

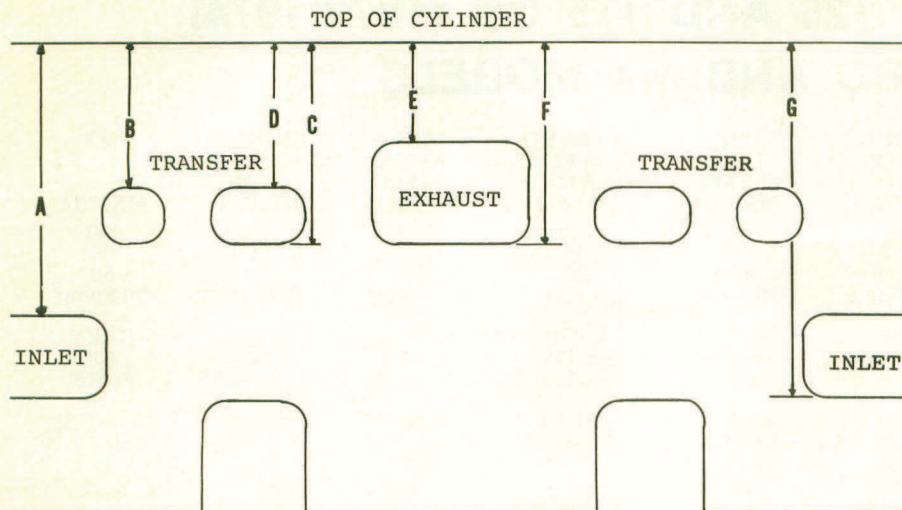


Fig. YT10-1—Cylinder porting diagram for Yamaha 90, 125 and 175cc single Enduro models. Refer to text for modification specifications.

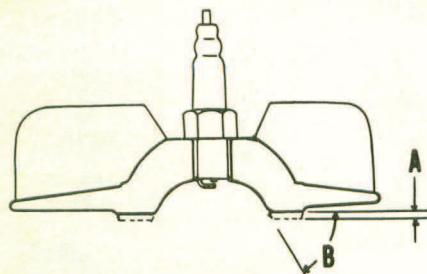


Fig. YT10-2—Angle of taper (B) must be remachined in head after it has been modified for higher compression.

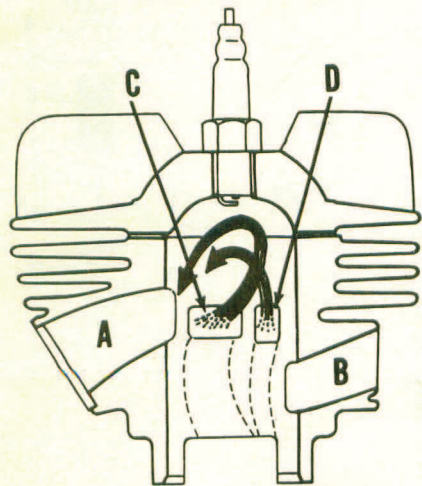


Fig. YT10-3—Basic port pattern of cylinder may be seen in this drawing.

A. Exhaust port
B. Intake port
C. Main transfer port

D. Auxiliary transfer port

PISTON, CYLINDER AND HEAD. Pistons used in MX (GYT) versions of AT1 and HT1 are 3mm (0.118 in.) shorter than standard and have only one piston ring. Standard pistons may be shortened 3mm to increase intake duration.

All top end components (head, cylinder, piston and gaskets) from 125cc MX model may be fitted to either 125 or 175cc engine.

AT1-MX (GYT-Kit) Cylinder Specifications (Fig. YT10-1)

- A. Same as standard
- B. Same as standard
- C. Same as standard
- D. 39mm (1.535 in.)
- E. 27mm (1.063 in.)
- F. Same as standard
- G. 87mm (3.425 in.)

HT1B-MX (GYT-Kit) Cylinder Specifications (Fig. YT10-1)

- A. 60mm (2.36 in.)
- B. 35mm (1.38 in.)
- C. 46.5mm (1.83 in.)
- D. 35mm (1.38 in.)
- E. 24mm (0.94 in.)
- F. 46.5mm (1.83 in.)
- G. 81.5mm (3.20 in.)

Cylinder heads may be milled to match the capacity of the MX units. Standard head capacity of an AT1 is 14.6cc. AT1-MX head capacity is 11.9cc. A CT1 head may be safely modified to a capacity of 19.2cc instead of the standard 24.2cc. An HT1-MX has a head capacity of 8.3cc. Taper at edge of combustion chamber must be reshaped after milling head. (See Fig. YT10-2).

EXPANSION CHAMBER. The expansion chamber designed for the AT1-MX will also work well on CT1 models.

An HT1-MX expansion chamber may be constructed from the following specifications. (Refer to Fig. YT10-4)

- A. 35mm (1.378 in.)
- B. 220mm (8.661 in.)
- C. + D. 300mm (11.811 in.)
- E. 110mm (4.33 in.)
- F. 200mm (7.874 in.)
- G. 200mm (7.874 in.)
- H. 21mm (0.827 in.)
- I. 100mm (3.937 in.)
- J. Sections C&D are same cone
- K. 40mm (1.574 in.)

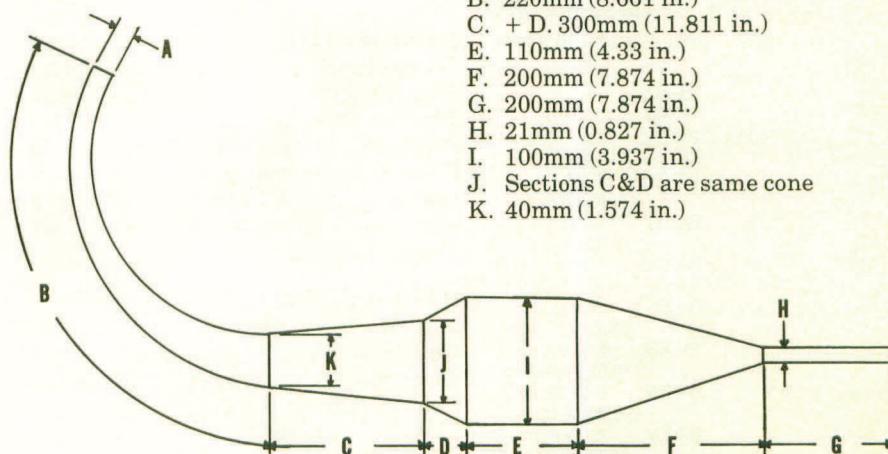


Fig. YT10-4—An expansion chamber will improve the performance of a correctly modified engine. Refer to text for specifications of an HT1-MX expansion chamber.

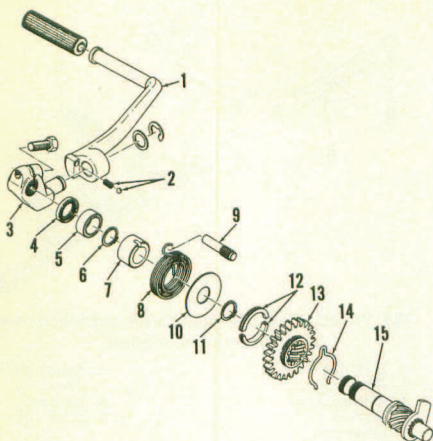


Fig. Y18-24—Exploded view of typical kickstarter assembly.

- | | |
|------------------|-------------------|
| 1. Kick pedal | 9. Pin |
| 2. Pedal detent | 10. Washer |
| 3. Kick boss | 11. Snap ring |
| 4. Oil seal | 12. Holder pieces |
| 5. Spacer | 13. Kick gear |
| 6. Snap ring | 14. Clip |
| 7. Spring guide | 15. Kick shaft |
| 8. Return spring | |

SPEED TUNING

The "MX" models covered in this section are basically "Enduro" models with special high performance parts added and parts not needed in competition removed. Many design specifications of "MX" models may be used to modify standard parts for an increase in performance. The fitting of "MX" parts to standard models may also be used to increase power. Any modification of standard parts or installation of performance parts will void manufacturers warranty.

SPARK PLUG AND IGNITION.

Yamaha recommends use of NGK racing type spark plugs. Spark plug heat range should be carefully selected to obtain best engine performance and reliability. Usually, the coldest spark plug that will run without fouling should be used.

Ignition may be advanced to same specification as used on "MX" models. Starter motor used on 125cc "Enduro" models, may be replaced with a fly-wheel magneto to decrease vehicle weight and increase RPM potential.

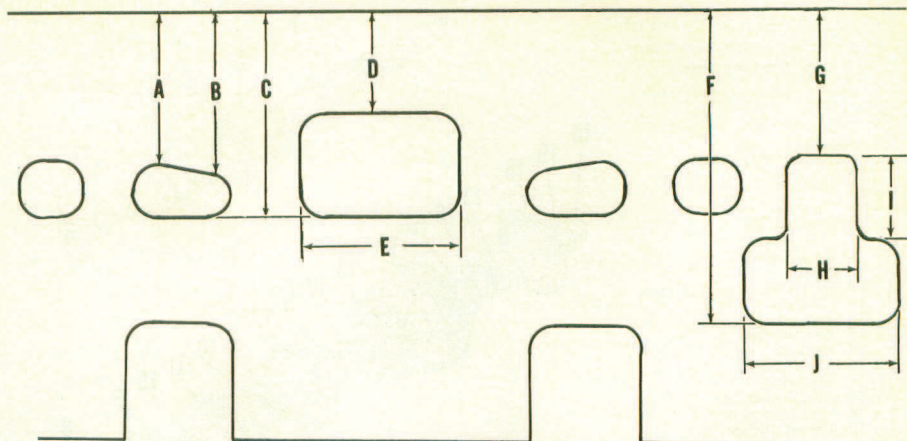


Fig. YT18-1—Diagram of cylinder porting. Vertical measurements are to top of cylinder. Refer to text for dimensions.

CARBURETOR. Larger carburetors than standard or carburetors from "MX" models may be used to change performance of engine. Carburetor jetting specifications of "MX" models may be used as a starting point but individual engines and track conditions may require jetting changes before engine can operate at maximum efficiency.

LUBRICATION. Manufacturer recommends using a 1:30 oil to fuel mix in the fuel tank in addition to the automatic oil metering system on models used in competition. A 1:15 oil to fuel ratio mixture should be used if oil pump is removed.

PISTON, CYLINDER AND HEAD. Pistons used in "MX" models are usually shorter than pistons in standard models. Pistons used in 100cc "MX" models are 60mm (2.36 in.) high and pistons used in 125cc "MX" models are 63mm (2.48 in.) high.

Refer to Fig. YT 18-1 and the following for typical "MX" type cylinder porting specifications:

100cc "MX" Cylinder

- A. 35mm (1.38 in.)
- B. 35mm (1.38 in.)
- C. Same as standard
- D. 23mm (0.90 in.)
- E. 33mm (1.30 in.)
- F. 81.5mm (3.20 in.)
- G. 35mm (1.38 in.)
- H. 16mm (0.63 in.)
- I. 20.5mm (0.80 in.)
- J. 31mm (1.22 in.)

125cc "MX" Cylinder

- A. 38mm (1.50 in.)
- B. 40mm (1.57 in.)
- C. 51mm (2.0 in.)
- D. 27mm (1.06 in.)
- E. 39mm (1.54 in.)
- F. 87mm (3.43 in.)
- G. 38mm (1.50 in.)
- H. 16mm (0.63 in.)
- I. 23mm (0.90 in.)
- J. 36mm (1.42 in.)

175cc "MX" Cylinder

- A. 38mm (1.50 in.)
- B. 38mm (1.50 in.)
- C. 51mm (2.0 in.)
- D. 27mm (1.06 in.)
- E. 42mm (1.65 in.)
- F. 86mm (3.39 in.)
- G. 38mm (1.50 in.)
- H. Same as standard
- I. 23mm (0.90 in.)
- J. 38mm (1.50 in.)

Cylinder head may be machined to increase compression ratio of engine. When machining cylinder head, be sure to reinstall taper at outer edge of combustion chamber. Cylinder head capacity of a MX100A is 9.1cc. Head capacity of a MX125A is 11.3cc and head capacity of a MX175A is 18.8cc.

SERVICE

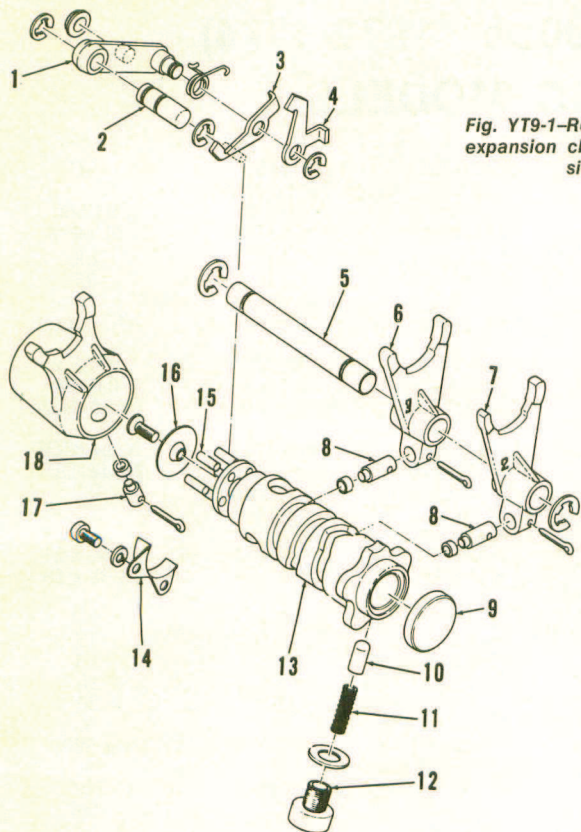


Fig. YT9-1—Refer to text for expansion chamber dimensions.

Fig. Y9-15—Exploded view of shift components used in all models.

1. Change lever bracket
2. Bracket axle
3. Change lever
4. Change lever
5. Shift fork guide bar
6. Shift fork
7. Shift fork
8. Shift fork guide pins
9. Blind plug
10. Cam stopper
11. Cam stopper spring
12. Cam stopper plug
13. Shift cam
14. Change lever guide
15. Dowel pins
16. Side plate
17. Shift fork guide pin
18. Shift fork

CRANKCASE AND GEAR BOX.

The crankcase halves can be separated after removing the engine from the frame. Remove the piston, clutch, magneto, crankshaft primary drive gear, output sprocket and shift linkage. Remove the kickstarter idler gear from the right side, then remove the screws attaching crankcase halves together. Carefully separate the halves.

The shifter assembly and transmission assembly must be installed as a unit. The transmission must also be in the neutral position.

SPEED TUNING

The MX versions of DT1 and RT1 are basically standard parts with special high performance parts installed and components nonessential for competition removed.

Many features of the MX models may be incorporated in standard parts for an increase in power. Any modifications of standard parts or installation of perfor-

mance parts will void manufacturers warranty.

SPARK PLUG AND IGNITION.

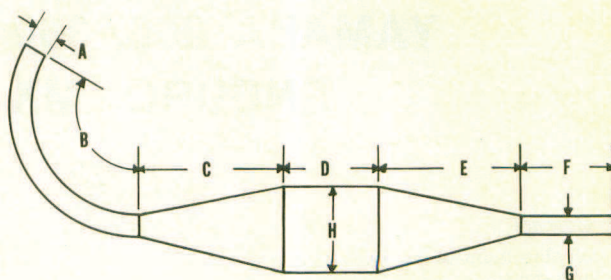
NGK racing type spark plugs are recommended. Standard spark plug for competition prepared 250cc models is B-10EN. Recommended spark plug for 360cc models is B-9EN.

Ignition should be carefully set to standard specifications. When removing unnecessary wiring from an Enduro model, connect black wire from magneto to orange lead of ignition coil and ground positive lead of ignition coil.

CARBURETOR. Carburetor assemblies from MX models may be adapted to Enduro models of the same displacement.

LUBRICATION: Automatic oil metering system is used on MX models. For added lubrication needs such as flat track racing, a 30:1 fuel to oil mix-

Yamaha 250 and 360 (Piston Ported)



ture should be used in fuel tank as well as the oil injection system.

If the oil metering system is removed a mixture of 15 parts gasoline to 1 part oil should be used in the fuel tank.

SUSPENSION. The weight and amount of oil used in front suspension units may be varied to tailor front fork action.

PISTON, CYLINDER AND CYLINDER HEAD.

A DT1-MX piston has a 4mm (0.157 in.) shorter skirt than standard and transfer cutaways in side are also 4mm higher than standard. MX piston has only one ring groove. When using a modified standard piston, use only top piston ring.

Standard cylinder head used on 250cc Enduro models has a combustion chamber capacity of 37.5cc. Cylinder head used on 250cc MX models has a capacity of 27.5cc.

Refer to the following for a comparison of Enduro and MX port timing specifications:

	Intake Open Degrees BTDC	Exhaust Open Degrees ATDC	Transfer Open Degrees ATDC
250cc Enduro ...	80	94	123
250cc MX	91	91	124
360cc Enduro ...	80	98	125
360cc MX	79	94	121

EXPANSION CHAMBER. MX models are equipped with expansion chambers. An expansion chamber designed to increase performance in DT1 models may be constructed with the following dimensions: (Fig. YT9-1)

- A. 47mm (1 3/4 in.)
- B. 330mm (13 in.)
- C. 280mm (11 in.)
- D. 200mm (7 7/8 in.)
- E. 250mm (9 13/16 in.)
- F. 254mm (10 in.)
- G. 25mm (1 in.)
- H. 95mm (3 3/4 in.)