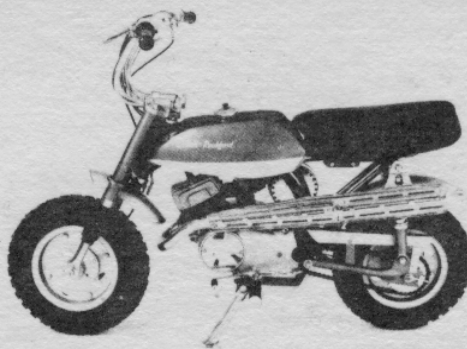


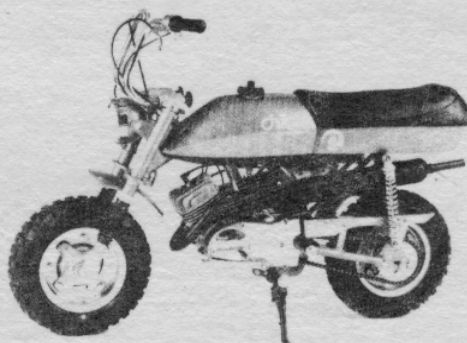
The Rockford 60's

Dealer Service Manual

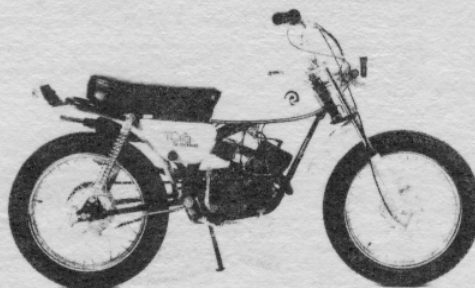
Chibi



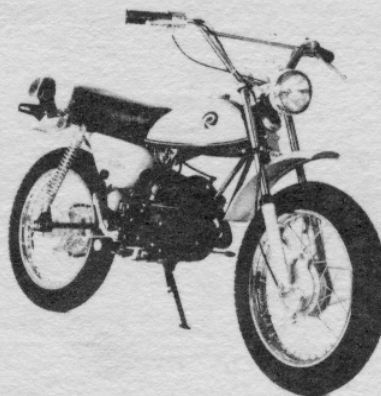
chibi
DELUXE



Tora



Tora
DELUXE



FOX CORPORATION

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CHIBI and CHIBI Deluxe SPECIFICATIONS

Engine

Type:	2-stroke, single cylinder
Displacement:	58cc (3.54 cu. in.)
Bore & Stroke:	1.65" x 1.65"
Compression Ratio:	6.7 : 1
Maximum HP:	5.8 @ 8500 rpm
Maximum Torque:	0.48 Kg-m @ 7500 rpm
Fuel Intake System:	Rotary Valve
Electrical Source:	A.C. Magneto
Starting System:	Kick Starter
Ignition Timing:	27° before T.D.C.(± ½°)
Standard Spark Plug:	NGK B-7
Carburetor:	TK K15PT-1000-15mm
Fuel-Oil Ratio	
Break-In:	15:1
After Break-In:	20:1
Transmission Oil:	1 Pint SAE 10W/30

CHIBI Deluxe only: Off Road Lighting Equipment

Performance

Maximum Speed:	Approx. 45 mph
Climbing Ability:	1 in 2
Optimum Miles per Gal:	190 @ 20 mph
Transmission:	3 Speed Return Change Constant Mesh

Dimensions & Weight

Length:	50 inches
Width (overall):	15 7/8 inches
Height (overall):	26 4/5 inches (handlebars folded)
Saddle Height:	24½ inches
Wheelbase:	34 7/8 inches
Road Clearance:	5¾ inches
Tire Size:	350 x 8
Tire Pressure - Front:	14.5 lb/sq. in.
Rear:	14.5 lb/sq. in.
Net Weight:	120 lbs. (dry weight)
Fuel Tank Capacity:	1.2 Gal.

TORA and TORA Deluxe SPECIFICATIONS

Engine

Type:	2-stroke, single cylinder
Displacement:	58cc (3.54 cu. in.)
Bore & Stroke:	1.65" x 1.65"
Compression Ratio:	7.1 : 1
Maximum HP:	6.0 @ 8500 rpm
Maximum Torque:	0.48 Kg-m @ 7500 rpm
Fuel Intake System:	Rotary Valve
Electrical Source:	A.C. Magneto
Starting System:	Kick Starter
Ignition Timing:	27° before T.D.C.(± ½°)
Standard Spark Plug:	NGK B-7
Carburetor:	Y16PT-16mm
Fuel/Oil Ratio	
Break-In:	15:1
After Break-In:	20:1
Transmission Oil:	1 Pint SAE 10W/30

TORA only: Off Road Lighting Equipment

TORA Deluxe only:

Electrical Source:	A.C. Magneto & battery
Lighting Equipment:	Street Legal

Performance

Maximum Speed:	Approx. 50 mph
Climbing Ability:	1 in 2
Optimum Miles per Gal:	190 @ 20 mph
Transmission:	4 Speed Return Change Constant Mesh

Dimensions & Weight

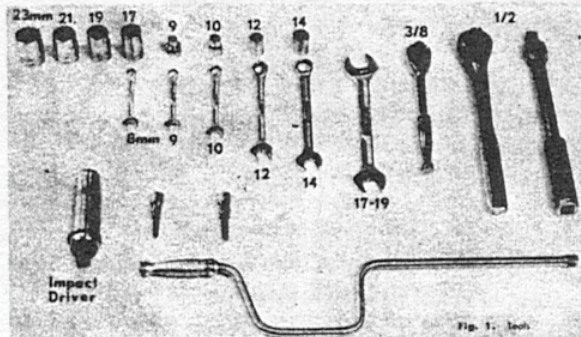
Length:	68 inches
Width (overall):	31 inches
Height (overall):	39 inches
Saddle Height:	29½ inches
Wheelbase:	45 inches
Road Clearance:	9 inches
Tire Size:	300 x 16
Tire Pressure - Front:	28 lb/sq. in.
Rear:	28 lb/sq. in.
Net Weight:	138 lbs. (dry weight)
Fuel Tank Capacity:	1.1 Gal.

1. ENGINE DISASSEMBLY

With the exception of the carburetor, cylinder and cylinder head, the 3 or 4 speed transmission and an extra lighting coil in the Deluxe models, the 60cc engine unit is basically the same for Chibi, Chibi Deluxe, Tora and Tora Deluxe.

In this Service Manual we shall consider the engine removal and disassembly the same for all models noting only slight variations where necessary.

Many service functions can be performed without removing the engine from the frame. These would include piston and cylinder, carburetor and rotary valve, clutch, some parts of the shift mechanism and the flywheel-magneto assembly.



Metric tools required Fig. 1

Engine Removal and Disassembly

1. Remove the drain plug from the under side of the transmission case and completely drain the crankcase. Replace the drain plug.
2. Turn the fuel cock selector lever to the "O" position to shut off the fuel between the tank and the carburetor.
3. Raise the rubber carburetor cap.
4. Remove the carburetor cover from the side of the transmission case by removing the Phillips head screws.
5. Remove the rubber plug from the access port in front of the carburetor enclosure.
6. Insert a screw driver through the access aperture and loosen the carburetor mounting bolt. (Figure 2)
7. Disconnect the fuel line from the fuel cock.
8. Remove the carburetor from the carburetor adaptor and allow it to hang suspended from the throttle cable and starter jet cable.

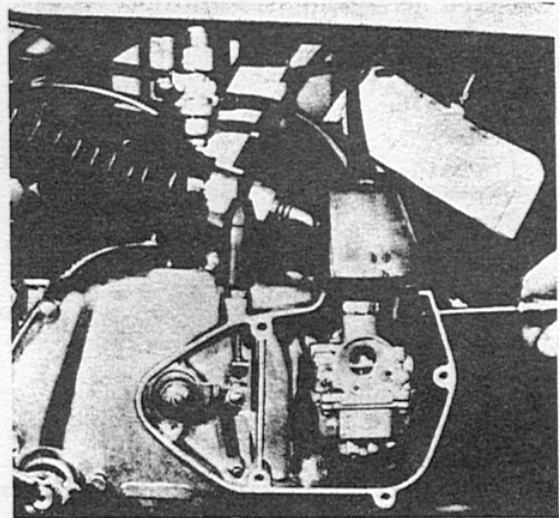


Fig. 2

9. Remove the clutch release arm lock nut and washer and remove the clutch release arm from the release screw. (Figure 3)
10. Disconnect the clutch cable from the clutch release arm.
11. Unscrew the clutch cable adjusting screw completely out of the threaded boss on top of the crankcase cover, pulling the clutch cable free.

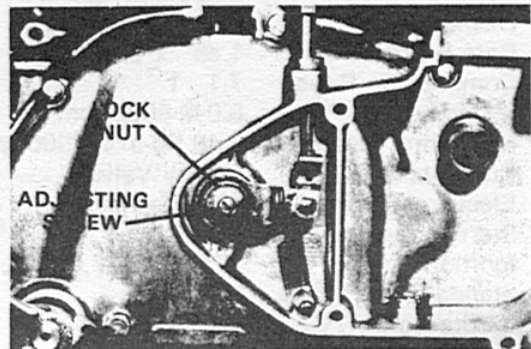


Fig. 3

12. Loosen the muffler clamp nut (two 6mm nuts, new style) and rear mounting nut, and remove muffler.
13. Moving to the left hand side of the machine remove the gear shift lever.
14. Remove the magneto cover retaining screws.

15. Disconnect the wire(s) running from the magneto. Locate the chain connecting link and chain connector. Dismount the drive chain from the small sprocket. Temporarily reconnect the chain to avoid losing the chain connector.
16. Remove the nuts from the 3 engine mounting bolts. The nuts are located on the right hand side of the machine. Withdraw the engine mounting bolts from the left hand side of the engine.
17. Lower the engine out of the frame.
18. Place the engine on the bench and remove the kick starter lever.
19. Remove the cylinder head mounting bolts using a 10mm socket wrench. Lift the cylinder off the cylinder mounting studs.

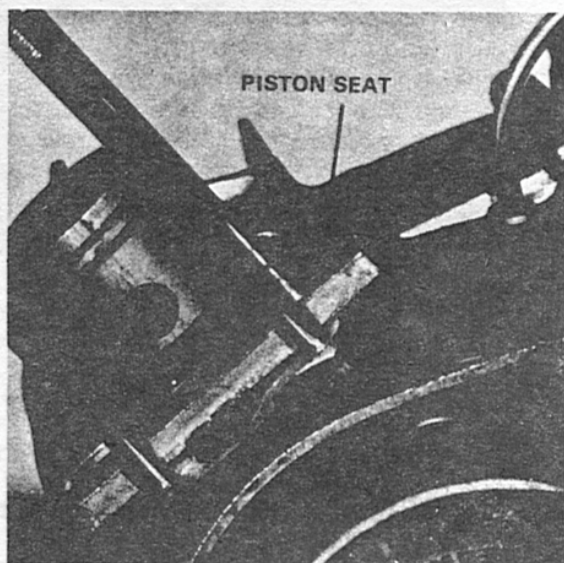


Fig. 4

20. As soon as the cylinder is removed, insert the piston seat (special tool) under the piston. This special tool protects the piston during disassembly and it also holds the crankshaft stationary for further disassembly operation. (Figure 4)
21. Remove the piston pin snap rings and remove the piston pin and piston from the connecting rod. A suitable piston pin puller must be used in this operation. This is provided in the special tool kit.
22. Position the engine on the bench, magneto side up. Hold the magneto stationary with the stopper wrench (special tool) and, using a socket wrench, remove the magneto retaining nut and lock washer. (Figure 5)

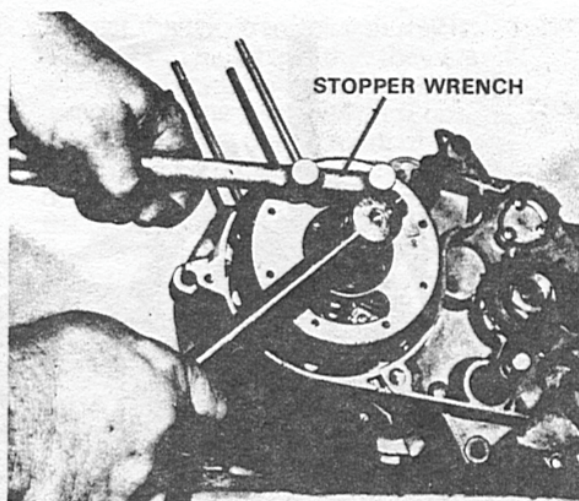


Fig. 5

23. Mount the magneto puller (special tool) and holding the magneto stationary with the stopper wrench, remove the flywheel magneto.
24. Carefully mark the position of the magneto armature plate relative to the crankcase with a prick punch or with a felt marking pen. These reference marks will make it possible to reinstall the magneto armature plate in exactly the same position to avoid the necessity of major timing adjustments when the engine is reassembled. (Figure 6)

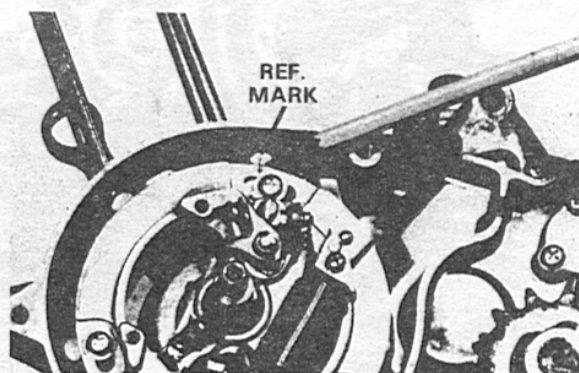


Fig. 6

25. Remove the three armature plate mounting screws and remove the magneto armature plate.
26. Turn the engine over so that the carburetor side faces up, and remove the transmission case cover screws.
27. With the screws removed, carefully remove the transmission case cover. NOTE: Some oil will remain in the transmission case so avoid spilling this remaining oil.

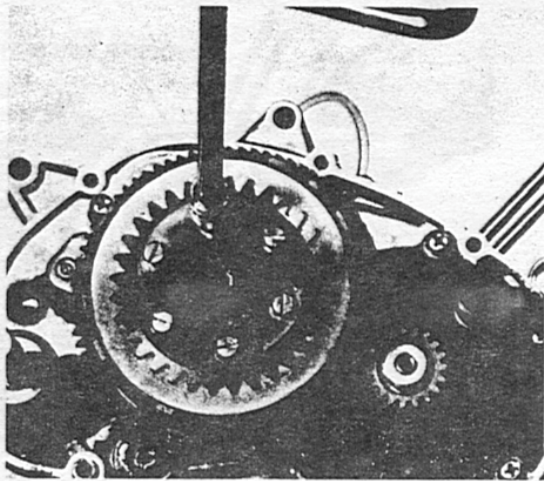


Fig. 7

28. Remove the 6 clutch thrust plate bolts from the top of the clutch assembly. Remove the thrust plate. (Figure 7)
29. Remove the 6 clutch springs.
30. Remove the clutch retaining snap ring to remove the clutch assembly.

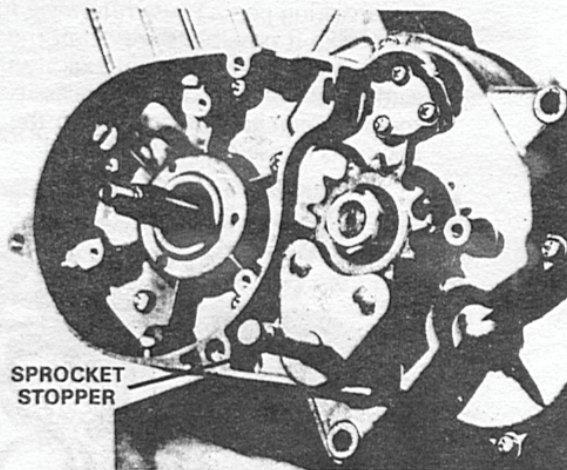


Fig. 8

31. Flatten the bend washer under the sprocket retaining nut and install the sprocket stopper (special tool). Remove this nut. The sprocket stopper and sprocket are then removed. (Figure 8)
32. Turn the engine assembly over again, carburetor side up. Remove the pinion gear nut from the end of the crank shaft. CAUTION: This is a left hand thread. The crankshaft can be kept from rotating during the removal of the pinion gear retaining nut if the piston seat is put in place.

33. Remove the pinion gear from the end of the crankshaft.
34. Remove the 6 rotary valve cover screws and remove the rotary valve cover.
35. To remove the rotary valve disc, insert your finger up through the bottom of the fuel inlet port and gently dislodge the rotary valve disc from the crankshaft collar. If a screw driver is used to assist in removing the disc, use extreme caution to avoid damaging any part of the rotary valve cavity. (figure 9)

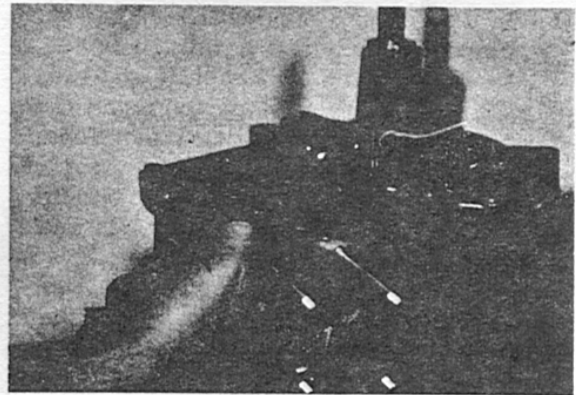


Fig. 9

36. Remove the crankshaft collar and locating pin. The locating pin may be removed with a needle-nosed pliers.
37. Remove the washer and spring guide from the kick starter shaft.
38. Unhook the upper spring hook on the kick starter return spring by striking the upper end of the spring on the side opposite the spring hook. This will pop the spring hook from the hole in the kick starter shaft.
39. Unhook the lower end of the kick starter return spring from the crankcase and lift off the spring.
40. Using an open end wrench, remove the shift drum stopper pivot screw. (Figure 10) Unhook the shift drum stopper spring and remove the shift drum stopper. Inspect it for bends or abnormal wear.
41. Lift the shift arm pawl free of the shift drum and holding it in this position, carefully withdraw the shift arm and shaft assembly. Inspect the shift arm assembly for bends, damage or abnormal wear. Remove the thrust receiver.

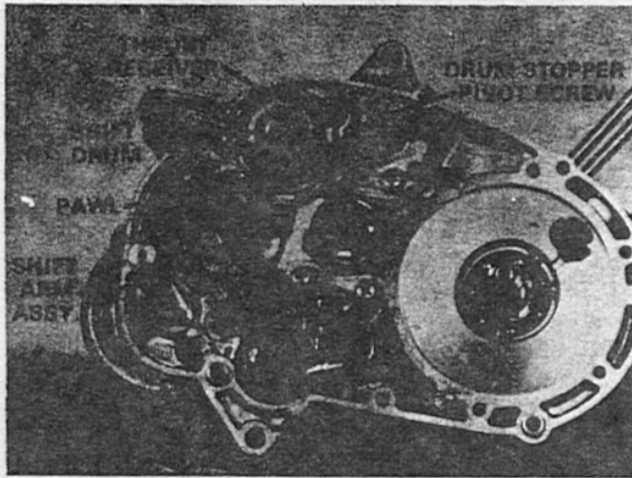


Fig. 10

42. Position the engine on the bench with the magneto side facing upwards and remove the crankcase retaining screws. It may be necessary to use an impact driver to remove these screws as they are inserted very tightly. The impact driver will enable you to remove the screws without damaging the screw heads. See tool list, Figure 1.
43. With all crankcase retaining screws removed, carefully tap the crankcase (magneto side) with a soft faced hammer to break the gasket seal and separate the crankcase halves.
44. Carefully lift out the two transmission shafts and gears together with the shift drum-shift fork assembly.
45. Remove the shift drum-shift fork assembly from the transmission gears and inspect the shift forks for bends or abnormal wear. (Figure 11)

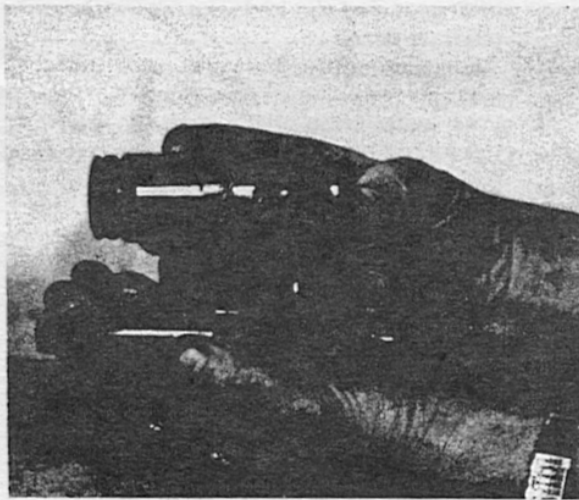


Fig. 11

46. Inspect the two transmission shafts and gears to be certain that they are all in good condition. Further disassembly of the transmission is not necessary unless one or more of the gears must be replaced. If this is necessary, carefully note the position of the gears on the shaft before removing them for replacement. (figure 12)

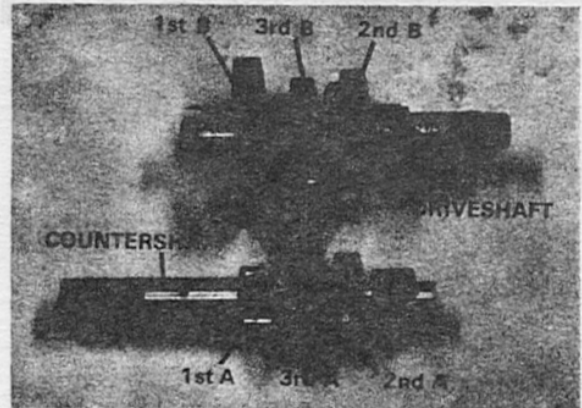


Fig. 12

47. Remove the kick starter intermediate gear which remains in the crankcase half after the transmission shaft assembly has been withdrawn. Note that there is a spacer above and below this gear. Keep these spacers with this gear to facilitate reinstallation. (Figure 13)

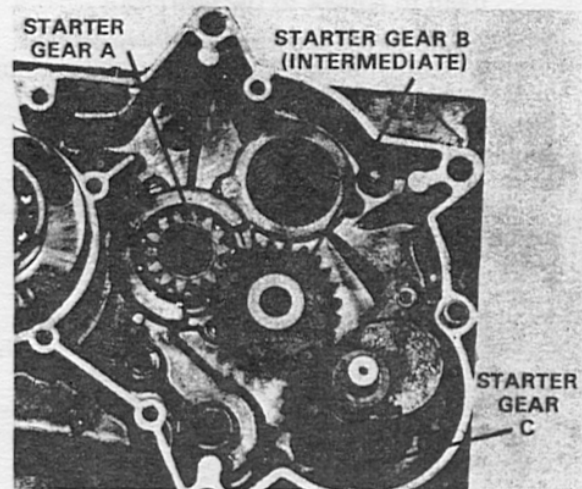


Fig. 13

48. Withdraw the kick starter shaft and gear assembly. Notice that there is a spacer on the end of this shaft. Keep the spacer with this shaft to facilitate reassembly.

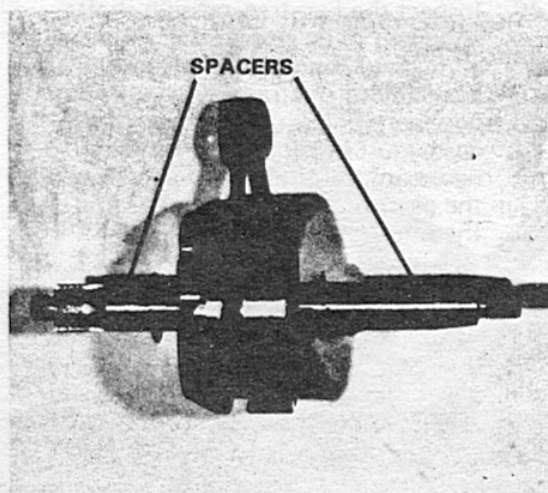


Fig. 14

49. Withdraw the crankshaft assembly. Notice that spacing shims are used on either side of the crankshaft assembly. (Figure 14) If the same crankshaft is to be replaced, keep these spacers on the crankshaft so that the crankshaft end play will not be affected. The number and thickness of spacers on this crankshaft varies from engine to engine. Occasionally, the spacing shims will stick to the crankshaft bearings. Inspect the bearings carefully to be certain that these shims have been removed from both crankcase sections if oil has caused them to adhere to the bearings.

This completes the disassembly operation. Wash all parts (except magneto armature plate) in a cleaning solvent and inspect all bearings and oil seals. If it is necessary to replace bearings, the crankcase must be heated with a small torch in the vicinity of the bearings to expand it sufficiently to allow the bearing to be removed and replaced. When using a torch, keep the torch constantly in motion to avoid melting the crankcase castings.

If oil seals are to be replaced, coat them liberally with oil and tap them into place with a small hammer. Before beginning the re-assembly operation, oil all bearings and oil seals thoroughly.

2. REASSEMBLY

All parts installed inside the two crankcase halves are installed into the right half crankcase (clutch section).

1. Install the kick starter shaft and gear assembly. Position the pin on the

ratchet arm into the boss provided for it in the crankcase half.

2. Oil the kick idler gear assembly thoroughly. This gear need not be removed from the transmission case during disassembly as it is pressed into the counter shaft (clutch shaft) bearing. It is very unlikely that this gear will ever be replaced during the life of the engine.
3. Reinstall the kick starter intermediate gear positioning the spacers above and below the gear. These spacers are identical and can be identified since the hole in the spacer is the same size as the hole in the gear. Place it in mesh with the kick idler gear and the kick starter shaft gear and oil the gears. (Figure 13)
4. We are now ready to install the transmission shaft assemblies and the shift drum-shift fork assembly. Before doing so, familiarize yourself with the positions into which the various shafts and the shift drum will be inserted by studying Figure 13.
The splined end of the countershaft (the shaft with the smaller gears) will be inserted through the kick idler gear, the gear that is pressed into the countershaft bearing.
The end of the drive shaft will be inserted into the kick starter intermediate gear, the one which was installed with the spacers above and below it. The splined end of the shaft will point up and the small sprocket will be attached to it when the crankcase sections are joined.
The large diameter end of the shift drum will be inserted into the large hole in the casting located directly above the kick idler gear and the kick starter intermediate gear.
5. Align the countershaft and drive shaft gears so that all gears are in mesh. Plan your installation of the shafts so that the longer end of the countershaft extends through the bottom of the crankcase section. Now insert the shift forks into the slots of the sliding gears of the transmission.
6. Holding both shafts and shift drum together as a unit, install the transmission assembly into the crankcase half. When the shafts have been partially inserted, rotate them slightly to mesh all gears and properly position the shafts.
7. Install the two remaining spacers, one on the end of the countershaft and the other on the end of the kick starter shaft.

8. Be certain that the crankshaft end play shims are positioned on both sides of the crankshaft. (See Figure 14.) Put the crankcase gasket into position, install the other crankcase section and insert the crankcase retaining screws tightly. The crankshaft should now be checked for end play. If there is more than .010 to .015" of end play, additional shims must be added to the crankshaft.
9. Turn the engine over, check transmission shaft rotation to be certain that the shafts turn freely.
10. Trim the excess portion of the crankcase gasket flush with the cylinder seat.
11. Install the thrust receiver.
12. Install the spacer on the shift arm shaft and position the shift arm shaft assembly into the crankcase. (Figure 15)

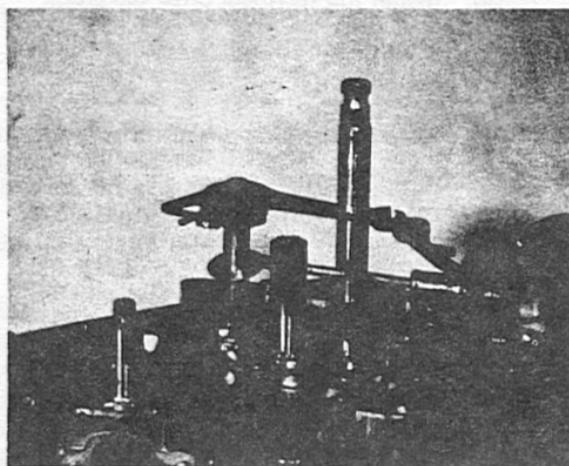


Fig. 15

13. Insert the shift arm pawl into the shift drum assembly.
14. Install the shift drum stopper, collar and retaining screw. Connect the drum stopper return spring before inserting the retaining screw. The collar goes beneath the shift drum stopper. Tighten the shift drum stopper pivot screw securely.
15. Using a needle-nosed pliers, install the crankshaft collar locating pin into the crankshaft.
16. Install the crankshaft collar over the locating pin.
17. Install the rotary disc valve after coating it and the valve cavity liberally with oil.
18. Carefully check the large "O" ring around the outer perimeter of the rotary valve cover and check the center oil seal to be certain that they are in good condition. (Figure 16) Install the rotary valve cover and the 6 retaining screws.

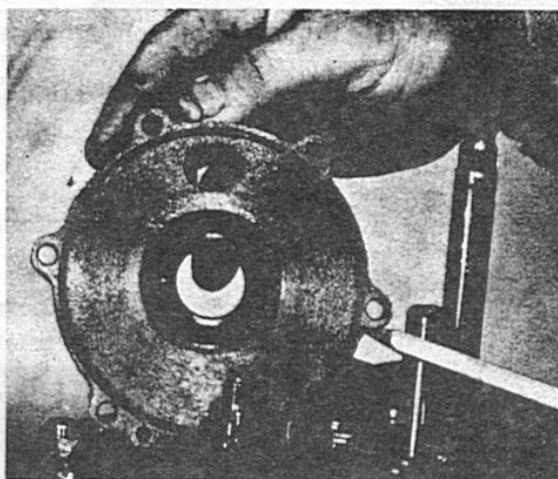


Fig. 16

19. Install the clutch assembly onto the countershaft. To positively engage the drive dogs, rotate the kick starter shaft. When the clutch is properly installed, approximately 1/2 inch of the transmission countershaft will protrude through the clutch assembly. (Figure 17)
20. Install the clutch retaining spring clip.
21. Install the kick starter return spring, spring guide and spacer.
22. Install the pinion gear onto the crankshaft with the undercut side of the gear facing up. With the piston seat in place, tighten the pinion gear retaining nut securely. Remember that this is a left hand thread.
23. Install the 6 clutch springs and reinstall the clutch thrust plate using the 6 thrust plate bolts. Tighten them securely.

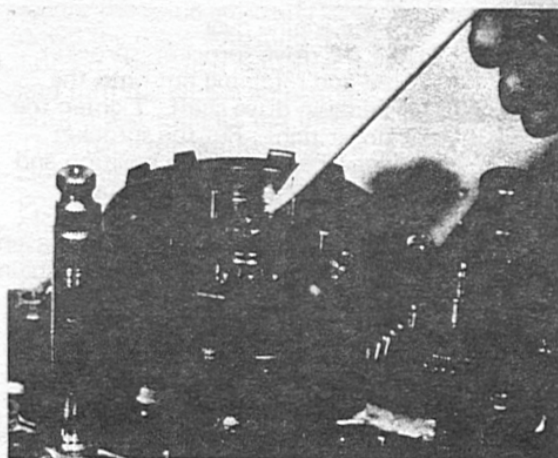


Fig. 17

24. If the clutch release push screw has been removed from the transmission cover, reinstall it from the inside so that the flats of the screws (as seen from the outside of the transmission cover) are in a relatively horizontal position with the back of the release push screw flush with the inside of the transmission case cover. (Figure 3) Be certain that the thrust bearing has been liberally coated with grease and inserted into the push screw. (Figure 18)

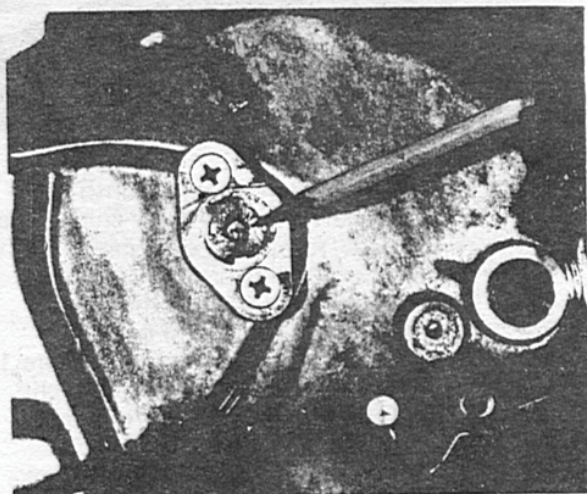


Fig. 18

25. Position the transmission cover gasket on the locating pins. Install the rubber "O" ring on the carburetor inlet adaptor which is part of the rotary valve cover. (Figure 19)
26. Install the transmission case cover by securing all the transmission case cover screws.
27. Turn the engine over.
28. Install the drive sprocket, sprocket washer and retaining nut onto the transmission drive shaft. Tighten the nut finger tight. Put the sprocket stopper (special tool) in position and tighten the retaining nut securely. Bend the tabs of the washer against the flats of the retaining nut to prevent its loosening while the machine is being operated.
29. Position the magneto armature plate making use of the reference marks which you made prior to removing this assembly. (Figure 6) Secure the plate with the 3 armature plate screws.



Fig. 19

30. Install the flywheel onto the crankshaft and, holding the flywheel stationary with the stopper wrench, tighten the flywheel retaining nut securely.
31. Install the piston pin onto the connecting rod to check for fit. It should be snug but rotate easily. Replace the pin and bearing if necessary. Oil the bearing thoroughly before installing the piston pin and piston.
32. Install the piston pin and piston. When installing the piston, the letters "EX" are to face the exhaust port (front) on the cylinder. It is important to position the piston this way since the piston pin hole is slightly off center for improved performance. If the piston is installed backwards, a loud knocking sound will be heard at low speeds. (Figure 20)

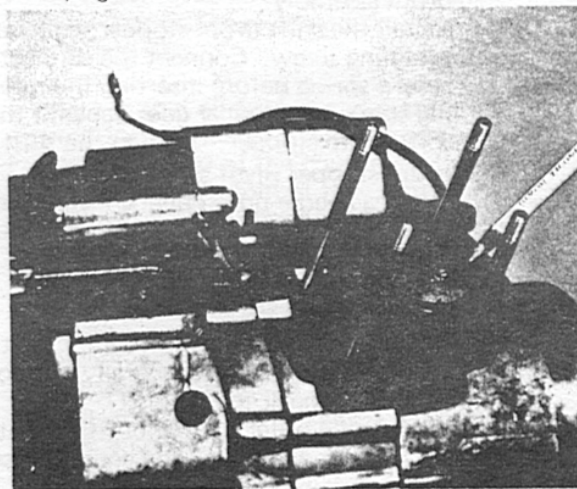


Fig. 20

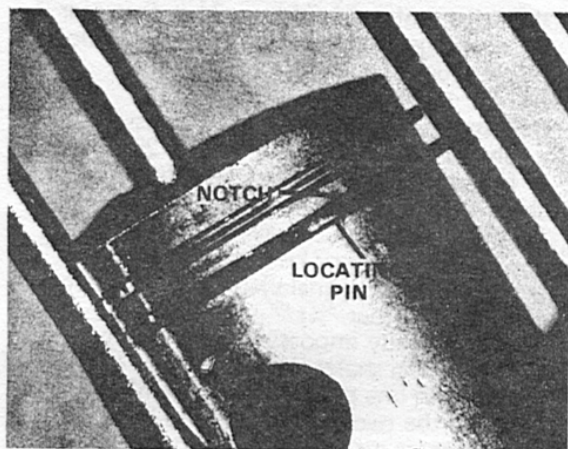


Fig. 21

33. Install the piston pin retaining clips.
34. Check to see that the piston rings are properly installed. The chrome plated ring is the upper ring and the cast iron ring is the lower ring. The rings are to be positioned on the piston so that the locating pin on the piston is located in the ring gap. (Figure 21) The notch in the ring gap should face up. If the notch faces down, the rings cannot be compressed enough to permit installation of the cylinder.
35. Coat the piston and cylinder with oil and install the cylinder onto the mounting studs.
36. Install the cylinder head gasket and cylinder head. Tighten the head nuts progressively and evenly to 125 inch lbs. of torque.

The engine is now completely reassembled and ready for remounting in the cycle frame. The engine mounting procedure is to be done in the reverse order of the dismantling procedure.

3. CLUTCH

The clutch is a multiple disc type, running in oil. The clutch is mounted on the transmission countershaft.

Power is transmitted to the clutch assembly from the crankshaft pinion gear to the clutch gear which surrounds the outer perimeter of the clutch assembly. (Figure 22) The clutch plates are held in contact with each other by 6 clutch springs. Power transmission is disengaged by squeezing the handlebar clutch lever. The handlebar lever is connected by means of a cable to the clutch release arm. Squeezing the lever rotates the clutch re-

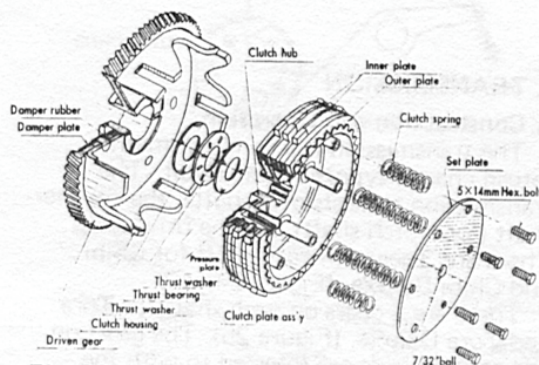


Fig. 22

lease arm which, in turn, rotates a clutch release screw. This screw bears against the clutch thrust plate, pushing it inward and separating the clutch plates to momentarily disengage power transmission.

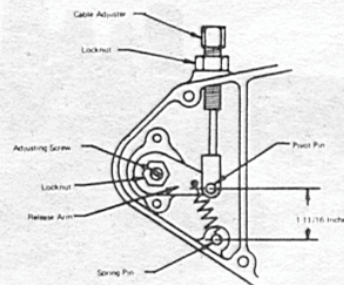


Fig. 23

A. Clutch Adjustment

To adjust the Clutch (Figure 23)

1. Remove the carburetor cover.
2. Adjust the position of the clutch release arm by turning the clutch cable adjusting screw until the center-to-center distance between the release arm pivot screw and the spring pin is exactly $1 \frac{11}{16}$ inches.
3. When this distance has been obtained, secure the cable adjusting screw by turning down the cable adjusting screw lock nut.
4. Loosen the clutch adjusting screw lock nut and turn the clutch adjusting screw in until it just touches the thrust plate bearing. Then back the adjusting screw out counter-clockwise $\frac{1}{4}$ turn and secure it in this position with the adjusting screw lock nut.
5. Check the clutch lever free play. There should be approximately $\frac{3}{8}$ to $\frac{5}{8}$ " free play as measured at the lever end. It may necessitate readjusting the adjusting screw until that amount of free play is obtained.

B. Clutch Disassembly

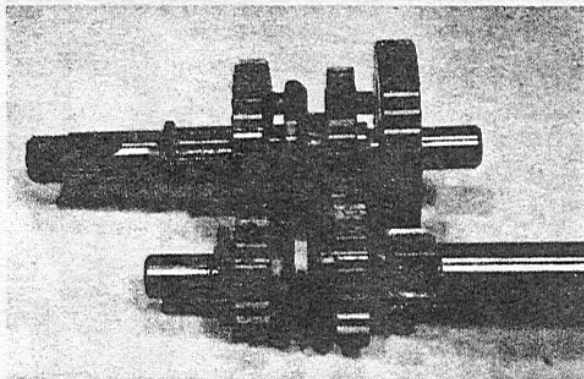
Clutch disassembly is covered in the Engine Disassembly procedure. When reassembling the clutch assembly, be certain that the thickest of the metal clutch plates is the uppermost plate.

4. TRANSMISSION

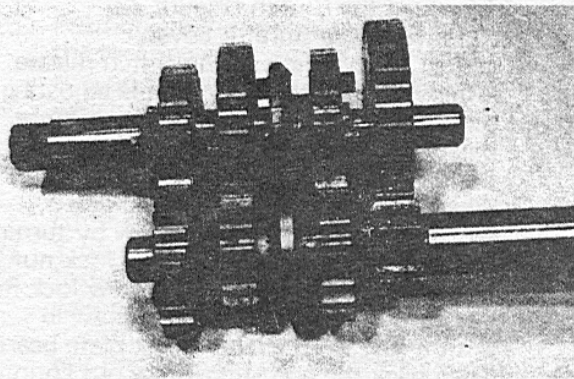
A. Construction and Operation

The transmission is a constant mesh, return change type, running in oil. The transmission consists of 2 shafts: the countershaft (or clutch shaft) and the drive shaft. There are 3 gears on each shaft for Chibi and Chibi Deluxe. (Figure 24)

There are 4 gears on each shaft for Tora and Tora Deluxe. (Figure 25) The gears on the countershaft are referred to with the suffix letter "A", for example "first gear A." The gears on the drive shaft are referred to with the suffix letter "B", for example, "first gear B."



Chibi Fig. 24



Tora Fig. 25

First gear A is a part of the countershaft. Second gear A slides on the splined portion of the countershaft. Third gear A rotates freely on the countershaft. These two spinning gears transmit power when they are engaged by drive dogs on the gears next to them.

Third gear B is fitted to the splined portion of the drive shaft and turns with the drive shaft. Second gear B and first gear B turn freely on the drive shaft. Third gear B slides from side to side on the splined portion of

the drive shaft and engages either first gear B or second gear B by means of the drive dogs on the sides of the gear.

B. Installation of Gears on Transmission

Shafts (Figure 24 - Chibi; Fig. 25 - Tora)

In assembling the gears onto the drive shaft and countershaft, always bear in mind that the drive dogs on one gear must engage the holes in the gear next to it. Therefore, gears can never be installed with drive dogs facing each other.

It is virtually impossible to get the gears on the wrong shafts since they only fit properly in one place. When assembling gears on the two shafts, check to be certain that all gears mesh properly and that drive dogs properly engage the neighboring gears.

C. Gear Shift Mechanism

The Gear Shift Mechanism (Figure 26) consists of a shift-drum, shift fork assembly, shift drum pawl and shift arm assembly, drum stopper, gearshift shaft and shift pedal.

1. Shift Drum-Shift Fork Assembly

The shift drum is cylindrical in shape and it has a spiral-like groove cut into its surface into which the shift forks are fitted. The rotary motion of the shift drum is translated into side-to-side motion in the shift forks as they move in the spiral groove. The shift forks, in turn, move the sliding transmission gears from side to side, thus shifting the various gears in the drive train.

2. Shift Drum Pawl

The shift drum pawl is attached to the shift arm and serves to rotate the shift drum by means of a pulling or pushing action on the shift pins attached to the end of the shift drum.

3. Drum Stopper

The shift drum stopper holds the shift drum in position between the gear shift operations by lodging between the drum shift pins.

4. Gearshift Shaft

The gearshift shaft serves to connect the shift arm and shift pawl to the foot-operated gear shift lever.

5. Gearshift Lever

The gearshift lever is located on the left side of the cycle and is foot-operated. Each time the front of the lever is depressed or lifted, the transmission is shifted one gear either up or down, respectively.

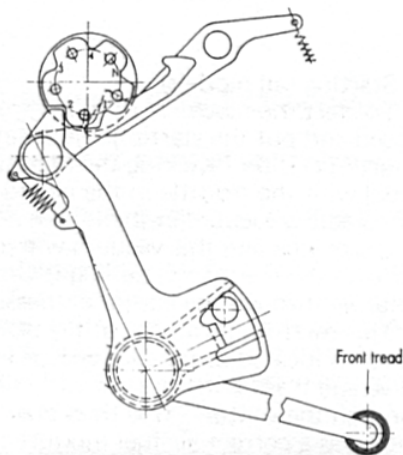


Fig. 26

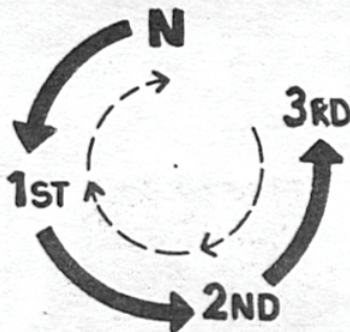


Fig. 28

D. Gear Shift Operation (Figure 26 & Figure 27)

The engine is equipped with a return-change shift mechanism. Each time the shift pedal is depressed with the toe, the transmission shifts one gear higher. Starting in neutral, if the pedal were depressed and released 3 times, the transmission would shift from neutral to 1st, to 2nd, and to 3rd. (Figure 28)

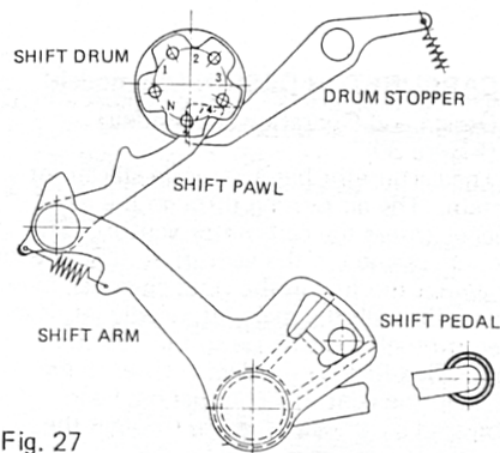


Fig. 27

E. Gear Ratios

4 Speed Tora & Tora Deluxe

Gear	Number of Teeth		Transmission Gear Ratio
	Countershaft	Drive Shaft	
1st	13	38	2.92
2nd	18	33	1.83
3rd	22	29	1.32
4th	26	26	1.00

3 Speed Chibi & Chibi Deluxe

Gear	Number of Teeth		Transmission Gear Ratio
	Countershaft	Drive Shaft	
1st	13	38	2.923
2nd	20	31	1.550
3rd	24	27	1.125

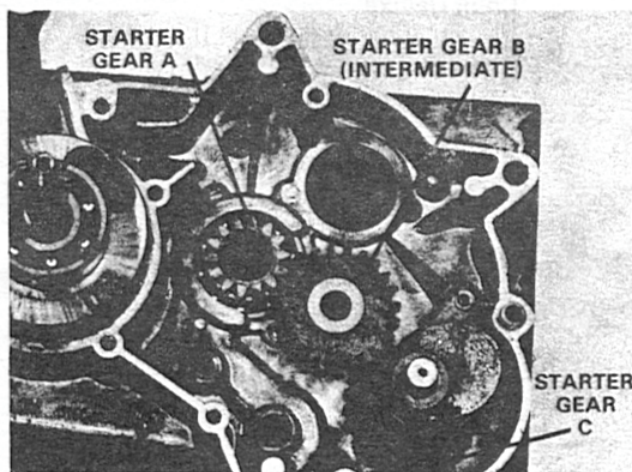


Fig. 29

5. KICK STARTER MECHANISM

A. Construction (Figure 29)

A primary-type kick starting system is used in this rotary valve engine. The engine can be started in any gear by simply squeezing the clutch lever and kicking the kick starter pedal.

In the primary type kick starter, power transmission moves directly from the kick starter gear on the kick starter shaft to the clutch driven gear which, in turn, transmits power to the pinion gear and crankshaft. The clutch is bypassed thus eliminating the necessity for placing the transmission in neutral (thereby engaging the clutch) in order to start the machine.

6. CARBURETOR DESIGN (All models)

A. Design and Operation (all models) (Figure 30)

The carburetor has a separate starter jet system. The air passing through the air cleaner enters the carburetor venturi. The vacuum created in the venturi by this flow of air causes the fuel in the float chamber to be drawn through the main jet, needle jet, and then through the passage to the fuel inlet port. This fuel is mixed with air entering through the venturi. The fuel has been atomized by the air entering through the air jet.

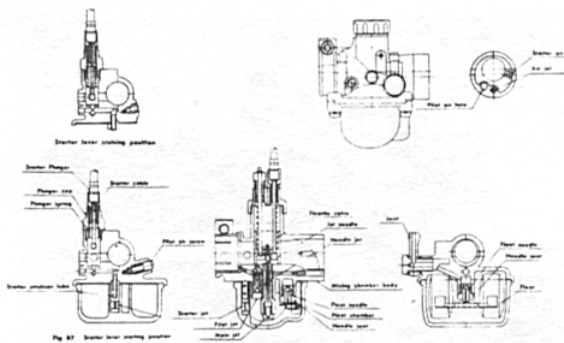


Fig. 30

B. Idling (all models) (Figure 31)

The vacuum created in the engine crankcase as the piston moves up in the cylinder draws fuel out of the pilot jet. This fuel is mixed with air, the volume of which is controlled by an adjusting screw.

This mixture is further mixed with the small amount of air entering through the carburetor venturi. It is then drawn into the fuel inlet as a correct idling air-fuel mixture.

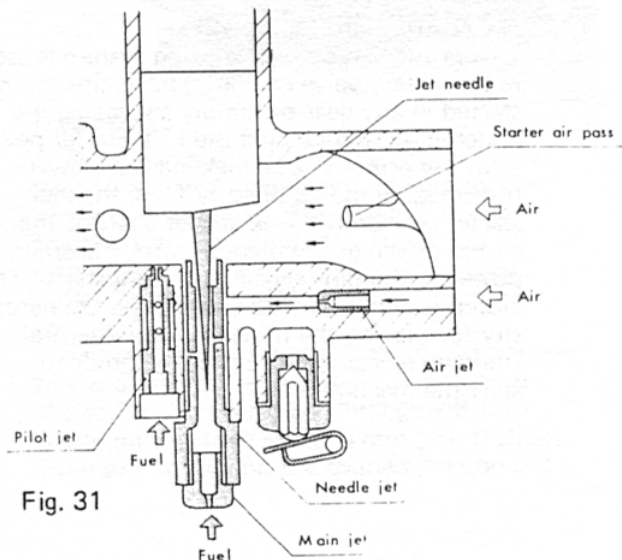


Fig. 31

C. Starting (all models)

To start the machine, hold the throttle closed and put the starter jet lever in the "start" position. Kicking the kick starter pedal with the throttle in the closed position will create a vacuum in the intake port side of the engine and this vacuum will draw fuel through the starter jet, mixing it with the air entering through the starter air passage.

This mixture flows out of the starter jet which is located at the rear end of the throttle valve and it is further mixed with air entering through the venturi. It is then drawn into the engine as a correct air-fuel mixture for starting a cold engine.

CAUTION: Be certain to keep the throttle closed while starting the engine with the starter jet lever in the 'start' position.

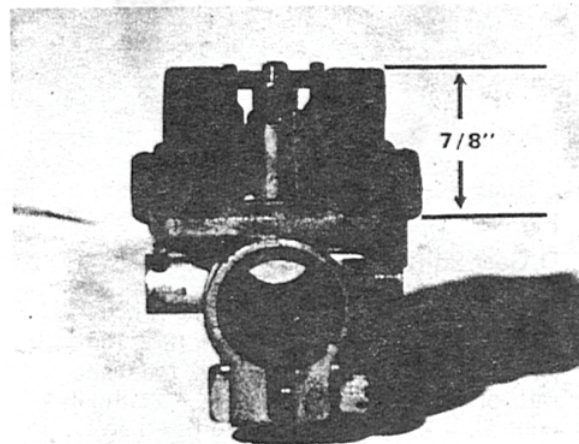


Fig. 32

D. Carburetor Adjustments — Chibi & Chibi Deluxe

Adjusting the Float Level (Figure 32)

1. Remove the float bowl cover.
2. Remove the float bowl cover gasket.
3. Holding the carburetor upside down (float valve closed) measure the distance between the gasket seat and top of the float. It should measure 7/8 inch.
4. Make adjustments in the float level by bending the tab only which acts upon the float needle valve. **CAUTION:** Care must be used so as not to damage the floats as they will break if not handled carefully.

E. Idle Adjustment — Chibi & Chibi Deluxe
(Figure 33)

1. Turn idle mixture screw in gently against its seat.
2. Back idle mixture screw out (counterclockwise) 1 turn.
3. Adjust idle speed with idle speed adjusting screw. Turn counterclockwise to increase idle speed, clockwise to decrease idle speed.
4. Make sure throttle cable is free from binds. If throttle cable does not operate smoothly, idle speed may be erratic.

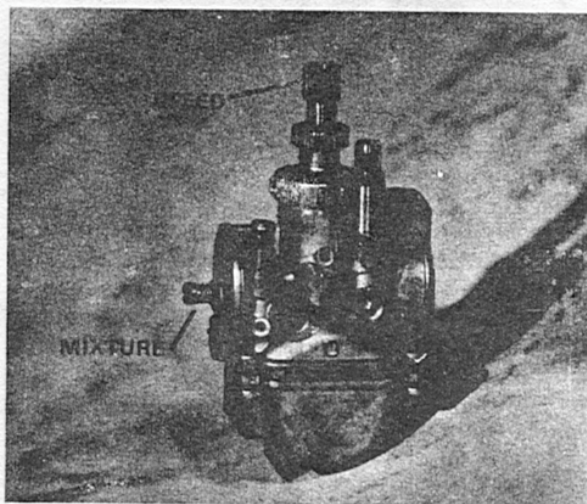


Fig. 33

F. Carburetor Adjustments — Tora & Tora Deluxe

Adjusting the Float Level (Figure 34)

The Tora carburetor is designed to eliminate the need of adjusting the float level. A plastic cylindrical float is used and the end of the float presses directly on the float needle valve. Because the plastic material has a very predictable specific gravity it will never need adjusting.

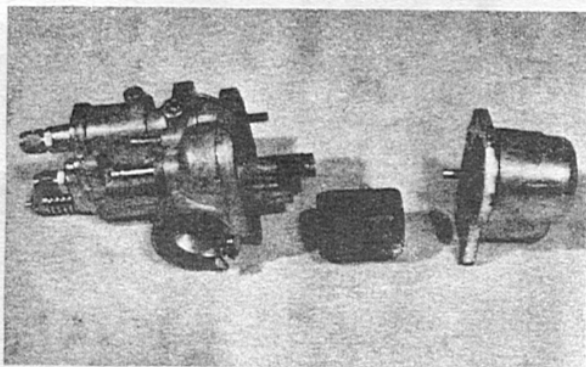


Fig. 34

G. Idle Adjustment — Tora & Tora Deluxe

1. Turn idle mixture screw in gently against the seat (Figure 35).
2. Back the idle mixture screw out (counterclockwise) 1 1/4 turns.
3. Adjust idle speed with the idle speed adjusting screw on the top of the carburetor. Turn counterclockwise to increase speed, clockwise to decrease speed.

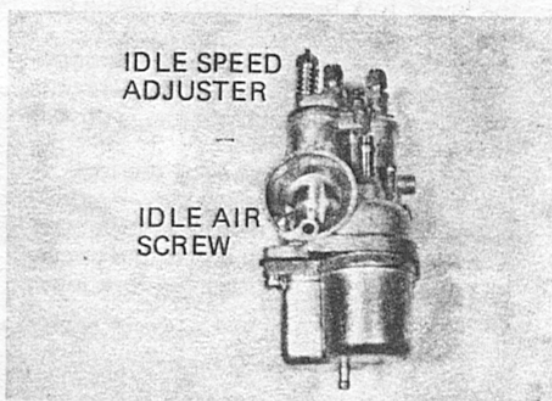


Fig. 35

H. Needle Jet Adjustment (all models)

1. The needle jet can be adjusted to change fuel-air mixture between 1/4 and 3/4 throttle.
2. Remove the needle jet from the throttle valve and move the clip down for a richer mixture or up for leaner. (Figure 36)

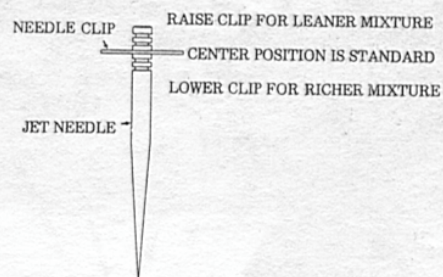


Fig. 36

I. Main Jet (all models)

1. The main jet can be replaced to change the fuel mixture at full throttle. (Figure 37)
2. Replace the main jet with the next higher number for a richer mixture or next lower for a leaner mixture.

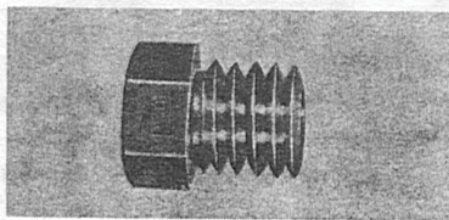


Fig. 37

7. FRONT FORK — CHIBI and CHIBI DELUXE

Road shocks are absorbed by the front fork by means of coil springs.

Assembling Front Fork (Figure 38)

1. To assemble front fork, apply grease on the fork spring and insert the fork spring into the upper fork tube.
2. Place the fork upper bushing at the top of the lower fork pipe and apply grease on the bushing.
3. Insert the lower fork pipe into the upper fork tube until the stopper ring, which is welded on the lower fork tube, is positioned in the upper fork tube.
4. Then place the two halves of the fork lower bushing in the space between the upper fork tube and the lower fork pipe and screw in the clamp nut to the upper fork tube to hold securely the fork lower bushing.

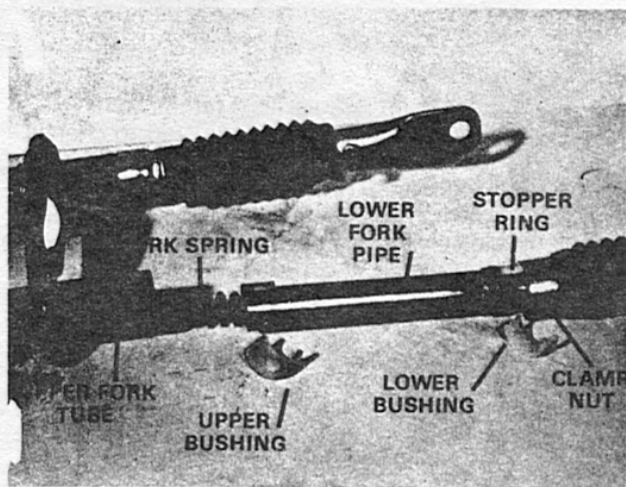


Fig. 38

8. FRONT FORK — TORA and TORA DELUXE

A. Description (Figure 39)

The front fork used on Tora and Tora Deluxe is a spring loaded and oil dampened type with extra long travel. Proper operation depends on the correct amount of oil in the tubes.

B. To Fill the Front Fork With Oil

1. Remove front wheel — see front wheel removal.
2. Loosen 2 head lamp bracket bolts, top fork tube bolt and lower fork tube clamp bolt.
3. Lower fork tube out of steering bracket.



Fig. 39

4. Invert tube over a small container to catch the oil and operate the tube in and out of the lower tube to expel all of the oil.
 5. Reinstall the tube into the steering bracket and tighten lower clamp and head lamp bracket bolts. Leave top bolt out.
 6. With the tube in place, put 2¼ oz. of Hydraulic oil into each tube thru the top bolt hole. (Figure 40)
 7. Replace the top bolt securely.
- NOTE: Installing more than 2¼ oz. of oil will cause front fork to "oil lock" and it will not operate.



Fig. 40

C. To Disassemble Front Fork Tube

1. Remove front fork tube from cycle, (See Item B).
2. Pull rubber cap from lower tube and slide it back on the upper tube.
3. Remove internal snap ring from upper end of lower tube and slide it back on upper tube.
4. Pull upper and lower fork tubes apart. (Figure 41)
5. Inspect lower tube oil seal and replace if it is in poor condition.
6. Clean all parts thoroughly. Do not allow dirt or foreign material into the tubes.
7. Coat upper shaft with oil when reassembling.
8. Add 2¼ oz. hydraulic oil after assembling.



Fig. 41

9. FRONT AND REAR WHEELS – CHIBI & CHIBI Deluxe

A. Removing the Front Wheel (Figure 42)

1. Place a supporting block under the engine.
2. Remove axle nut and withdraw the axle.
3. Raise front fork slightly and remove the wheel.

B. Removing the Rear Wheel

1. Place the machine on a supporting block.
2. Remove brake rod adjusting nut.
3. Locate and remove the chain connecting link.
4. Remove the chain from the large sprocket.
5. Loosen the two axle nuts.
6. Remove the rear wheel from the frame.

C. Tire Pressures

Correct tire pressure is 14½ pounds front and rear.

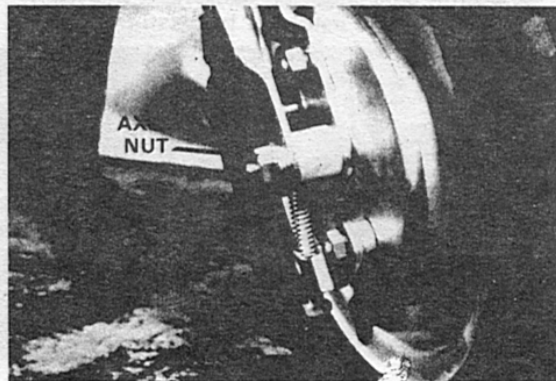


Fig. 42

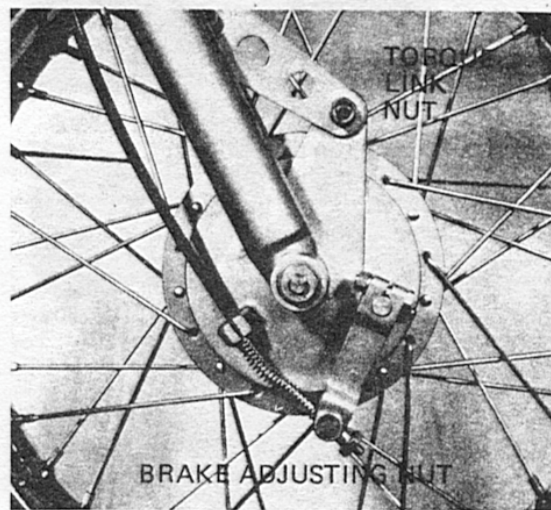


Fig. 43

10. FRONT AND REAR WHEELS – TORA & TORA Deluxe

A. Removing the Front Wheel (Figure 43)

1. Place a supporting block under the engine to hold front wheel off the floor.
2. Remove brake cable adjusting nut.
3. Remove nut and lockwasher from torque link bolt on brake plate.
4. Remove axle nut and withdraw the axle.
5. Pull front wheel out of front fork.
6. Always check wheel bearings and brake shoes and for loose spokes whenever a wheel is removed. Repair or replace any worn or damaged parts immediately to prevent further damage.

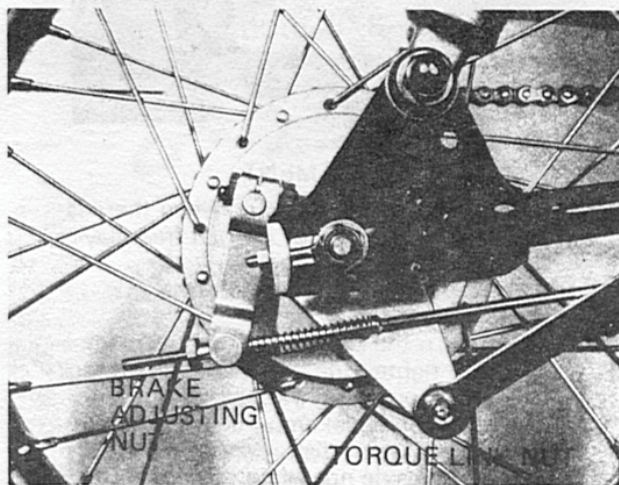


Fig. 44

B. Removing Rear Wheel (Figure 44)

1. Place a supporting block under the engine to hold rear wheel off the floor.
2. Remove brake rod adjusting nut.

3. Locate and remove chain connecting link. Remove chain from large sprocket and reconnect link to one end of chain to prevent its loss.
4. Remove nut and lock washer from torque link connection on brake plate.
5. Remove axle nut and withdraw axle.
6. Pull wheel out of rear fork.
7. Always check wheel bearings and brake shoes and for loose spokes whenever a wheel is removed. Make sure rear sprocket is fastened securely. Repair or replace any worn or damaged parts immediately to prevent further damage.
8. Always lubricate wheel bearings when reassembling.
9. Keep tires properly inflated 24 to 28 PSI.

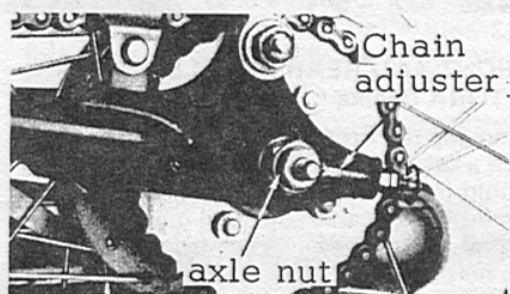


Fig. 45

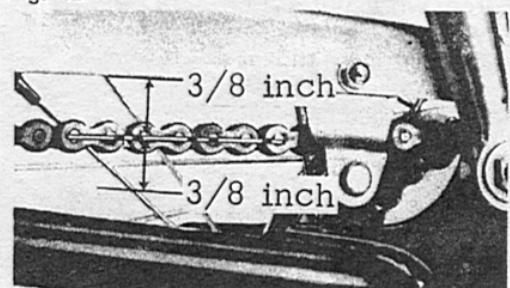


Fig. 46

11. CHAIN ADJUSTMENT

1. Chain is properly adjusted when there is approximately $3/8$ of an inch free play up and down. (Figure 45)
2. To adjust the tension loosen the axle retaining nut.
3. Now turn the chain adjuster nuts clockwise to tighten the chain or counterclockwise to loosen it. Always turn chain adjusters an equal amount so that chain alignment is not disturbed. (Figure 46)
4. Retighten axle nut when adjustment is completed.
5. Keep the chain properly adjusted and well lubricated to help prevent premature failure.

12. BRAKE ADJUSTMENT (All models)

A. Front Brake Adjustment

1. The front brake should be adjusted so there is $3/8$ to $3/4$ of an inch of free play in the hand lever. (Figure 47)
2. To adjust the front brake, turn the brake adjuster nut clockwise to tighten the brake or counterclockwise to loosen it. (Figure 48)
3. Do not overtighten brakes. Lift the wheel and spin it to listen for brake drag.

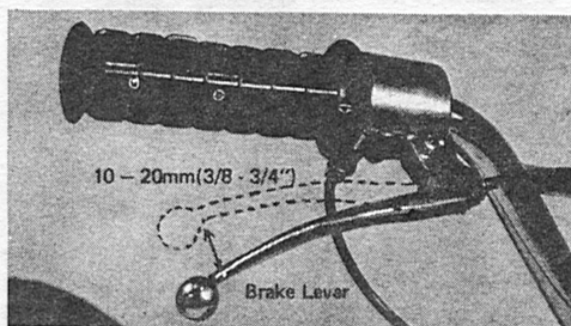


Fig. 47

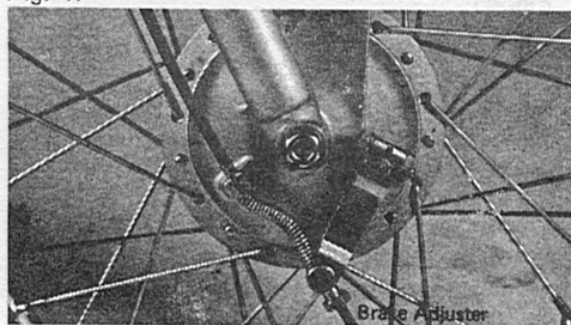


Fig. 48

B. Rear Brake Adjustment

1. The rear brake should be adjusted so that the brake pedal has about $1\frac{1}{4}$ inches of free play before the brakes are engaged.
2. To adjust the rear brake turn the brake adjuster nut clockwise to tighten the brake or counterclockwise to loosen it. (Figure 49)
3. Do not overtighten brakes. Lift the wheel and spin it to listen for brake drag.

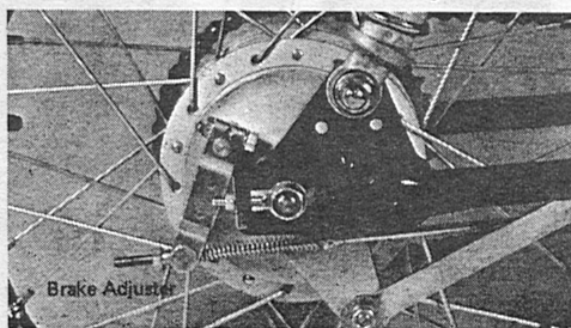


Fig. 49