

March 18, 1972

H-2 TUNING UP INSTRUCTIONS

R.P.M. Range for Maximum Horsepower

Recommended speed range of this engine is under 8,000 R.P.M.
 This engine will over-speed to 9,000 R.P.M. in the lower gears if the rider is not careful, and may damage the engine.

1. Specifications

| | |
|-------------------|--|
| Type | 2-stroke, 3 cylinder, piston valves, air cooled. |
| Displacement | 45.63 cu.in (748.0 cc) |
| Bore x stroke | 2.80 x 2.48 in (71 x 63 mm) |
| Compression Ratio | 7.5:1 |
| Max Horsepower | more than 85H.P./8,000 R.P.M. |
| Ignition System | C.D.I. Magneto |
| Ignition Timing | 23° BTDC (3.0 mm) |
| Spark plugs | NGK B-10.5 EN or B-11 EN |
| Spark plug gap | 0.018~0.020 in (0.45~0.5 mm) |
| Carburetors | MIKUNI VM35SC |
| Valve Timing | |

| Inlet | | Scavenge | | Exhaust | |
|-------|-------|----------|--------|---------|-------|
| Open | Close | Open | Close | Open | Close |
| BTDC | ATDC | BBDC | ABDC | BBDC | ABDC |
| 71° | 71° | 63°30' | 63°30' | 97° | 97° |

Transmission ~~142~~ use H1-RA Transmission Gears.

| | | |
|-----|-------|-------|
| Low | 1.882 | 32/17 |
| 2nd | 1.400 | 28/20 |
| 3rd | 1.136 | 25/22 |
| 4th | 1.000 | 24/24 |
| Top | 0.920 | 23/25 |

Final Reduction Ratio use H1-RA Engine sprocket and Rear sprocket.

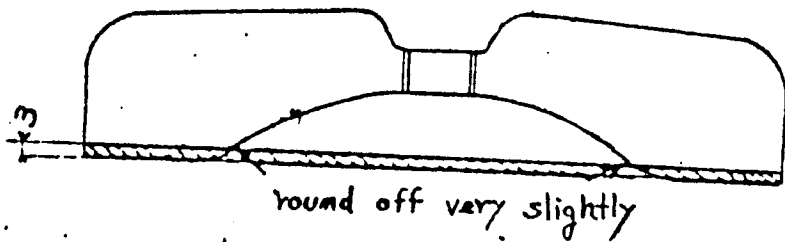
| | | |
|-----------------|----------|-----|
| Engine sprocket | standard | 15T |
| | optional | 16T |
| Rear sprocket | standard | 32T |
| | optional | 33T |

2. Tuning

(1) Cylinder Heads

- a) Use the H2 cylinder head and machine 3.0 mm off, then use fine emery cloth and take the sharp edge off the lower inside edge of the cylinder head.

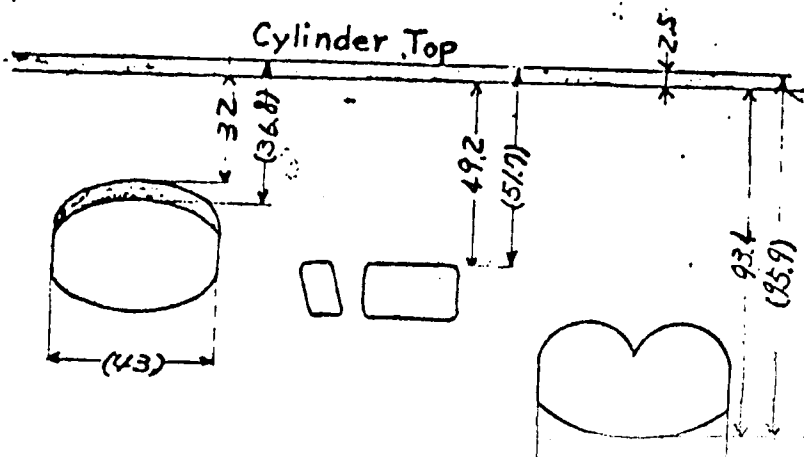
Cylinder Head



- b) Measure the head volume and it should be 21.4 cc. The volume is taken to the bottom of the spark plug hole (to the threads).
- c) The compression ratio may be brought up to 7.5:1 but no higher.
- d) Compression ratio is figured after taking volume measurement from the top of the piston at TDC to the spark plug hole.
- e) The above compression ratio should be measured on each cylinder to insure you have an actual corrected compression ratio.
- f) In all cases, use the H2 head gasket.

(2) Cylinders

- (a) Cut off cylinder top about 2.5 mm.
- (b) Raise the Exhaust port 4.1 mm. The distance from the top of the cylinder should be 32 mm after the port is raised.



(c) The port should be completely polished and shaped to match the exhaust mounting flange.

(d) Add a 2.0 mm aluminum plate under the cylinders. Use a base gasket both on top of and underneath the plate.

CAUTION: Do not widen or lower the exhaust port, only clean it up. This can be accomplished by using a rotary file in a drill or a high speed or a high speed Dremel motor.

(3) Carburetor

Use H1-RA Carburetor.

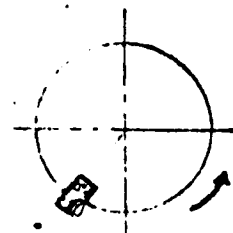
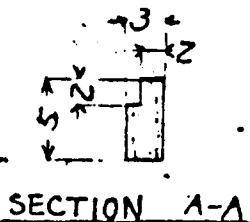
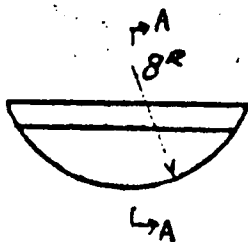
| | | |
|------|--------------|---------------|
| Type | VM35SC | Same as H1-RA |
| M.J. | #270 | " |
| A.J. | 2.0 | " |
| N.J. | Q - O (8 mm) | " |
| J.N. | DA - 3 | " |
| C.A. | 4.0 | |
| P.J. | 60 | Same as H1-RA |
| A.S. | 1/2 | " |

(4) Ignition System

(a) Use H1-RA C.D.I. Magneto.

(b) Ignition timing should be advanced for best results to 3.0 mm B.T.D.C. (23°).

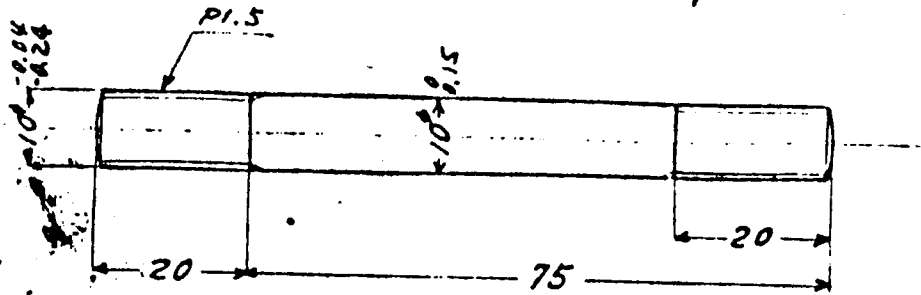
(c) Grind off a corner of the standard H2 magneto key to the measurements in the diagram. This causes the rotor to lag slightly and retard timing to the correct 23°. (The position of the H1 rotor slot is different, so timing must be corrected in this manner.)



(5) Cylinder Studs

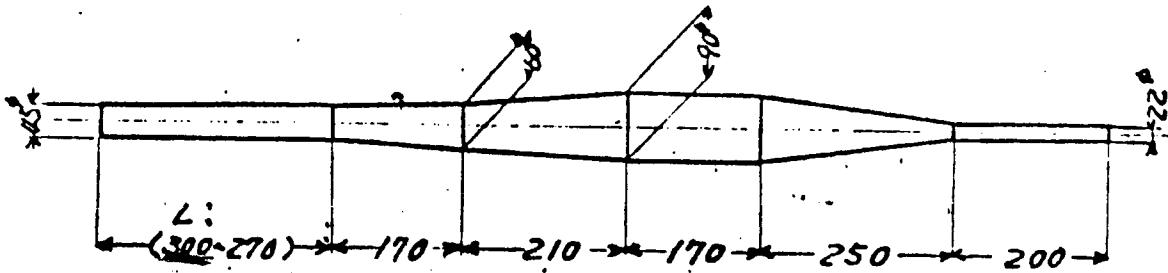
(a) Use stronger material for the tuned up engine studs, but make the stud dimensions the same as standard.

Material: Chromium Molybden



(6) Mufflers

- When mounting the expansion chamber to the motorcycle, dent in any parts as necessary to keep the chamber from hitting the frame.



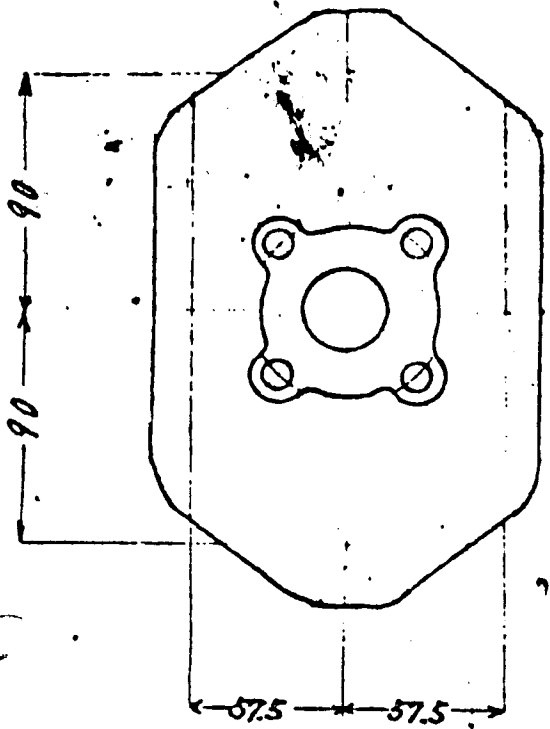
Note: Exhaust pipe length "L" should be made longer than 270 mm to lower the power band. If it is 270 mm or higher, peak power will occur at 9,000 r.p.m. or higher and the connecting rods or big end bearings may fail at this speed.

Note: To fit the H2 engines on an H1-RA frame -

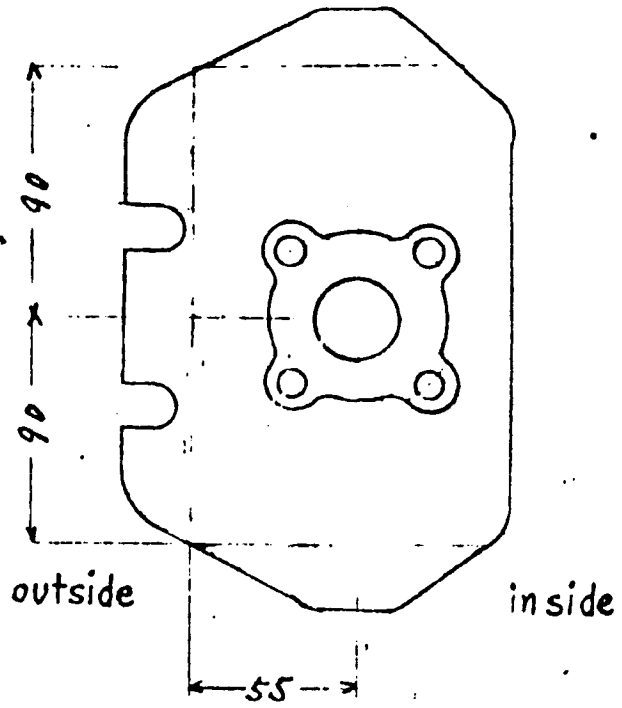
The H2 tuned up engine does not fit on the H1-RA frame without any modification, because the H2 engine has wider fins than the H1-RA engine, and because the outside exhaust pipes would hit the frame.

Cut the cylinder fins down to the measurements in the diagram (cut off the shaded portion).

Then install left cylinder on right side and the right cylinder on the left side.



Center cylinder



left and right cylinder

8. Adjusting Ignition Timing

30 . 23

Inserting the dial gauge in to the L.H. Cylinder head, set the piston to ~~3.45~~ mm (~~25°~~) before the top dead center. Loosening the set SCREWS (1) and (2), adjust the stamped line (L) of the rotor (3) to pointer (4) and then fasten the set screws (1) and (2).

