

TECHNICAL DEPARTMENT

OIL COOLER FOR DUKE TWINS

by cook nielson

I noted in your last issue a letter from Rick Williams inquiring about installing an oil cooler on his GT. If I may, some observations about the installation:

1) It is my impression that any Ducati 750 won't need one. We raced our 750SS for two entire seasons and the engine never gave any indication of thermal distress. Ring life was fine, and there were no charred deposits on the undersides of the pistons to indicate superheated oil. We suspect that the big Ducks reject heat brilliantly. Dale Boller rode a 750 at high speeds across the Mojave desert three or four years ago, and using his patented "Spit-On-It" process was able to determine that the Duck ran cooler than any other motorcycle. Too, the Ducks carry in excess of 4½ quarts of oil, and all interior bearings are balls or rollers. So the oil never really has a chance to get hot.

2) Our race bike for this year is the same one we used last year except displacement has been increased to 883 with a 7mm overbore and custom-made Venolia pistons and Yamaha 500 single rings. For Daytona, considering the amount of top-gear high-speed running that's called for and considering how little we knew about big-bore Super Sports, we fitted an oil cooler as a precautionary measure, mounting it above the tail section and between the number plates. After Daytona we once again tore down the motor; again, there were no signs of thermal distress anywhere. At present we are considering removing the cooler altogether; even on our race bike, we don't think it's necessary.

3) However, if Mr. Williams insists on doing it, here's how we did it. We bought a smallish cooler from Hayden Transcooler people and located it as above. We originally wanted to mount it below the steering head, but noted that if we put it there it would block the flow of cool air to the rear cylinder head. We tapped into the oil gallery located between the distributor housing and the front cylinder tower shaft cover and fitted a 1/8 pipe fitting, carefully sealing the area with aluminum-metallic Bondo or Devcon.

Next we drilled and tapped the cam support bearing housings in the cylinder heads, and likewise stuck in some 1/8 pipe fittings. Finally we opened and tapped the oil passages leading up through the cylinders, and plugged them at the crankcase base gasket surface. The oil now passes out of the engine in front of the distributor, through reinforced neoprene line back to the cooler, from the cooler forward to a junction fitting, and from the junction fitting through more line into the cam bearing support blocks, thence through the cams and back to the sump through the tower shafts and the normal oil return galleries.

As you might be able to tell, it's a big job, and adds all sorts of lines and fittings to the exterior of the engine that weren't there before. Lines and fittings can leak, come loose or burst. For a street machine we think a cooler is unnecessary; we suspect it may likewise be unnecessary for a racer.

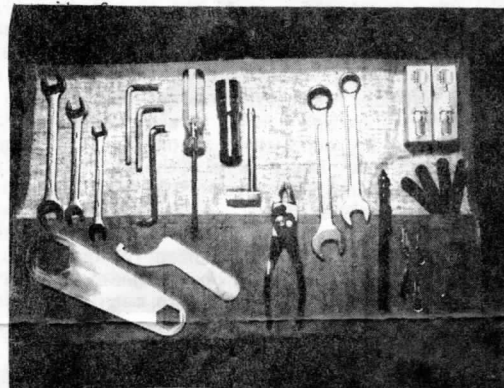
TOOL KIT FOR THE BIG DUKES

by Dave Dew

The tool kit furnished with the 750 GT is a real affront to any owner. It is a shame that they don't just leave out the tools that can be bought across the counter and put in reasonable quality SPECIAL tools. Anyhow, since I graduated from a BMW, I was used to a kit that would meet all routine maintenance needs. You can make up an adequate kit for under \$20.00.

From the existing kit keep the 5 and 6mm allen wrenches. Keep the shock adjusting wrench only if your riding includes a passenger or touring with luggage. Saw, file or grind the 21mm socket off the 14mm hex and drill one end for the tommy bar from your newly acquired spark plug wrench. Next for the oil drain and filter plug. The 21mm is not common and most wrench sets don't have one so you are going to have to cut a \$5 Snap-On wrench down to kit size or do as I did and file the plugs to 13/16. (That's the oil drain plugs) Any service station has a 13/16 box end wrench if you need to change the oil on the road.

The above are merely improvements on what you already have in the kit. The real problem is the axle nuts and the rear Jam nut. A cheap 15/16 wrench cut off to 7 inches long will solve the axle nut problem ok, but the 36mm is going to cost \$10 or so and will be very bulky even if cut down. The best solution, if you can find the material, is to make a 24mm X 36mm box end wrench about 7 inches long. Use 5/32 steel, 3/16 #7075-T6 aluminum or 1/4 #2024-T3 aluminum stock. Using a nut as a pattern or carefully lay out the wrench leaving 1/4 inch material outside of the points on the 36mm end and 3/16 on the 24mm end. Drill, saw and file to shape. It is really very easy to make a good wrench, just go slow and work carefully with the file and you will have a wrench equal to any you can buy.



The rest is easy. Buy the cheapest set of wrenches you can find. Cheap wrenches are smaller and lighter than the top brands, yet are plenty good for a travel kit. Use the 8, 10, 13, 14 and 17mm sizes. Disassemble a tune up gauge and use the .012, .014, and .016 for the points and .030 and .035 for plugs. Put in .002, .003, .004, .006 and .008 for valves. You can't do much about valves on the road, but is comforting to be able to check them once in a while. Add a pair of good small slip joint pliers and a medium size screw driver. Last but not least is a tire gauge and a set of small size tire irons.

For storage I made a tool "roll" from a piece of denim, but if you don't have access to a sewing machine, most accessory shops have a variety of tool

bags. I wrap my tool kit in a double strength baggie and strap it to the battery. You may not want to do the whole bit discussed here, but it may provide some ideas.

