. We braked 126 HP, for half a second...

Editors Note: The article ended thus. I printed this piece of info since it's all I've gotten on the Turbo Pantah. I've gotten quite a few inquiries about this machine, I don't know if the above will be of any help to those folks but it's all we've been able to get our hands on. OK? Anyone with more info on this project please send it to us and we'll pass it along. Thanks.

NOTE

If you come across any Ducati technical stuff please make a copy and send it in. Any new stuff you find that comes along, send it in. This is what keeps thing rolling in this club and up to now it's worked out great, but we still need your help in gathering data for printing. OK?