



YAMAHA

COMBINED

SERVICE MANUAL

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COVERING

DT100A

DT125A

DT175A

NOTICE

This manual has been written by Yamaha Motor Company for use by Authorized Yamaha Dealers and their qualified mechanics. In light of this purpose it has been assumed that certain basic mechanical precepts and procedures inherent to our product are already known and understood by the reader.

Without such basic knowledge, repairs or service to this model may render the machine unsafe, and for this reason we must advise that all repairs and/or service be performed by an Authorized Yamaha dealer who is in possession of the requisite basic product knowledge.

Other information is produced by the U.S. distributor, Yamaha International Corporation (CANADA distributor; Yamaha Motor Canada Ltd.), and is necessary to provide total technical coverage regarding the product.

The Research, Engineering, and Service Departments of Yamaha are continually striving to further improve all models manufactured by the company. Modifications are therefore inevitable and changes in specifications or procedures will be forwarded to all Authorized Yamaha Dealers and will, where applicable, appear in future editions of this manual.

YAMAHA DT100A-DT125A-DT175A COMBINED SERVICE MANUAL

2ND EDITION
MAY 1974

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6600 ORANGETHORPE AVENUE
BUENA PARK, CALIF. 90620

YAMAHA

Supplementary

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Service

Manual

DT100B

DT125B

DT175B

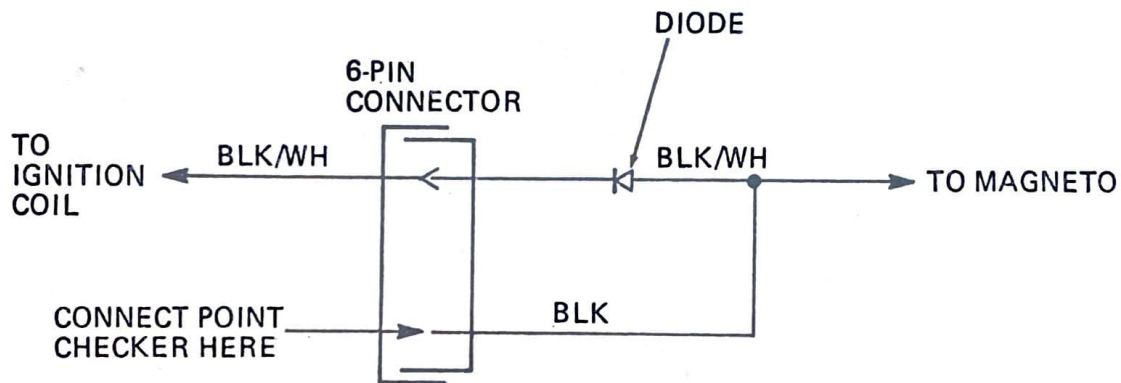
FORWARD

This Supplementary Service Manual for DT100B, DT125B and DT175B have been published to supplement the Service Manual for the DT100A, DT125A and DT175A. For complete information on service procedures, it is necessary to use this Supplementary Service Manual together with the Service Manual for the DT100A, DT125A and DT175A.

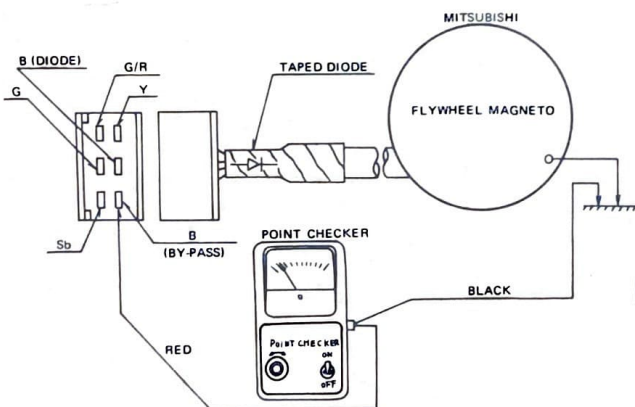
IGNITION TIMING Electrical Connections

On DT100B and DT175B models, a diode has been installed in the Black/White wire between the ignition source coil (in magneto) and the ignition coil primary winding. This diode will prevent the engine from running backwards. It will also prevent using the Black/White wire for checking ignition points operation when setting ignition timing.

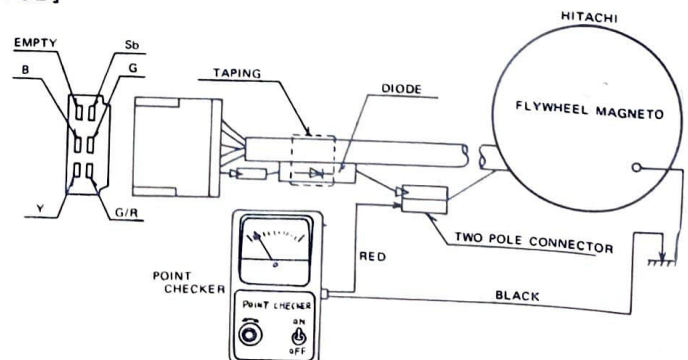
To check ignition point operation, a black wire which bypasses the diode has been provided in the same 6-pin connector. The wires going to the connector are covered with black vinyl tape. Separate the 6-pin connector on the right side of the machine. Connect one lead of the point checker to the male terminal which does not have a mating female terminal in the other connector half. The other point checker lead is connected to a good engine ground. See drawing below.



[DT100B]



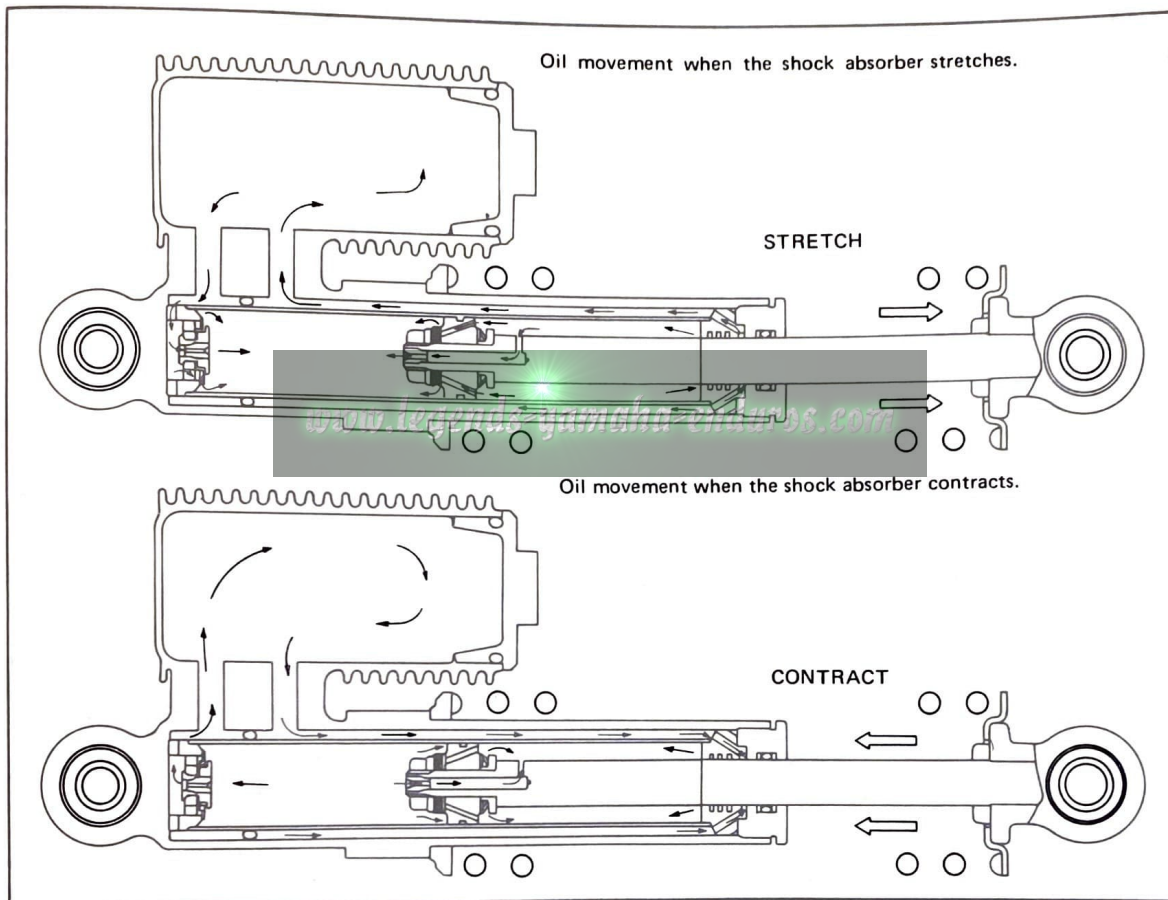
[DT175B]



Thermal Phase Shocks (DT175B)

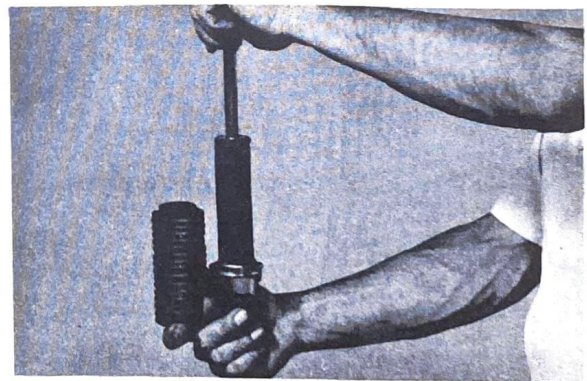
Rear shock absorbers used on DT175B are of the 'Thermal Phase' type utilizing a separate oil reservoir. The separate reservoir permits use of a larger quantity of oil. Additionally, the oil tank also acts as a heat sink. This allows the oil to dissipate heat and retain its normal viscosity.

A. Operation



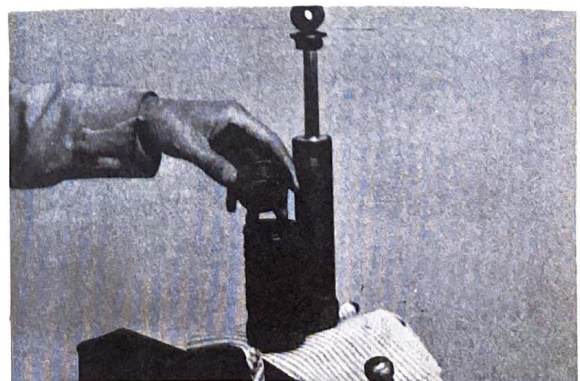
B. Inspection

1. Remove shock.
2. Place shock bottom eyelet in vise.
Grasp and compress spring from top.
Remove upper spring seat and spring.
3. Operate shock absorber shaft to check damping.
As you push down, only slight damping should be felt. Return stroke will have considerable damping. If there is no damping, replace cylinder rod assembly.

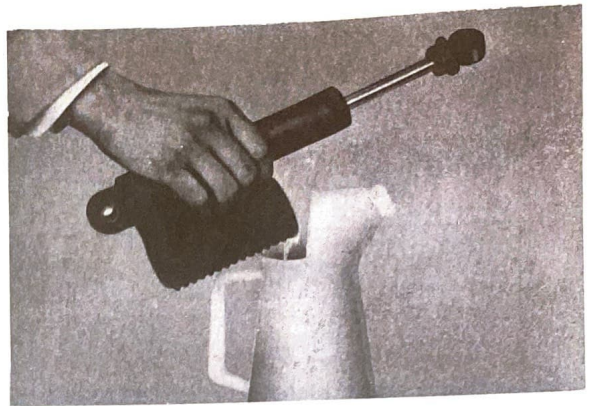


C. Shock Absorber Oil Change

1. Remove the shock absorber from the machine and remove the spring and the cap from reservoir.



2. Pour oil out of reservoir. Pump the shock absorber shaft to remove all oil from the damping cylinder.



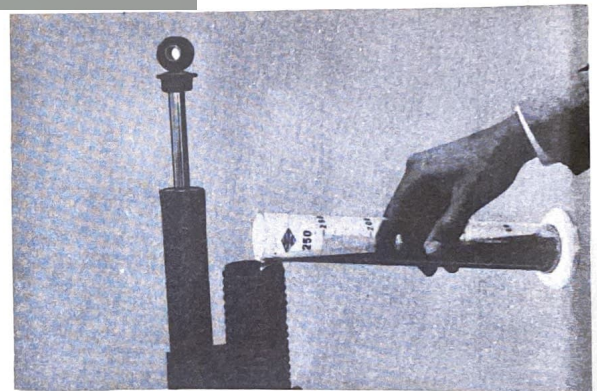
3. Wash the entire unit in mild solvent and pump out all solvent afterward.

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4. Measure the correct amount of Yamaha Shock Oil or another specialty shock oil and refill the unit. As you pour the oil in, slowly pump the damper to distribute the oil and eliminate any air bubbles.

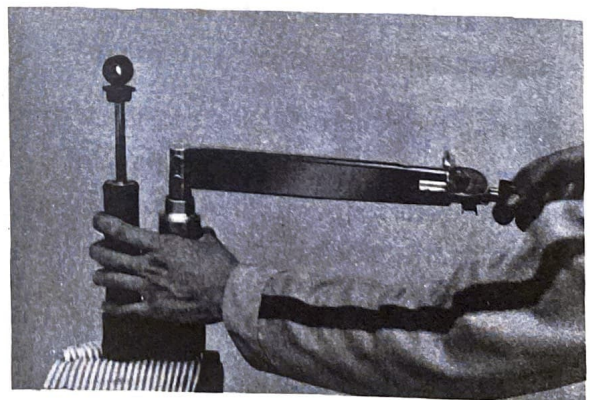
Note:

Choose the weight oil that will suit rider preference and local conditions.



Rear shock oil capacity: 181 cc

5. Replace reservoir cap and springs and re-install the shock absorber.



RESERVOIR CAP TORQUE: 2.0 ~ 2.3 m-kgs. (170 ~ 200 in-lbs.)

FOREWORD

The Yamaha DT series machines are originally designed for off-the-road riding as trail machines or scrambles but they are also built to excel in medium speed performance over roads and highways. For this reason they are equipped with all the safety parts required for a street touring model.

Another attractive feature is the DT series are readily converted to high-powered moto-crossers with Genuine Yamaha Tuning parts.

This manual, and the technical and service information enclosed, should be closely followed to enable you to properly maintain the machines, thereby ensuring continuous good performance and long service life.

Even though this information applies to several models, many of the servicing procedures are identical. Whenever there is a difference in specifications and/or servicing procedure, the individual models will be noted. Unless otherwise noted, consider the information to be universally applicable.

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CHAPTER 1. GENERAL INFORMATION

1-1 MACHINE IDENTIFICATION

A. Serial Number

The frame serial number is stamped on the right side of the steering head pipe and the engine serial number is located on the top of the crankcase left side. On all new machines the two serial numbers should be identical. Whenever ordering replacement parts or making inquiries concerning a particular machine, always include the frame/engine number or both if they happen to be different.

B. Key System

One key is used to operate the ignition switch, steering head lock, and gas cap lock. When a key is lost, refer to the switch code stamped on each lock. Your selling dealer will be able to supply you with a replacement key.

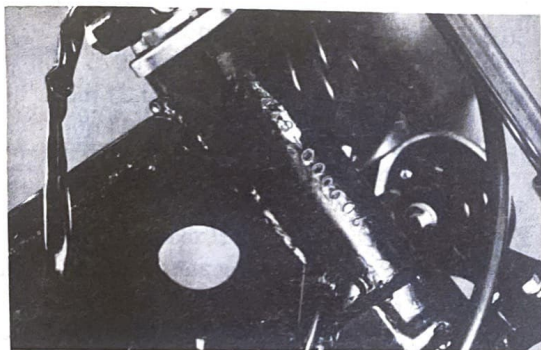


Fig. 1

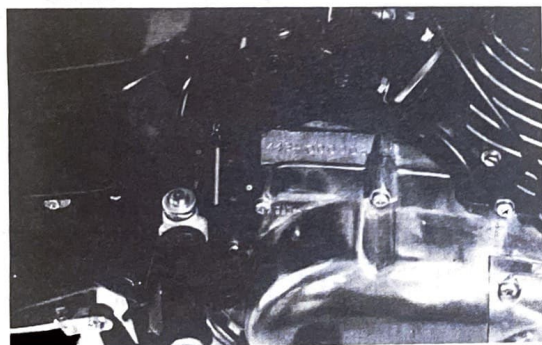


Fig. 2

1-2 SPECIFICATIONS
A. General Specifications

MODEL	DT100A	DT125A	DT175A
Dimensions:			
Overall length	77.8 in. (1,975 mm)	79.3 in. (2,015 mm)	79.5 in. (2,020 mm)
Overall width	34.3 in. (870 mm)	34.3 in. (870 mm)	34.3 in. (870 mm)
Overall height	42.5 in. (1,080 mm)	42.5 in. (1,080 mm)	42.9 in. (1,090 mm)
Wheelbase	50.4 in. (1,280 mm)	51.6 in. (1,310 mm)	52.2 in. (1,330 mm)
Min. ground clearance	8.9 in. (225 mm)	9.1 in. (230 mm)	9.1 in. (230 mm)
Weight:			
Net	201 lbs. (91 kg)	227 lbs. (103 kg)	214 lbs. (97 kg)
Performance:			
Max. speed	152.9 mpg at 31 mph	129.4 mpg at 31 mph	117.6 mpg at 31 mph
Fuel consumption (on paved level roads)	(66 km/l at 50 km/h)	(55 km/l at 50 km/h)	(50 km/l at 50 km/h)
Climbing ability	27 degrees	30 degrees	30 degrees
Min. turning radius	75.6 in. (1,920 mm)	77.0 in. (1,955 mm)	77.8 in. (1,975 mm)
Braking distance	49.2 ft. at 31 mph (15 m at 50 km/h)	49.2 ft. at 31 mph (15 m at 50 km/h)	49.2 ft. at 31 mph (15 m at 50 km/h)
Engine:			
Model	437	444	443
Type	2 stroke, gasoline	2 stroke, gasoline	2 stroke, gasoline
Lubricating system	Separate lubrication (YAMAHA Autolube)	Separate lubrication (YAMAHA Autolube)	Separate lubrication (YAMAHA Autolube)
Cylinder	Single, forward inclined, torque induction	Single, forward inclined, torque induction	Single, forward inclined, torque induction
Displacement	5.92 cu.in. (97 c.c.)	7.51 cu.in. (123 c.c.)	10.43 cu.in. (171 c.c.)
Bore and Stroke	2.047 x 1.795 in. (52 x 45.6 mm)	2.205 x 1.969 in. (56 x 50 mm)	2.598 x 1.969 in. (66 x 50 mm)
Compression ratio	6.8 : 1	7.1 : 1	6.8 : 1
Starting system	Primary kick starter	Electric & kick starter	Primary kick starter
Ignition system	Magneto ignition	Battery ignition	Magneto ignition
Ignition timing	1.8 mm B.T.D.C.	1.8 mm B.T.D.C.	1.8 mm B.T.D.C.
Spark plug	B-8HS	B-8ES	B-8ES
Carburetor:			
Type	VM22SS	VM24SH	VM24SS
M.J.	#150	#140	#160
J.N.	4L6-2	4G2-3	5G4-3
Air cleaner:	Wet, foam rubber	Wet, foam rubber	Wet, foam rubber
Transmission:			
Clutch	Wet, multiple-disk	Wet, multiple-disk	Wet, multiple-disk
Primary reduction system	Gear	Gear	Gear
Primary reduction ratio	3.894 (74/19)	3.894 (74/19)	3.894 (74/19)

SPECIFICATIONS—General Specifications

MODEL	DT100A	DT125A	DT175A
Gear box:			
Type	Constant mesh	Constant mesh	Constant mesh
	5-speed forward	5-speed forward	5-speed forward
Reduction ratio 1st	3.181 (35/11)	3.181 (35/11)	3.181 (35/11)
2nd	2.000 (30/15)	2.000 (30/15)	2.000 (30/15)
3rd	1.368 (26/19)	1.368 (26/19)	1.368 (26/19)
4th	1.000 (23/23)	1.000 (23/23)	1.000 (23/23)
5th	0.800 (20/25)	0.800 (20/25)	0.800 (20/25)
Secondary reduction system	Chain	Chain	Chain
Secondary reduction ratio	3.500 (49/14)	3.214 (45/14)	2.812 (45/16)
Chassis:			
Model	437	444	443
Frame	Tubular double loop	Tubular double loop	Tubular double loop
Suspension system, front	Telescopic fork	Telescopic fork	Telescopic fork
Suspension system, rear	Swinging, arm	Swinging, arm	Swinging, arm
Cushion system, front	Coil spring, oil damper	Coil spring, oil damper	Coil spring, oil damper
Cushion system, rear	Coil spring, oil damper	Coil spring, oil damper	Coil spring, oil damper
Steering system:			
Caster	59°	59°	59°
Trail	5.20 in. (132 mm)	4.88 in. (124 mm)	4.80 in. (122 mm)
Braking system:			
Type of brake	Internal expansion	Internal expansion	Internal expansion
Operation system, front	Right hand operation	Right hand operation	Right hand operation
Operation system, rear	Right foot operation	Right foot operation	Right foot operation
Tire size:			
Front	2.75x19-4P	3.00x19-4P	3.00x19-4P
Rear	3.00x18-4P	3.25x18-4P	3.50x18-4P
Flywheel magneto:		Starter-Dynamo::	
Model	F000T01771	GS114-01	F 140-04
Manufacturer	Mitsubishi Ltd.	Hitachi Ltd.	Hitachi Ltd.
Battery:			
Model	6N4B-2A	12N7-3B	6N4B-2A
Manufacturer	Furukawa, GS	Furukawa	Furukawa, GS
Capacity	6V, 4AH	12V, 7AH	6V, 4AH
Lighting:			
Head light	6V, 25W/25W	12V, 25W/25W	6V, 25W/25W
Tail light	6V, 5.3W	12V, 8.3W	6V, 5.3W
Stop light	6V, 17W	12V, 27W	6V, 17W
Meter light	6V, 3W	12V, 3Wx2	6V, 3W
Flasher light	6V, 17W	12V, 27W	6V, 17W
High beam indicator light	6V, 1.5W	12V, 3W	6V, 1.5W
Tanks:			
Gasoline tank capacity	1.6 US gals. (6 lit.)	1.8 US gals. (7 lit.)	1.8 US gals. (7 lit.)
Oil tank capacity	1.3 US qts. (1.2 lit.)	1.3 US qts. (1.2 lit.)	1.3 US qts. (1.2 lit.)

B. Maintenance Specifications

ITEM	DT100A	DT125A	DT175A
AUTOLUBE Minimum Pump Stroke (At Idle) Maximum Pump Stroke (At Full Throttle)	0.0079~0.0098 in. 0.0728~0.0807 in.	0.0079~0.0098 in. 0.0728~0.0807 in.	0.0079~0.0098 in. 0.0728~0.0807 in.
MAGNETO/IGNITION Ignition Source Coil Resistance Ignition Coil Resistance (Primary) Ignition Coil Res. (Secondary) Charging Source Coil Res. (Day Winding) Charging Source Coil Res. (Night Winding)	1.7Ω ± 10% 1.02Ω ± 10% 6.000Ω ± 20% 1.14Ω ± 10% 0.47Ω ± 10%	1.7Ω ± 10% 4.9Ω ± 10% 11.000Ω ± 20% 1.14Ω ± 10% 0.47Ω ± 10%	2.1Ω ± 10% 1.7Ω ± 10% 6.000Ω ± 20% 0.48Ω ± 10% 0.78Ω ± 10%
Ignition Timing	+0.0079 in. 0.0709~0.0197 in.	+0.0079 in. 0.0709~0.0197 in.	+0.0079 in. 0.0709~0.0197 in.
Ignition Point Gap	0.0118~0.0157 in.	0.0118~0.0157 in.	0.0118~0.0157 in.
Condenser Capacity	0.30 μF	0.22 μF	0.30 μF
ENGINE—TOP END Tolerance Limits Piston Clearance	0.0020 in. 0.0016~0.0017 in.	0.0020 in. 0.0016~0.0017 in.	0.0019 in. 0.0016~0.0017 in.
Top Ring End Gap (Free)	0.1181 in.	0.2167 in.	0.3349 in.
Top Ring End Gap (Installed)	0.0059~0.0138 in.	0.0059~0.0138 in.	0.0118~0.0197 in.
2nd Ring End Gap (Free)	0.1575 in.	0.1379 in.	0.1778 in.
2nd Ring End Gap (Installed)	0.0059~0.0138 in.	0.0118~0.0197 in.	0.0018~0.0197 in.
Ring/Ring Groove Clearance	0.0008~0.0035 in. 0.0012~0.0027 in.	0.0004~0.0035 in. 0.0012~0.0027 in.	0.0028~0.0055 in. 0.0012~0.0027 in.
Connecting Rod Axial Play	0.0236 in.	0.0236 in.	0.0236 in.
Connecting Rod/Crank Side Clearance	0.0157~0.0197 in.	0.0157~0.0197 in.	0.0157~0.0197 in.
Compression Pressure	6.8 : 1	7.1 : 1	6.8 : 1
ENGINE—CLUTCH Friction Plate Thickness Clutch Plate Warp Allowance Spring Free Length	0.1575 in. 0.0079 in. 1.3396 in.	0.1575 in. 0.0079 in. 1.3396 in.	0.1575 in. 0.0079 in. 1.3396 in.
Housing Bushing Inner Diameter	0.9062~0.0002 in. 0.9062~0.0008 in.	1.0244~0.0006 in. 1.0244~0.0008 in.	1.0244~0.0006 in. 1.0244~0.0008 in.
Bushing Spacer O.D.	0.9062~0.0012 in. 0.9062~0.0006 in.	1.0244~0.0012 in. 1.0244~0.0006 in.	1.0244~0.0012 in. 1.0244~0.0006 in.
Bushing/Spacer Clearance	0.6699~0.0006 in.	0.7880~0.0008 in.	0.7880~0.0008 in.
Main Shaft Outer Diameter	17~0.017 mm	20~0.020 mm	20~0.020 mm
Bushing Spacer Inner Diameter	17~0.012 mm	20~0.012 mm	20~0.012 mm
Main Shaft/Spacer Clearance	0.6698~0.0004 in. 0.6698~0.0004 in.	0.7880~0.0004 in. 0.7880~0.0004 in.	0.7880~0.0004 in. 0.7880~0.0004 in.

ITEM	DT100A	DT125A	DT175A
CHASSIS			
Front Brake Shoe Diameter	4.3143 in.	109.5 mm	5.1023 in.
Rear Brake Shoe Diameter	5.1023 in.	129.5 mm	5.1023 in.
Wheel Run-out Limits Vertical	0.0701 in.	0.178 mm	0.0701 in.
Wheel Run-out Limits Lateral	0.0701 in.	0.178 mm	0.0701 in.
Front Fork Spring Free Length	17.4148 in.	442 mm	17.2178 in.
Rear Shock Spring Free Length	7.9982 in.	203 mm	7.9982 in.
TORQUE VALUES			
See, also, Torque Chart, Page 116			
Transmission Drain Plug	10.85–18.09 ft.-lbs.	1.5–2.5 kg-m	10.85–18.09 ft.-lbs.
Front Fork Cap Bolt	10.85–21.71 ft.-lbs.	1.5–3.0 kg-m	10.85–21.71 ft.-lbs.
Front Axle Securing Nut	7.96–13.02 ft.-lbs.	1.1–1.8 kg-m	7.96–13.02 ft.-lbs.
Cylinder Head Bolt	13.02–18.09 ft.-lbs.	1.8–2.5 kg-m	13.02–18.09 ft.-lbs.
Flywheel Securing Nut	18.09–32.56 ft.-lbs.	2.5–4.5 kg-m	18.09–32.56 ft.-lbs.
Clutch Securing Nut	28.94–43.41 ft.-lbs.	4.0–6.0 kg-m	28.94–43.41 ft.-lbs.
Drive Sprocket Securing Nut	18.09–32.56 ft.-lbs.	2.5–4.5 kg-m	18.09–32.56 ft.-lbs.
Drive Sprocket Securing Bolt(s)	7.96–13.02 ft.-lbs.	1.1–1.8 kg-m	7.96–13.02 ft.-lbs.

1-3 NOMENCLATURE

DT100A



Right hand side view



Left hand side view

DT125A



Right hand side view



Left hand side view

DT175A



Right hand side view



Left hand side view

1-4 FEATURES OF YAMAHA 100-175 ENDUROS

A. 7-PORT Cylinder and Reed Valve Intake

The newly designed 7-port cylinder has greatly improved scavenging efficiency at all speeds. In addition, the adoption of an improved reed valve for intake ensures steady and smooth enduro performance throughout the entire range of speed from low to high.

B. Highly Dependable Yamaha Autolube

Yamaha Autolube provides superior engine lubrication that extends the life of the engine.

C. Easy Starting

The engine can be started by simply disengaging the clutch and kicking the kick pedal without shifting gears back to neutral. This is a valuable convenience to the rider. The 100's and 175's are equipped with a magneto. To start the engine, kick the pedal. The DT125A has an electric starter dynamo for easier starting.

D. Powerful Brakes

Patented waterproof, dustproof brake drums provide safe, fade-free braking on wet or dusty roads.

E. Adjustable Rear Cushion

The rear cushions are adjustable for five positions. The rider can adjust spring tension to compensate for varying weight, speed, and road conditions.

F. Front Fork Design

Yamaha enduros employ a front fork design well-known for strength and superior handling characteristics. They assure the rider of the ultimate suspension for even the roughest terrain.

G. Speedometer and Tachometer

Both speedometer and tachometer are standard equipment (except 100 series). Individual units are separately mounted for maximum visibility. An additional feature of the speedometer is an odometer which can be reset to zero for trip or enduro purposes.

H. Tires

The 100-175 enduro series are fitted with tires having a universal-type tread pattern as standard equipment. This particular tread is one of the most versatile available. It gives maximum trail traction and yet is compatible with road usage.

I. Carburetor Starter Feature

Yamaha's starter feature is already well-known for its easy starting. Equipped with this unique carburetor, Yamaha's are quick starting under all conditions.

COMMON TOOLS

1-5 COMMON TOOLS

The following tools and instruments are required to service the DT Series.

1. General Tools

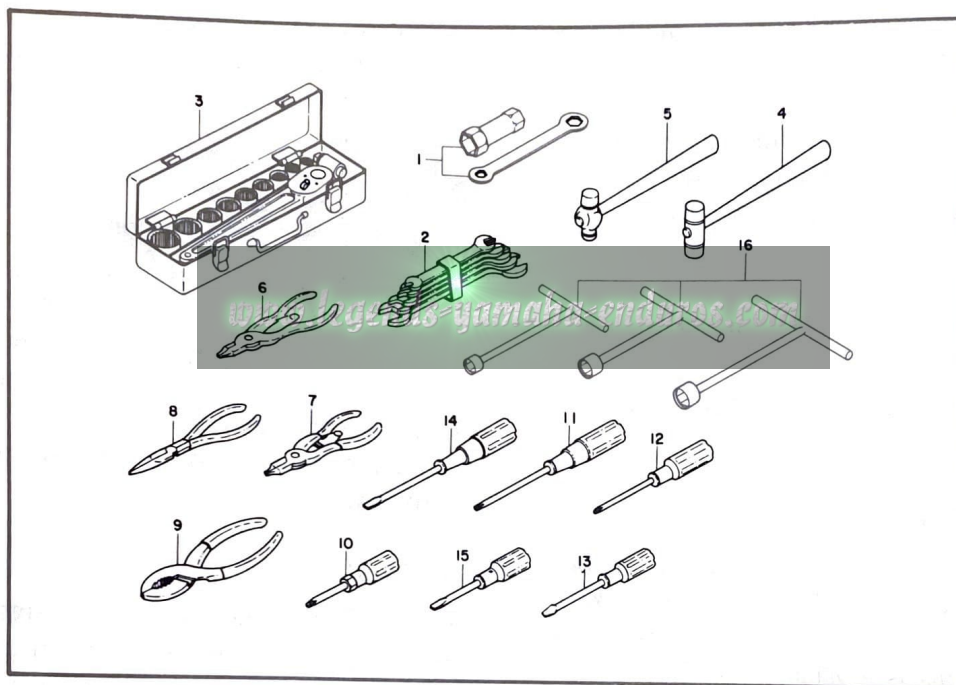


Fig. 3

- | | | |
|-----------------------------|-----------------------------------|----------------------------------|
| 1) Plug wrench 23 x 29 mm | 7) Circlip pliers (TR type) | 13) Slotted-head screwdriver (M) |
| 2) A set of wrenches | 8) Needle nose pliers | 14) Slotted-head screwdriver (L) |
| 3) A set of socket wrenches | 9) Pliers | 15) Slotted-head screwdriver (S) |
| 4) Plastic tip hammer | 10) Phillips-head screwdriver (S) | 16) T-handle socket wrench |
| 5) Steel hammer | 11) Phillips-head screwdriver (L) | |
| 6) Circlip pliers (ST type) | 12) Phillips-head screwdriver (M) | |

1-6 PERIODIC MAINTENANCE INTERVALS

Page	Item	Remarks	Initial (miles)				Thereafter every (miles)	
			250	500	1,000	2,000	1,000	2,000
14	Brake System (Complete)	Chk/adj as req'd - Repair as req'd		0	0			8,000
24	Clutch	Check/Adjust as required		0	0		0	
71,85	Battery	Top-Off/Ck spec, gr, as req'd - monthly - or →	0	0	0		0	
64,76	Spark Plug(s)	Inspect/Clean or replace as req'd	0	0	0		0	
88	Wheels & Tires	Pressure/Spoke Tension/Runout	0	0	0		0	
116	Fittings & Fasteners	Tighten before each trip and/or →	0	0	0		0	
23	Autolube	Cable operation/Adjustment	0	0	0		0	
16	Drive Chain	Tension/Alignment	0	0	0		0	0
	Engine Oil Level Check	Includes Trans./Autolube tank 1	0	0	0		0	
25	Air Filter	Foam Type - See Service Note 2, 4	0	0	0		0	
	Fuel Petcock	Clean/Flush tank as Req'd	0	0	0		0	
16	Ignition Timing	Adjust/Clean or repl. pts. as Req'd	0	0	0		0	
19	Carburetor Adjustment	Check Operation/Synch./Fittings	0	0	0		0	
19	Carburetor Overhaul	Clean/Repair as Req'd/Refit/Adjust			0		0	0
	Cylinder Compression	Preventive Maintenance check	0	0	0		0	
26	Decarbonize Engine	Includes Exhaust System		0	0		0	

SERVICE NOTES:

1. Check autolube tank level before each ride or every 100 miles. Top off when oil level shows at the sight glass or before any long trip. See "Lubrication Intervals" for type oil to use.
2. Foam element air filters must be damp with oil at all times to function properly. Remove, clean, and oil filter at least once per month or every 500-1,000 miles; more often if possible. (If extremely hard usage, such as dirt riding, clean and lubricate daily). See Lubrication chart for additional detail.
3. Pre-operational checks should be made each time the machine is used. Such an inspection can be thoroughly accomplished in a very short time, and the added safety it assures the rider is more than worth the minimal time involved.
4. For additional information on drive chain, engine oil level, wet-type air filter, See lubrication chart.

1-7 LUBRICATION INTERVALS

Page	Item	Remarks	Type	Period							
				Initial (miles)				Thereafter Every (miles)			
				250	500	1,000	2,000	1,000	2,000	4,000	8,000
22	Autolube	See Service Notes	#1	See Service Notes							
35	Trans. oil	Warm engine before draining	#2				0	CHK	0		
15	Drive Chain	Lube/Adjust as req'd	#3	See Service Notes							
15	Drive Chain	Remove/Clean/Lube/Adjust	#3				0		0		
25	Air Filter	Foam type	#9	See Service Notes							
	Control & Meter Cables	All-Apply Thoroughly	#4						0		
	Throttle Grip & Housing	Light Application	#5						0		
	Tacho & Speedo Gear Hsgs.	Light Application	#5				0			0	
	Rear Arm Pivot Shaft	Zirc-Apply until shows	#6				0		0		
14	Brake Pedal Shaft	Light Application	#5				0		0		
	Change Pedal Shaft	Light Application	#5				0		0		
	Stand Shaft Pivot	Light Application	#5				0		0		
96	Front Forks	Drain Completely Ck Specs	#3				0		CHK	0	
102	Steering Ball Races	Inspect Thoroughly/Med. pack	#7				0			0	
	Point Cam Lubr. Wick	Very Light Application	#8				0			0	
	Wheel Bearings	Do not Over-Pack	#7				0			0	

#1 Check tank level before each rider or every 100 miles. Top off when oil level is at sight glass or before any long trip. Use the following lubricant (in order of preference):

#2 Yamalube, or, two-stroke oil labeled "BIA certified for service TC-W"

#3 At ambient temperatures of 45-90°F use 10W/30.

#4 Use 10W 30 "JD" motor oil. (If desired, specialty type lubricants of quality manufacture may be used.)

#5 Add "Drive Chain" - Lube every 200-250 miles. If service usage, every 50-150 miles.

#6 Use graphite base type (specialty types available - use name-brand, quality manufacture).

#7 Light duty. Smooth, light weight. "white" grease. Heavy duty Standard 90 wt. lube grease (do not use lube grease on throttle/housing).

#8 Use standard 90 wt. lube grease - smooth, not coarse.

#9 Medium-weight wheel bearing grease of quality mfr. - preferably waterproof

#10 Light-weight machine oil.

#11 Air filter - Foam element in filters must be damp with oil at all times for function properly. Clean and lube monthly or per mileage.

#12 If hard usage, clean and lube daily. Do not over oil. Use 50At 10W/30.

CHAPTER 2. ENGINE TUNING AND CHASSIS ADJUSTMENTS

2-1 SPECIAL TOOLS

- A. Point Checker
P/N 908-90030-31-00

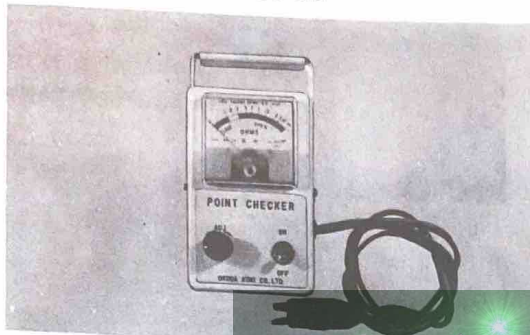


Fig. 4

- D. Steering Nut Wrench
P/N 908-90010-51-00



Fig. 7

- B. Dial Gauge Assembly
P/N 908-90030-02-00

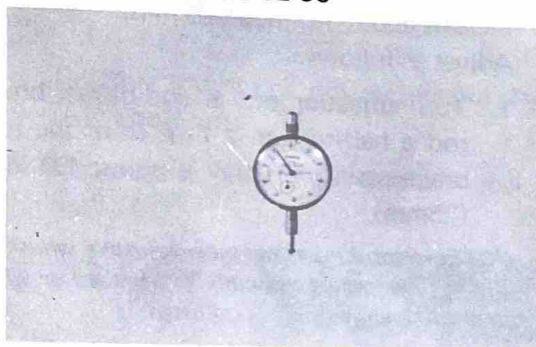


Fig. 5

- E. Autolube Feeler Gauge
P/N 908-90030-01-00

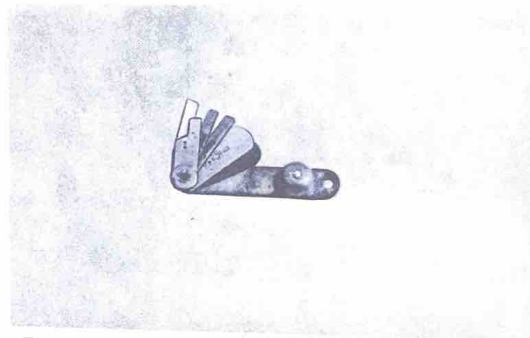


Fig. 8

- C. Dial Gauge Stand
P/N 908-90010-39-00

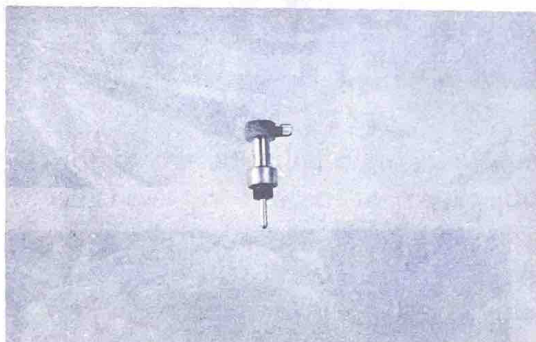


Fig. 6

2-2 CHASSIS ADJUSTMENTS

A. Front Brake Adjustment

There are two places where the front brake cable may be adjusted. They are at the brake lever (right handle) and at the front hub. In most cases it is only necessary to make an adjustment at the lever. In extreme cases, where the cable has stretched, it may also be necessary to make an adjustment at the front hub.

1. Adjust brake lever as follows:
 - a. Loosen locknut on adjusting bolt.
 - b. Turn adjusting bolt until there is 0.2-0.3 inches (5-8mm) free play of the brake lever.

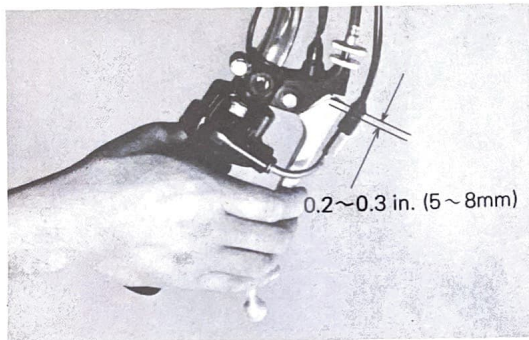


Fig. 9

- c. Tighten locknut with finger only. DO NOT USE PLIERS.
2. Adjust front brake cable at front hub as follows:
 - a. Disconnect brake cable at front lever.
 - b. Loosen locknut on brake cable adjusting bolt.
 - c. Turn adjusting counterclockwise to effectively shorten brake cable or clockwise to lengthen cable.

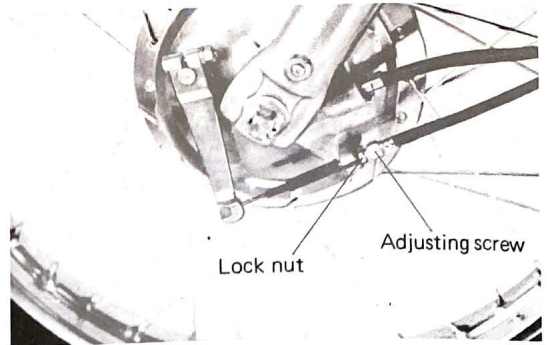


Fig. 10

- d. Tighten locknut.
- e. Reconnect brake cable at front lever and adjust brake lever free play as outlined in above paragraph.

B. Rear Brake Adjustment

The correct free play of the rear brake pedal is about 1.0 inch (25 mm).

Adjust as follows:

1. Turn adjusting nut at end of rear brake rod a half-turn at a time until the rear brake pedal free play is about 1.0 inch (25mm).

NOTE: Rear brake must be adjusted whenever rear wheel assembly is installed or when chain tension is adjusted.

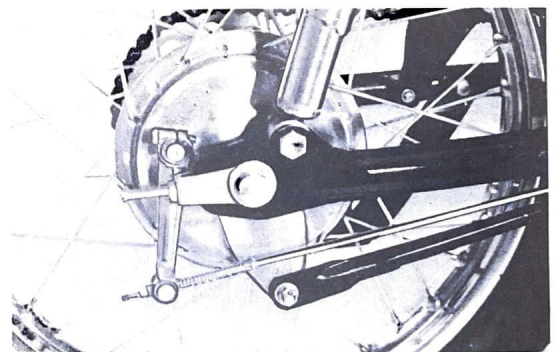


Fig. 11

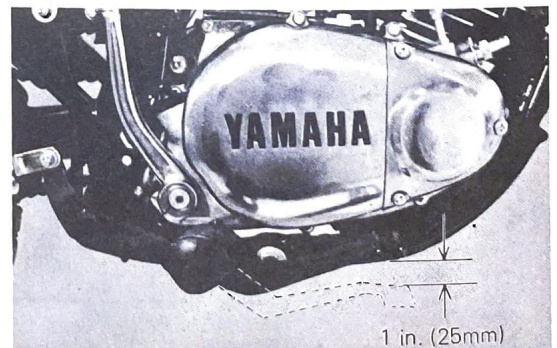


Fig. 12

C. Chain Adjustment

The correct free play of the drive chain is about (1.0 inch) 25mm total up and down, measured at the center of the lower section with both wheels on the ground and the rider in position.

Adjust as follows:

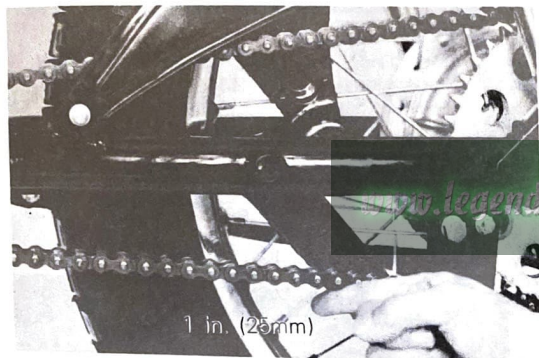


Fig. 13

1. Remove the cotter pin and loosen the rear wheel nut
2. Loosen the chain adjusting bolt lock-nuts

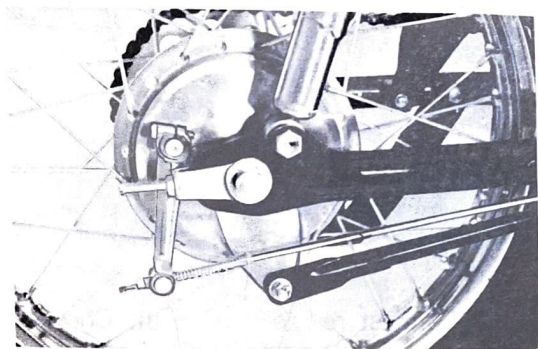


Fig. 14

3. Rotate the adjusting bolts in or out, whichever is needed to obtain the correct free **play**, and at the same time make sure that both ends of the axle are positioned evenly. This can be checked by utilizing the marks on the very end of the swing arms, just above and to the rear of the rear wheel nuts.
4. After completing the adjustment, re-tighten all the locknuts.

5. Tighten rear wheel nut and install a NEW cotter pin.
6. Check brake pedal operation for approx. 1.0 inch free play. (It may have changed because of chain adjustment.)

D. Steering Head Adjustment

The steering assembly should be checked periodically for any looseness. Do this as follows:

1. Block machine up so that front wheel is off the ground.



Fig. 15

2. Grasp bottom of forks and gently rock fork assembly backward and forward. You will feel any looseness in the steering assembly bearings.

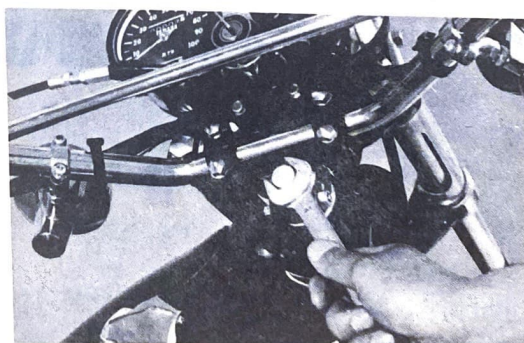


Fig. 16

3. If steering head needs adjustment, loosen steering fitting bolt and crown pinch bolt.



Fig. 17

4. Using steering nut wrench, adjust steering head fitting nut until steering head is tight without binding when forks are turned.

NOTE: *Excessive tightening of this nut will cause rapid wear of ball bearings and races.*

5. Tighten crown pinch bolt and steering fitting bolt in that order.

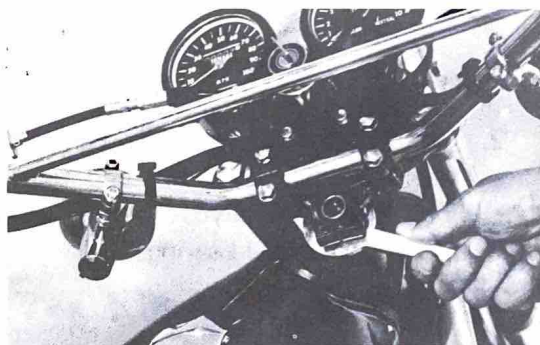


Fig. 18

2-3 ENGINE TUNING

A. Ignition Timing

Ignition timing must be set with a dial indicator (to determine piston position) and a low-range ohmmeter (to determine exactly when contact breaker points begin to open). Proceed as follows:

1. Remove spark plug and screw Dial Gauge Stand into spark plug hole.
2. Insert Dial Gauge Assembly into the spark plug stand.

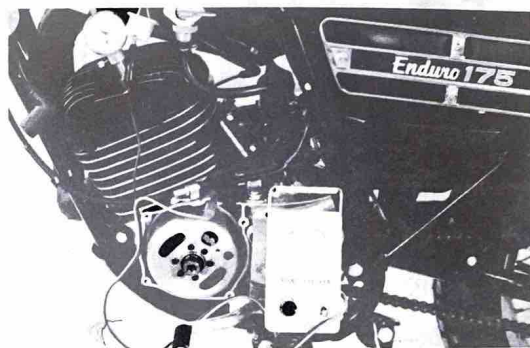


Fig. 19

3. Remove left engine crankcase cover (DT100A & DT175A) or generator cover (DT125A) to obtain access to contact breaker assembly (ignition points).
4. Connect red lead of Point Checker to black wire (DT100A & DT175A) or orange wire (DT125A) in wire harness coming from engine crankcase.



Fig. 20

5. Connect black lead of point checker to unpainted surface of cylinder fin or unpainted crankcase bolt or screw.

6. On DT125A engines adjust the maximum point gap. Rotate flywheel until maximum point opening occurs. Measure point gap with thickness gauge. See Specifications Table. Point gap may be adjusted by moving the negative (fixed) point in relation to the positive (moving) point.

7. Rotate flywheel magneto until piston is at top-dead-center. Set the zero on dial indicator face to line up exactly with dial indicator needle. Tighten set screw on spark plug stand to secure dial gauge assembly. Rotate flywheel back and forth to be sure that indicator needle does not go past zero.

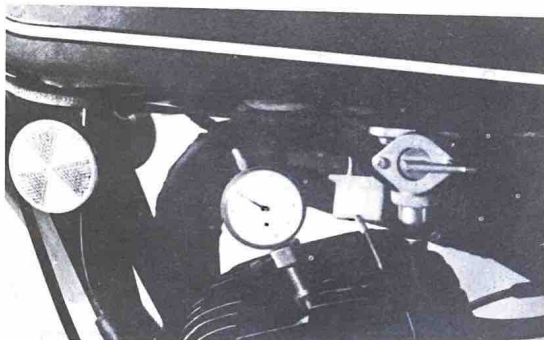


Fig. 21

8. Starting at T.D.C. rotate flywheel clockwise until dial indicator reads approximately 0.1" (2.5mm) before-top-dead-center (B.T.D.C.).

9. On DT125A engines the automatic advance mechanism must be held in the full advance position before checking or setting ignition timing.

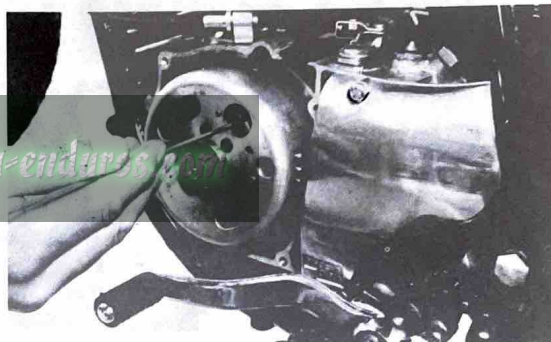


Fig. 22

10. Slowly turn flywheel counterclockwise until dial indicator reads ignition advance setting listed in Specifications Table. At this time, the point checker needle should swing from "CLOSED" to "OPEN" position, indicating the contact breaker (ignition points) have just begun to open.

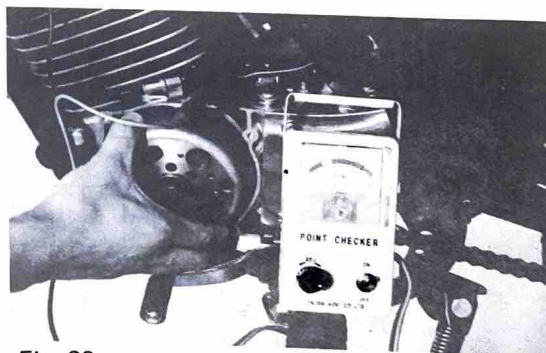


Fig. 23

11. Repeat steps 9 and 10 to verify point opening position. If points do not open within specified tolerance, they must be adjusted.

12. Adjust ignition points by barely loosening pan-head screw(s) (2 screws on DT125A) and carefully rotating contact breaker assembly with a slotted screwdriver. Make minor adjustment and retighten pan-head screw(s) before rechecking timing. Recheck timing by repeating steps 7 thru 9.



Fig. 24

13. When correct ignition timing has been accomplished, check maximum point gap by turning flywheel until maximum point opening occurs. Measure point gap with thickness gauge. See Specification Table below.

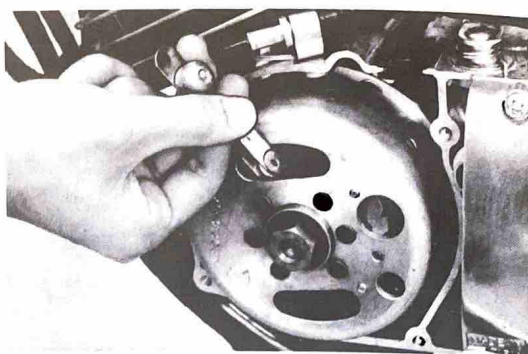


Fig. 25

NOTE: On DT100A & DT175A engines, if the maximum point gap is over tolerance the point rubbing block is probably worn and the contact breaker assembly should be replaced. Do not attempt to bend fixed point bracket to decrease maximum point gap. This will only result in point misalignment, difficulty in setting timing and premature point failure.

14. Remove dial gauge assembly and spark plug stand. Replace spark plug.
15. Disconnect point checker.
16. Replace engine crankcase cover or generator cover.

IGNITION TIMING SPECIFICATIONS				
MODEL	POINT GAP			TIMING (B.T.D.C.)
	NOMINAL	MINIMUM	MAXIMUM	
DT100A	0.014 in.	0.012 in.	0.015 in.	$0.071 \pm \begin{matrix} 0.0079 \\ 0.0197 \end{matrix}$ in. $1.8 \pm \begin{matrix} 0.2 \\ 0.5 \end{matrix}$ mm
	0.35 mm	0.30 mm	0.40 mm	
DT125A	0.014 in.	0.012 in.	0.015 in.	$0.071 \pm \begin{matrix} 0.0079 \\ 0.0197 \end{matrix}$ in. $1.8 \pm \begin{matrix} 0.2 \\ 0.5 \end{matrix}$ mm
	0.35 mm	0.35 mm	0.40 mm	
DT175A	0.014 in.	0.012 in.	0.015 in.	$0.071 \pm \begin{matrix} 0.0079 \\ 0.0197 \end{matrix}$ in. $1.8 \pm \begin{matrix} 0.2 \\ 0.5 \end{matrix}$ mm
	0.35 mm	0.30 mm	0.40 mm	

B. Carburetor Adjustments

1. Idle Mixture and Idle Speed

The idel mixture and idle speed screws are separate adjustments but they must be adjusted at the same time to achieve an optimum operating condition at engine idle speeds.

a. Idle Mixture Screws

Turn idle mixture screw (#1) until it lightly seats, then back it out to turns specified in Carburetor Setting Table. This adjustment can be made with engine stopped.

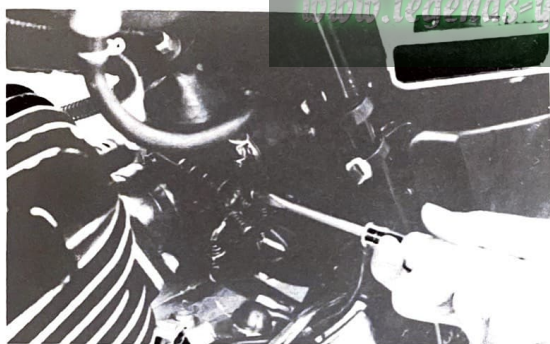


Fig. 26

b. Start the engine and let it warm up for 3-5 minutes.

c. Idle Speed Screw

Turn idle speed screw in or out to achieve smooth engine operation at idle speed specified in Carburetor Setting Table.

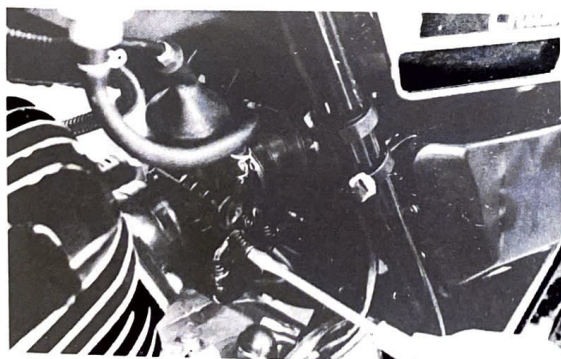


Fig. 27

2. Throttle Cable

After engine idle speed has been set, loosen cable adjuster locknut (rear throttle grip) and turn cable adjuster until there is 0.04" (1mm) slack in cable "A". Retighten lock nut.

Make second cable slack adjustment at cable adjuster at top of carburetor. Loosen lock nut and turn adjuster until there is .04" (1.0mm) slack between throttle cable housing and cable adjuster. Retighten lock nut.

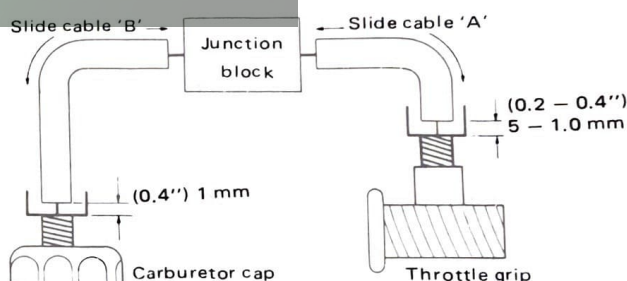


Fig. 28;
(0.04'') 1mm, (0.02-0.04'') 0.5-1.0mm

3. Float Level

The carburetor float level is checked by the Yamaha factory during assembly and testing. But rough riding, worn needle valve, or bent float arm can cause the float level to fluctuate. If the float level raises, this will cause a rich fuel/air mixture that can cause poor performance and spark plug fouling. If the float level decreases, this can cause a lean fuel/air mixture that can result in engine damage. If the machine is subjected to continuous rough riding or many miles of travel, the float level should be checked and set regularly and in the following manner:

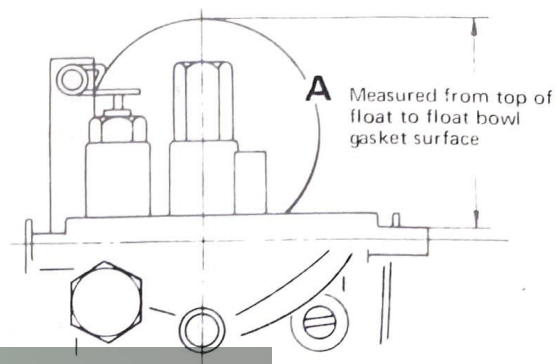


Fig. 29

- Remove the float chamber body, and turn over the mixing body. Let the float arm rest on the needle valve without compressing the spring.
- Then measure the distance from the top of the float to the float bowl gasket surface.

Model	Carb. I.D. No.	Float distance A (mm)
DT100 A	43761	0.787±0.098 in. (20±2.5 mm)
DT125 A	44460	0.787±0.098 in. (20±2.5 mm)
DT175 A	44361	0.787±0.098 in. (20±2.5 mm)

- c. When the distance measures less than the recommended distance, bend the tang up. If it is greater, bend the tang down, (with carburetor body upside down).

4. Fuel-Air Ratio Change (Jetting)

a. Changing Main Fuel Jet

The main fuel jet may be changed to provide a leaner or richer condition during high speed and/or full throttle operation. Change as follows:

- 1) Remove banjo bolt (10mm wrench) at bottom, left-rear of carburetor float bowl.
- 2) Unscrew main jet from end of banjo bolt and replace with rich (higher number) or leaner (lower number) jet.
- 3) Replace banjo bolt, gasket and main jet in carburetor float bowl, torque to 80-90 in.-lbs.

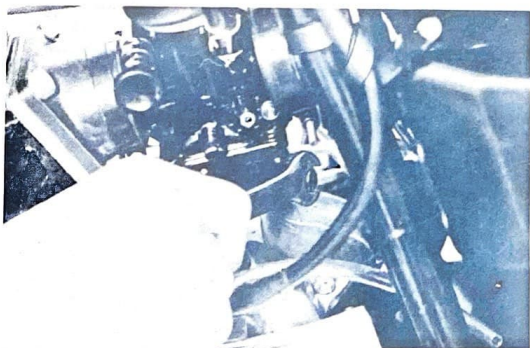


Fig. 30

b. Jet Needle

The jet needle clip position may be changed to provide a leaner or richer condition during mid-range throttle positions. Change as follows:

- 1) Unscrew carburetor top and remove throttle cable, top throttle spring, throttle slide and jet needle from carburetor as an assembly.



Fig. 31

- 2) Remove jet needle (with clip) from throttle slide.
- 3) Clip position on jet needle should be as specified in Carburetor Setting Table. To richen fuel-oil mixture install clip on next lower notch on jet needle. To lean mixture install clip on next higher notch.

CAUTION: Do not change clip position more than one notch at a time or damage to engine may result. (See Spark Plug paragraph on checking spark plug conditions.)

- 4) Replace jet needle in throttle slide.
- 5) Assemble throttle cable, cable stopper, throttle spring, throttle slide and top end; and install assembly in carburetor body.

NOTE: The groove in throttle slide must be on right side of carburetor before slide will go in carburetor body. The slide cutaway must face carburetor air inlet port.

CAUTION: Use extreme care when screwing top in. The fine threads may be easily cross-threaded resulting in damage to aluminum carburetor body.

Carburetor Setting Table

PART NAME	Abbrev.	SPECIFICATION		
		DT100A	DT125A	DT175A
Manufacture	-	Mikuni	Mikuni	Mikuni
Type/I.D. Number	-	VM22SS/ 43761	VM24SH/ 44460	VM24SS/ 44361
Main Jet	M.J.	#150	#140	#160
Needle Jet	N.J.	N-4	0-0	0-2
Jet Needle/Clip Position	J.N.	4L6-2	4G2-3	5G4-3
Cut Away	C.A.	1.5	2.0	2.0
Pilot Jet	P.J.	#25	#25	#25
Air Jet	A.J.	2.5	0.5	0.5
Starter Jet	S.J.	#30	#40	#40
Air Screw (turns out)	A.S.	1-1/4	1-1/2	1-3/4
Idle Speed	-	1,350~ 1,450 rpm	1,300~ 1,400 rpm	1,300~ 1,400 rpm
Float Level	F.L.	0.79 ±0.099 in. 21 ±2.5mm	0.79 ±0.099 in. 21 ±2.5mm	0.79 ±0.099 in. 21 ±2.5mm

C. Adjusting Autolube

1. Cable Adjustment

- Remove Autolube pump cover, which is located on forward portion of the right-hand crankcase cover.
- Rotate throttle until all slack is removed from all cables. Hold this position.

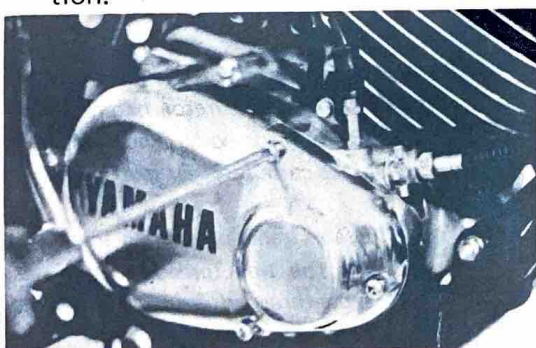


Fig. 32

- Check to see that Autolube pump plunger pin is aligned with the mark on the Autolube pump pulley.

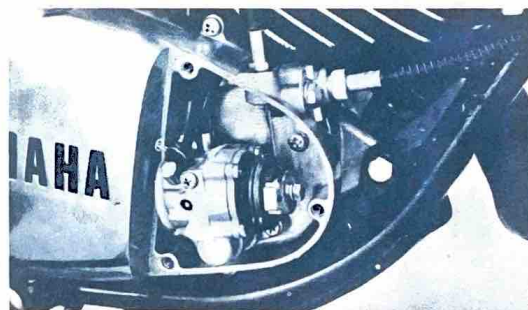


Fig. 33

- If the mark and pin are not in alignment, loosen cable length adjuster lock nut on upper edge of crankcase cover and adjust cable length until alignment is achieved. Tighten adjuster locknut.

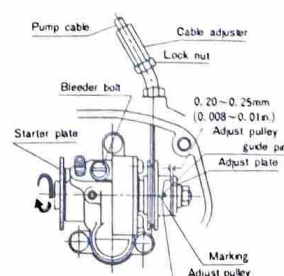


Fig. 34

2. Pump Stroke Adjustment

- a. Rotate plastic bleed wheel until the pump plunger moves fully out and away from the pump body to its outermost limit.

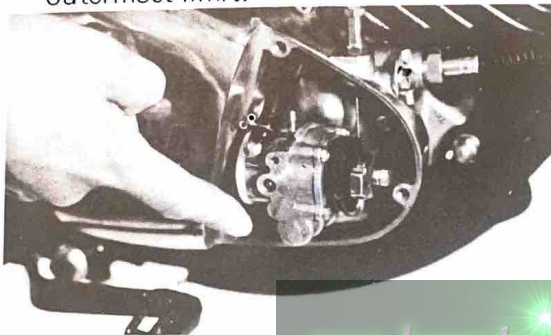


Fig. 35

- b. Measure gap between raised boss on pump cable pulley and pump stopper plate. If clearance is incorrect, remove adjusting plate locknut and adjusting plate.

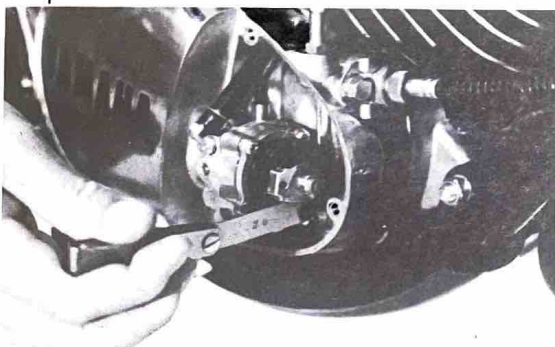


Fig. 36

MINIMUM PUMP STROKE:
0.0079 ~ 0.0098 in.
0.20 ~ 0.25 mm

- c. Remove or add an adjustment shim as required.

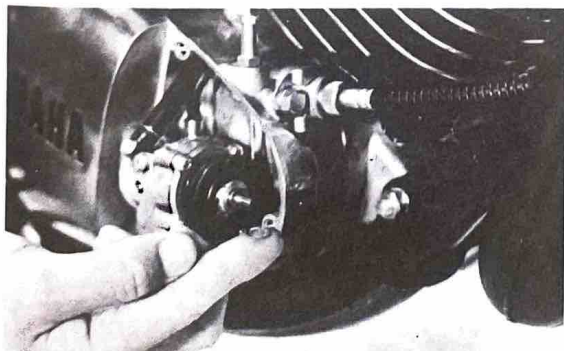


Fig. 37

- d. Reinstall adjusting plate and locknut. Tighten the locknut. Re-measure gap. Repeat procedure as required.

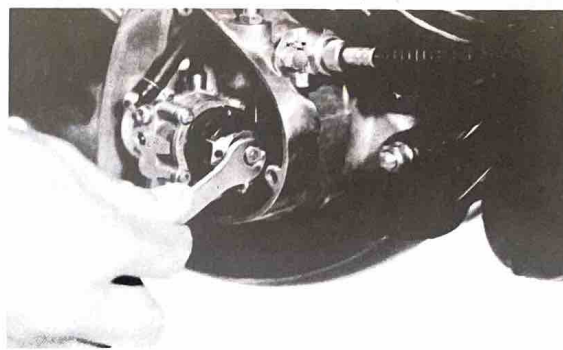


Fig. 38

3. Pump Bleeding

- a. The Autolube pump and delivery lines must be bled on any of the following occasions:

- 1) A new machine out of the crate.
- 2) Whenever any portion of the Autolube system is disconnected.
- 3) Whenever the Autolube reservoir tank has run dry.

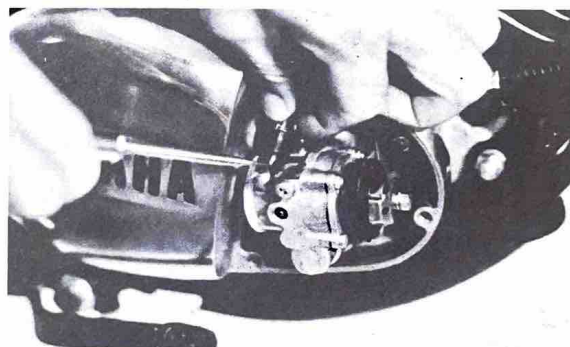


Fig. 39

- b. Remove the pump cover.

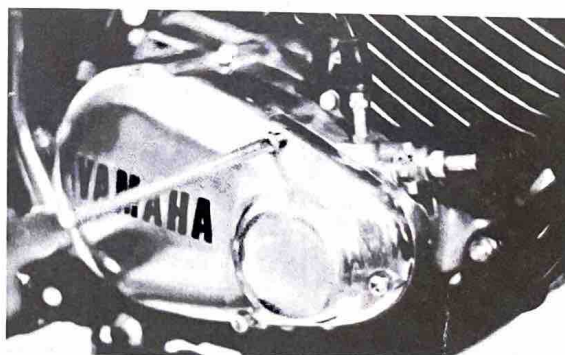


Fig. 40

- c. Remove the pump bleed screw.

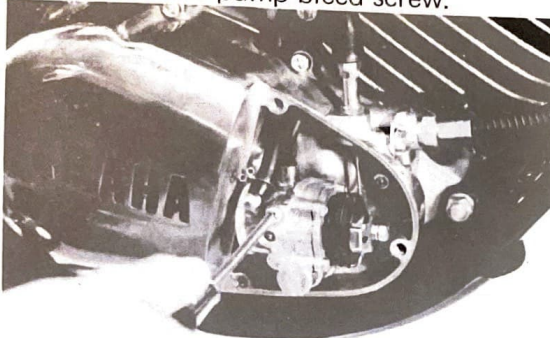


Fig. 41

- d. Turn the throttle to the full open position.
e. Rotate the plastic bleed wheel until a steady flow of oil, with no air bubbles, comes out.

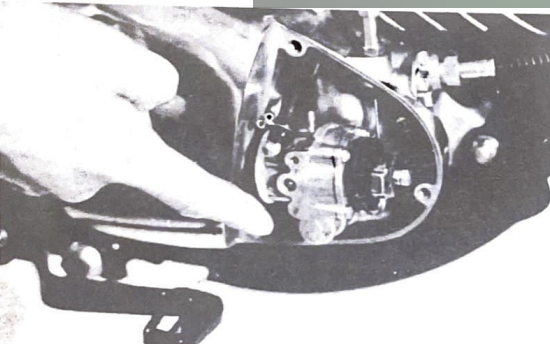


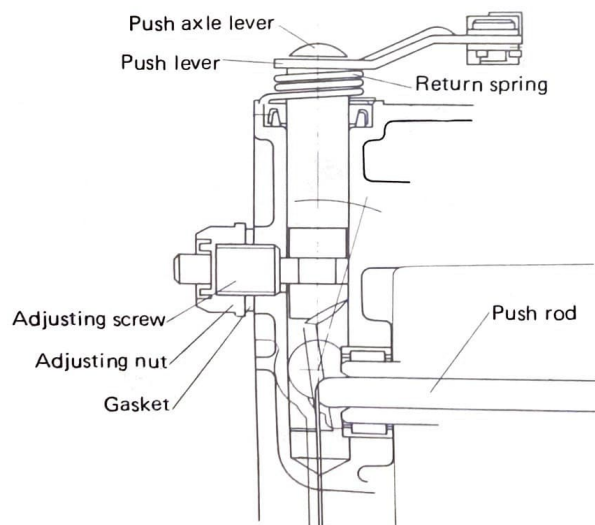
Fig. 42

- f. Reinstall bleed screw and pump cover.

D. Clutch Adjustments

1. DT100A and DT175A

The clutch push lever is so designed



that it is positioned 10° behind the push lever axle before it is operated and 10° ahead after it is operated. Therefore, if the clutch push lever does not move as specified, adjustment is necessary.

Adjustment can be made by turning the clutch adjusting screw located in the generator cover. To adjust, loosen the lock nut, and turn in or out the adjusting screw so that the push lever is 10° behind the main axle center line before it is operated.

After the adjustment, be sure to tighten the lock nut.

2. DT125A

Loosen lock nut 0.039 in. (10mm) and turn set screw clockwise until it lightly seats against clutch push rod. Back set screw out 1/4 turn and tighten lock nut while holding set screw with screwdriver.

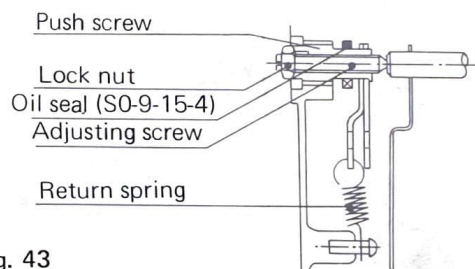


Fig. 43

3. Clutch Lever Adjustment (All Models)

On clutch lever, turn adjusting bolt out until there is $1/16''$ – $1/8''$ (2–3 mm) free play between clutch lever and clutch level holder. Finger-tighten lock nut while holding adjusting bolt. Do not use pliers, etc., on these knurled fittings.

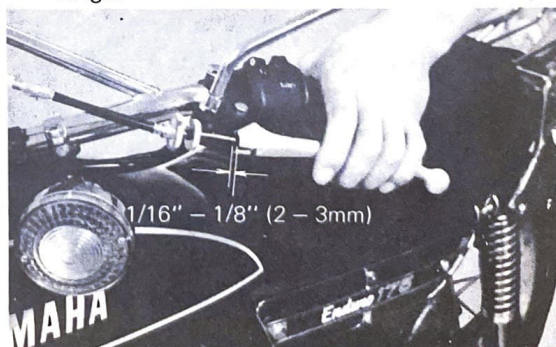
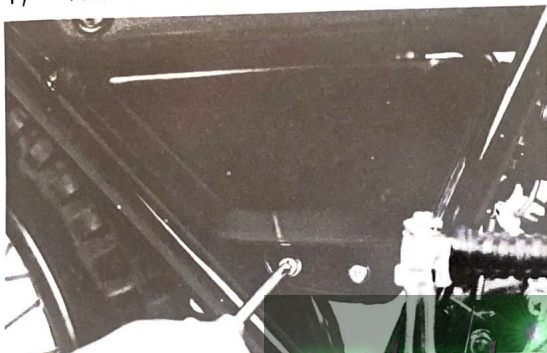


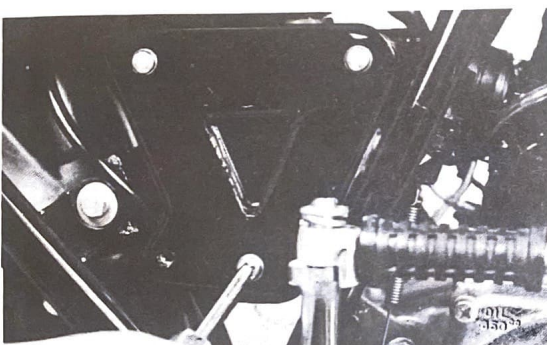
Fig. 44

E. Air Cleaner**1. Removal****a) DT100/175**

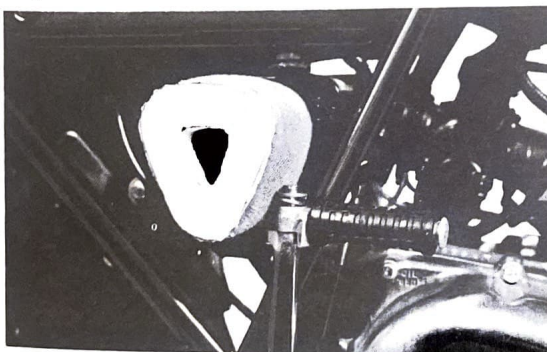
- 1) Remove the air cleaner side cover.

**Fig. 45**

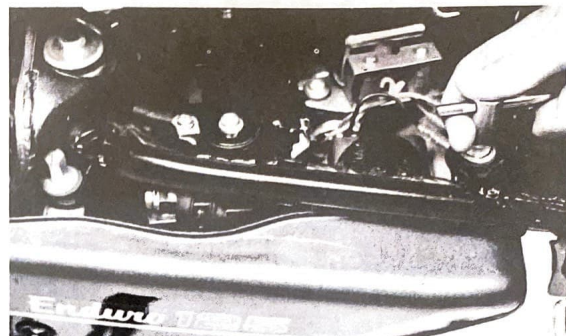
- 2) Loosen the three air cleaner cover screws, and remove the cover.

**Fig. 46**

- 3) Pull out the air cleaner element toward you.

**Fig. 47****b) DT125**

- 1) Open the seat, and remove the two oil tank mounting bolts.

**Fig. 48**

- 2) Loosen the air cleaner cover holding bolt, and remove the cover.

**Fig. 49**

- 3) Pull out the air cleaner element.

2. Cleaning

Wash the foam filter, thoroughly in solvent until all dirt has been removed. Squeeze all the solvent out. Pour oil onto the filter (any grade of 20 or 30 wt), work it completely in, and then squeeze out the surplus oil. The filter should be completely impregnated with oil, but not "dripping" with it.

**Fig. 50**

CHAPTER 3. ENGINE AND TRANSMISSION OVERHAUL

3-1 SPECIAL TOOLS

- A. Magnet Puller
P/N 908-90010-33-00

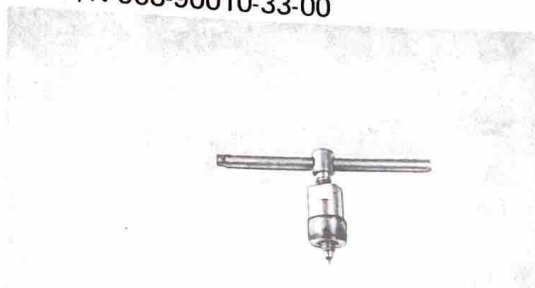


Fig. 51

- B. Magnet Holding Tool
P/N 908-90010-31-00



Fig. 52

- C. Slide Hammer Bolt (10mm)
P/N 908-90010-49-00



Fig. 53

- D. Slide Hammer Weight
P/N 908-90010-50-00



Fig. 54

- E. Crankcase Separating Tool
P/N 908-90010-11099

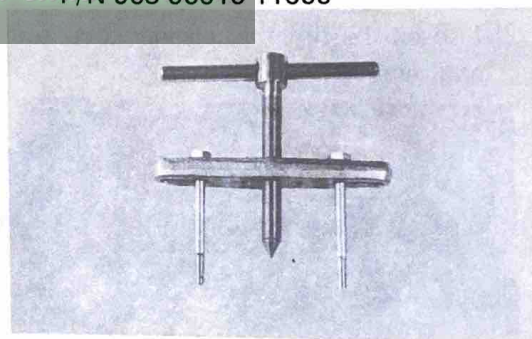


Fig. 55

- F. Crankshaft Installing Set
P/N 908-90900-57-00

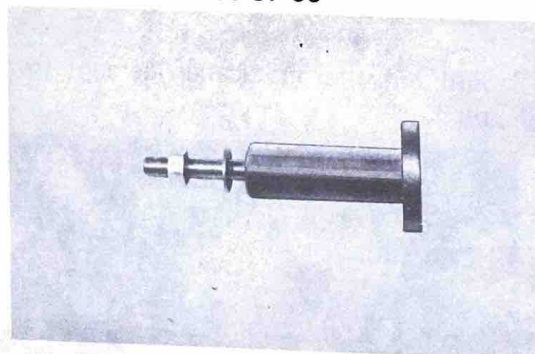


Fig. 56

- G. Vernier Caliper
P/N 908-90030-05-00

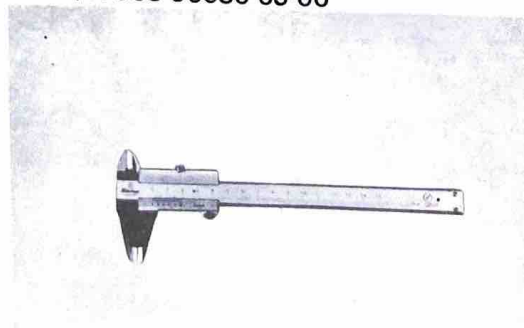


Fig. 57

3-2 TOP END OVERHAUL

A. Cylinder Head Removal

Remove bolts (4) securing cylinder head to cylinder. Remove cylinder head and gasket.

NOTE: Break each bolt loose (1/4 turn) prior to removing any one nut.

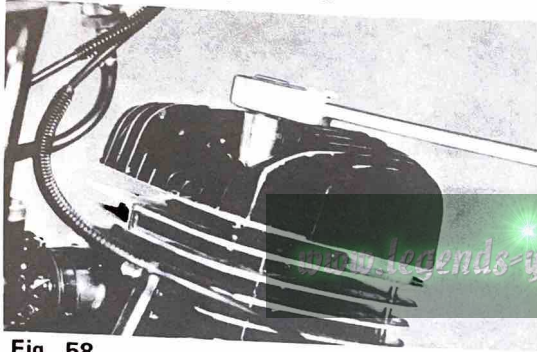


Fig. 58

B. Cylinder Head Maintenance

1. Remove spark plug.
2. Using a rounded scraper, remove carbon deposits from combustion chamber. Take care to avoid damaging the spark plug threads. Do not use a sharp instrument. Avoid scratching the aluminum.

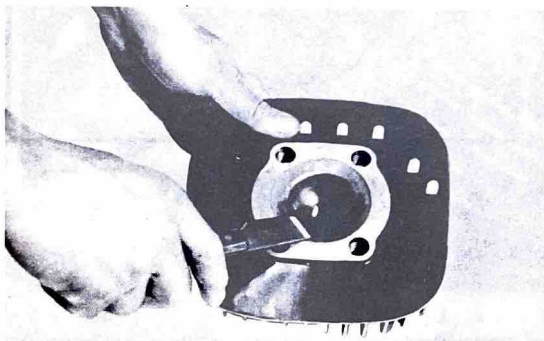


Fig. 59

3. Place head on a surface plate. There should be no warpage. Correct by re-surfacing. (Place 400-600 grit wet sandpaper on surface plate and resurface head using a figure-eight sanding pattern. Rotate head several times to avoid removing too much material from one side.)

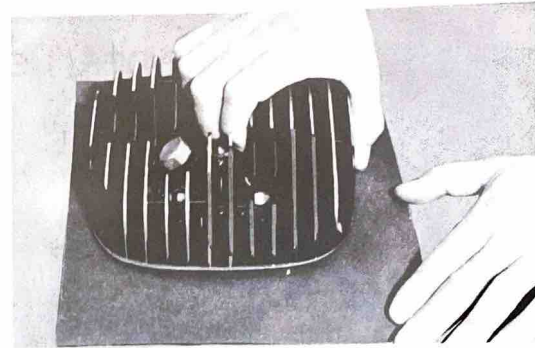


Fig. 60

4. Clean spark plug gasket mating surface thoroughly.

5. Wash head in solvent and wipe dry.

6. Install new cylinder head gasket during reassembly.

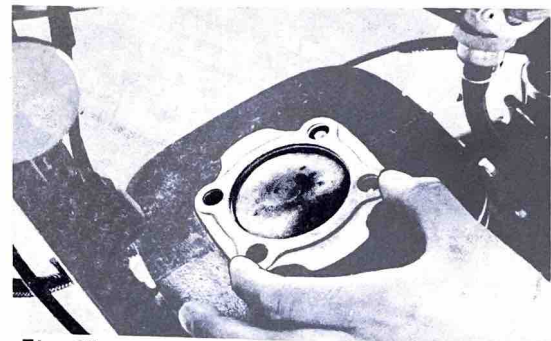
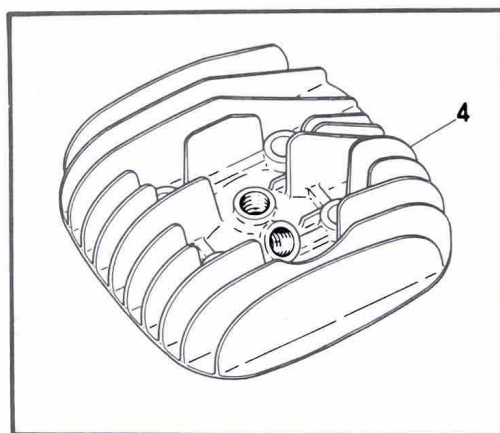
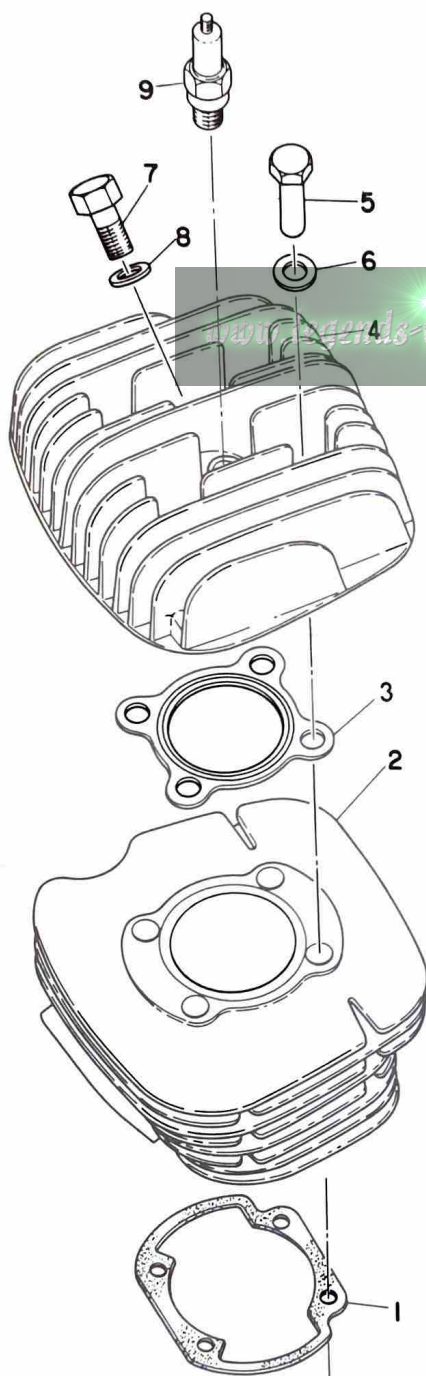


Fig. 61

CYLINDER HEAD BOLT TORQUE:
13.02 – 18.09 ft-lbs.
1.8 – 2.5 kg-m

CYLINDER HEAD AND CYLINDER



DT100A · DT175A

1. Cylinder gasket
2. Cylinder
3. Cylinder head gasket
4. Cylinder head
5. Cylinder holding nut
6. Plain washer (12.3-20-1.2)
7. Blind plug
8. Gasket
9. Spark plug

Fig. 62

C. Cylinder Removal

1. Remove muffler.

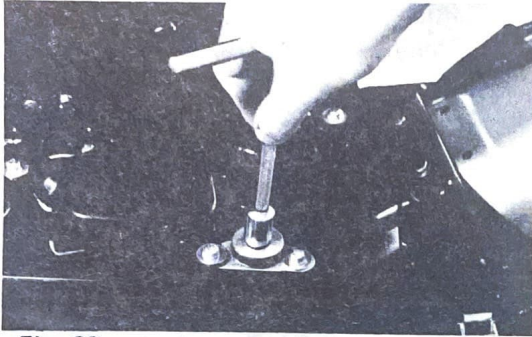


Fig. 63

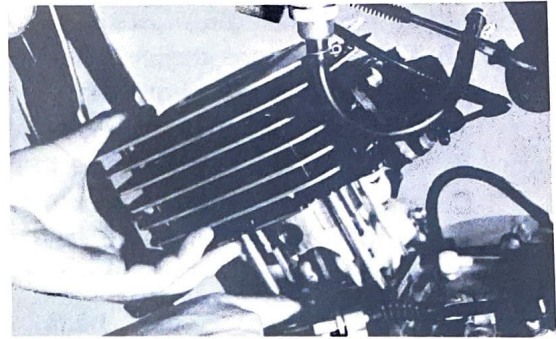


Fig. 66

D. Cylinder Maintenance

1. Remove reed valve assembly.



Fig. 64

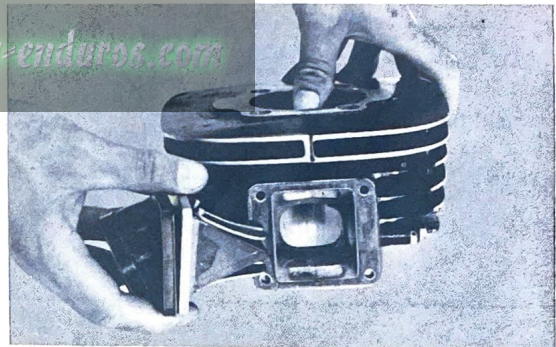


Fig. 67

2. Remove carburetor. Refer to Section 3-3.
3. Remove banjo bolt securing oil pump delivery line to cylinder.

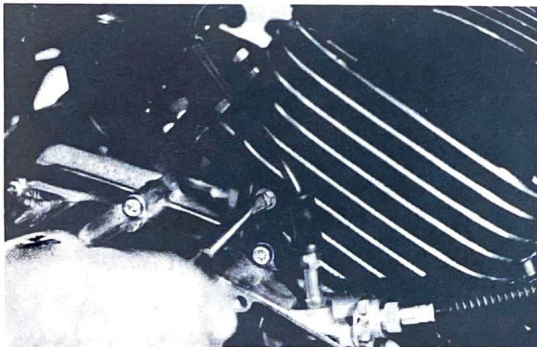


Fig. 65

2. Using a rounded scraper, remove carbon deposits from exhaust port.

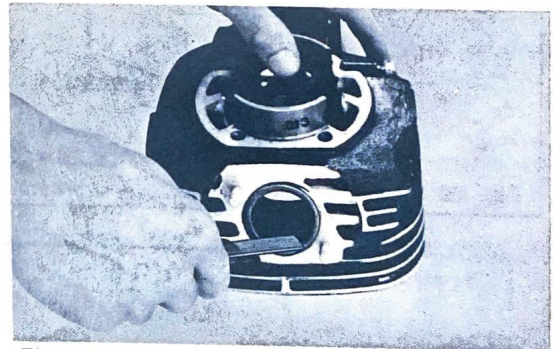


Fig. 68

4. If necessary, loosen the cylinder by striking it lightly with a rubber or rawhide hammer.
5. With piston at Top Dead Center, raise cylinder until cylinder skirts clear crankcase. Stuff a clean shop rag into crankcase cavity, around rod, to prevent dirt and other foreign particles from entering. Remove cylinder.

3. Remove cylinder base gasket and clean gasket seat on cylinder and crankcase thoroughly.
4. Check cylinder bore. Using a cylinder hone, remove any scoring. Hone lightly, using smooth stones. Hone no more than required to avoid excess piston clearance.

5. Using a cylinder gauge set to standard bore size, measure the cylinder. Measure at six points; at top, center, and 1/2" from bottom of skirts, in line with the wrist pin and at right angle to pin. Compare minimum and maximum measurements. If over tolerance, and not correctable by honing, re-bore to next over-size.

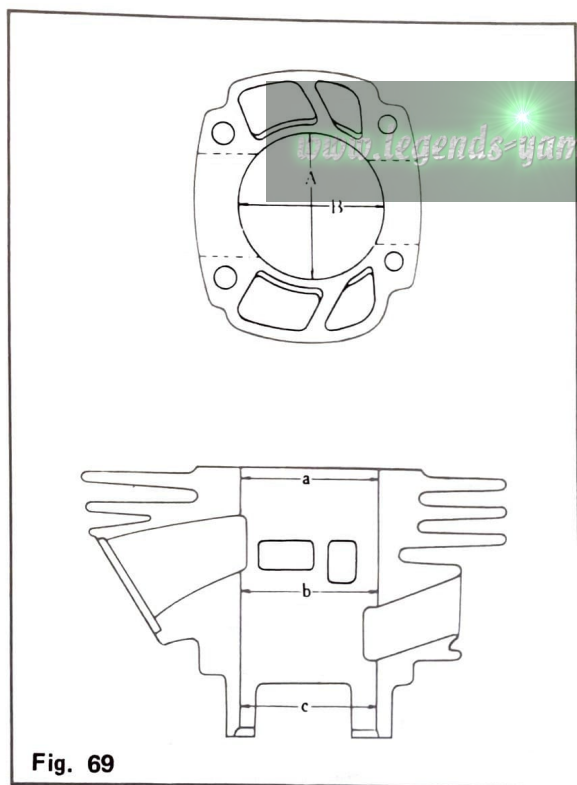


Fig. 69

Tolerance Limits: 0.0019 in.
0.05 mm

6. Wash cylinder thoroughly with soap and water. Dry. Coat walls with light oil film immediately.
7. During re-assembly, always use a new cylinder base gasket.

E. Piston Pin Removal

1. Remove wrist pin clip (1) from piston. Push wrist pin out from opposite side. Remove piston.

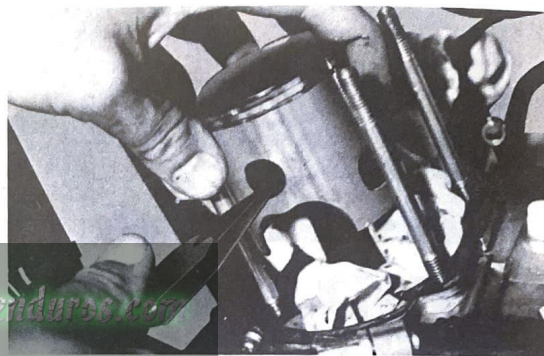


Fig. 70

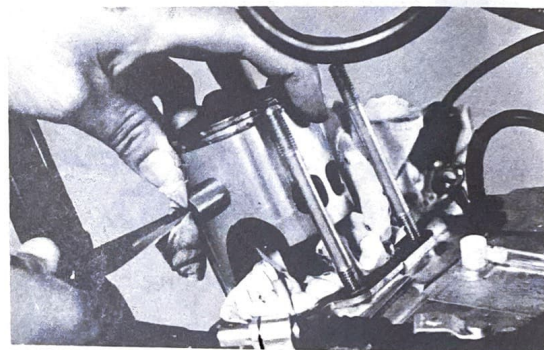


Fig. 71

NOTE: Before removing the piston pin clips, cover the crankcase with a clean rag, so you will not accidentally drop the clip or other foreign particles into the crankcase.

2. If pin hangs up, use wrist pin puller. Do not pound on pin as damage to rod, piston, and bearing will occur.

F. Piston Pin and Bearing Maintenance

1. Check the pin for signs of wear. If any wear is evident, replace pin and bearing.

2. Check the pin and bearing for signs of heat discoloration. If excessive (heavily blued), replace both.

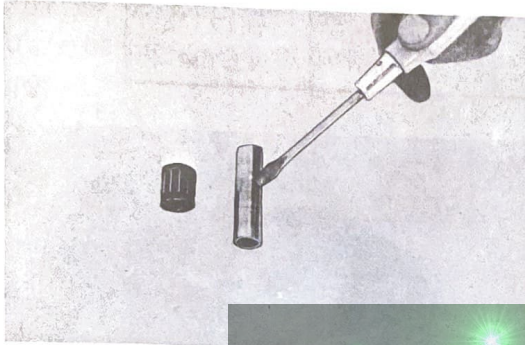


Fig. 72

3. Check the bearing case for excessive wear. Check the rollers for signs of flat spots. If found, replace pin and bearing.

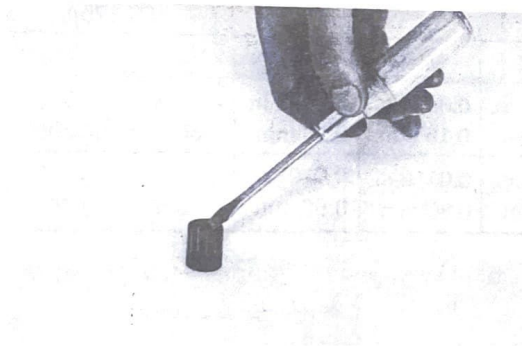


Fig. 73

4. Apply a light film of oil to pin and bearing surfaces. Install in connecting rod small end. Check for play. There should be no noticeable vertical play. If play exists, check connecting rod small end for wear. Replace pin and bearing or all as required.

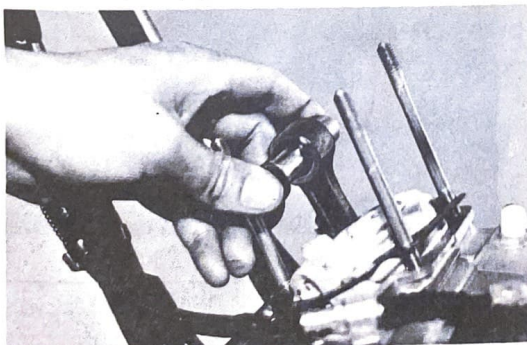


Fig. 74

5. The piston pin should fit snugly in its bore so that it drags a little as you turn it. If the fit is loose, replace the pin and/or the piston.

G. Piston Ring Removal

1. Put your thumbs at each end of the piston ring and pull the piston ring ends apart. Remove the ring by moving the ring off the piston at the side opposite the ring ends.

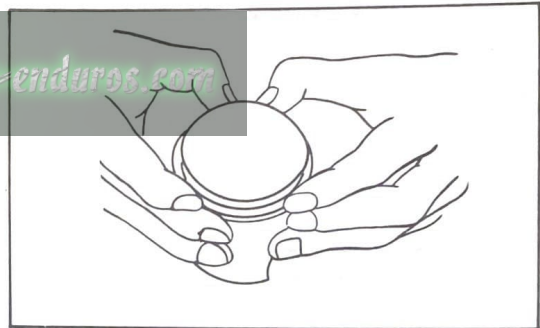


Fig. 75

2. Remove ring expander from lower ring groove.

H. Piston Ring Maintenance

1. Check rings for scoring. If any severe scratches are noticed, replace set.
2. Measure ring end gap in free position. If beyond tolerance, replace set.

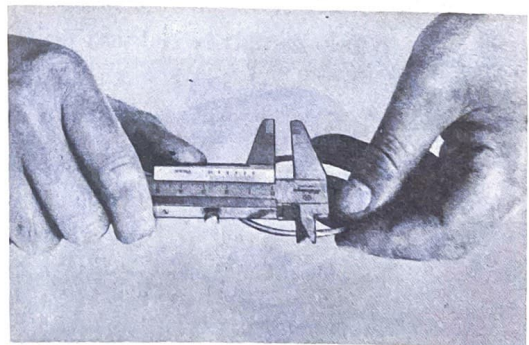


Fig. 76

TOP END OVERHAUL—Piston Ring Maintenance

	DT100A	DT125A	DT175A
Top Ring End Gap, Free	0.118 in. 3.0 mm	0.217 in. 5.5 mm	0.335 in. 8.5 mm
Lower Ring End Gap, Free	0.158 in. 4.0 mm	0.138 in. 3.5 mm	0.177 in. 4.5 mm

3. Insert each ring into cylinder. Push down approximately 3/4" using piston crown to maintain right-angle to bore. Measure installed end gap. If beyond tolerance, replace set.

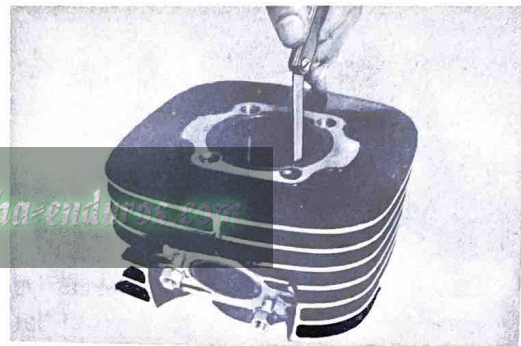


Fig. 77

	DT100A		DT125A		DT175A	
	MIN	MAX	MIN	MAX	MIN	MAX
Top Ring End Gap, Installed	0.0059 in. 0.15 mm	0.0138 in. 0.35 mm	0.0059 in. 0.15 mm	0.0138 in. 0.36 mm	0.0118 in. 0.30 mm	0.0192 in. 0.50 mm
Lower Ring End Gap, Installed	0.0059 in. 0.15 mm	0.0138 in. 0.35 mm	0.0118 in. 0.30 mm	0.0197 in. 0.50 mm	0.0118 in. 0.30 mm	0.0197 in. 0.50 mm

4. Holding cylinder towards light, check for full seating of ring around bore. If not fully seated, check cylinder. If cylinder not out-of-round, replace ring set.

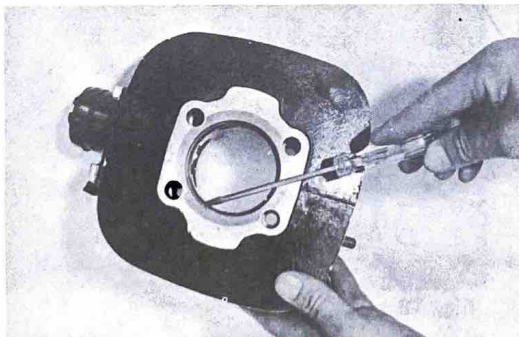


Fig. 78

5. Check ring expander. If worn excessively, or broken, replace set.
6. With Rings installed in grooves, insert feeler gauge between ring side and groove. If beyond tolerance, replace ring and/or piston as required.

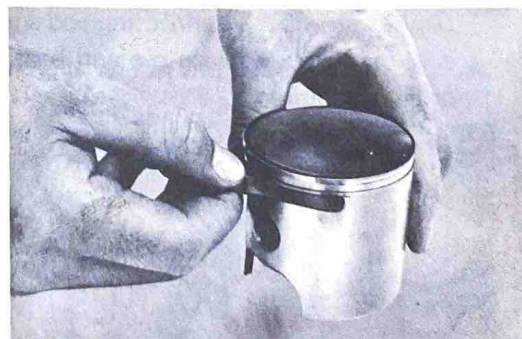


Fig. 79

	DT100A	DT125A	DT175A
Top Ring Groove Clearance	0.0008~0.0035in. 0.02~0.09mm	0.0004~0.0035in. 0.01~0.09mm	0.0028~0.0055in. 0.07~0.14mm
2nd Ring Groove Clearance	0.0012~0.0028in. 0.03~0.07mm	0.0012~0.0028in. 0.03~0.07mm	0.0012~0.0028in. 0.03~0.07mm

I. Installing Piston Rings

During installation, make sure ring ends are properly positioned on either side of locating pin in ring groove. Make sure ring expander is positioned in like manner. Apply liberal coating of two-stroke oil to rings.

NOTE: New rings require break-in. Follow new machine break-in procedure.

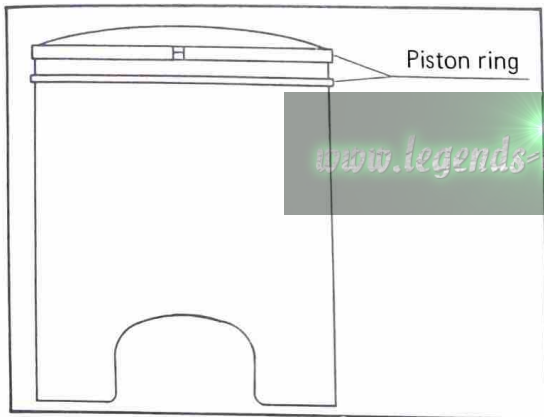


Fig. 80

J. Piston Maintenance

1. Using a rounded scraper, remove carbon deposits from piston crown.



Fig. 81

2. Break a used piston ring in two. File end square. De-burr edges to avoid scratching ring groove and clean carbon deposits from ring grooves.



Fig. 82

3. Using 400-600 grit wet sandpaper, lightly sand score marks and lacquer deposits from sides of piston. Sand in cross-hatch pattern. Do not sand excessively.



Fig. 83

4. Wash piston in solvent and wipe dry.
5. Using an outside micrometer, measure piston diameter. The piston is cam-ground and tapered. The only measuring point is at right-angles to the wrist pin holes about 1/2" from bottom of piston. Compare piston diameter to cylinder bore measurements.

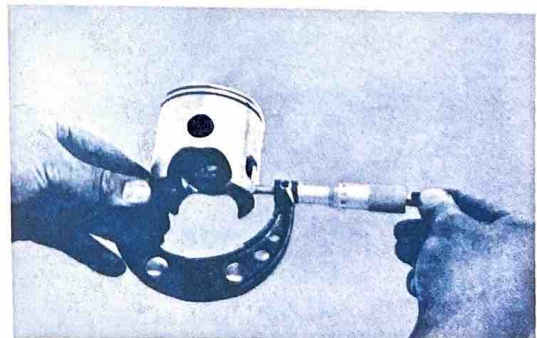


Fig. 84

Piston maximum diameter subtracted from minimum cylinder diameter gives piston clearance. If beyond tolerance, hone cylinder to tolerance or re-bore to next over-size and fit new piston.

DT100A	MIN.	MAX.
Piston Clearance	0.0016 in. 0.040 mm	0.0018 in. 0.045 mm

DT125A	MIN.	MAX.
Piston Clearance	0.0016 in. 0.040 mm	0.0018 in. 0.045 mm

DT175A	MIN.	MAX.
Piston Clearance	0.0016 in. 0.040 mm	0.0018 in. 0.045 mm

K. Installing Piston

1. During re-assembly, coat the piston skirt areas liberally with two-stroke oil.

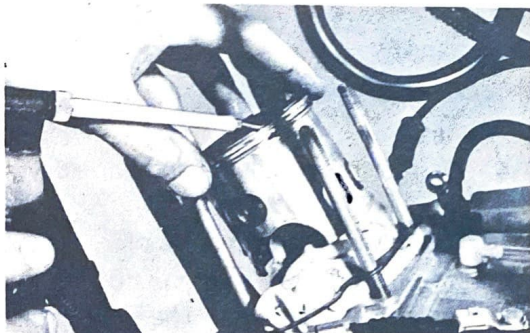


Fig. 85

2. Install new wrist pin circlips and make sure they are fully seated within their grooves.

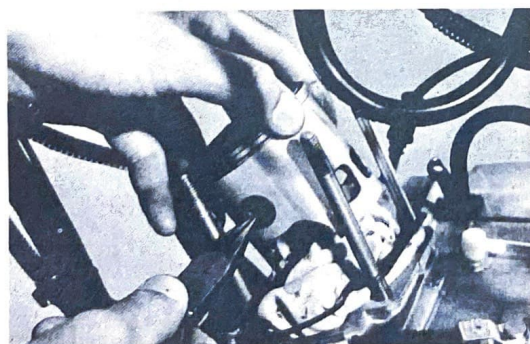


Fig. 86

3. Take care during installation to avoid damaging the piston skirts against the crankcase as the cylinder is installed. Note the two induction holes in the piston skirt. These must be to the rear during installation.

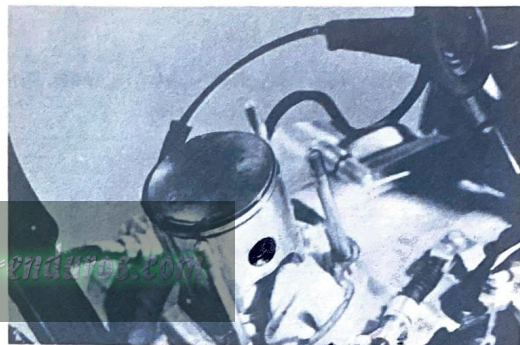


Fig. 87

4. Make sure the rings are properly positioned as the cylinder is installed.

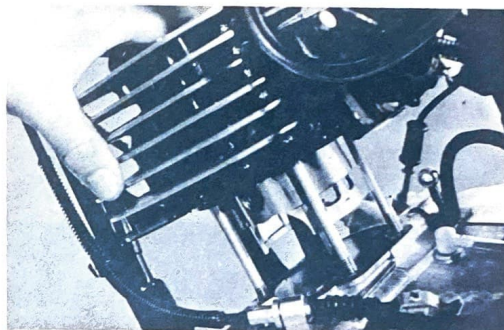


Fig. 88

L. Muffler/Spark Arrester Maintenance

1. Using a rounded scraper, remove excess carbon deposits from manifold area of muffler. Check muffler gasket condition. The gasket seat is located around the cylinder exhaust port.
2. Carbon deposits within the muffler may be removed by lightly tapping the outer shell with a hammer and then blowing out with compressed air. Heavy wire, such as a coat hanger, may be inserted to break loose deposits. Use care.
3. Remove spark arrester. Remove Phillips screw holding baffle in place. Clean carbon out of baffle and arrester assembly with scraper. Re-install.

3-3 ENGINE REMOVAL AND DISASSEMBLY

A. Engine Removal

1. Start the engine and warm it. Turn the engine off and drain the transmission oil.

Transmission Oil	
650 + 50cc,	0.687 ± 0.0529qt. (U.S. liq.)
750 + 50cc,	0.793 ± 0.0529qt. (U.S. liq.)
650 + 50cc,	0.687 ± 0.0529qt. (U.S. liq.)

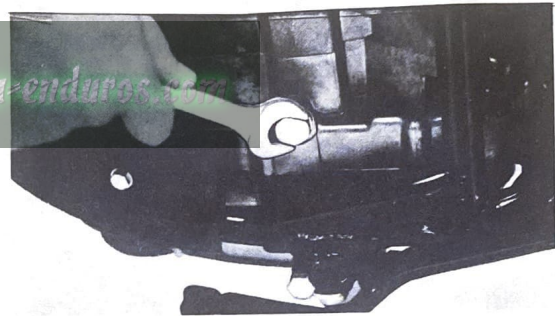


Fig. 89

2. Remove the muffler as follows:
 - a. Using a 13mm wrench, remove the bolt holding the spark arrester assembly at the turn signal bracket. Lift the turn signal bracket up and out of the way.

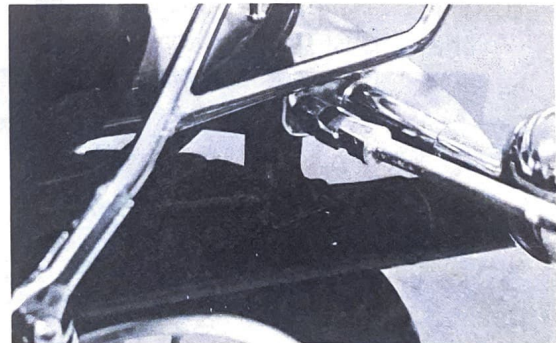


Fig. 90

- b. Twist the slip-lock connector holding the spark arrester assembly onto the muffler and remove the assembly.

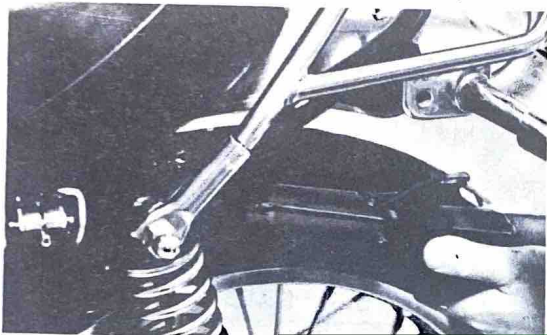


Fig. 91

- c. Using a 13mm socket, remove the bolt holding the rear end of the muffler assembly.

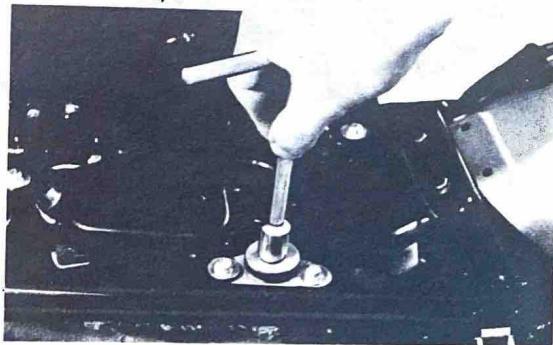


Fig. 92

- d. Remove the two 13mm bolts holding the exhaust flange to the cylinder.

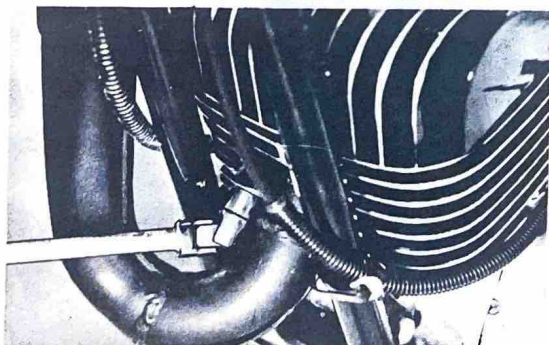


Fig. 93

3. Remove the change pedal.
4. Remove the left-hand crankcase cover.

5. On the DT125A, equipped with a dynamo, all wire leads should be removed from the starter terminals.

6. Disconnect the master link and remove the chain.



Fig. 94

7. Remove pump cover.

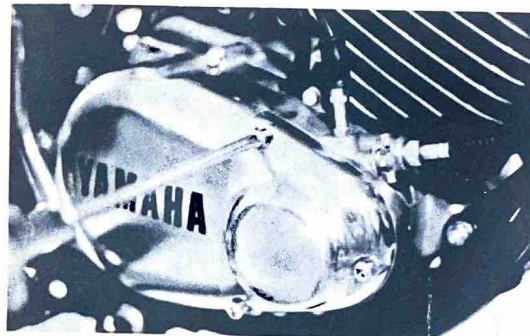


Fig. 95

8. Remove oil tank feed line to the pump. Pull it through access hole in side cover and plug the end so oil will not run out of oil tank.

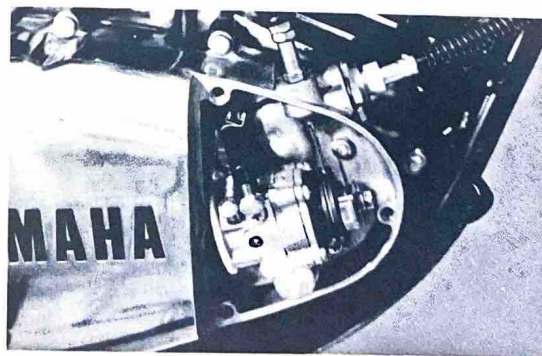


Fig. 96

9. Rotate the pump pulley to a full throttle position and remove the cable end from pulley seat.

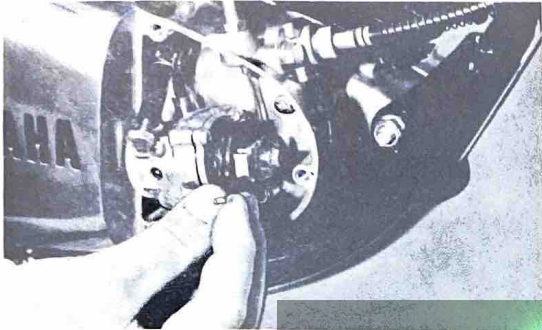


Fig. 97

10. Loosen the 10mm nut holding the Autolube pump cable adjuster to the side case. Remove the adjuster and cable complete.

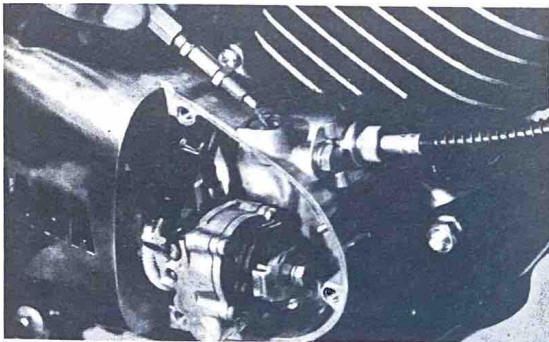


Fig. 98

11. Remove tachometer cable (DT125A & DT175A).
12. Remove spark plug cap lead wire.
13. Remove the fuel line to the carburetor at carburetor.
14. Remove the 0.312 in. (8mm) bolt holding the rear of the fuel tank.

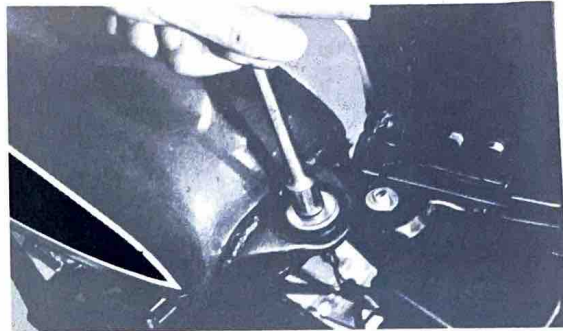


Fig. 99

15. Lift the fuel tank up at the rear, pull it back and remove it from the machine. Set the fuel tank aside in a safe place where the fuel will not be spilled out.



Fig. 100

16. Unscrew top from carburetor and pull out carburetor slide, needle and throttle cable as an assembly. Protect with a plastic bag.

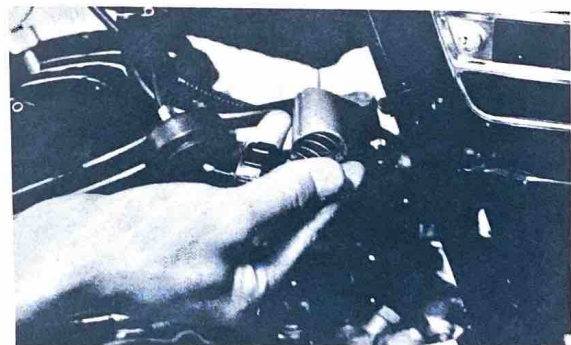


Fig. 101

17. Loosen the joint fitting from the carburetor to the air cleaner box.

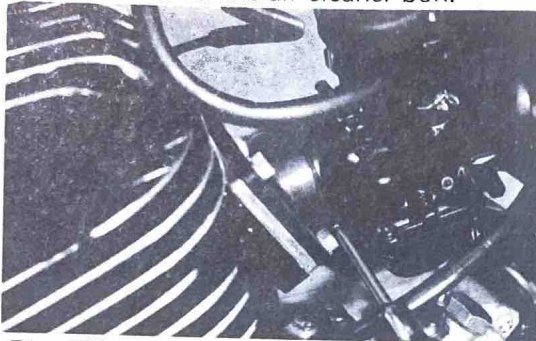


Fig. 102

18. Loosen the carburetor fitting at the manifold and twist the carburetor slightly to the left-hand side of the motorcycle.

NOTE: On DT125A, two mounting bolts must be removed.

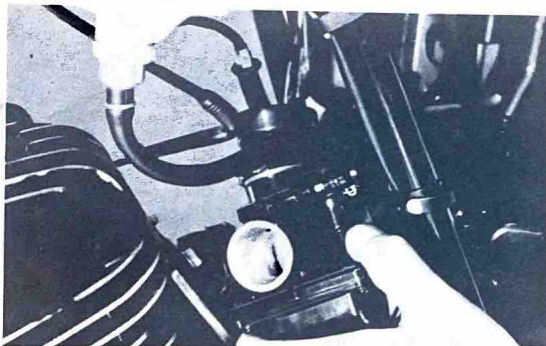


Fig. 103

19. Remove carburetor from engine, protect with a plastic bag and set aside.
20. Remove the clutch cable fitting at the engine case.

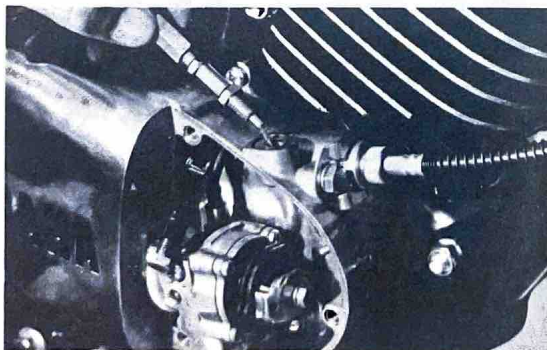


Fig. 104

21. Pull apart the wire harness connector for the magneto harness at its junction at the frame as shown in the picture. Remove the two clips holding the wires to the frame and route them to a safe place over the cylinder. (DT100A & DT175A)
22. Remove the three engine mounting bolts. The engine may now be lifted and removed from the frame.

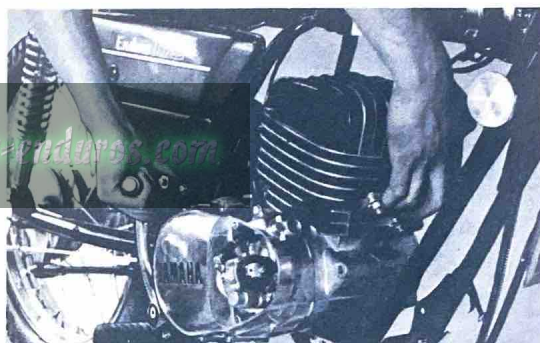


Fig. 105

B. Crankcase Disassembly

NOTE: The top end of the engine should be disassembled (see Sec. 3-2) before proceeding.

1. Remove right-hand crankcase cover as follows:
- a. Remove the kick crank mounting bolt and the crank.

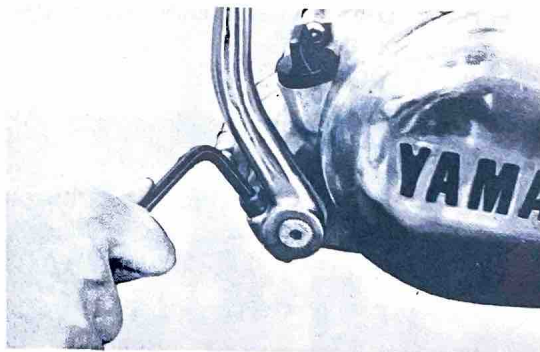


Fig. 106

- b. Remove oil pump cover.

- c. Remove the pan head screws holding the crankcase cover, and then remove the case cover. (The cover can be removed without taking off the oil pump.)

NOTE: One pan-head screw is within the Auto-lube oil pump cavity.

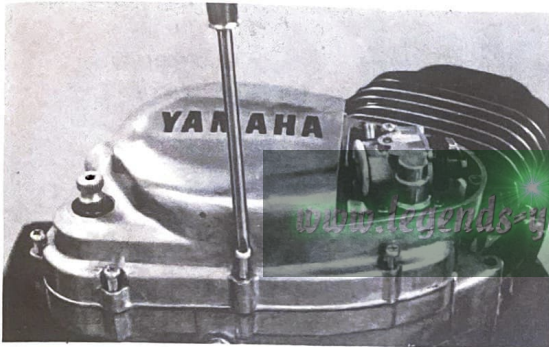


Fig. 107

- d. Remove the crankcase cover gasket. Replace it, if damaged.

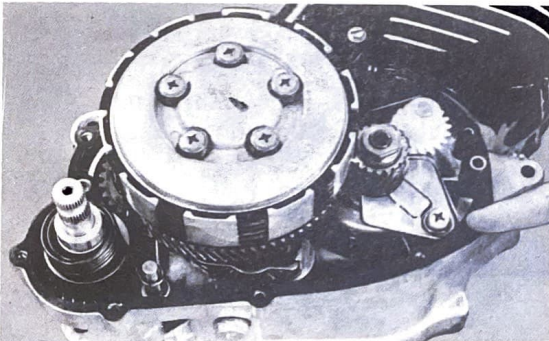


Fig. 108

- e. Installation.
Spread YAMAHA Bond No.5 over the mating surface of crankcase (R). Place the crankcase cover gasket on the crankcase and apply Yamaha Bond No.5 and replace crankcase cover (R). Be sure to apply YAMAHA Bond No.5 to the mating surface; otherwise, oil will leak.

NOTE: When installing the crankcase cover (R), make sure that the pump drive gear is correctly engaged with the primary drive gear.

2. Clutch

The clutch is a wet, multi-disc type, consisting of five (four on DT100A) molded cork friction plates and five clutch plates in the clutch housing that is mounted on the transmission main axle. To disengage the clutch, an inner push rod system is employed. The primary driven gear, coupled with the clutch housing, is meshed with a kick pinion gear. This allows the kick starter to be operated with the clutch disengaged or engaged. A rubber shock absorber is built into the primary driven gear and the clutch housing assembly. The primary drive gear has 19 teeth, and the primary driven gear 74 teeth. (Primary reduction ratio $74/19=3.894$)

CLUTCH

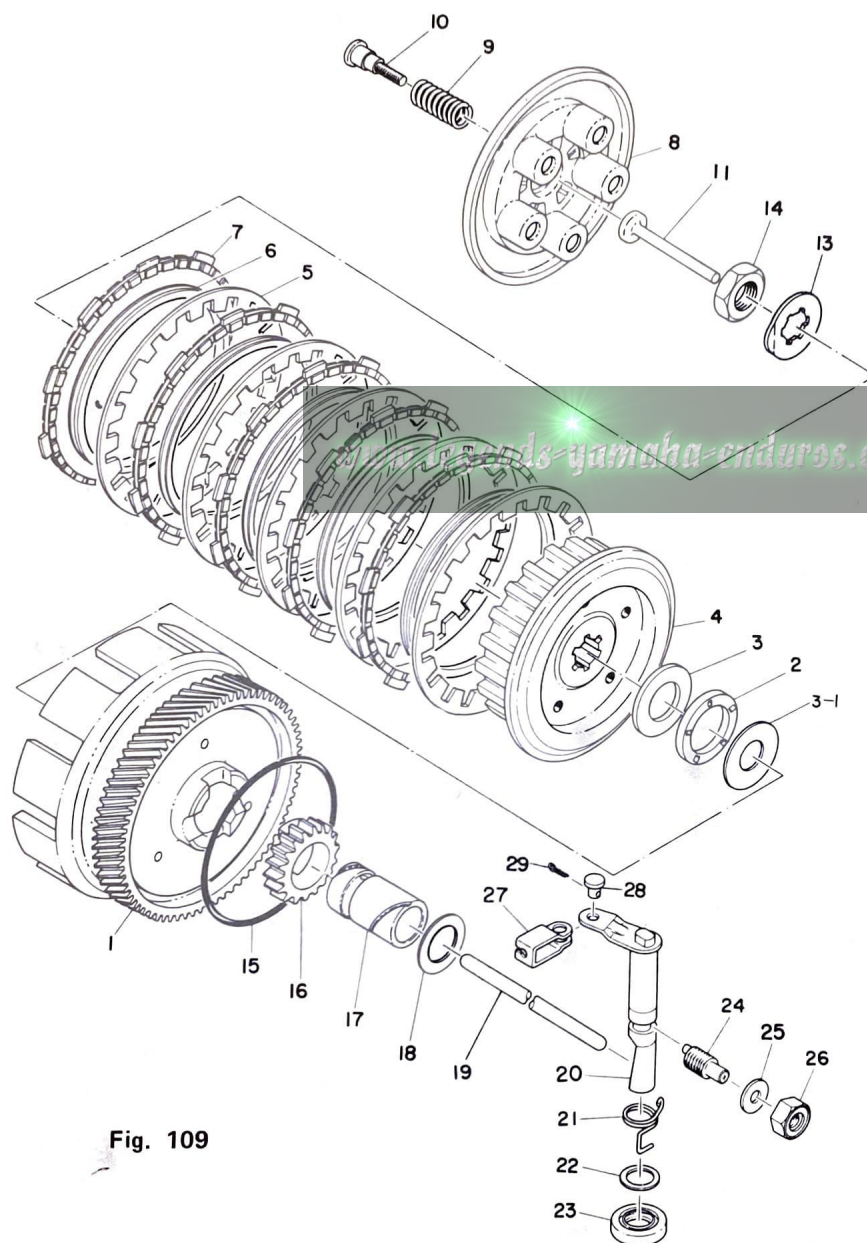
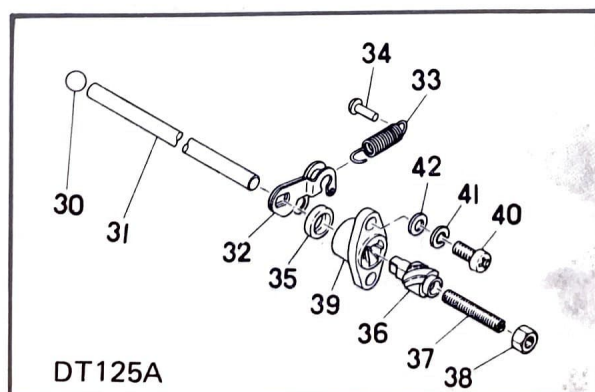


Fig. 109

1. Primary driven gear comp. (74T)
2. Thrust bearing
3. Thrust right plate (2-38-2)
4. Clutch boss
5. Clutch plate
6. Cushion ring
7. Friction plate
8. Pressure plate
9. Clutch spring
10. Spring screw
11. Push rod 1
13. Lock washer
14. Lock nut
15. O-ring (3.1-84.4)
16. Kick pinion gear (19T)
17. Distance collar
18. Thrust left plate (20.2-31-3)
19. Push rod 2
20. Push lever axle
21. Return spring
22. Cam shaft shim
23. Oil seal
24. Adjusting screw
25. Gasket
26. Adjusting nut
27. Joint
28. Pin
29. Cotter pin
30. Ball
31. Push rod 2
32. Push lever
33. Lever return spring
34. Spring hook
35. Oil seal (SO-10.5-15-3)
36. Push screw
37. Adjusting screw
38. Nut
39. Push screw housing
40. Panhead screw
41. Spring washer
42. Plate



a. Removing the Pressure Plate.

- 1) Remove the five clutch spring holding screws, and take out the pressure plate and push rod #1.

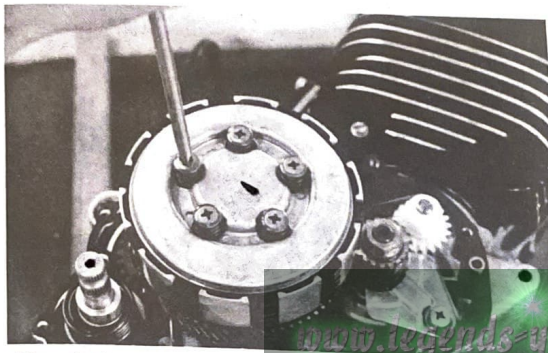


Fig. 110

c. Checking the Clutch Spring

If the free length of the spring is 1mm (0.04 in.) or more shorter than the standard free length, replace it.

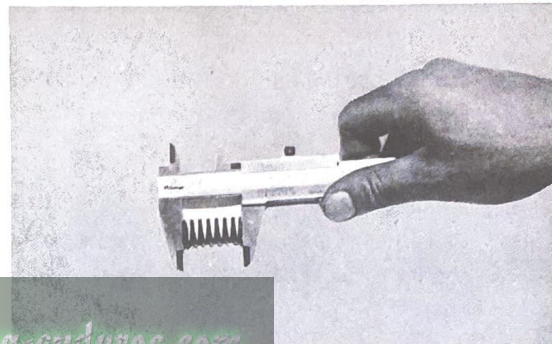


Fig. 112

b. Removing the clutch Boss

- 1) Install the clutch holding tool on the clutch boss.

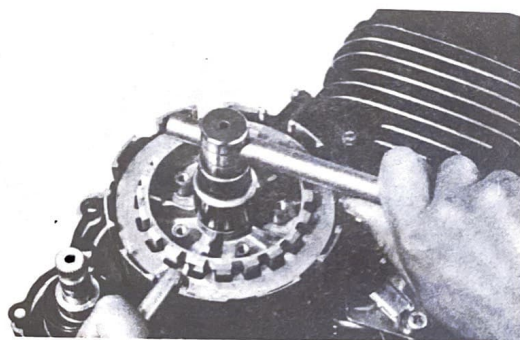


Fig. 111

- 2) Loosen the lock nut and then remove the Clutch boss and all of the clutch plates.

Clutch Boss Locknut Torque	DT100A	21.7~36.18 ft-lbs. 3.0~5.0 kg-m
	DT125A	28.94~43.41 ft-lbs. 4.0~6.0 kg-m
	DT175A	28.94~43.41 ft-lbs. 4.0~6.0 kg-m

Clutch Spring Free Length	Model	Standard Value
	DT100A	1.34 in. 34 mm
	DT125A	1.34 in. 34 mm
	DT175A	1.34 in. 34 mm

d. Checking the Friction Plates

Inspect the friction plates for wear. Replace them if they show (0.157 in.) 0.4mm or more wear-or uneven contact.

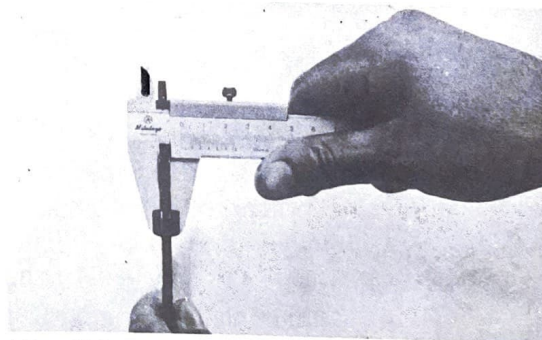


Fig. 113

Friction Plate Thickness	Model	Standard Value
	DT100A	0.157 in. 4 mm
	DT125A	0.157 in. 4 mm
	DT175A	0.157 in. 4 mm

- e. Clutch Housing Assembly
(integrated with the primary driven gear)

There is a rubber damper ring placed on the outside of the clutch between the primary driven gear and the clutch housing in order to reduce gear noise at low engine speeds.

- 1) Inspection

Insert the primary spacing collar in the primary gear bushing and check it for radial play. If there is play try another collar from parts stock. While freeplay will not cause a failure, it will cause noise. If a large enough collar cannot be found, the driven gear assembly will have to be replaced to provide a new bushing surface.

Replace parts that have scratches on the bearing surfaces.

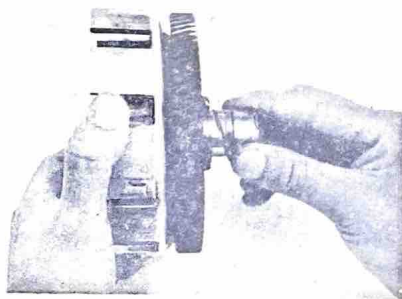


Fig. 114

- f. Checking the Primary Gear Spacing Collar

Place the primary gear spacing collar around the main axle and again check it for radial play. If play exists, replace the gear retaining collar. Replace any collar with step-wear on its outer surface.

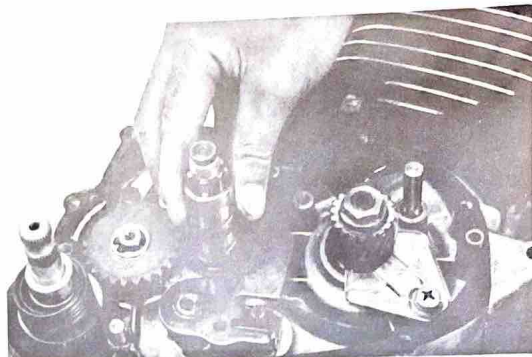


Fig. 115

- g. Fitting Cushion Rings

A cushion ring is installed between the clutch boss and each of the friction plates to insure even engagement and complete disengagement of the plates. When fitting cushion rings, be sure they are flat and not twisted.

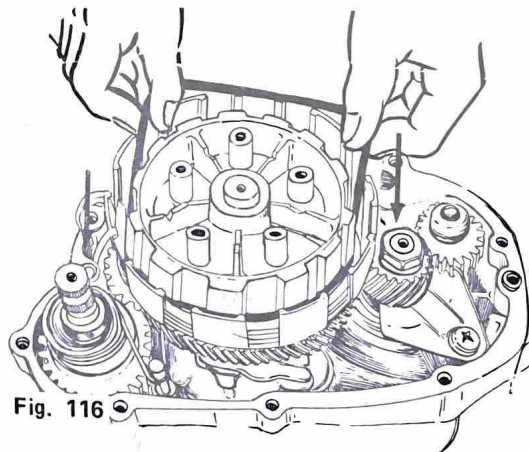


Fig. 116

- h. Checking the Push Rod

Remove push rod #2 and roll it over a surface plate. If the rod is bent, replace it.

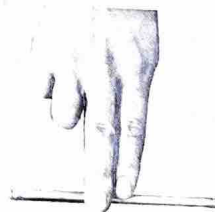


Fig. 117

i. Re-assembling the Clutch

- 1) On both ends of the primary gear spacer are thrust washers and thrust bearings. If these washers and bearings are incorrectly installed, or omitted, the clutch boss will rub directly on the primary driven gear, impairing clutch action.

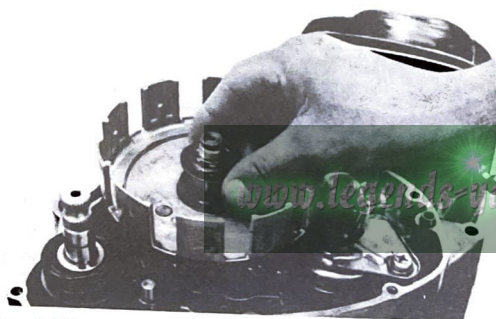


Fig. 118

- 2) The thrust bearing fits on the spacing collar, but it may slip out of place when installing clutch boss. Therefore, apply grease to both surfaces of the bearing to make it stick to the gear retaining collar.

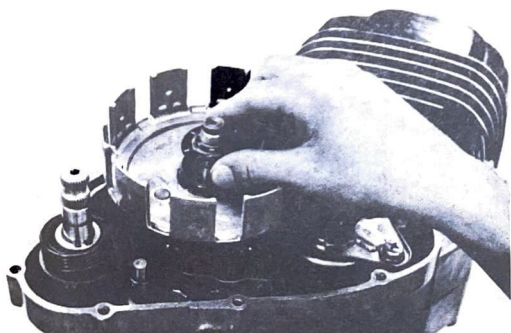


Fig. 119

- 3) Fit the clutch boss.
- 4) Install the clutch plates, friction plates and the cushion rings in their proper sequence.

NOTE: As shown in Fig. 121, the clutch plates must be so installed that their cutaways do not overlap each other.

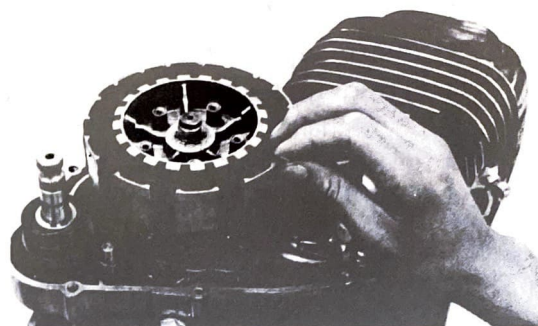


Fig. 120

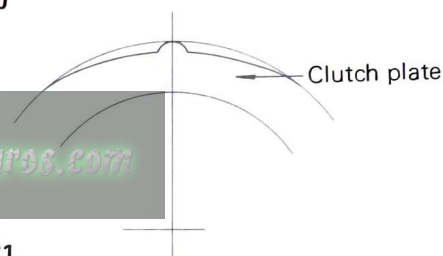


Fig. 121

j. Clutch Adjustment

See Chapter 2, paragraph 2—3, C, for clutch adjustment procedures.

3. Primary Drive Gear Removal

With the primary driven gear assembly and the clutch boss installed on the clutch shaft, place a rolled rag between the drive gear and the driven gear. Then loosen the driven gear with a socket and breaker bar.

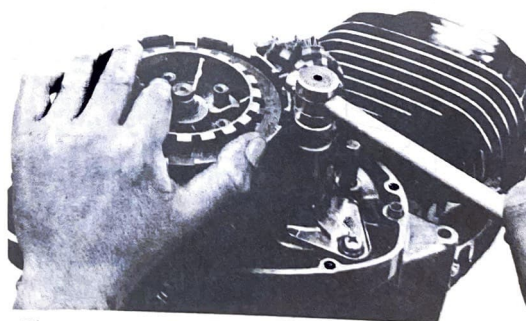


Fig. 122

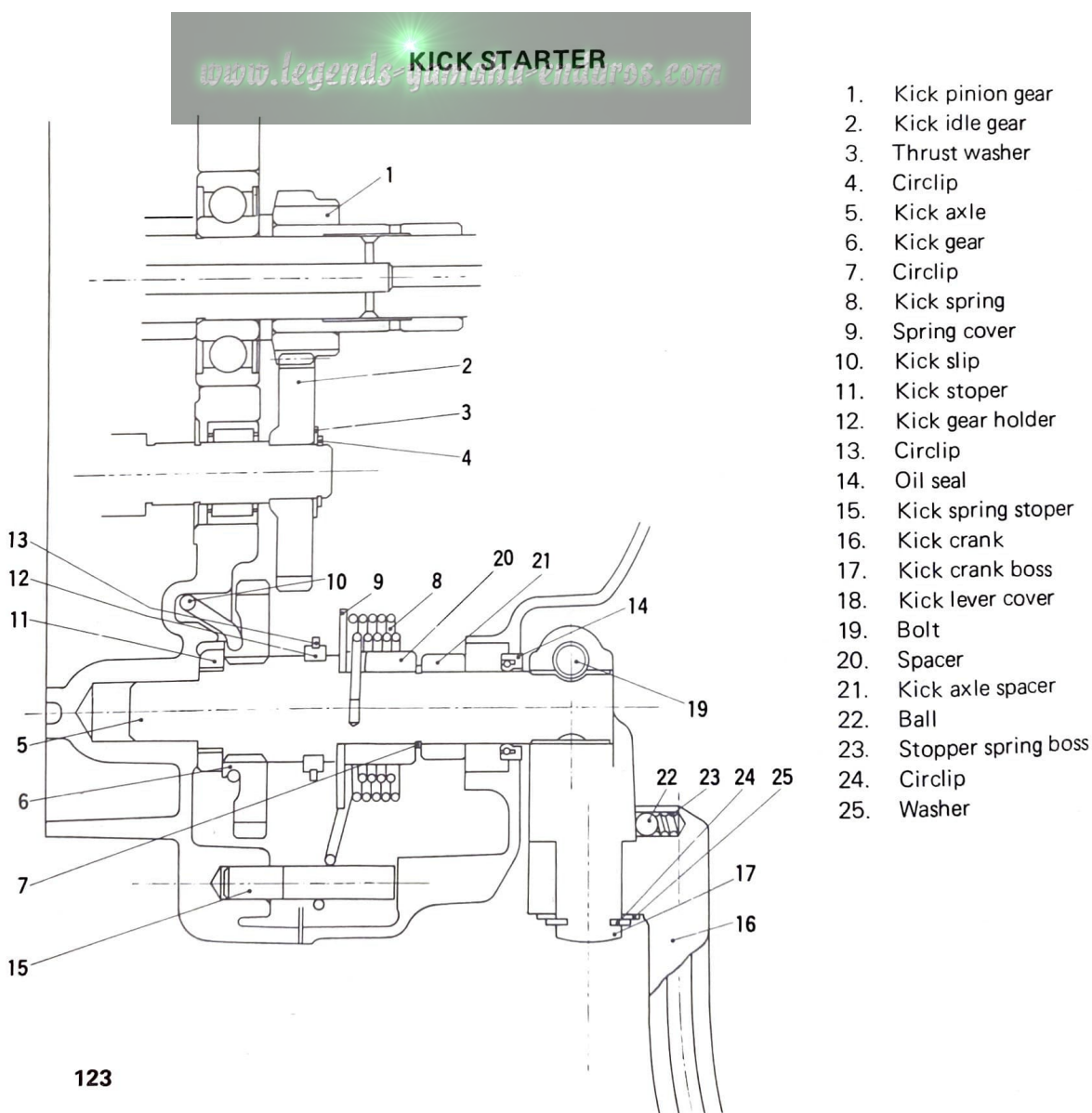
Primary Drive Gear	DT100A,DT125A,DT175A
Locknut Torque	21.70~36.18 ft-lbs. 3.0~5.0 kg-m

4. Kick Starter Mechanism

The primary coupled kick-starter system is employed with a "non-constant-mesh" mechanism instead of the constant-mesh kick gear type, such as the ratchet and roller-lock systems.

That is, the kick gear meshes with idler gear only when the kick starter pedal is kicked. After the engine has started, the kick gear and the idler gear disengage.

This mechanism not only eliminates noise resulting from the constant mesh of the kick gear with the idler gear, but also greatly contributes to the durability of the kick starter assembly.



Note: The kick axle spacer (21) is not used in the DT100A.

a. Removing Kick Starter Assembly

- 1) Unhook the spring from its post in the crankcase. Allow it to relax.

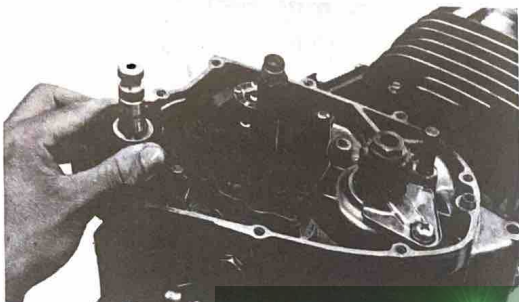


Fig. 124

- 2) Then remove the kick starter assembly by rotating the shaft counter-clockwise and then pulling out the entire assembly. Check to see that the kick gear spirals freely on the worm shaft. Check the gear **teeth** for wear and breakage.

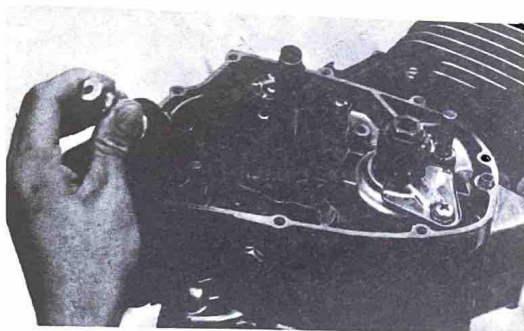


Fig. 125

b. Removing the Kick Idler Gear

- 1) Remove the circlip with clip pliers and the kick idler gear can be easily removed.

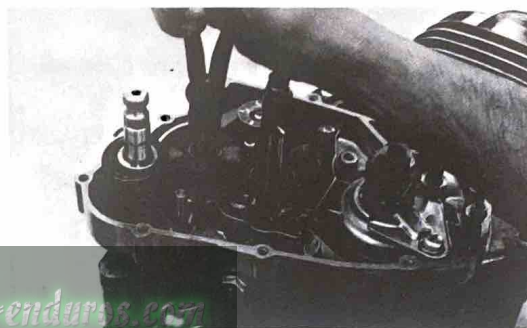


Fig. 126

c. Tachometer Gear Units (DT125A & DT175A)

The tachmeter drive gear is engaged with the primary drive gear to convey the revolutions per minute of the crankshaft to the tachometer through the tachometer cable.

TACHOMETER DRIVE GEAR

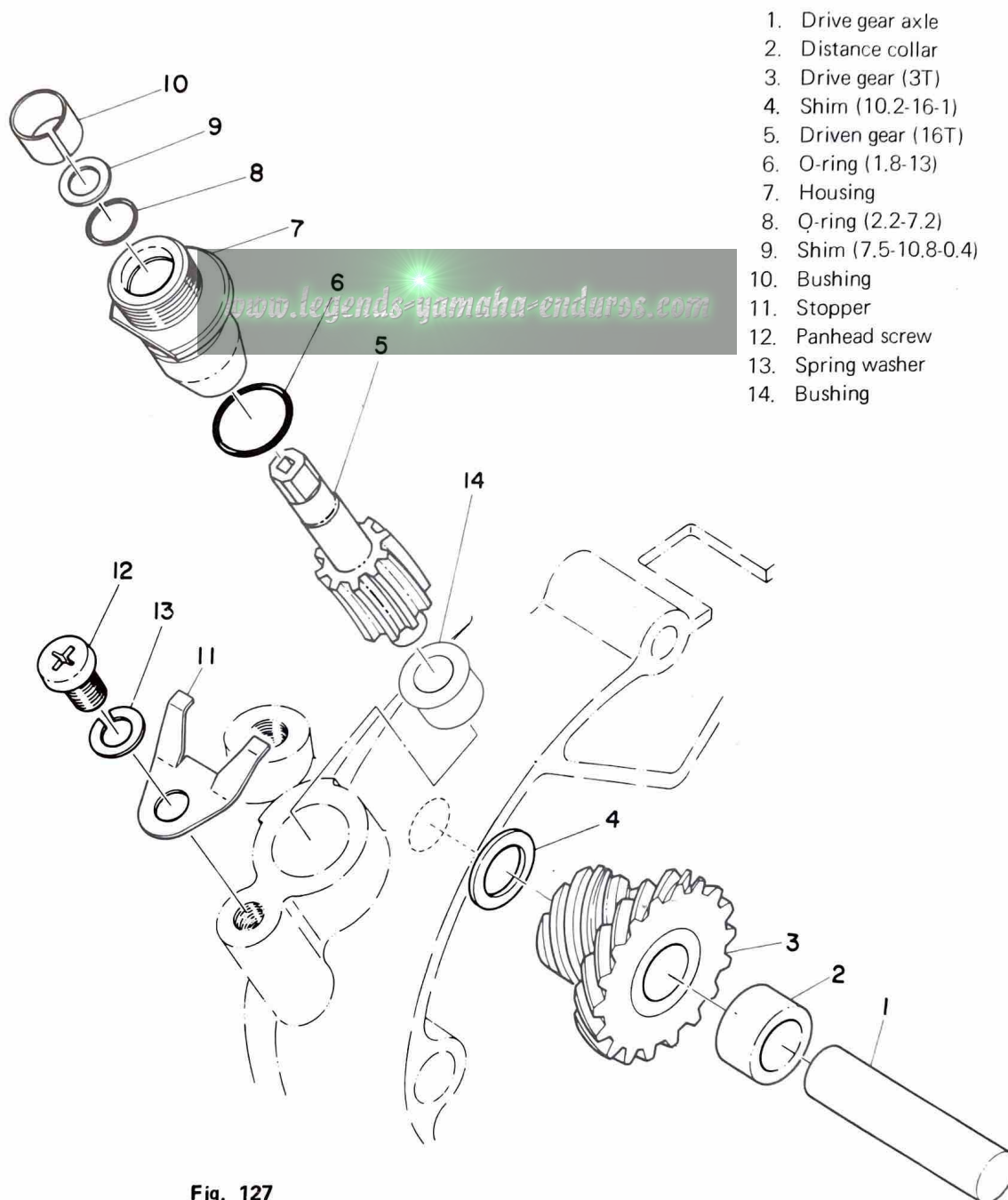


Fig. 127

5. Shift Mechanism

As the change pedal is depressed, gear shift arm B moves gear shift arm A, which in turn pushes thereby turning the gear shift drum. A total of five gear shift pins are attached to the drum, and therefore, each time the change pedal is depressed, the drum rotates 1/5 of a revolution.

That is, one full turn of the gear shift drum is made in five stages; 1st, 2nd, 3rd, 4th and 5th. Slotted guides are grooved in the shift drum, and the shift fork cam follower pins are placed in these slotted guides. Therefore, as the drum turns, the shift forks slide back and forth in the slotted guides. Shift fork (1) moves the 2nd and 3rd gears, shift fork (3) the 1st gear, and, shift fork (2) moves the 4th and 5th gears. The neutral position is located between 1st and 2nd gears, and the neutral stopper mechanism is located on the left side of the shift drum.

Two types of change lever assemblies are used. The DT125A uses a one-piece change shaft. The DT100A and DT175A use two change shafts and two interconnecting levers.

a. Removing Change Shaft Assembly (DT125A).

NOTE: *Clutch Assembly must be removed from right side of engine before change shaft assembly can be removed.*

- 1) Remove circlip and washer from shaft (left side crankcase).
- 2) On right side of engine, lift spring-loaded arm above shift drum end plate and pull Change Shaft Assembly out.

NOTE: *Shift Return Spring will come off with Change Shaft Assembly.*

b. Removing Change Shaft Assembly (DT100A and DT175A).

NOTE: *Clutch Assembly must be removed from right side of engine before Change Shaft Assembly can be removed.*

- 1) Remove shift mechanism cover.

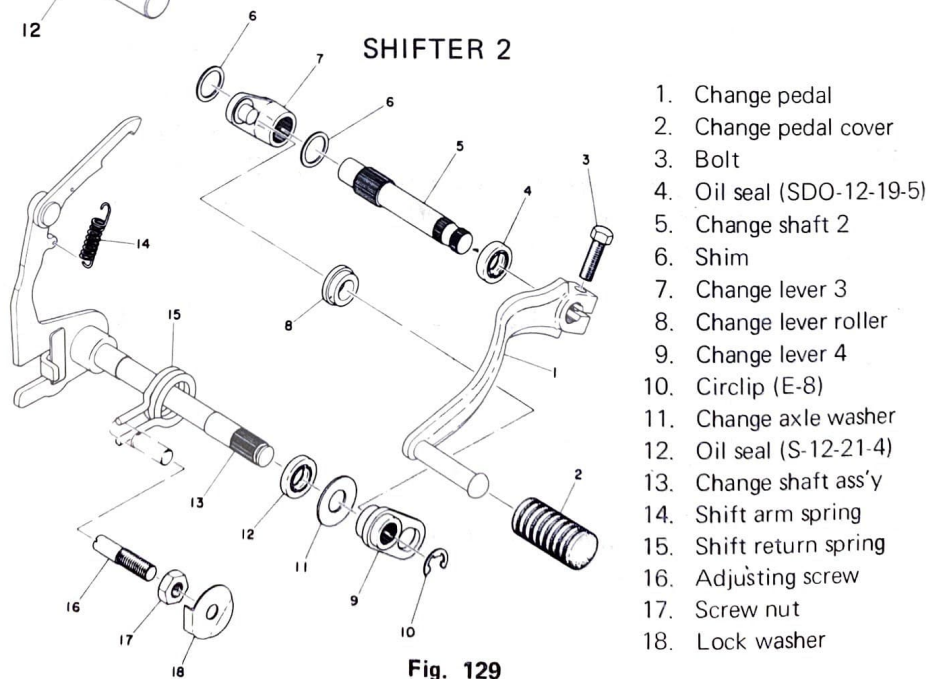
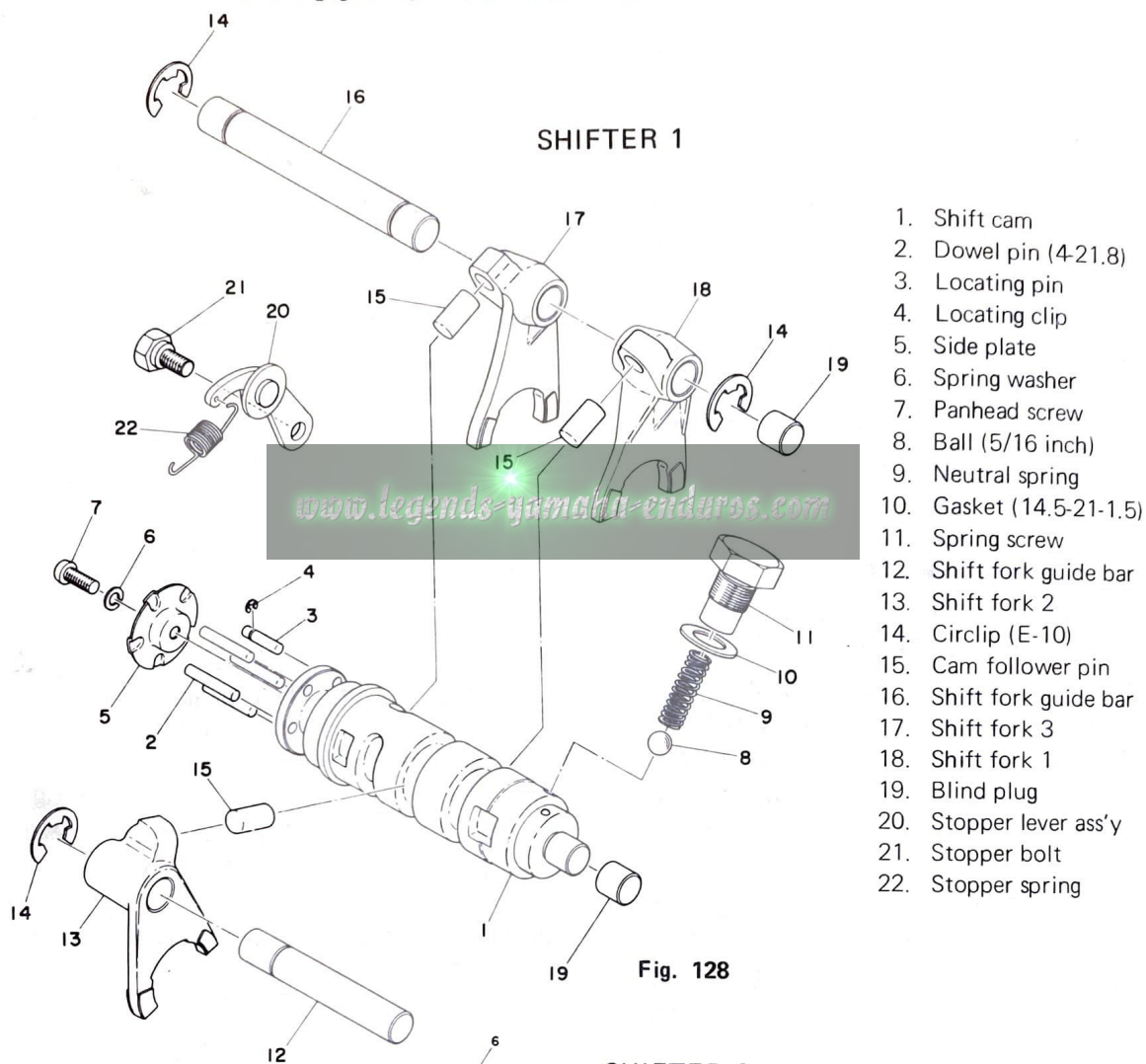
NOTE: *Change 2 Shaft (Ref.7-5) may come off with cover.*

- 2) Remove outside Shim (Fig. 129-6) from Change 2 Shaft or stuck to Change 3 Lever (Fig. 129-7) and put aside.
- 3) Remove Circlip (E-8) holding Change 4 Lever (Fig. 129-7) to Change Shaft Assembly (Fig. 129-13).
- 4) Remove Change 4 Lever, Change Axle Washer (Fig. 129-11), Change Lever Roller (Fig. 129-8), and inside Shim (Fig. 129-6) and put aside.
- 5) On right side of engine, lift spring-loaded arm above shift drum end plate and pull Change Shaft Assembly out.

NOTE: *Shift Return Spring will come off with Change Shaft Assembly.*

- c. Shift Return Spring (All models).
Inspect shift return spring. A broken or weak spring will impair the return action of the shifting mechanism.
- d. Change Shaft Assembly (All models).
Inspect change shaft assembly for bending of shaft, worn or bent splines, and broken or weak shift arm spring. A bent shaft will cause hard shifting.

DT100A & DT175A SHIFT MECHANISM



DT125A SHIFT MECHANISM

SHIFTER 1

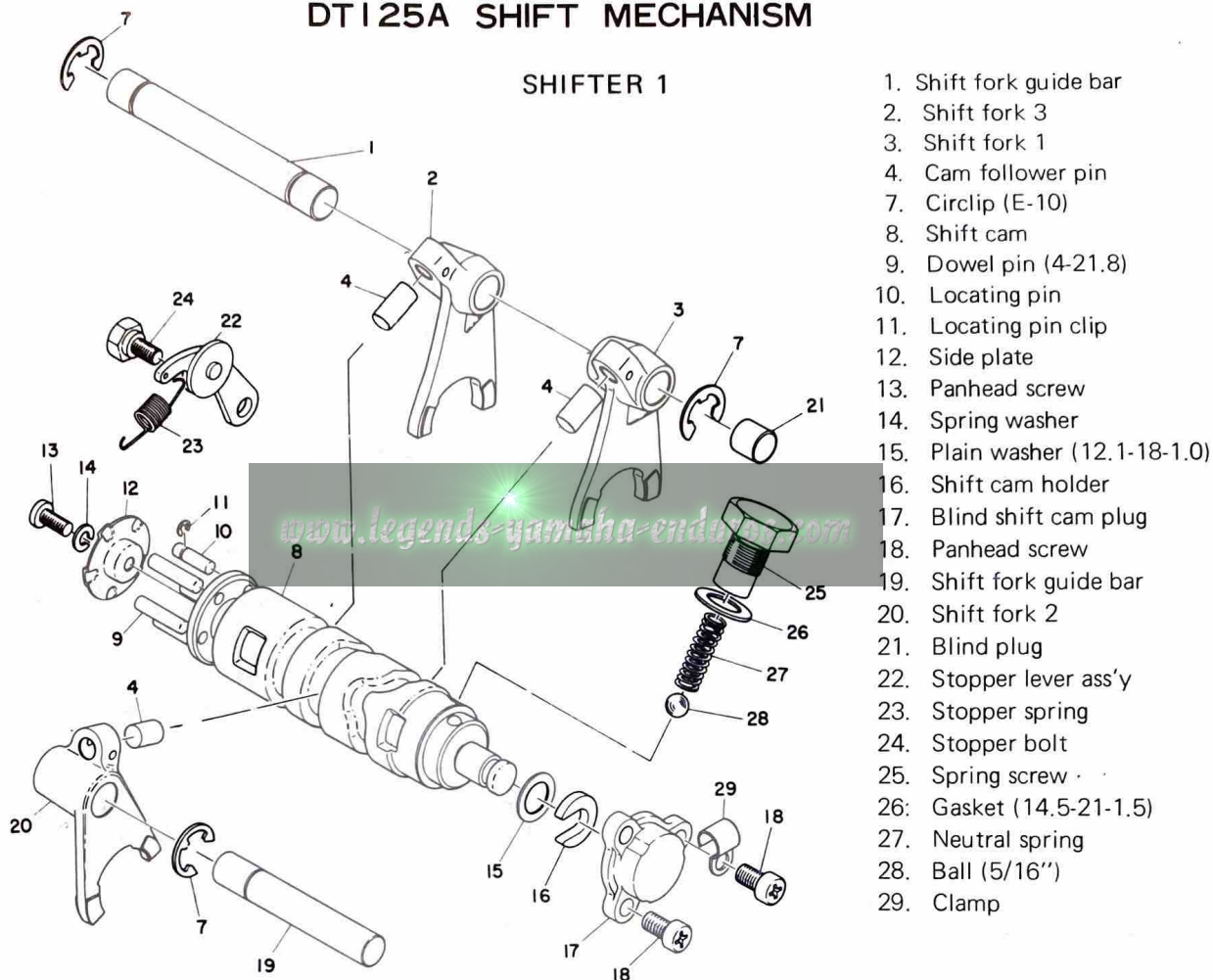


Fig. 130

SHIFTER 2

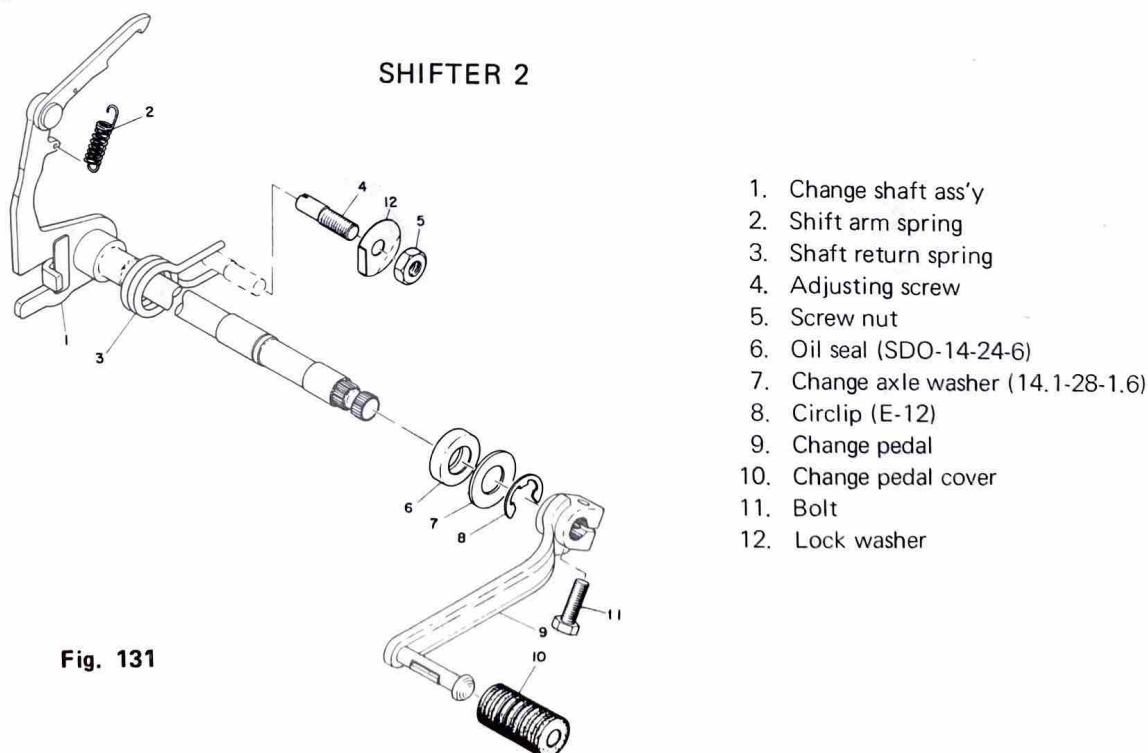


Fig. 131

- e. Adjusting the Gear Shift Arm (All models).

Adjusting or correcting the travel of the gear shift arm to prevent improper shifting progression (excess feed or insufficient feed of the gear shift arm) is accomplished by turning the gear shift return spring stop screw (eccentric bolt) in or out. Adjust the eccentric bolt until distance A and A' are equal. Adjust in 2nd, 3rd, or 4th gear.

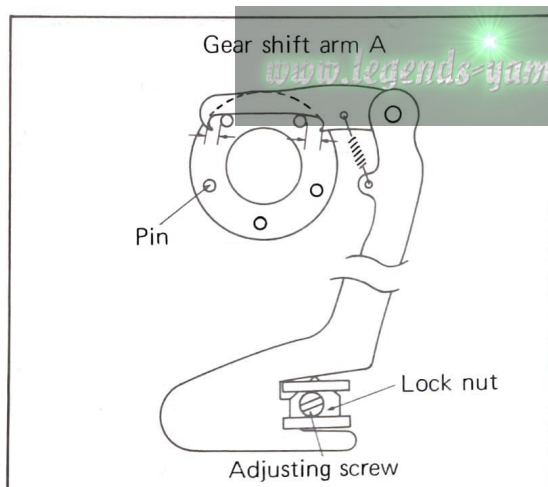


Fig. 132

6. Drive Sprocket Removal.

- a. Straighten the bent edge of the lock washer with a blunt-ended metal punch.

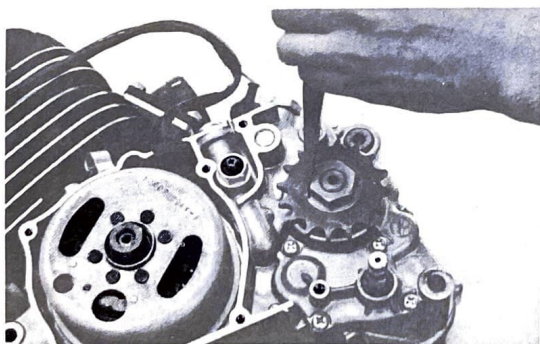


Fig. 133

- b. Hold the drive sprocket with the flywheel magneto holding tool, and remove the sprocket nut. If the flywheel magneto holding tool is not available, shift the transmission to low gear, and fit a monkey wrench on the sprocket nut. Then tap the handle of the wrench with a hammer and the shock will loosen the nut.

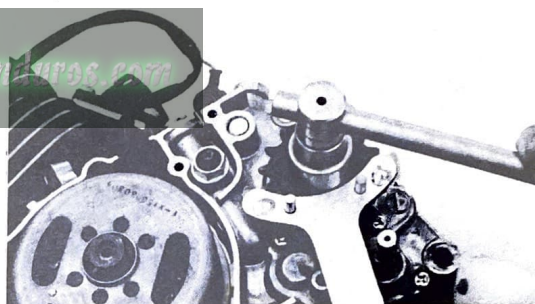


Fig. 134

Drive Sprocket Nut Torque	DT100A, DT125A, DT175A 18.09~32.56 ft-lbs. 2.5~4.5 kg-m
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- c. Remove the distance collar with pliers. (When reinstalling the distance collar, apply grease to the oil seal lip groove.)

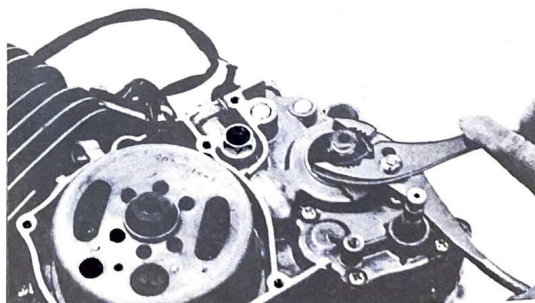


Fig. 135

d. Inspection of Drive Sprocket.

A worn drive sprocket will result in excessive chain noise and shorten the life of the chain. Check the sprocket for worn teeth, and replace if they are worn.

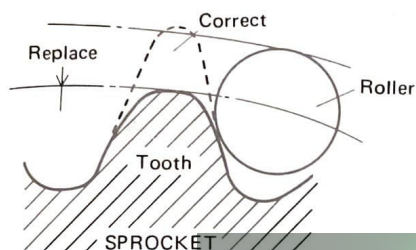


Fig. 136

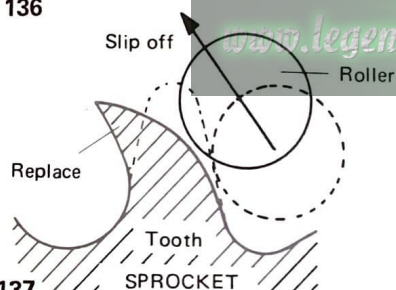


Fig. 137

7. Splitting the Crankcase.

- a. Remove neutral stopper and detent spring.

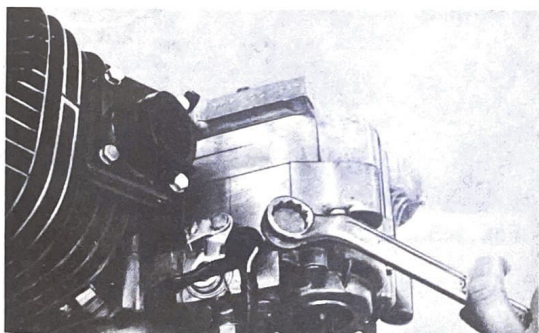


Fig. 138

- b. Remove the shift drum stopper lever and stopper spring.

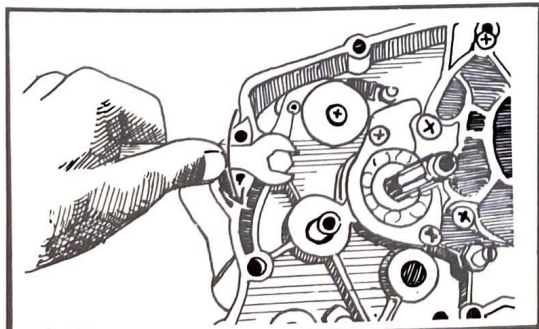


Fig. 139

- c. Remove pan head screws from the left crankcase.

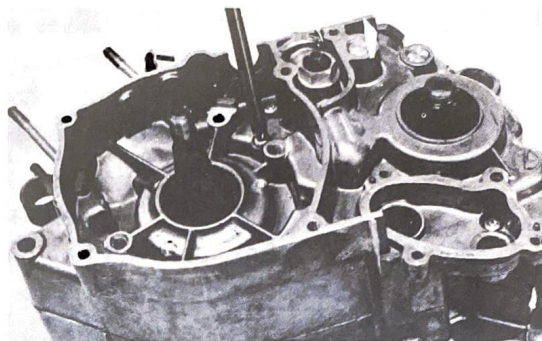


Fig. 140

- d. Install the crankcase separating tool on the right crankcase. Divide the crankcase while alternately tapping the main axle and the crankcase with a rubber tipped hammer.

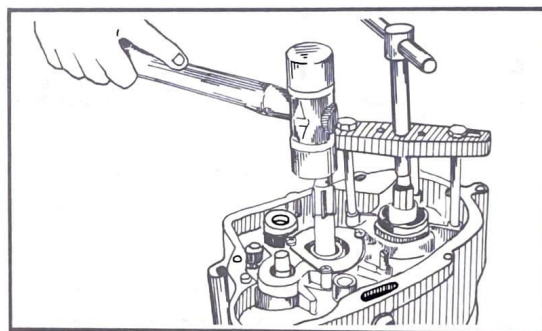


Fig. 141

NOTE: Fully tighten the bolts of the crankcase dividing tool, keeping the tool in a horizontal position. The crankcase is designed to split into two halves, right and left. Only one drain plug is provided for both the transmission and clutch housings. Both housings can be drained at the same time by removing the drain plug.

8. Reassembling Crankcase

After all bearings and seals have been installed in both crankcase halves and after the crankshaft and transmission have been placed into the left hand crankcase half, assemble the cases using the crankshaft installing tool.

- a. Set left hand case half onto the shafts and assemble crank installing tool onto righthand end of crankshaft.

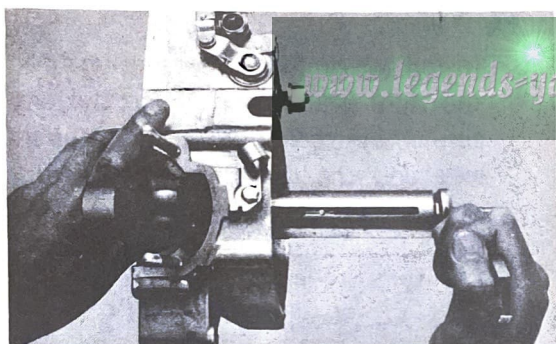


Fig. 142

- b. Place the left case half in a horizontal position supported on its outside machined surface. Check for correct transmission installation and make certain that all loose shims are in place.

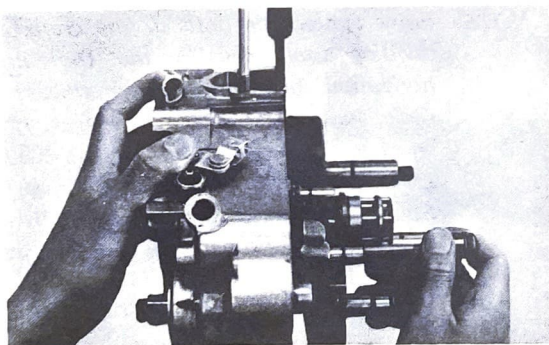


Fig. 143

- c. Apply Yamaha Bond No.5 to the mating surfaces of the case halves.

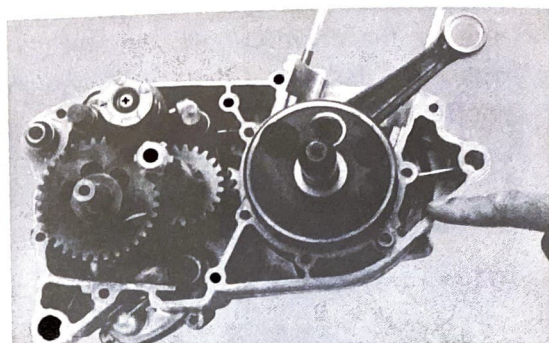


Fig. 144

- d. Push righthand case downward while tapping on rear of case with soft hammer until completely seated against lefthand case.
- e. Install all crankcase screws and tighten by stages in a criss-cross pattern starting around the crankshaft.

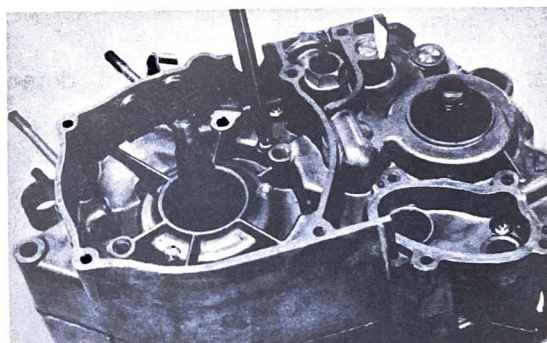


Fig. 145

9. Transmission

The 5-speed transmission is a constant-mesh, wide ratio type.

a. Gear Ratios

The Total Reduction Ratio (T.R.R.) may be calculated with the following formula:

$$\begin{aligned} \text{Total Reduction Ratio (T.R.R.)} &= \\ &\text{Primary Reduction Ratio} \times \\ &\text{Secondary Reduction Ratio} \times \\ &\text{Transmission Gear Ratio} \end{aligned}$$

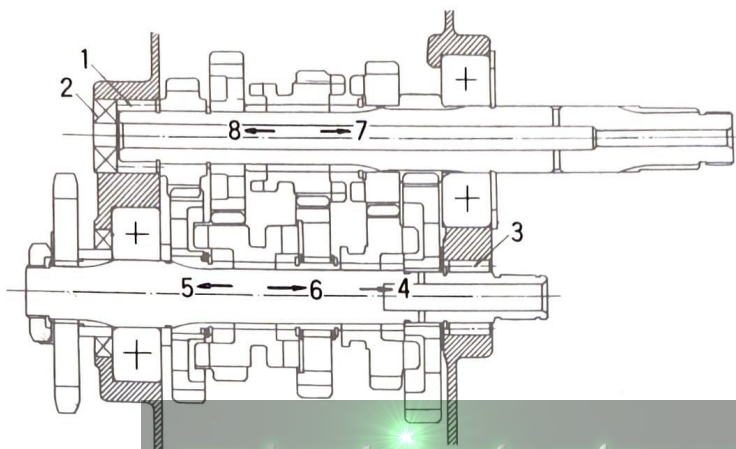
Example:

$$\begin{aligned} \text{T.R.R.} &= 74/19 \times 49/14 \times 35/11 \\ &= 3.895 \times 3.5 \times 3.182 \\ &= 43.373 \end{aligned}$$

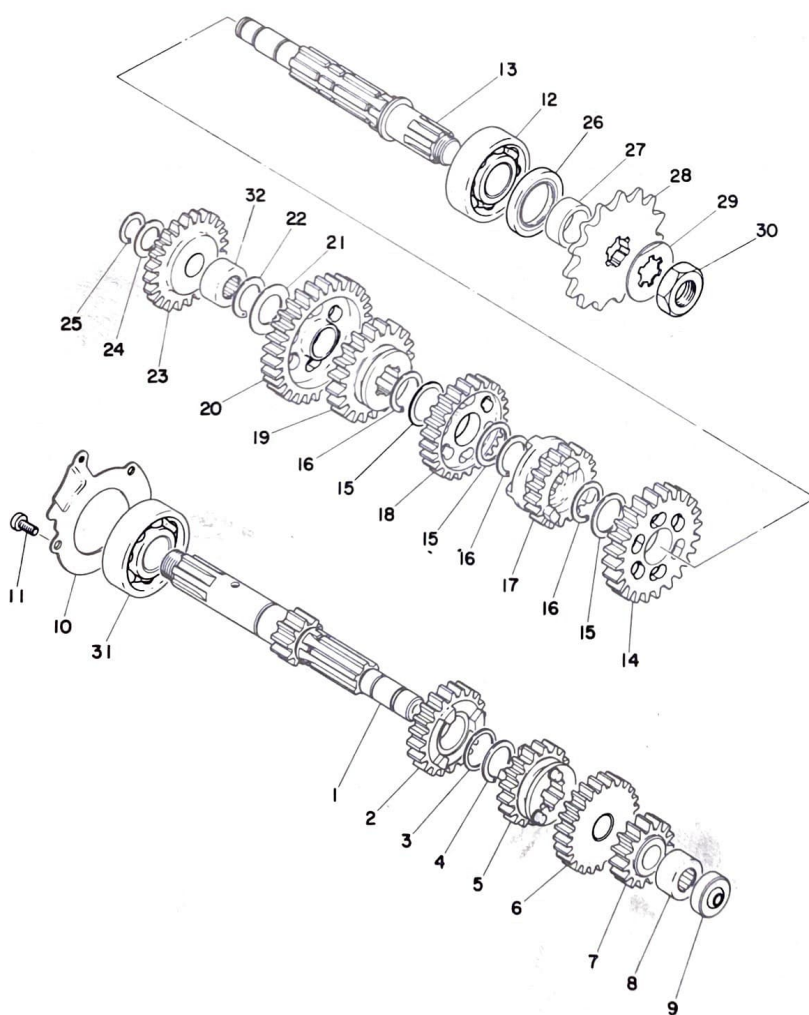
See Reduction Ratio Table below:

REDUCTION RATIO TABLE			
	MODEL		
	DT100A	DT125A	DT175A
Primary Reduction Ratio	74/19=3.894	74/19=3.894	74/19=3.894
Secondary Reduction Ratio	49/14=3.5	45/14=3.214	45/16=2.812
Transmission Gear Ratios:			
1st	35/11=3.182	35/11=3.182	35/11=3.182
2nd	30/15=2.000	30/15=2.000	30/15=2.000
3rd	26/19=1.368	26/19=1.368	26/19=1.368
4th	23/23=1.000	23/23=1.000	23/23=1.000
5th	20/25=0.800	20/25=0.800	20/25=0.800
Total Reduction Ratios:			
1st	43.367	39.824	34.842
2nd	27.258	25.031	21.899
3rd	18.644	17.121	14.979
4th	13.629	12.515	10.949
5th	10.903	10.012	8.7599

TRANSMISSION



- 1) Needle bearing
- 2) Push rod oil seal
- 3) Needle bearing
- 4) 1st
- 5) 2nd
- 6) 3rd
- 7) 4th
- 8) 5th



1. Main axle (12T)
2. 4th pinion gear (22T)
3. Gear hold washer (20-25-1.0)
4. Clip
5. 3rd pinion gear (19T)
6. 5th pinion gear (23T)
7. 2nd pinion gear (16T)
8. Bearing
9. Push rod seal
10. Cover plate
11. Panhead screw
12. Bearing (6304)
13. Drive axle
14. 2nd wheel gear (30T)
15. Gear hold washer (20-25-1.0)
16. Clip
17. 5th wheel gear (22T)
18. 3rd wheel gear (26T)
19. 4th wheel gear (24T)
20. 1st wheel gear (22T)
21. Drive axle shim (15.2-30-0.6)
22. Circlip
23. Kick idle gear (26T)
24. Thrust washer (13.3-22-1.2)
25. Thrust washer (13.3-22-1.4)
26. Circlip
27. Oil seal (SD-26-38-5)
28. Distance collar (10.1-16-9.3)
29. Drive sprocket (14T)
30. Drive sprocket (15T)
31. Drive sprocket (16T)
32. Lock washer
33. Lock nut
34. Bearing (6304, special)
35. Bearing

b. Removing Transmission from Crankcase

- 1) To free the shift drum (DT125A only), remove the shift cam blind plug screws on the left side of the crankcase, and remove the shift cam blind plug.

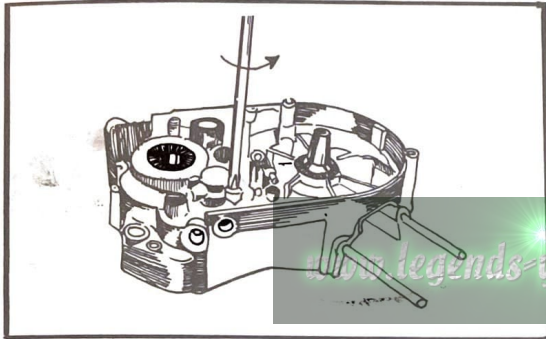


Fig. 146

- 2) Then remove the clip and washer from the shift drum. (DT125A only)

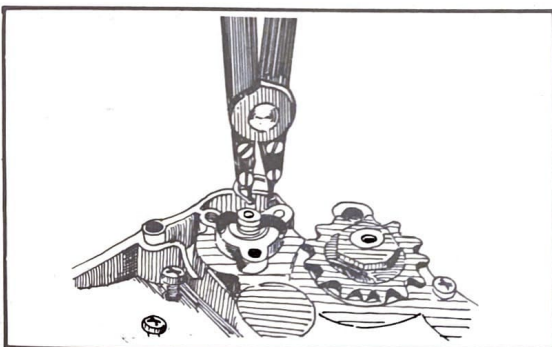


Fig. 147

- 3) Remove the entire transmission assembly including the shift forks and shift cam from the crankcase by tapping the drive axle end with a soft hammer.

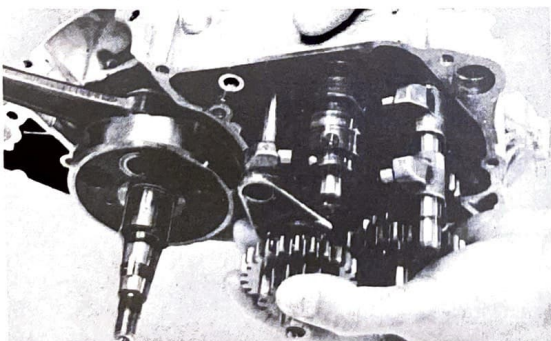


Fig. 148

10. Reinstallation.

- 1) Reinstall the transmission and shifter as a unit in the crankcase left half after they are subassembled. They cannot be installed separately. The transmission unit must be in neutral during installation.



Fig. 149

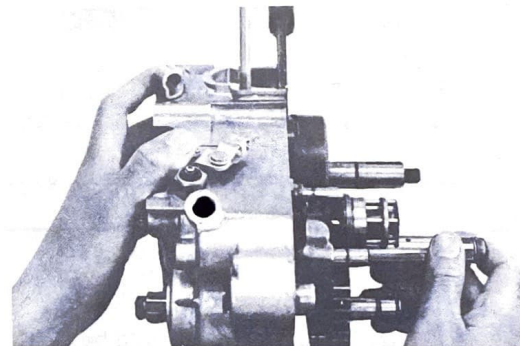


Fig. 150

11. Crankshaft Assembly.

a. Removing Crankshaft Assembly.

- 1) Remove crankshaft assembly with the crankcase separating tool.

NOTE: Fully tighten bolts of the crankcase dividing tool, and keep tool parallel with crankcase surface.

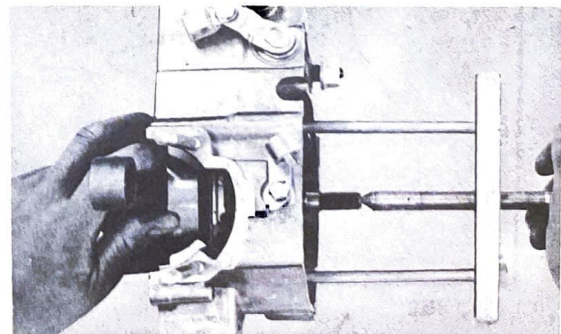


Fig. 151

b. Inspection and Servicing.

1) Checking crankshaft components.

Check connecting rod axial play at small end (to determine the amount of wear of crank pin and bearing at large end)	Small end play should not exceed 0.078 in. (2 mm)	If small end play exceeds 2 mm, disassemble the crankshaft, check connecting rod crank pin and large end bearing. Replace defective parts. Small end play after reassembly should be within 0.031~0.040 in. (0.8~1.0 mm)
Check the connecting rod for axial play at large end	Move the connecting rod to one side and insert a feeler gauge. Large end axial play should be within 0.019 in. (0.4~0.5 mm)	If excessive axial play is present, (0.6 mm or more) disassemble the crankshaft and replace any worn parts.
Check accuracy of the crankshaft ass'y runout. (Misalignment of parts of the crankshaft)	Dial gauge readings should be within 0.0012 in. (0.03 mm)	Correct any misalignment by tapping the flywheel with a brass hammer and by using a wedge.

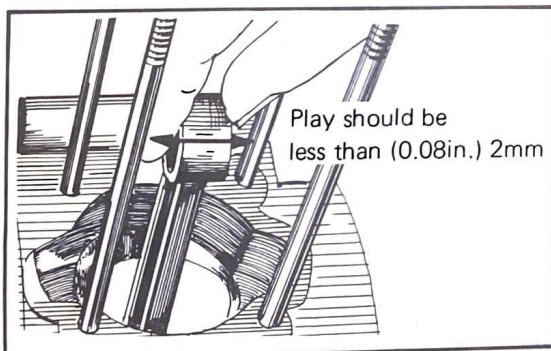


Fig. 152

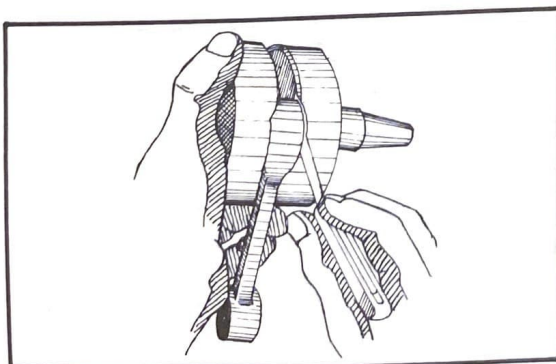
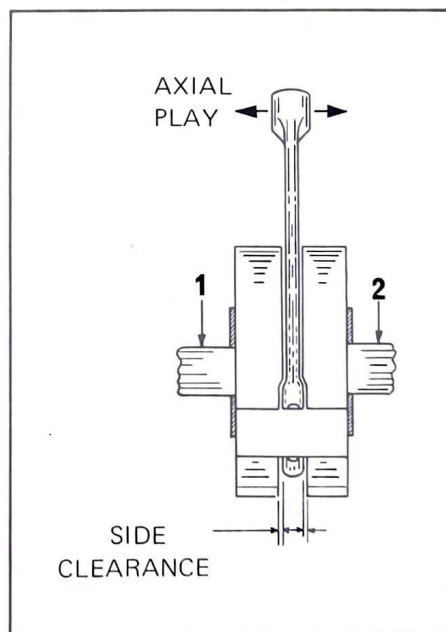


Fig. 153



c. Specifications.

MODEL	DEFLECTION TOLERANCE		FLYWHEEL WIDTH	ROD CLEARANCE			
				AXIAL		SIDE	
	1	2	F	New	Max.	Min.	Max.
DT100A	0.03	0.03	50 -0.05mm -0.10	0.8~1.0	2	0.4	0.5
DT125A	0.03	0.03	56 -0.05mm -0.10	0.8~1.0	2	0.4	0.5
DT175A	0.03	0.03	56 -0.05mm -0.10	0.8~1.0	2	0.4	0.5

d. Reinstalling the Crankshaft Assembly.

- 1) Put shims on both ends of the crankshaft, and install the crankshaft assembly into the left-hand crankcase by using the crankshaft installing tool.
- 2) Hold the connecting rod at top dead center with one hand while turning the handle of the installing tool with the other.

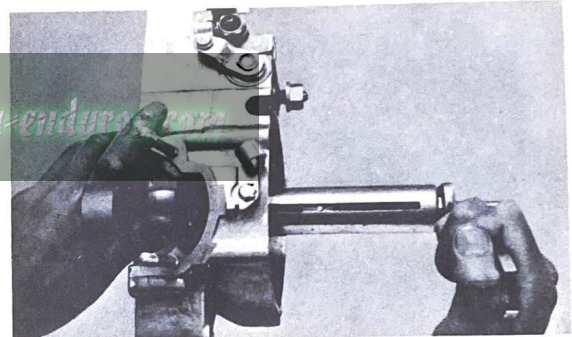
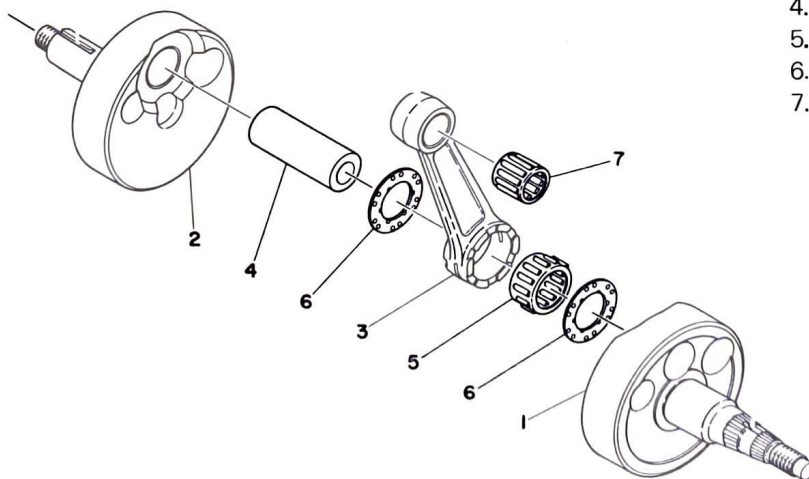


Fig. 154

CRANKSHAFT COMPONENT PARTS



1. Crank (L.H.)
2. Crank (R.H.)
3. Connecting rod
4. Crank pin
5. Bearing
6. Crank pin washer
7. Bearing

Fig. 155

12. Bearing and Oil Seals.

NOTE: Always replace the oil seals when overhauling the engine.

a. Removal.

- 1) Pry the oil seals out of place with a slot head screwdriver.

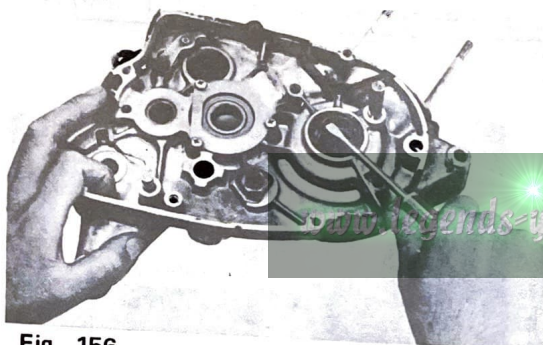


Fig. 156

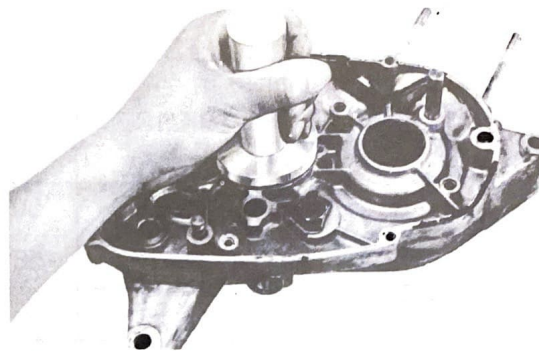


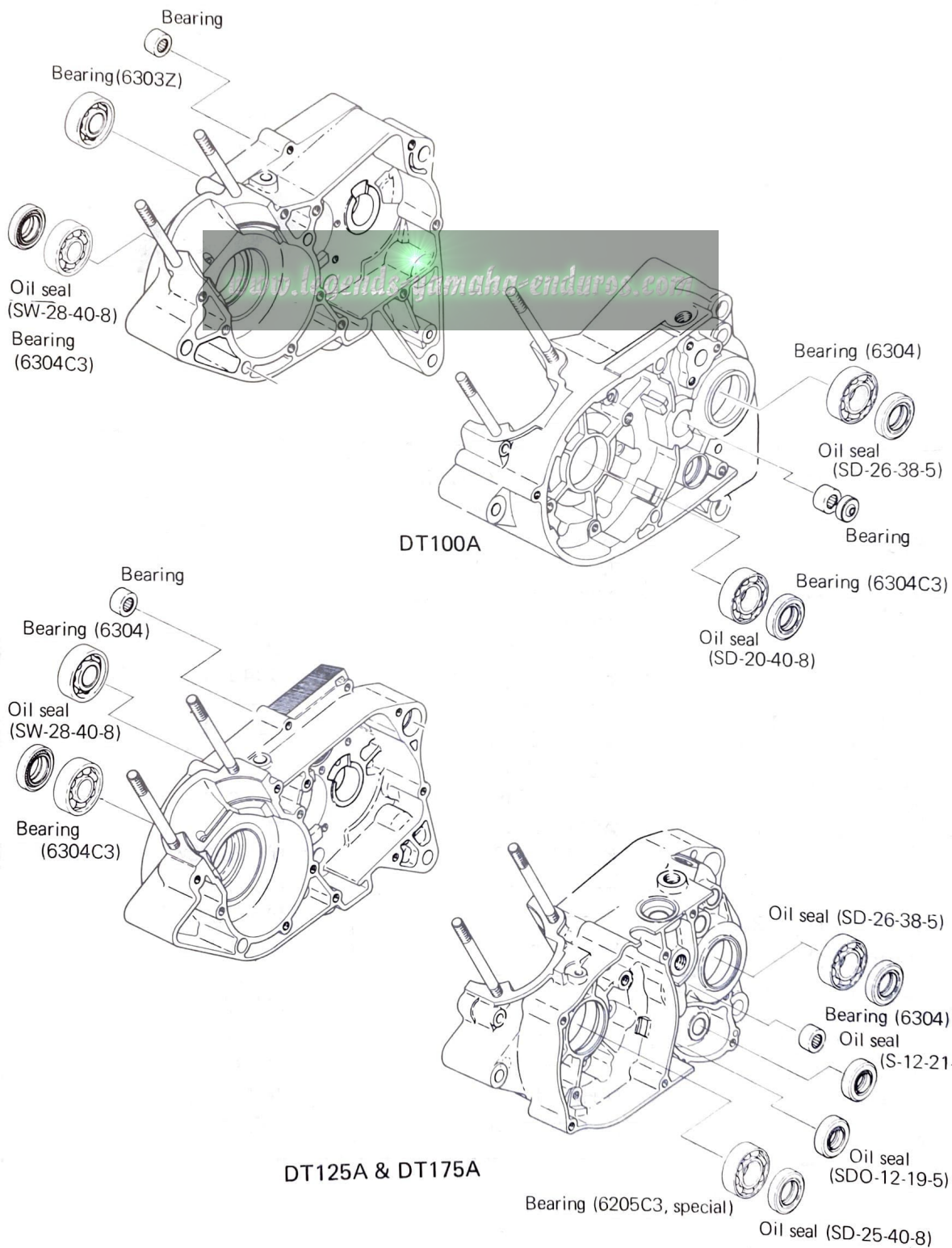
Fig. 157

b. Installation.

Install bearings and oil seals with their stamped manufacturer's marks or numerals facing outward. (In other words, the stamped letters must be on the exposed view side.) When installing bearings, pack them with grease.

- 2) Drive out the bearing with a bearing tool.

NOTE: Bearings are most easily removed or installed if the cases are first heated to approximately 200°-400°F. However, cold removal and installation can often times be done satisfactorily.



CHAPTER 4. ELECTRICAL SYSTEM FOR DT100A AND DT175A

4-1 SPECIAL TOOLS

- A. Pocket Tester
P/N 908-90030-29-00



Fig. 158

- B. Electro Tester
P/N 908-90030-21-00

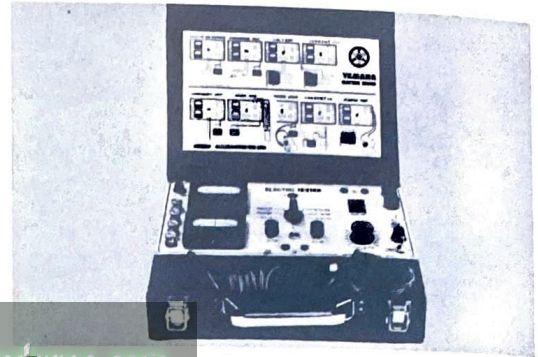


Fig. 159

4-2 ELECTRICAL COMPONENTS

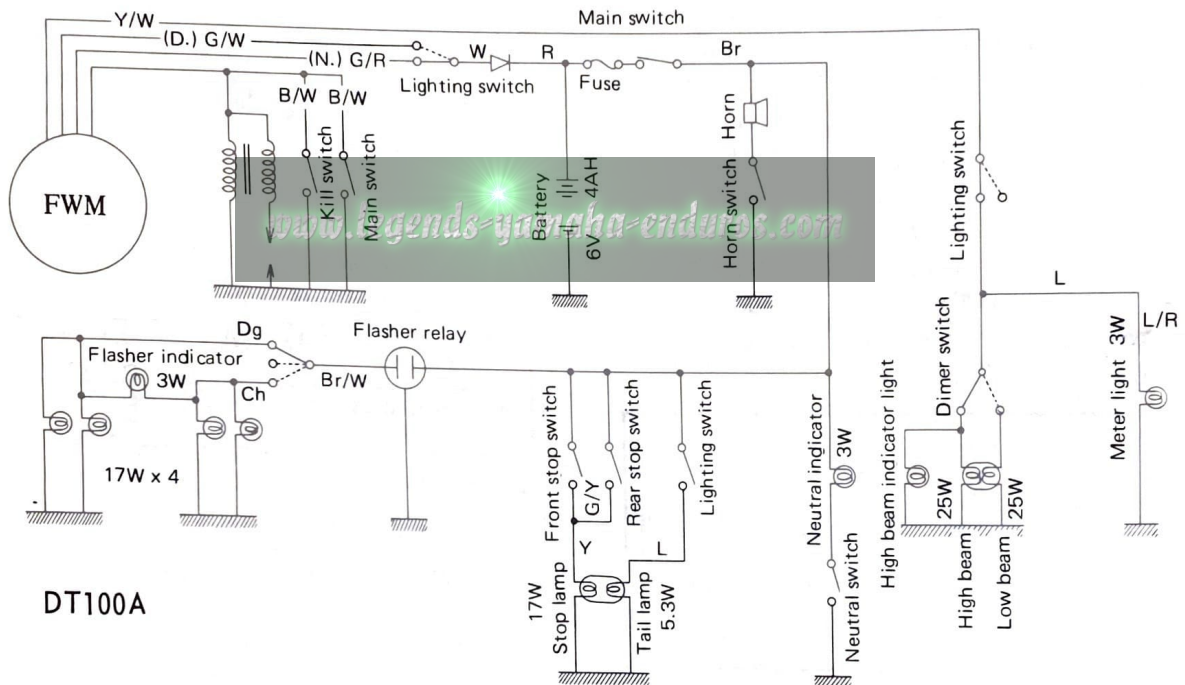
PART NAME	MANUFACTURER	MODEL/TYPE/RATING
Spark Plug	N.G.K.	B-8HS, B-8ES
Ignition Coil	MITSUBISHI/HITACHI	F6T401/CM61-20
Flywheel Magneto	MITSUBISHI/HITACHI	F000TO1771/F140-04
Rectifier	STANLY	DE2304
Fuse	TAIKO MFG.	10A x 2
Battery	FURUKAWA/G.S.	6N4B-2A, 6V4AH
Ignition Switch	ASAHI DENSO	_____
Handlebar Sw. (R)	ASAHI DENSO	_____
Handlebar Sw. (L)	ASAHI DENSO	_____
Front Stop Switch	ASAHI DENSO	_____
Rear Stop Switch	ASAHI DENSO	_____
Headlight	KOITO MFG.	6V 25/25W
High Beam Ind. Bulb	_____	6V 1.5W
Tail/Stop Light Bulb	_____	6V 5.3/17W
Neutral Light Bulb	_____	6V 3W
Speedometer Bulb	_____	6V 3W
Tachometer Bulb	_____	6V 3W
Flasher Bulb(s)	_____	6V 17W
Flasher Ind. Bulb	_____	6V 3W
Flasher Relay	NIHON DENSO	JFK-0070
Horn	NIKKO KINZOKU	MF2-6

4-3 DESCRIPTION

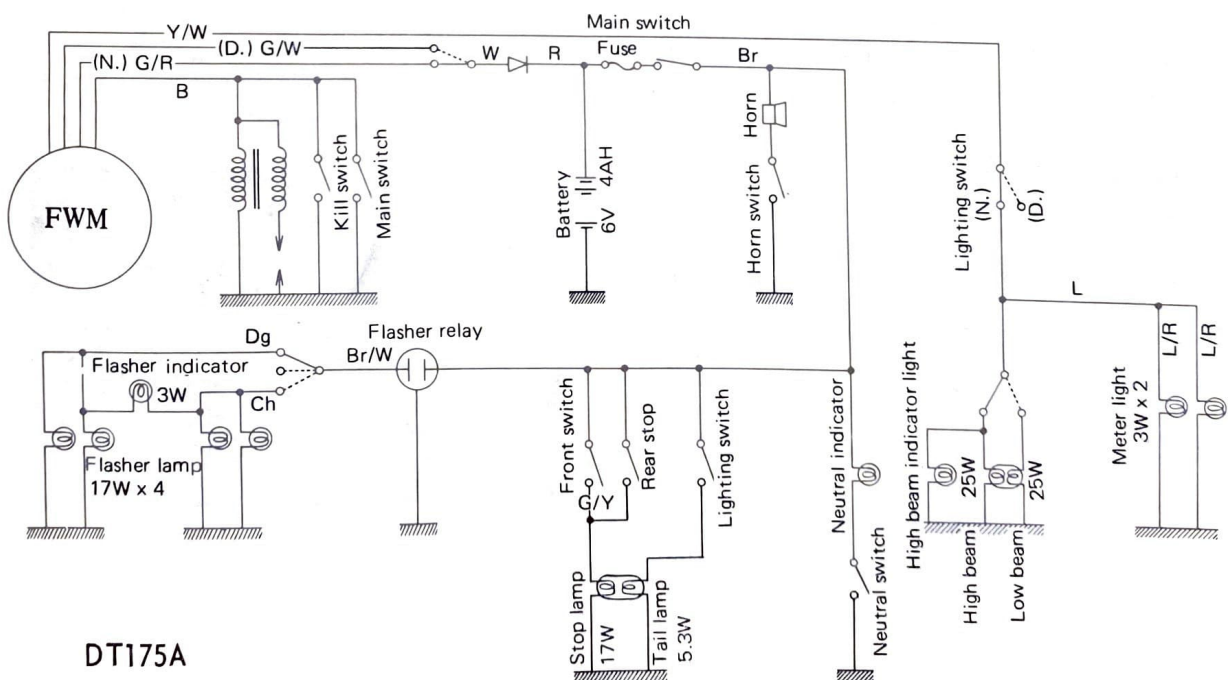
Both the DT100A and DT175A models utilize a flywheel magneto to generate electrical energy for the ignition, and charging systems. A 6-volt wet-type storage battery provides electrical power for the horn, stoplight, neutral light, and flasher lights.

ing systems. A 6-volt wet-type storage battery provides electrical power for the horn, stoplight, neutral light, and flasher lights.

4-4 CONNECTION DIAGRAM



DT100A



DT175A

4-5 IGNITION SYSTEMS

A. Description of Operation

The ignition system consists of the components as shown below. As the flywheel rotates, the contact breaker points begin to open and close, alternately. This make-and-break operation develops an electromotive force in the ignition power source coil, and produces a voltage in the ignition coil primary windings. The ignition coil is a kind of **transformer**, with a 1:50 turns ratio of the primary to the secondary winding. The voltage (150~300V) which is produced in the primary coil, is stepped up to 12,000~14,000V by mutual-induction and the electric spark jumps across the spark plug electrodes.

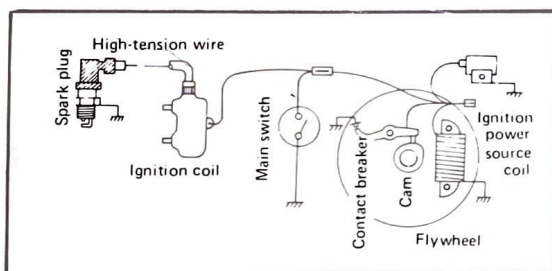


Fig. 160

B. Ignition Timing

Refer to Chapter 2, Engine Tuning, for ignition timing procedure.

C. Spark Gap Test

The entire ignition system can be checked for misfire and weak spark using the Electro-Tester. If the ignition system will fire across a sufficient gap, the entire ignition system can be considered good. If not, proceed with individual component tests until the problem is found.

1. Warm-up engine thoroughly so that all electrical components are at operating temperature.

2. Stop engine and connect tester as shown.

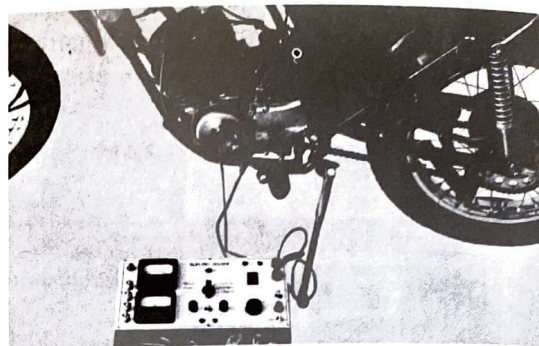


Fig. 161

3. Start engine and increase spark gap until misfire occurs. (Test at various R.P.M.'s between idle and red line.)

MINIMUM SPARK GAP:	0.1969 in. 5 mm
MINIMUM SPARK GAP:	0.2362 in. 6 mm

D. Ignition Coil

1. Coil spark gap test
 - a. Remove fuel tank and disconnect ignition coil from wire harness and spark plug.
 - b. Connect Electro Tester as shown.
 - c. Connect fully charged 6V. Battery to tester.
 - d. Turn on spark gap switch and increase gap until misfire occurs.

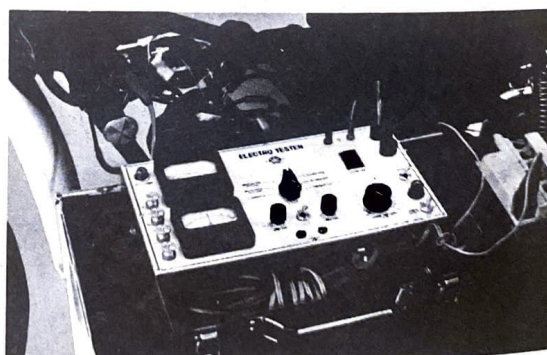


Fig. 162

	MODEL		TEMPERATURE
	DT100A	DT175A	
Primary Coil Resistance (Use ($\Omega \times 1$) Scale)	$1.02\Omega \pm 10\%$	$1.7\Omega \pm 10\%$	at 20°C
Secondary Coil Resistance (Use ($\Omega \times 100$) Scale)	$6K\Omega \pm 20\%$	$6.0K\Omega \pm 20\%$	at 20°C

2. Direct Current Resistance Testing

Use a Pocket Tester or equivalent ohmmeter to determine resistance and continuity of primary and secondary coil windings.

- Set ohmmeter to highest resistance scale ($\Omega \times 1000$ or higher).
- Remove condenser from engine and connect ohmmeter as shown below.
- Resistance reading should be "Infinity" or very close to it.

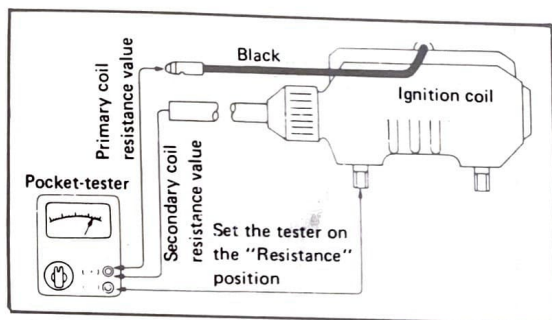


Fig. 163

E. Condenser

The condenser instantly stores a static electric charge as the contact breaker points separate, and the energy stored in the condenser discharges instantly when the points are closed. If it were not for the condenser, an electric arc would jump across the separating contact points, causing them to burn.

Burned contact points greatly affect the flow of current in the primary winding of the ignition coil. If the contact points show excessive wear, or the spark is weak (the ignition coil is in good condition), check the condenser.

1. Condenser Insulation Test (use Electro-Tester)

MINIMUM RESISTANCE: $3M\Omega$

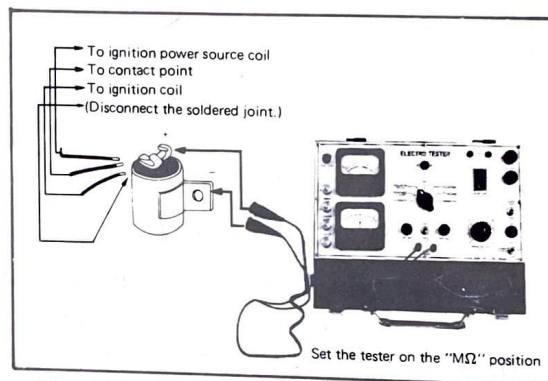


Fig. 164

2. Capacity Test (use Electro-Tester)

- Calibrate capacity scale.
- Connect tester (same as Insulation test).
- Meter needle will deflect and return to center as condenser is charged. After needle stops, note reading on μf scale.

CONDENSER CAP: $0.3 \mu f$

NOTE: After this measurement, the condenser should be discharged by connecting the positive and negative sides with a thick wire.

F. Spark Plug

The life of a spark plug and its discoloring vary according to the habits of the rider. At each periodic inspection, replace burned or fouled plugs with suitable ones determined by the color and condition of the bad plugs. One machine may be ridden only in urban areas at low speeds, whereas another may be ridden for hours at high speeds, so confirm what the present plugs indicate by asking the rider how long and how fast he rides, and recommend a hot, standard or cold plug accordingly. It is actually economical to install new plugs every 3,000km. (2,000 miles) since it will tend to keep the engine in good condition and prevent excessive fuel consumption.

1. How to "read" spark plug (condition).
 - a. Best When the porcelain around the center electrode is a light tan color.
 - b. If the electrodes and porcelain are black and somewhat oily, replace the plug with a hotter-type for low speed riding.
 - c. If the porcelain is burned white and/or the electrodes are partially burned away, replace the plug with a colder-type for high speed riding.

2. Inspection

Instruct the rider to:

Inspect and clean the spark plug at least once a month or every 1,000km (600 miles). Clean the electrodes of carbon and adjust the electrode gap. Be sure to use proper reach plug as replacement to avoid overheating or fouling.

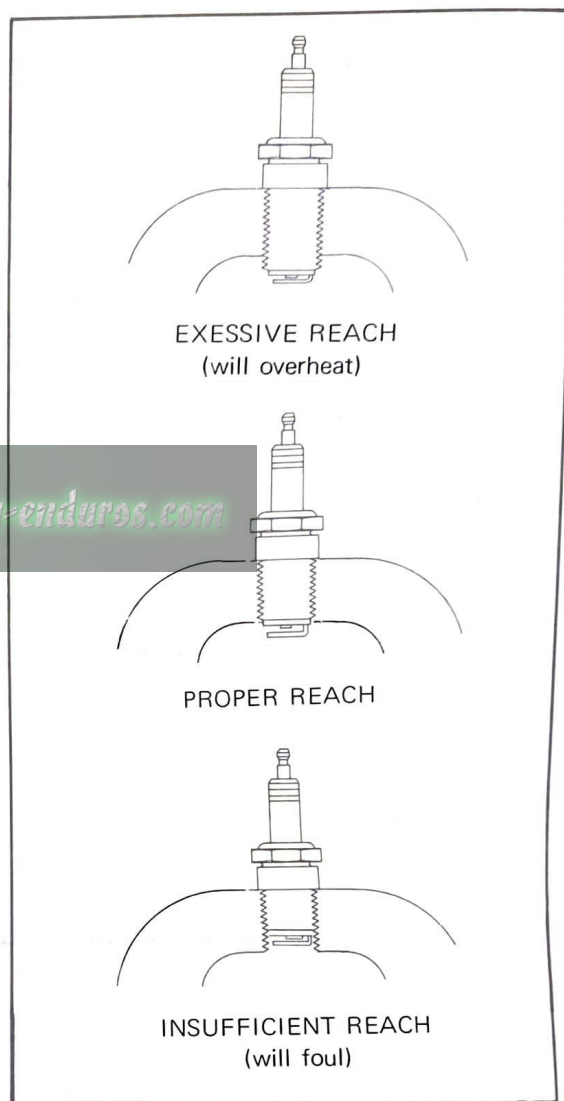


Fig. 165

	MODEL	
	DT100A	DT175A
Spark Plug Type	B-8HS	B-8ES
Spark Plug GAP	0.019~0.024 in. 0.5~0.6 mm	0.019~0.024 in. 0.5~0.6mm

4-6 LIGHTING SYSTEM

A. Description

The lighting system consists of the horn, headlight, taillight, stoplight, flasher lights, meter lamps and the battery. The battery supplies power only to the horn, stoplight, neutral light and flasher lights. Lighting coils in the flywheel magneto supply alternating current (A.C.) power for the headlight, taillight, meter lights, and for charging the battery through a silicon rectifier diode.

WARNING

Use bulbs of the correct capacity for the headlight, taillight, meter lamp and high-beam indicator which are directly connected to the flywheel magneto. If large capacity bulbs are used, the voltage will drop, giving a poor light. On the contrary, if smaller capacity bulbs are used, the voltage will rise, shortening the life of bulbs.

When the headlight beam switch is operated to change the beam from one to another, the headlight is designed to keep both bulbs burning during the change-over. This is to protect other light bulbs, meter lamps, taillight, etc., from burning out as a result of turning off the headlight, even temporarily. If one of these light bulbs is burnt out while the machine is running, it will overload other bulbs and shorten their Service Life. Reduce engine speed and replace a burnt bulb as quickly as possible.

B. Light Bulbs and Horn

1. Headlight

The headlight has a dual 6V, 25W/25W bulb. A high beam indicator light mounted in the tachometer has a 6V, 1.5W bulb.

2. Taillight and Stoplight

A dual 6V, 5.3W taillight and 6V, 17W stoplight is mounted in the taillight assembly. The lens of the taillight is provided with reflectors on its three sides—rear, right and left.

3. Flasher Lights

The flasher lights each have a 6V, 17W bulb. A flasher pilot light mounted in the tachometer has a 6V, 3W bulb.

4. Neutral Indicator Light

A neutral indicator light mounted in the tachometer has a 6V, 3W bulb.

5. Speedometer and Tachometer

The speedometer and tachometer each have one 6V, 3W bulb for illumination.

6. Horn

The horn is a 6V, flat type, and has a tone volume adjusting nut on its back.

C. Lighting Circuits

1. A.C. Circuit

As described previously, the headlight, taillight, and meter lights all operate on A.C. voltage provided directly by the

lighting coil and flywheel. The lights operate when the lighting switch is pushed to the ON position.

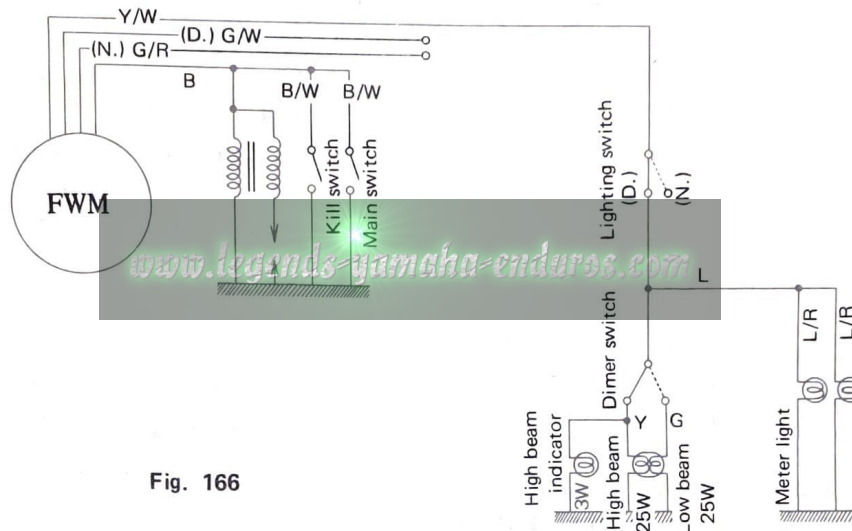


Fig. 166

2. D.C. Circuit

The remaining lights and the horn operate on 6V D.C. provided by the battery.

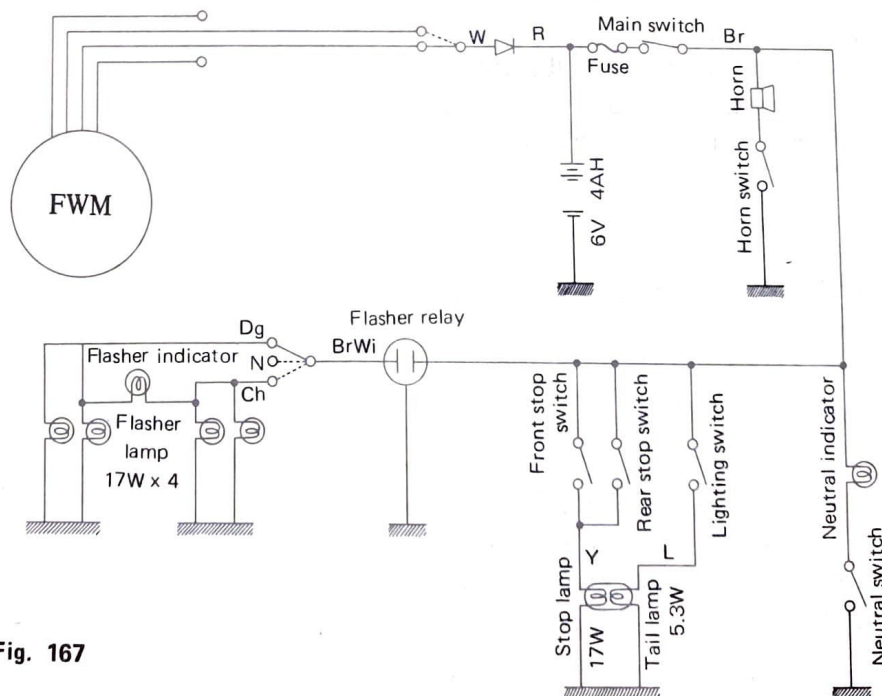


Fig. 167

D. Lighting Tests and Checks—A.C. Circuit

1. A.C. Circuit Output Test

With all A.C. lights in operation the circuit will be balanced and the voltage will be the same at all points at a given r.p.m.

- a. Reach under fuel tank and locate end of magneto wire harness. Single out the yellow wire.
- b. Switch Pocket Tester to "AC20V" position.
- c. Connect positive (+) test lead to yellow connection and negative (-) test lead to a good ground on the engine.

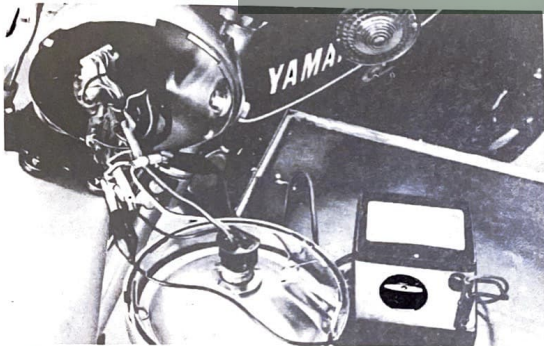


Fig. 168

- d. Start engine, turn on lights and check voltage at each engine speed in table below.

Engine RPM	VOLTAGE	
	DT100A	DT175A
2,000	6.5±0.5V	5.3±0.5V
3,000	6.6±0.5V	6.6±0.5V
5,000	6.9±0.5V	6.7±0.5V
8,000	7.2±0.5V	6.7±0.5V

If measured voltage is too high or too low, check for bad connections, damaged wires or burned out bulbs throughout the A.C. lighting circuit.

NOTE: *This voltage test can be made at any point throughout the circuit and the readings should be the same as specified above.*

2. Lighting Coil Resistance Check

If voltage is too low in A.C. lighting circuit, check the resistance of the yellow wire windings of the lighting coil.

- a. Disconnect yellow wire at connection under fuel tank.
- b. Switch Pocket Tester to " $\Omega \times 1$ " position and zero meter.
- c. Connect positive (+) test lead to yellow wire from magneto and negative (-) test lead to a good ground on engine. Read the resistance on ohms scale.



Fig. 169

LIGHTING COIL RESISTANCE:	
DT100	DT175
0.36 Ω	0.48 Ω

3. If A.C. lighting circuit components check out properly but circuit voltage is still excessive, go to charging circuit checks (Sec. 4–7). The two circuits share a common source coil. If voltage is **low** in charging circuit due to a defective battery, rectifier or connection, voltage will be too **high** in lighting circuit.

E. Lighting Tests and Checks—D.C. Circuit

The 6V battery provides power for operation of the horn, stoplight, neutral light and flasher lights. If none of the above operate, always check battery voltage before proceeding further. Low battery voltage indicates either a faulty battery, low battery water, or a defective charging system. See Section 4—7, Charging System, for checks of battery and charging system.

1. Horn does not work.
 - a. Check for +6 volts on brown wire to horn.
 - b. Check for good grounding of horn (pink wire) when horn button is pressed.
2. Neutral light does not work.
 - a. Replace bulb.
 - b. Check for ground on light blue wire to neutral light when transmission is in neutral.
 - c. Check for +6 volts on brown wire to neutral light.
 - d. Replace neutral switch.
3. Stoplight does not work.
 - a. Replace bulb.
 - b. Check for +6 volts on yellow wire to stoplight.
 - c. Check for +6 volts on brown wire to each stop switch (front brake and rear brake switches).
 - d. Check for ground on black wire to tail/stop light assembly.

4. Flasher light(s) do not work.
 - a. Replace bulb.
 - b. Right Circuit
 - 1) Check for +6 volts on dark green wire to light.
 - 2) Check for ground on black wire to light assembly.
 - c. Left Circuit
 - 1) Check for +6 volts on dark brown wire to light.
 - 2) Check for ground on black wire to light assembly.
 - d. Right and Left Circuits do not work.
 - 1) Check for +6 volts on brown/white wire to flasher switch on left handlebar.
 - 2) Check for +6 volts on brown wire to flasher relay.
 - 3) Replace flasher relay.
 - 4) Replace **flasher switch**.

4-7 CHARGING SYSTEM

The charging system consists of the magne-to flywheel, the charging/lighting coil, rectifier, and the battery.

A. Flywheel Magneto

As the flywheel rotates, an alternating current is generated in the charging lighting coils. The coil has three output wires:

1. Green—Daytime battery charging
2. Green/Red—Nighttime battery charging
3. Yellow—A.C. lighting (headlight, tail-light, etc.)

B. Silicon Rectifier

The alternating current generated by the flywheel magneto must be rectified to charge the battery. For this rectification, a half-wave silicon rectifier is employed.

C. Switches ("SW" below)

The various switches select the proper coil output wire and route A.C. voltage for lighting and charging. They also direct D.C. voltage from the rectifier/battery to the various safety features (horn, signal lights, stoplight).

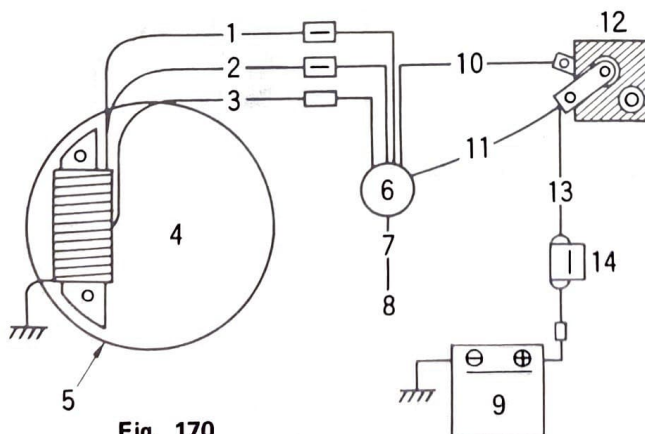


Fig. 170

FUNCTION	WIRE CONNECTIONS
DAYTIME CHARG-ING	Green to White
NIGHTTIME CHARGING	Green/Red to White
A.C. LIGHTING (headlight, taillight)	Yellow/White to Blue
D.C. LIGHTING	Red to Brown

D. Charging Output Test

1. Voltage Test
 - a. Raised seat and locate red battery wire connection.
 - b. Connect D.C. voltmeter as shown.

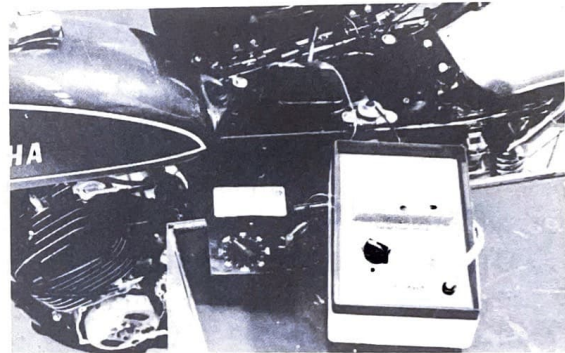


Fig. 171

- c. Turn ignition switch to ON (daytime) position, start engine and note voltage readings at r.p.m.'s specified below.
- d. Switch to nighttime (lights on) and note voltage readings at specified r.p.m.'s.

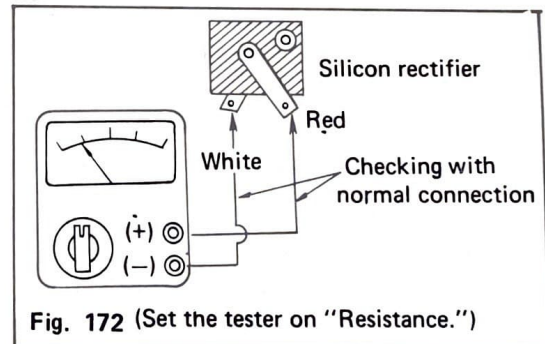
- 1) Green/Red
- 2) Yellow
- 3) Green
- 4) Ignition coil
- 5) Flywheel magneto
- 6) Main switch
- 7) Brown
- 8) To signal system (horn, etc.)
- 9) Battery
- 10) White
- 11) Red
- 12) Silicon rectifier
- 13) Red
- 14) Fuse

Engine R.P.M.	VOLTAGE			
	DT100A		DT175A	
	DAYTIME	NIGHTTIME	DAYTIME	NIGHTTIME
2,000	7.9 ± 0.5^V	6.5 ± 0.5^V	7.5 ± 0.5^V	6.9 ± 0.5^V
4,000	8.4 V	6.6 V	8.2 V	7.9 V
6,000	8.4 V	6.9 V	8.4 V	8.0 V
8,000	8.45 V	7.2 V	8.5 V	8.2 V

Engine R.P.M.	AMPERAGE			
	DT100A		DT175A	
	DAYTIME	NIGHTTIME	DAYTIME	NIGHTTIME
2,000	$1.8 \pm 0.3A$	$0.18 \pm 0.3A$	$0.8 \pm 0.3A$	$0.6 \pm 0.3A$
4,000	2.3 A	0.60 A	1.8 A	1.5 A
6,000	2.8 A	0.72 A	2.4 A	1.6 A
8,000	3.2 A	0.80 A	3.0 A	1.7 A

2. Amperage Test

- Break the red wire connection at the battery and connect Ammeter as shown.
- Start engine and take amperage readings at specified r.p.m.'s.
- Turn on lights and note the readings.



E. Checking the Silicon Rectifier

1. Checking with normal connection.

Connect the tester's red lead (3) to the silicon rectifier's red terminal, and connect the tester's black lead (-) to the rectifier's white terminal.

STANDARD VALUE: $9 \sim 10\Omega$

NOTE: If the tester's pointer will not swing back from full scale, the rectifier is defective.

2. Checking with reversed connection.

Reverse the tester leads.

If the pointer will not swing, the rectifier is in good condition. If the pointer swings, the rectifier is faulty.

WARNING

The silicon rectifier can be damaged if subjected to **overcharging**. Special care should be taken to avoid a short circuit and/or incorrect connection of the positive and negative leads at the battery. Never connect the rectifier directly to the battery to make a continuity check.

F. Battery

The battery is a 6 volt—4AH unit that is the power source for the horn, stoplight, neutral light and flasher lights. Because of the fluctuating charging rate due to the differences in engine R.P.M.s, the battery will lose its charge if the horn and stoplight are excessively used. The charging of the battery begins at about 2,500 R.P.M. Therefore, it is recommended to sustain engine R.P.M.s at about 3,000 to 4,000 R.P.M. to keep the battery charged properly. If the horn and stoplight are used very often, the battery water should be checked regularly as continuous charging will dissipate the water.

1. Checking

- a. If sulfation occurs on plates due to lack of battery electrolyte, showing white accumulations, the battery should be replaced.
- b. If the bottoms of the cells are filled with corrosive material falling off plates, the battery should be replaced.
- c. If the battery shows the following defects, it should be replaced.
 - The voltage will not rise to a specific value even after long hours charging.
 - No gassing occurs in any cell.
 - The 6V battery requires a charging current of more than 8.4 volts in order to supply a current at a rate of 1 amp. per hour for 10 hours.

4. Service Standards

Battery Spec.	6V-4AH	
Electrolyte-Specific gravity and quantity	1.26—1.27, 110 cc.	At full charge
Initial charging current	0.2A for 25 hours	Brand new motorcycle
Charging current	0.4A for 13 hours (Charge until specific gravity reaches 1.26—1.27)	When discharged
Refilling of electrolyte	Distilled water up to the max. level line.	Once a month

2. Service life

The service life of a battery is usually 2 to 3 years, but lack of care as described below will shorten the life of the battery.

- a. Negligence in re-filling the battery with electrolyte.
- b. Battery being left discharged.
- c. Over-charging by rushing charge.
- d. Freezing.
- e. Feeding of water or sulfuric acid containing impurities when re-filling the battery.

3. Storage

If any motorcycle is not used for a long time, remove the battery and have it **stored** by a battery service shop. The following instructions should be observed by shops equipped with chargers.

- a. Recharge the battery.
- b. Store the battery in a cool, dry place, and avoid temperatures below 0°C. (32°F)
- c. Recharge the battery before mounting it on the motorcycle.

SWITCHES

4-8 SWITCHES

The main keyswitch and the right and left handlebar switches may be checked for continuity or shorts with a Pocket Tester on the " Ω x 1" scale.

WIRE COLOR ABBREVIATIONS	
BLACK-B	GREEN/RED-Gr/R
BROWN-Br	
BLUE-BI	GREEN/YELLOW-Gr/Y
RED-R	
GREEN-Gr	BLACK/WHITE-B/W
PINK-P	BLUE/WHITE-BI/W
YELLOW-Y	DARK GREEN-DkGr
WHITE-W	LIGHT GREEN-LtGr
ORANGE-O	DARK BROWN-DkBr
GREY-G	
	BROWN/WHITE-Dr/W

A. Main Switch

SWITCH POSITION	WIRE COLOR					
	DT100A/DT175A			DT125A		
	BW	B	R	Br	R	Br
OFF						
ON						

B. "Engine Stop" Switch (Rt. Handlebar)

SWITCH POSITION	WIRE COLOR			
	DT100A DT175A		DT125A	
	B/W	B	Br	R/W
OFF				
RUN				

C. "Lights" Switch (Left Handlebar)

SWITCH POSITION	WIRE COLOR													
	DT100/DT175										DT125A			
	W	G/W		G/R	Br	BI/W	Y/W	BI	Y	G	Br	BI	Y	G

D. "Turn" Switch (Left Handlebar)

SWITCH POSITION	WIRE COLOR		
	Dk Gr	Br/W	Dk Br
OFF (Neutral)			
RIGHT			
LEFT			

E. "Horn" Button (Left Handlebar)

SWITCH POSITION	WIRE COLOR	
	P	
ON		

CHAPTER 5. ELECTRICAL SYSTEM FOR DT125A

5-1 SPECIAL TOOLS

A. Pocket Tester
PN/ 908-90030-29-00

B. Electro Tester
P/N 908-90030-21-00



Fig. 173



Fig. 174

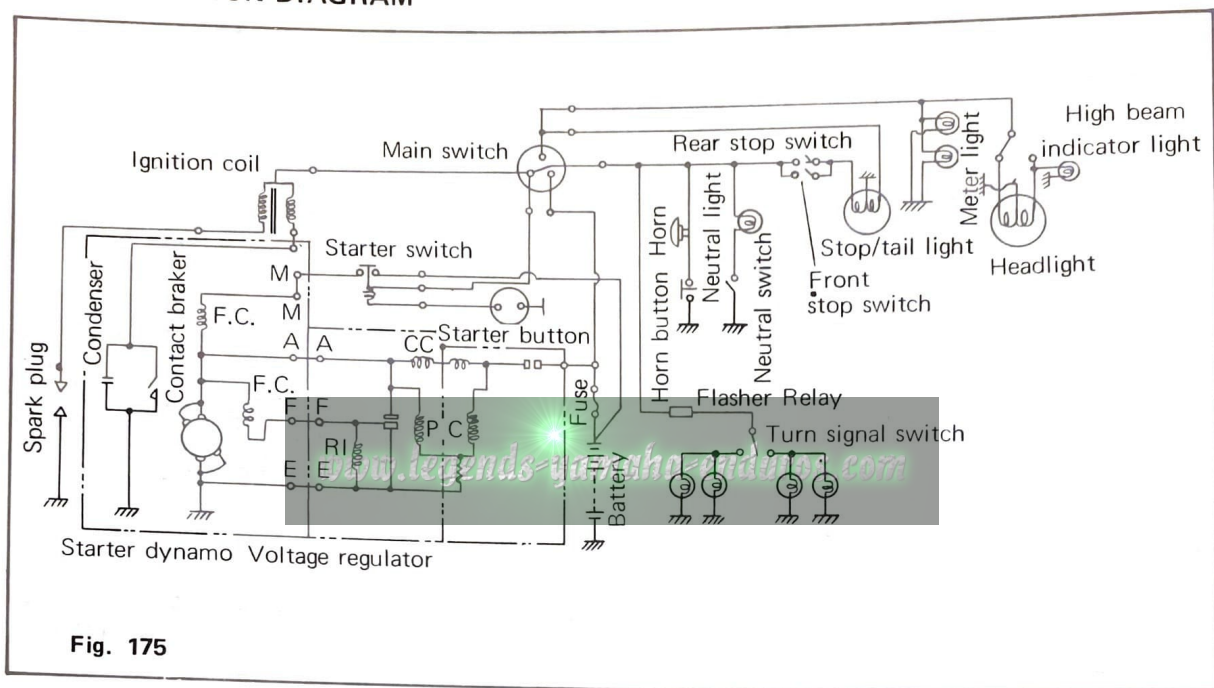
5-2 ELECTRICAL COMPONENTS

PART NAME	MANUFACTURER	MODEL/TYPE/RATING
Spark Plug	N.G.K	B-8ES
Ignition Coil	Hitachi Ltd.	CM-61-50
Starter Dynamo	Hitachi Ltd.	M100-03
Voltage Regulator	Hitachi Ltd.	T107-17
Starting Switch	Hitachi Ltd.	T104-35
Fuse	Taiko Mfg.	20AX2
Battery	Furukawa	12N7-3B, 12V 7AH
Ignition Switch	Asahi Denso	—
Handlebar Sw. (R)	Asahi Denso	—
Handlebar Sw. (L)	Asahi Denso	—
Front Stop Switch	Asahi Denso	—
Rear Stop Switch	Asahi Denso	—
Headlight	Koito Mfg.	12V 25/25W
High Beam Ind. Bulb	—	12V3W
Tail/Stop Light Bulb	—	12V8.3/27W
Neutral Light Bulb	—	12V 3W
Speedometer Bulb	—	12V 3W
Tachometer Bulb	—	12V 3W
Flasher Bulb(s)	—	12V 27W
Flasher Relay	Nihon Denso	JFK-0110
Horn	Nikko Kinzoku	MF-12

5-3 DESCRIPTION

The DT125A is equipped with a 12-volt starter-dynamo which serves as a combination starter and direct current (D.C.) generator. All electrical components are powered directly by the 12-volt storage battery.

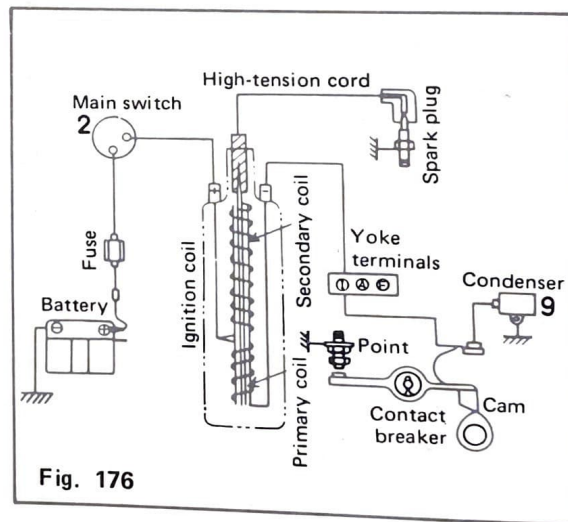
5-4 CONNECTION DIAGRAM



5-5 IGNITION SYSTEM

A. Description of Operation

The ignition system consists of the components as shown below. As the starter-dynamo rotates, the contact breaker points begin to open and close, alternately. This make-and-break operation develops an electromotive force in the ignition power source coil, and produces a voltage in the ignition coil primary windings. The ignition coil is a kind of transformer, with a 1:50 turn ratio of the primary to the secondary winding. The voltage (150~300V) which is produced in the primary coil, is stepped up to 12,000~14,000V by mutual-induction and the electric spark jumps across the spark plug electrodes.



B. Ignition Timing

Refer to Chapter 2, Engine Tuning, for ignition timing procedure.

LUBRICATION INTERVALS

1-7 LUBRICATION INTERVALS

Page	Item	Remarks	Type	Period							
				Initial (miles)				Thereafter Every (miles)			
				250	500	1,000	2,000	1,000	2,000	4,000	8,000
22	Autolube	See Service Notes	#1	See Service Notes							
35	Trans. oil	Warm engine before draining	#2				0	CHK	0		
15	Drive Chain	Lube/Adjust as req'd	#3	See Service Notes							
15	Drive Chain	Remove/Clean/Lube/Adjust	#3				0		0		
25	Air Filter	Foam type	#9	See Service Notes							
	Control & Meter Cables	All-Apply Thoroughly	#4	0					0		
	Throttle Grip & Housing	Light Application	#5	0					0		
	Tacho & Speedo Gear Hsgs.	Light Application	#5		0					0	
	Rear Arm Pivot Shaft	Zirc-Applly until shows	#6		0				0		
14	Brake Pedal Shaft	Light Application	#5		0				0		
	Change Pedal Shaft	Light Application	#5		0				0		
	Stand Shaft Pivot	Light Application	#5		0				0		
96	Front Forks	Drain Completely-Ck Specs	#3	CHK		0			CHK	0	
102	Steering Ball Races	Inspect Thoroughly/Med. pack	#7			0				0	
	Point Cam Lubr. Wick	Very Light Application	#8		0					0	
	Wheel Bearings	Do not Over-Pack	#7			0				0	

#1 Check tank level before each rider or every 100 miles. Top off when oil level is at sight glass or before any long trip. Use the following lubricant (in order of preference):

Yamalube, or; two-stroke oil labeled "BIA certified for service TC-W"

At ambient temperatures of 45-90°F use 10W/30.

Use 10W-30 "SD" motor oil. (If desired, specialty type lubricants of quality manufacture may be used.)

Add "Drive Chains" - Lube every 200-250 miles. If serverye usage, every 50-150 miles.

Use graphite base type (specialty types available - use name-brand, quality manufacture).

Light duty: Smooth, light-weight, "white" grease. Heavy duty: Standard 90 wt. lube grease (do not use lube grease on throttle/housing).

Use standard 90 wt. lube grease - smooth, not coarse.

Medium-weight wheel bearing grease of quality mfr. - preferably waterproof.

Light-weight machine oil.

Air filter - Foam element air filters must be damp with oil at all times to function properly. Clean and lube monthly or per mileage.

If hard usage, clean and lube daily. Do not over-oil. Use SAE 10W/30.

C. Spark Gap Test

The entire ignition system can be checked for misfire and weak spark using the Electro-Tester. If the ignition system will fire across a sufficient gap, the entire ignition system can be considered good. If not, proceed with individual component tests until the problem is found.

1. Warm-up engine thoroughly so that all electrical components are at operating temperature.
2. Stop engine and connect tester as shown.
3. Start engine and increase spark gap until misfire occurs. (Test at various R.P.M.'s between idle and red line.)

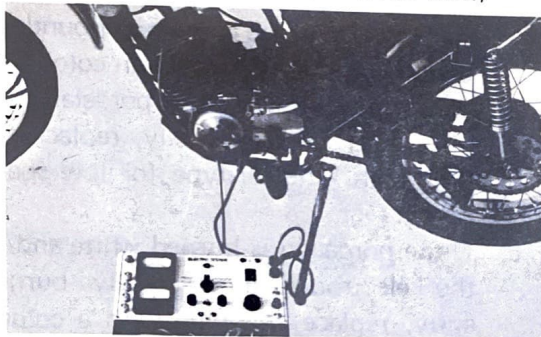


Fig. 177

MINIMUM SPARK GAP:	0.1969 in. 5 mm
MINIMUM SPARK GAP:	0.2362 in. 6 mm

D. Ignition Coil

1. Coil Spark Gap Test
 - a. Remove fuel tank and disconnect ignition coil from wire harness and spark plug.
 - b. Connect electrotester as shown.
 - c. Connect fully charged 12V. Battery to tester.
 - d. Turn on spark gap switch and increase gap until misfire occurs.

2. Direct Current Resistance Testing

Use a Pocket Tester or equivalent ohmmeter to determine resistance and continuity of primary and secondary coil windings.

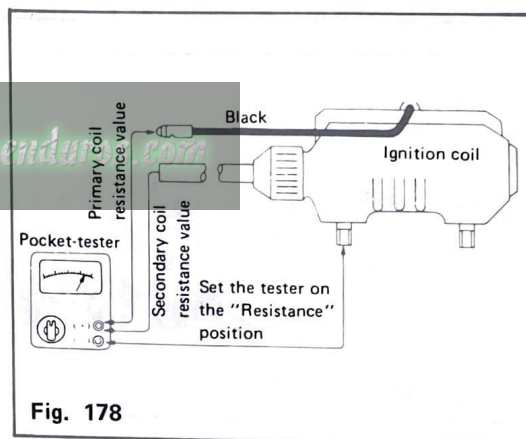


Fig. 178

Primary Coil Resistance (Use ($\Omega \times 1$) Scale)	$4.9\Omega \pm 10\%$ at 20°C
Secondary Coil Resistance (Use ($\Omega \times 100$) Scale)	$11\text{K}\Omega \pm 20\%$ at 20°C

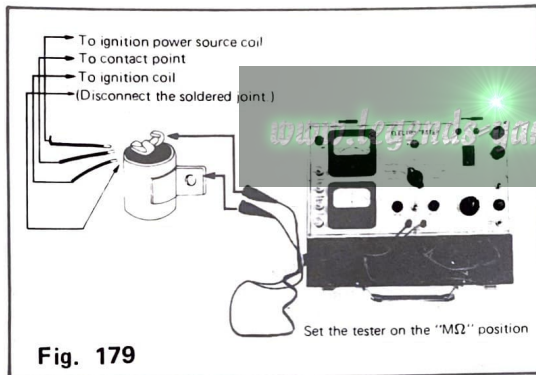
E. Condenser

The condenser instantly stores a static electric charge as the contact breaker points separate, and the energy stored in the condenser discharges instantly when the points are closed. If it were not for the condenser, an electric arc would jump across the separating contact points, causing them to burn.

Burned contact points greatly affect the flow of current in the primary winding of the ignition coil. If the contact points show excessive wear, or the spark is weak (the ignition coil is in good condition), check the condenser.

1. Condenser Insulation Test
 - a. Set ohmmeter to highest resistance scale ($\Omega \times 1000$ or higher).
 - b. Remove condenser from engine and connect ohmmeter as shown.
 - c. Resistance reading should be "Infinity" or very close to it.

MINIMUM RESISTANCE: $3M\Omega$



2. Capacity Test (use Electrotester)
 - a. Calibrate capacity scale.
 - b. Connect tester (same as Insulation test).
 - c. Meter needle will **deflect** and return to center as condenser is charged. After needle stops, note reading on μf scale.

CONDENSER CAP: $0.3\mu f$.

NOTE: After this measurement, the condenser should be discharged by connecting the positive and negative sides with a thick wire.

F. Spark Plug

The life of a plug and its discoloring vary, according to the habits of the rider. At each periodic inspection, replace burned or fouled plugs with suitable ones determined by the color and **condition** of the bad plugs. One machine may be ridden only in urban areas at low speeds, whereas another may be ridden for hours at high speeds, so confirm what the present plugs indicate by asking the rider how long and how fast he rides, and recommend a hot, standard or cold plug accordingly. It is actually economical to install new plugs every 3,000km (2,000 miles) since it will tend to keep the engine in good condition and prevent excessive fuel consumption.

1. How to "read" spark plug (condition).
 - a. Best..... When the **porcelain** around the center electrode is a light tan color.
 - b. If the electrodes and porcelain are black and somewhat oily, replace the plug with a hotter-type for low speed riding.
 - c. If the porcelain is burned white and/or the electrodes are partially burned away, replace the plug with a colder-type for high speed riding.

2. Inspection

Instruct the rider to:

Inspect and clean the spark plug at least once a month or **every** 1,000km (600 miles). Clean the electrodes of carbon and adjust the electrode gap. Be sure to use proper reach plug as replacement to avoid overheating or fouling.

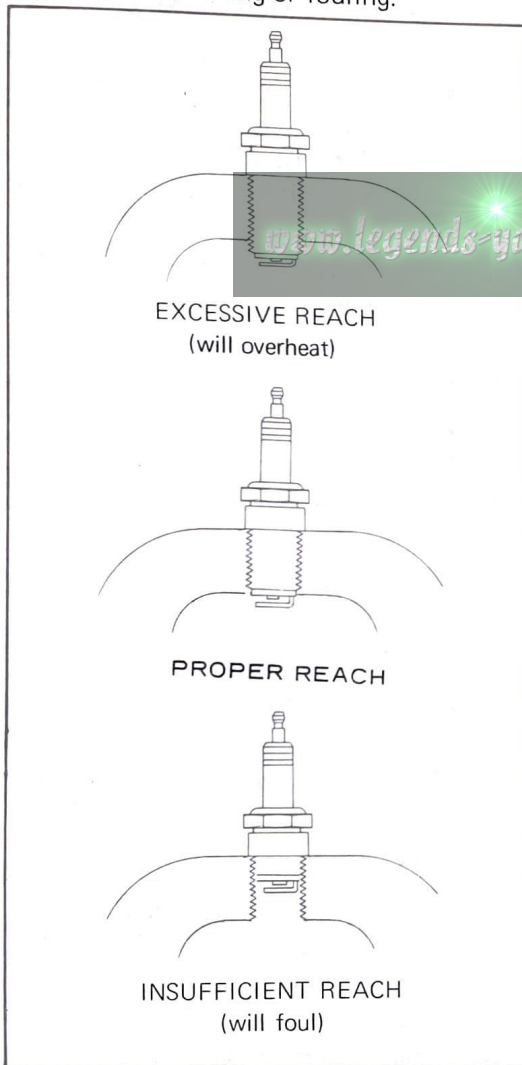


Fig. 180

SPARK PLUG TYPE	B-8ES
SPARK PLUG GAP	0.024 ~ 0.028 in. 0.6 ~ 0.7 mm

5-6 LIGHTING SYSTEM

A. Description

The lighting system consists of the horn, headlight, taillight, stoplight, neutral light, flasher lights, meter lamps and the battery. The battery supplies 12-volt power to all lights and the horn.

WARNING

Use bulbs of the correct capacity for the headlight, taillight, meter lamp and high-beam indicator which are connected to the battery. If large capacity bulbs are used, the voltage will drop, giving a poor light. On the contrary, if smaller capacity bulbs are used, the voltage will rise, shortening the life of bulbs.

When the headlight beam switch is operated to change the beam from one to another, the headlight is designed to keep both bulbs burning during the change-over. This is to protect other light bulbs, meter lamps, taillight, etc., from burning out as a result of turning off the headlight, even temporarily. If one of these light bulbs is burnt out while the machine is running, it will overload other bulbs and shorten their Service Life. Reduce engine speed and replace a burnt bulb as quickly as possible.

B. Light Bulbs and Horn

1. Headlight

The headlight has a dual 12V, 25W/25W bulb. A high beam indicator light mounted in the tachometer has a 12V, 3W bulb.

2. Taillight and Stoplight

A dual filament 12V, 8.3W taillight and 12V, 27W stoplight bulb is mounted in the taillight assembly. The lens of the taillight is provided with reflectors on its three sides—rear, right and left.

3. Flasher Lights

The flasher lights each have a 12V, 27W bulb. A flasher pilot light mounted in the tachometer has a 12V, 3W bulb.

4. Neutral Indicator Light

A neutral indicator light mounted in the tachometer has a 12V, 3W bulb.

5. Speedometer and Tachometer

The speedometer and tachometer each have one 12V, 3W bulb for illumination.

6. Horn

The horn is a 12V, flat type, and has a tone volume adjusting nut on its back.

C. Lighting Tests and Checks

The 12V battery provides power for operation of the horn and all lights. If none of the above operate, always check battery voltage before proceeding further. Low battery voltage indicates either a faulty battery, low battery water, or a defective charging system. See Section 5—7, Charging System, for checks of battery and charging system.

1. Horn does not work.

- a. Check for +12 volts on brown wire to horn.
- b. Check for good grounding of horn (pink wire) when horn button is pressed.

2. Neutral light does not work.

- a. Replace bulb.
- b. Check for ground on light blue wire to neutral light when transmission is in neutral.
- c. Check for +12 volts on brown wire to neutral light.
- d. Replace neutral switch.

3. Taillight does not work.

- a. Replace bulb.
- b. Check for +12 volts on blue wire to taillight.
- c. Check for ground on black wire to tail/stop light assembly.

4. Stoplight does not work.

- a. Replace bulb.
- b. Check for +12 volts on yellow wire to stoplight.
- c. Check for +12 volts on brown wire to each stop switch (front brake and rear brake switches).
- d. Check for ground on black wire to tail/stop light assembly.

5. Flasher light(s) do not work.

- a. Replace bulb.
- b. Right Circuit
 - 1) Check for +12 volts on dark green wire to light.
 - 2) Check for ground on black wire to light assembly.
- c. Left Circuit
 - 1) Check for +12 volts on dark brown wire to light.
 - 2) Check for ground on black wire to light assembly.
- d. Right and Left Circuits do not work.
 - 1) Check for +12 volts on brown/white wire to flasher switch on left handlebar.
 - 2) Check for +12 volts on brown wire to flasher relay.
 - 3) Replace flasher relay.
 - 4) Replace flasher switch.

6. Headlight
 - a. High beam does not work.
 - 1) Check for +12 volts on yellow wire to headlight with dimmer switch in "High" position.
 - 2) Check for ground on black wire to headlight assembly.
 - 3) Replace headlight.
 - b. High beam indicator light (in tachometer) does not work.
 - 1) Replace bulb.
 - 2) Check for +12 volts on yellow wire to light.
 - c. Low beam does not work.
 - 1) Check for +12 volts on green wire to headlight with dimmer switch in "Low" position.
 - 2) Check for ground on black wire to headlight assembly.
 - 3) Replace headlight.

5-7 STARTING AND CHARGING SYSTEM

The starter-dynamo has two functions: (1) starting the engine; and (2), supplying current to the 12-volt storage battery.

A. Charging Mode

The charging system of the starter dynamo consists of the yoke ass'y (shunt field coil and brushes) and the armature ass'y (commutator). The armature coil cuts through the magnetic lines of force of the field coil as the engine runs so that the flow of alternating current is induced. The alternating current is converted into a direct current through the commutator brushes. The direct current voltage is kept constant by the voltage regulator, and supplied to each lead of the ignition, lighting and signal systems as well as to the battery.

B. Starting Mode

In the starting system of the starter dynamo, the series coil and the armature, working as a D.C. motor, generate a great amount of torque, by which the engine is cranked.

C. Checking the Dynamo

First disconnect the wires from the terminals A (white) and F (green), then ground the terminal F to E (black), with a jumper wire. Connect the positive lead of the tester to terminal A (white), and ground the negative tester lead to the engine. Start the engine and keep it running at 2,000 rpm. If the electricity generated reads more than 14V on the tester, the generator is in good working condition.

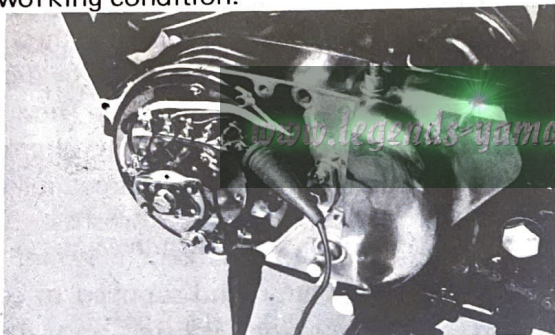


Fig. 181

CAUTION: Do not run the engine at more than 2,000 rpm in this test. If you run the engine at more than 2,000 rpm, a high voltage current generated will ruin the coil, lead wire, etc.

1. Checking the Yoke Assembly

Clean the yoke with a rag to remove dust, oil, and carbon from brush wear, etc.

a. Field Coil Brush Insulation Test

The positive brush of the field coil is insulated from the yoke and by using the tester, you can check its insulation. If the insulation is bad, the circuit between the field coil or the brush holder, and the yoke is shorted.

NOTE: The negative brush is not insulated.

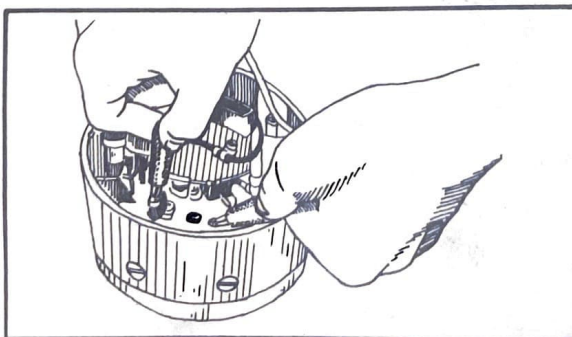


Fig. 182

b. Conductivity Test of Field Coil

Check the continuity between the terminals M, A, and F. If continuity is bad, the field coil is broken. Check the visible coil connections. If the coil connections are good, then the coil is broken inside and it should be replaced.

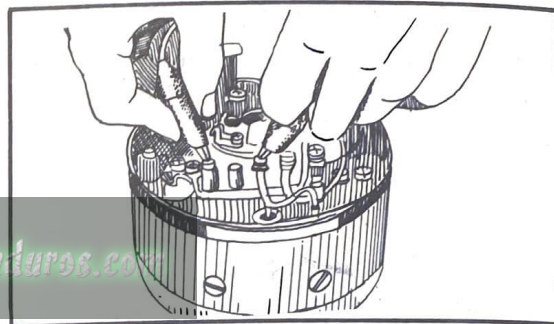


Fig. 183

2. Checking the Brushes

a. The brushes are one of the most important parts in the dynamo. Take out the brushes and check the condition of their contact surfaces. Each brush must contact the commutator with more than 3/4 of its surface area.

- 1) If both brush and commutator surfaces are rough, check both the crankshaft and armature for alignment. Smooth down any burrs on the edge of the armature's tapered bore, and clean it thoroughly.
- 2) If either brush is worn past the minimum length mark, replace them both with new ones.

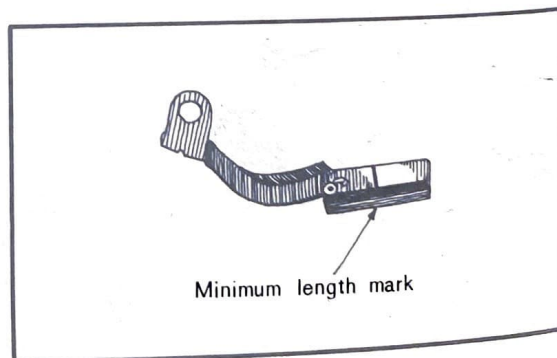


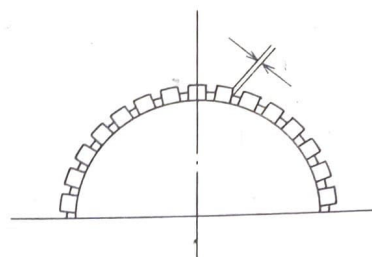
Fig. 184

b. Materials of the Brush

Use the brush having the model No. "MH-33" on its side.

c. Handling the Brushes

- 1) When replacing the brushes, be sure the braided lead of the positive brush does not touch the edge of the breaker plate or brush holder, and that the lead of the negative brush does not touch the positive brush spring. The friction of the braided lead against other parts as a result of vibrations may wear through the insulation and cause a short circuit.



MICA UNDERCUT INSPECTION LIMITS	0.0197 ~ 0.0315 in. 0.5 ~ 0.8 mm
MICA UNDERCUT CORRECTION LIMITS	0.0079 in. 0.2 mm

3. Checking the Armature Assembly

- a. Thoroughly clean the commutator of oil and dirt.

- 1) If the commutator is rough or dulled with brush dust, polish it with fine grain sandpaper (No. 400-600) by rotating the armature. Partial polishing will only deform the commutator and shorten brush life.
- 2) If the commutator is burned, out of round, or too rough to be sandpapered, turn it on a lathe no more than 2mm under the **standard 38.5mm diameter**.

b. Checking the Commutator Mica Under-Cut

If the commutator is worn and if it has high mica, the mica should be undercut with saw blade. Sand off all burrs with sandpaper, be sure the mica is cut away clean between segments, leaving no thin edge next to segments.

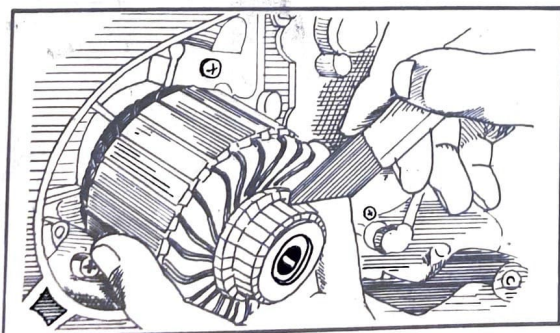


Fig. 185

c. Checking Armature Insulation

- 1) If there is electrical leakage between the commutator and shaft, replace the armature.

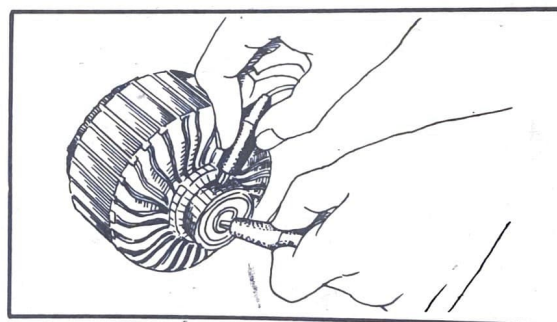


Fig. 186

- 2) If the field coil is perfectly insulated and conductivity is also good, but the dynamo will not generate electricity, the core of the armature coil might be short-circuited. Check the armature with a growler at a special service shop.

4. Dynamo Adjustment Standards

Part	Item	Maintenance	Inspection
Field	Shunt Series	$4.8\Omega @ 20^{\circ}\text{C}$ (68°F) $0.0268\Omega @ 20^{\circ}\text{C}$ (68°F)	When voltage is irregular
Brushes	Material Number Width x thickness x length Minimum length Spring capacity	MH-33 4 $0.35 \times 0.18 \times 0.80$ in. $9 \times 4.5 \times 20.5$ mm 9mm $400 \pm 10\% \sim 560 \pm 10\%$ (initial use)	First 6,000 km (4,000 mi.) Every 4,000 km thereafter (2,500 mi.)
Commutator	Diameter Minimum diameter Mica undercut Minimum mica undercut Difference between max. and min. diameter	38.5ϕ mm 36.5ϕ mm $0.019 \sim 0.032$ in. $0.5 \sim 0.8$ mm 0.008 in. 0.2 mm 0.0012 in. 0.03 mm	
Breaker	Point gap Point pressure Ignition timing Automatic spark advance	$0.002 \sim 0.016$ in. $0.30 \sim 0.40$ mm 500 ~ 700 g BTDC 1.8 mm Starting $1,350 \pm 150$ rpm Final $1,600 \pm 100$ rpm Advance $12 \pm 2^{\circ}$	Every 3,000 km (2,000 mi.) (High rpm irregular) (Ignition irregular)
Other	Dynamo dia. (outer) Armature taper Cut-in rpm	5.2 in. 134 mm $20\phi \times 1/5$ 2,000 rpm	
Capacity	Rated output rpm	14V/2,300 rpm	

a. Adjustment

- 1) If the measured voltage is more or less than specified, adjust it by tightening or loosening the adjusting screw on the voltage relay side.



Fig. 187

2) Cut-in voltage of the Cutout Relay

- a. Disconnect the lead from the dynamo A terminal, connect the tester positive lead to the A terminal, then ground the negative lead to the engine.

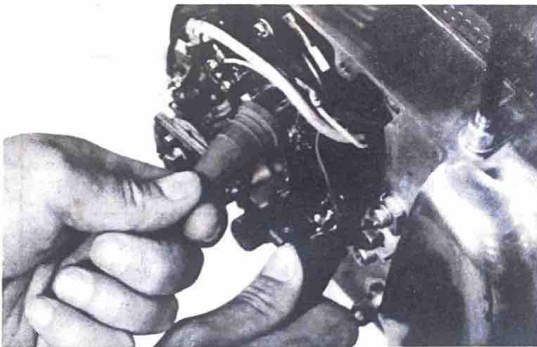


Fig. 188

- b. Start the engine, and increase engine speeds slowly. The cutout relay is correctly set if its breaker points close at 12.5-13.5V.
- c. Adjustment
If the breaker points will not close at the specified voltage, adjust the cutout relay by changing its spring tension.

NOTES: • In actual practice, there will rarely be need to adjust the cutout relay.
• If the point surfaces of the voltage and cutout relays are worn or pitted, polish them with fine sandpaper (#400-600) before making any adjustment.

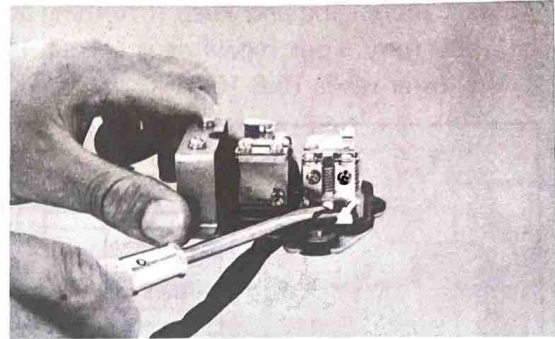


Fig. 189

D. Regulator (Voltage Regulator)

The dynamo alone can not provide stable electric current because fluctuating engine rpm affects the voltage. The regulator (also called a voltage relay— stabilizes the voltage generated by breaking the field coil circuit when the voltage exceeds a pre-set level. A cutout relay (also called a charging relay) is built into the regulator. It allows stable electric current from the dynamo to charge the battery. However, when the engine stops, or when its speed is so low that the dynamo output is lower than that of the battery voltage, it breaks the circuit to the battery so that battery will not drain. The starting switch is provided to direct a flow of current to the starter dynamo when the engine is started.

1. Checkout

If the regulator can no longer control the voltage, the battery will be drained or over-charged, and all electrical parts may be burned out. So use a good tester when inspecting or adjusting the regulator. (It is advised that you learn how to adjust the regulator at training courses because it is very difficult.)

a. No-Load Voltage Test

- 1) Disconnect the lead wire (red) of the regulator and connect the positive tester lead to the lead wire (red). Then ground the negative tester lead.

STARTING AND CHARGING SYSTEM—Regulator (Voltage Regulator)

2) Start the engine and keep it running at 2,500 rpm. Your regulator is correct if the tester reads 15.8-16.5V.

3) Start the engine and keep it running at 5,000 rpm. Your regulator is correct if the tester reads less than 16.9V.

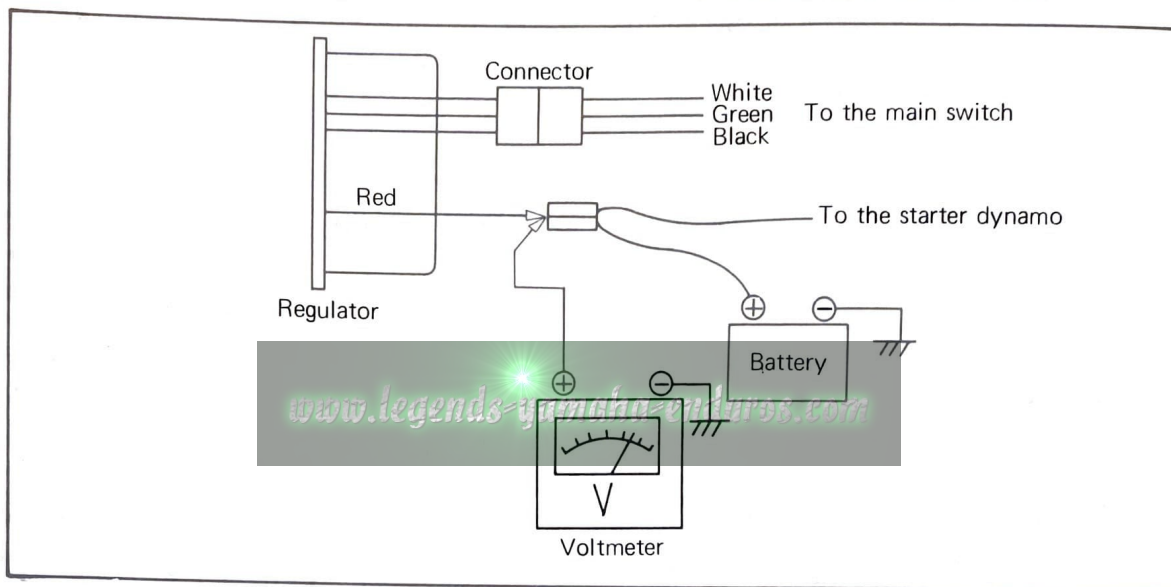


Fig. 190

2. Regular Maintenance Standards

	Item	Maintenance standards	Inspection
Voltage regulator	No load voltage adjustment value	15.8 ~ 16.5V/2,500 rpm	When voltage is irregular
Voltage relay	Voltage coil resistance value Compensation value Core gap Point gap	11.8Ω/20°C (68°F) 10Ω/20°C (68°F) 0.4 ~ 0.7 mm 0.4 ~ 0.5 mm	
Cutout relay	Cut-in voltage Reversing current Voltage coil resistance value Core gap Point gap	13 ± 0.5V 5A or less 11.2Ω/20°C (68°F) 0.032 ~ 0.039 in. 0.8 ~ 1.0 mm 0.024 ~ 0.032 in. 0.5 ~ 0.8 mm	

E. Battery

1. The battery is a 12V-7AH unit that is the power source for all electrical components.

Because of the fluctuating charging rate due to the differences in engine R.P.M., the battery will lose its charge if the horn and stoplight are excessively used at low R.P.M. The charging of the battery begins at about 2,500 R.P.M.

Therefore, it is recommended to sustain engine R.P.M. at about 2,500 to 3,500 R.P.M. to keep the battery charged properly. If the horn and stoplight are used frequently, the battery water should be checked regularly as the continuing charging will dissipate the water. If the battery will not retain a charge (and the battery is in good condition), the voltage regulator setting should be readjusted.

2. Servicing a new battery

Check battery housing for cracks or other damage. Fill the battery with electrolyte and let set for an hour. This allows the acid to soak into the plates. With the caps off, hook up a trickle charger to the battery and charge it at 1 amp/hour rate or less. Check the specific gravity. Each cell should have a rating of 1.270~1.280. If the electrolyte has dropped below minimum level after charging, add electrolyte (rating of 1.270~1.280).

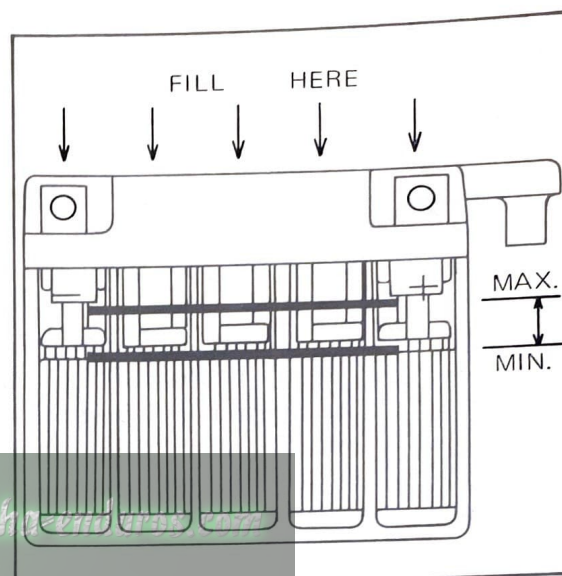


Fig. 191

3. Battery maintenance

- a. Periodic inspection can determine the condition of the battery housing and the condition of the internal parts. Check for cracks or holes in the housing. **Check for** broken plates, sulfation, low fluid level, or corroded terminals.
- b. The battery housing is marked with a minimum and maximum fluid level. If any cell fluid level drops below the minimum level, fill with distilled water to correct height. Check once a month or more often in hot weather. **DO NOT** use tap water.

4. Charging

- a. Remove the battery and check the specific gravity of each cell. A fully charged cell reads between 1.270~1.280. If the rating is less than 1.260, the battery needs charging.
- b. Fill each cell to the proper level with distilled water. Leave the filler caps off until battery charging has finished. Use a battery charger that may be regulated for a maximum output of 1.6 amp. The DT125A battery uses a 7 amp/hour batter. DO NOT exceed a one amp input as excessive heat may be generated within the battery.

NOTES: • An autotransformer may be used to regulate output of an automobile battery charger.
• Battery fluid level sometimes drops during charging. Refill if necessary, using distilled water.

5. Trouble-shooting

- a. Excessive fluid evaporation from cells: Normal battery operation requires fluid to be added to the cells approximately once a month. If distilled water must be added every week or two, the battery is possibly being overcharged. Check voltage input from the **dynamo**.
- b. Low fluid level in one cell: If one cell continuously loses more fluid than others, check for a shorted cell. A shorted cell creates abnormal fluid evaporation. Check with a hydrometer for excessive difference in specific gravities between the cells.

c. Won't hold a full charge:

- 1) First check the **dynamo** output to eliminate the possibility of a low charging rate. Next, check for loose terminal connections (creating high resistance), or a build up of material in the bottom of the housing that could short the **plates**. Nothing can be done about loose terminals themselves except to replace the battery.
- 2) Sediment at the bottom of the housing can sometimes be removed by flushing the battery out several times with distilled water if the cell is discharged; flush with electrolyte if fully charged. Dry the battery off and recharge for a few hours. If enough loose sediment is flushed out, the battery could hold a charge. If the battery still cannot hold a full charge, replace it.
- d. Sulfation: Sulfation, in the form of a white, scaly material, gradually forms on the plates and at the bottom of the housing. It is created over a period of time as the sulfuric acid combines with the lead plates to produce lead sulfate (white particles of sulfation). It is a product of age and use. The battery usually needs to be replaced when sulfation reaches the point of shorting out the plates.
- e. Make sure that the wires are hooked to the proper battery terminals. The red wire must be hooked to the "positive" terminal, the black lead must be hooked to the "negative" terminal. If the wires are reversed, the battery will quickly lose its charge. Very likely the battery will be destroyed if the reversed hookup is left connected for any length of time.

6. Storage

- a. Whether it is a new battery or one that has been in service, preparation for storage of either one is almost identical. When new, the battery is dry charged (no electrolyte). Keep it away from moisture and heat. A stored dry-charged battery can last several years. A stored dry-charged battery can last several months without losing a great deal of its charge.
- b. A used battery should be filled to the maximum level with distilled water, given a complete charge and stored in a cool area (coldness slows the process of battery discharge). It should be given a booster charge every two months. When preparing to place a stored battery back into service, check for sufficient electrolyte and fully charge the battery.

7. Service Standards

5-8 SWITCHES

Refer to Chapter 4, paragraph 4-8, SWITCHES, for information on all electrical switches.

Battery Spec.	12V 7HA	
Electrolyte specific gravity and quantity	1.27 ~ 1.28 (520 cc)	At full charge
Charging current	0.7A for 13 hours (Charge until specific gravity reaches 1.27 ~ 1.28)	When discharged
Refilling	Distilled water up to the max. level line.	Once a month

CHAPTER 6. CHASSIS AND SUSPENSION

6-1 WHEELS AND TIRES

A. Front Wheel

1. Removal

- a. Disconnect the brake cable at the front brake lever.



Fig. 192

- b. Disconnect the speedometer cable from the front wheel hub plate.

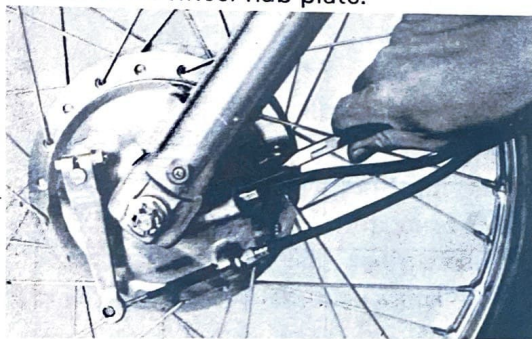


Fig. 193

- c. Loosen the front wheel axle pinch bolt. (DT100A) Loosen two axle cap nuts. (DT125A/175A)

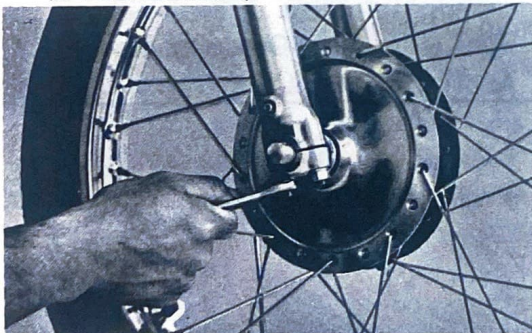


Fig. 194

Pinch Bolt Torque (DT100A):	5.8~8.0 ft-lbs. 0.8~1.1 kg-m
Cap Nut Torque (DT125A/175A):	5.8~8.0 ft-lbs. 0.8~1.1 kg-m

- d. Remove cotter pin from front wheel nut.

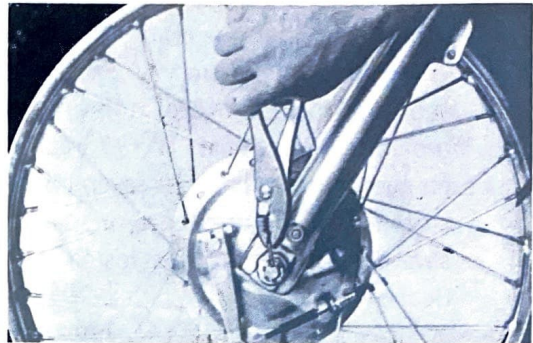


Fig. 195

- e. Remove the front wheel nut. (Use a small round shaft in the hole at the end of the axle to keep axle from turning.)

Front Wheel	38.3~61.5 ft-lbs.
Shaft Bolt	5.3~8.5 kg-m

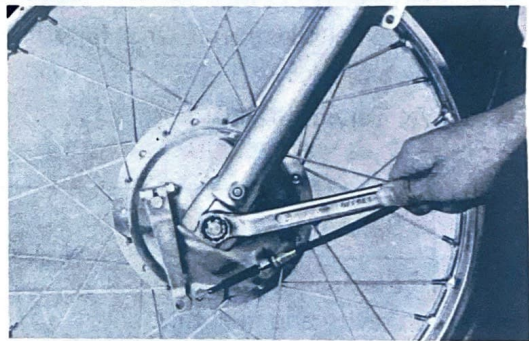


Fig. 196

- f. Remove the front wheel axle by simultaneously twisting and pulling out on the axle. Then remove the wheel assembly. (Raise the front of the machine and set it on a box.)

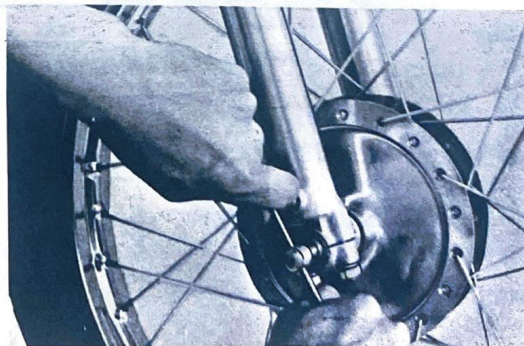
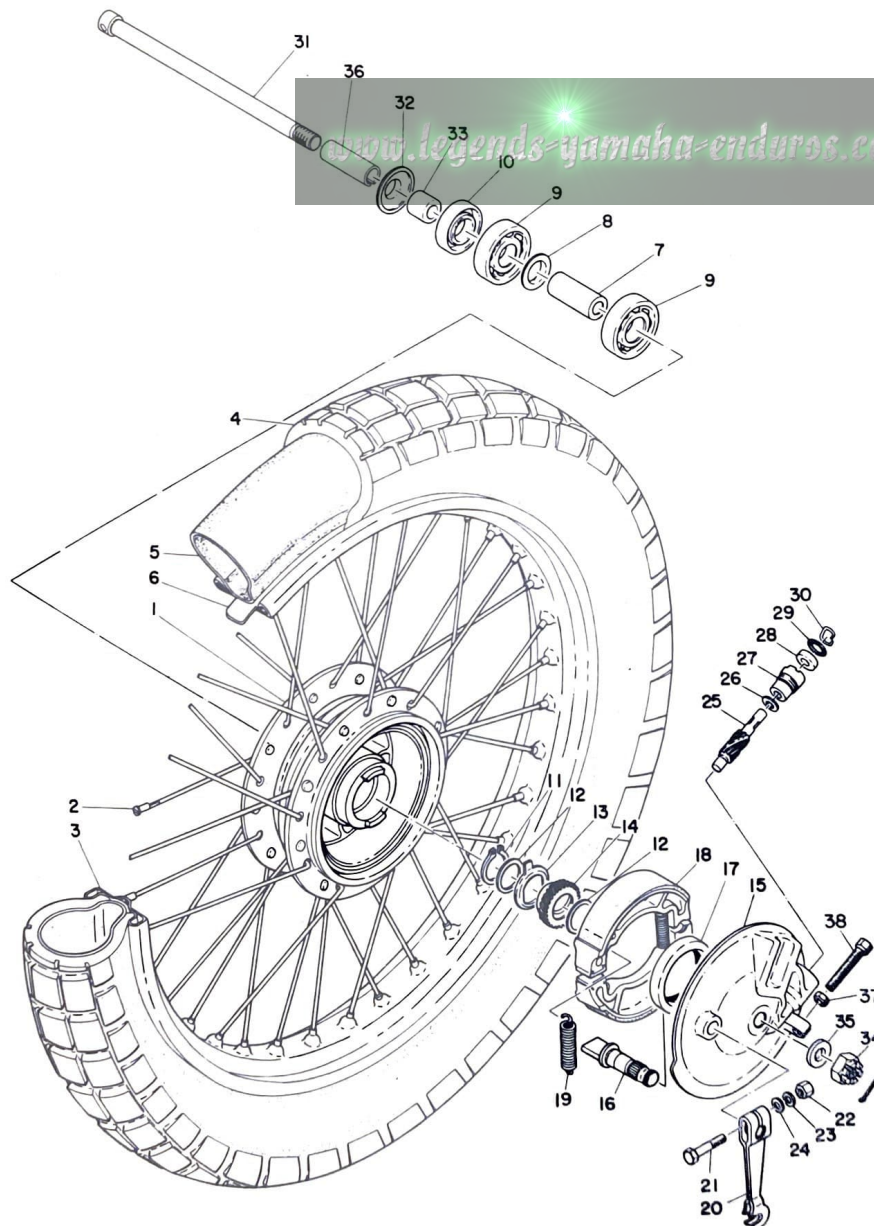


Fig. 197

FRONT WHEEL



1. Hub
2. Spoke set
3. Rim (1.40-18)
4. Front tire (3.00-18-4PR)
5. Tube (3.00-18)
6. Rim band (3.00-18)
7. Bearing spacer
8. Spacer flange
9. Bearing (6301Z)
10. Oil seal (SD-18-37-8)
11. Circlip (S-20)
12. Thrust washer (20.5-26-1)
13. Meter clutch
14. Drive gear
15. Brake shoe plate
16. Cam shaft
17. Oil seal (SDD-47-58-7)
18. Brake shoe comp.
19. Return spring
20. Cam shaft lever
21. Bolt
22. Nut
23. Spring washer
24. Plain washer
25. Meter gear
26. Thrust washer 1 (7-12-0.8)
27. Bushing
28. Oil seal (SO-7-14-7)
29. O-ring (2.4-13.8)
30. Stop ring
31. Wheel shaft
32. Hub dust cover
33. Wheel shaft collar
34. Nut
35. Plain washer
36. Collar
37. Wire adjusting nut
38. Wire adjusting bolt

2. Checking Brake Shoe Wear

Measure the outside diameter at the brake shoe with slide calipers. If it measures less than specified, replace.

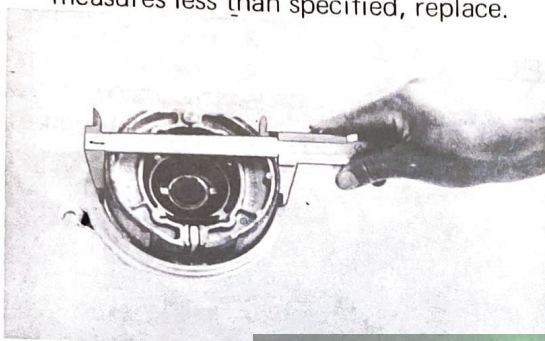


Fig. 198

	DT100A	DT125A & DT175A
Front Brake Shoe Diameter	4.3 in. 109.5 mm	5.1 in. 129.5 mm
Replacement Limit:	4.2 in. 105.5 mm	4.9 in. 125.5 mm

3. Brake Drum

Oil or scratches on the inner surface of the brake drum will impair braking performance or result in abnormal noises. Remove oil by wiping with a rag soaked in lacquer thinner or solvent. Remove scratches by lightly and evenly rubbing with emery cloth.

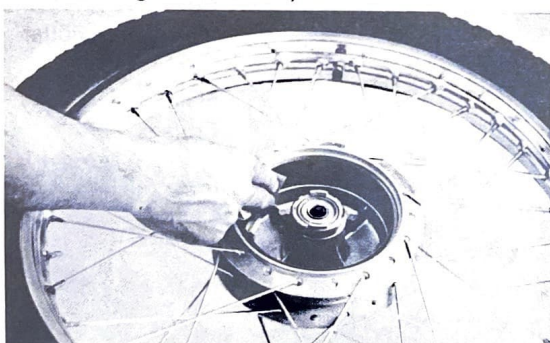


Fig. 199

4. Replacing Wheel Bearings

If the bearings allow excessive play in the wheel or if it does not turn smoothly, replace the bearing as follows:

- First clean the outside of the wheel hub.

- Insert the bent end of the special tool into the hole located in the center of the bearing spacer, and drive the spacer out from the hub by tapping the other end of the special tool with a hammer. (Both bearing spacer and spacer flange can easily be removed.)

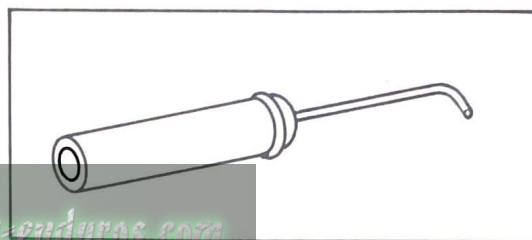


Fig. 200

- Push out the bearing on the other side.

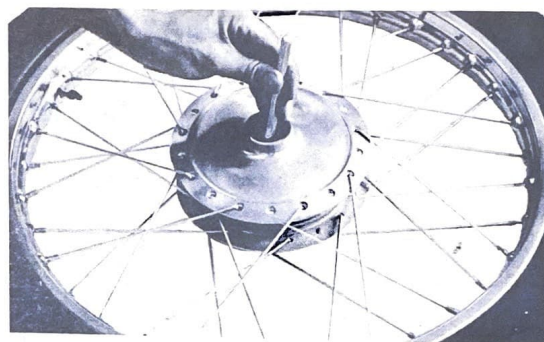


Fig. 201

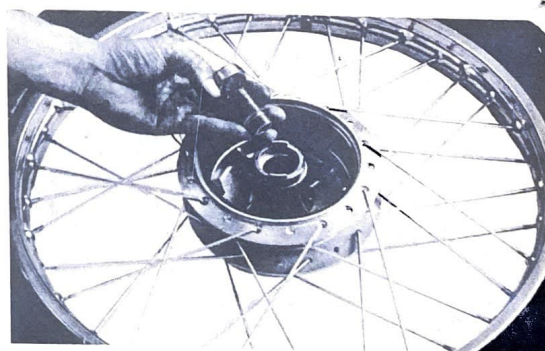


Fig. 202

- d. To install the wheel bearing, reverse the above sequence. Be sure to grease the bearing before installation and use the bearing fitting tool.



Fig. 203

- e. If the tooth surface of the helical speedometer drive gear is excessively worn, replace it.

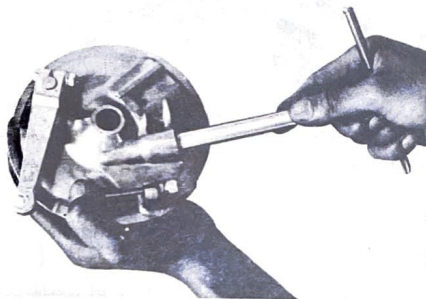


Fig. 204

- f. Check the lips of the seals for damage or warpage. Replace if necessary.

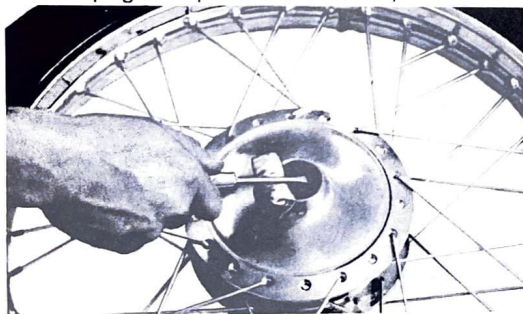


Fig. 205

B. Rear Wheel

The rear wheel is 18-in. size, and the rear tire is Trials Universal. A single leading-shoe type brake is used. A labyrinth seal between the wheel hub and the brake plate is provided to prevent water and dust leakage.

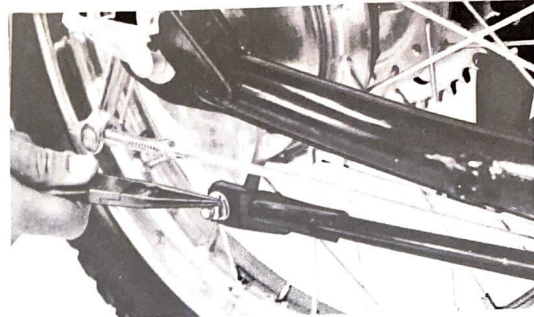


Fig. 206

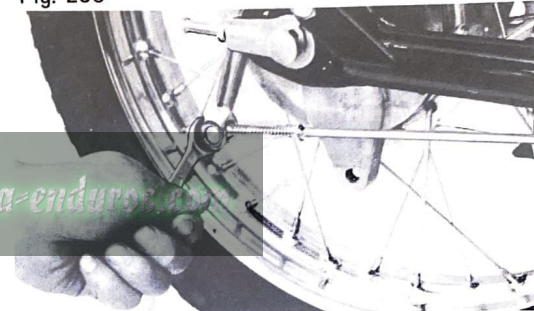


Fig. 207

1. Removal
 - a. Remove the tension bar and brake rod from rear shoe plate.
 - b. Remove cotter pin from rear wheel shaft nut.
 - c. Remove the rear wheel shaft nut.

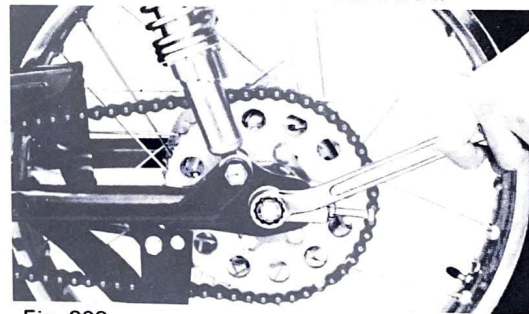


Fig. 208

REAR WHEEL SHAFT BOLT TORQUE:	47.75~75.97 ft-lbs. 6.6~10.5 kg-m
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- d. Pull out the rear wheel shaft by simultaneously twisting and pulling out.

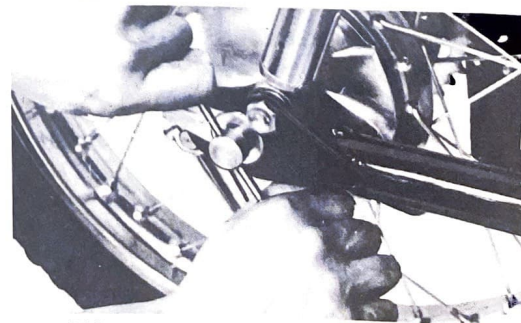


Fig. 209

DT100A REAR WHEEL

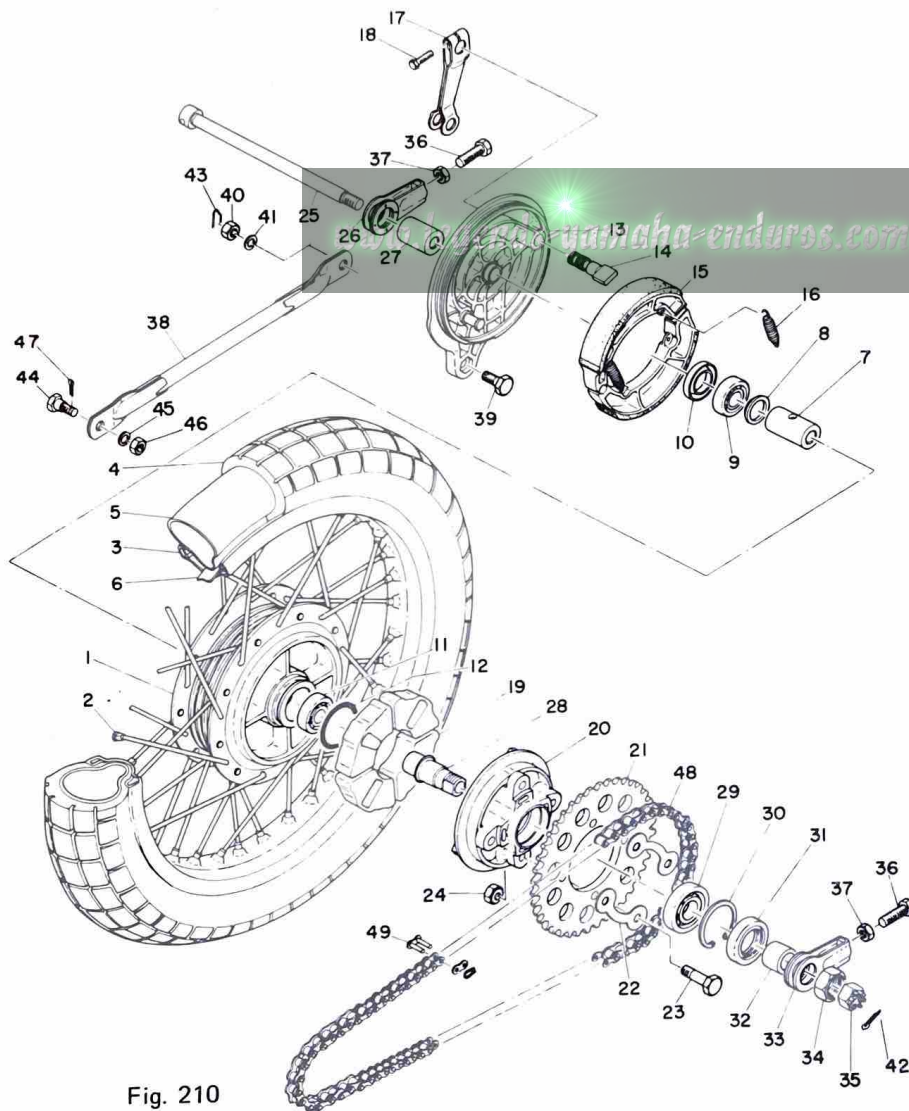


Fig. 210

1. Hub
2. Spoke set
3. Rim (1.40-18)
4. Rear tire (3.00-18-4PR)
5. Tube (3.00-18)
6. Rim band (3.00-18)
7. Bearing spacer
8. Spacer flange
9. Bearing (6202)
10. Oil seal (SO-22-35-5)
11. Bearing (6202Z)
12. O-ring (2.5-4.17)
13. Brake shoe plate
14. Shaft cam
15. Brake shoe comp.
16. Return spring
17. Cam shaft lever
18. Bolt
19. Clutch damper
20. Hub clutch
21. Sprocket wheel gear (45T)
Sprocket wheel gear (49T)
Sprocket wheel gear (52T)
22. Lock washer
23. Fitting bolt
24. Nut
25. Wheel shaft
26. Chain puller
27. Wheel shaft collar
28. Sprocket shaft
29. Bearing (6004Z)
30. Circlip (R-42)
31. Oil seal (DD-26-42-8)
32. Sprocket shaft collar
33. Chain puller
34. Sprocket shaft nut
35. Nut
36. Chain puller bolt
37. Nut
38. Tension bar
39. Tension bar bolt
40. Nut
41. Spring washer
42. Cotter pin
43. Cotter pin
44. Tension bar bolt
45. Spring washer
46. Nut
47. Cotter pin
48. Chain (DK428-106L)
49. Chain joint

DT125A · DT175A REAR WHEEL

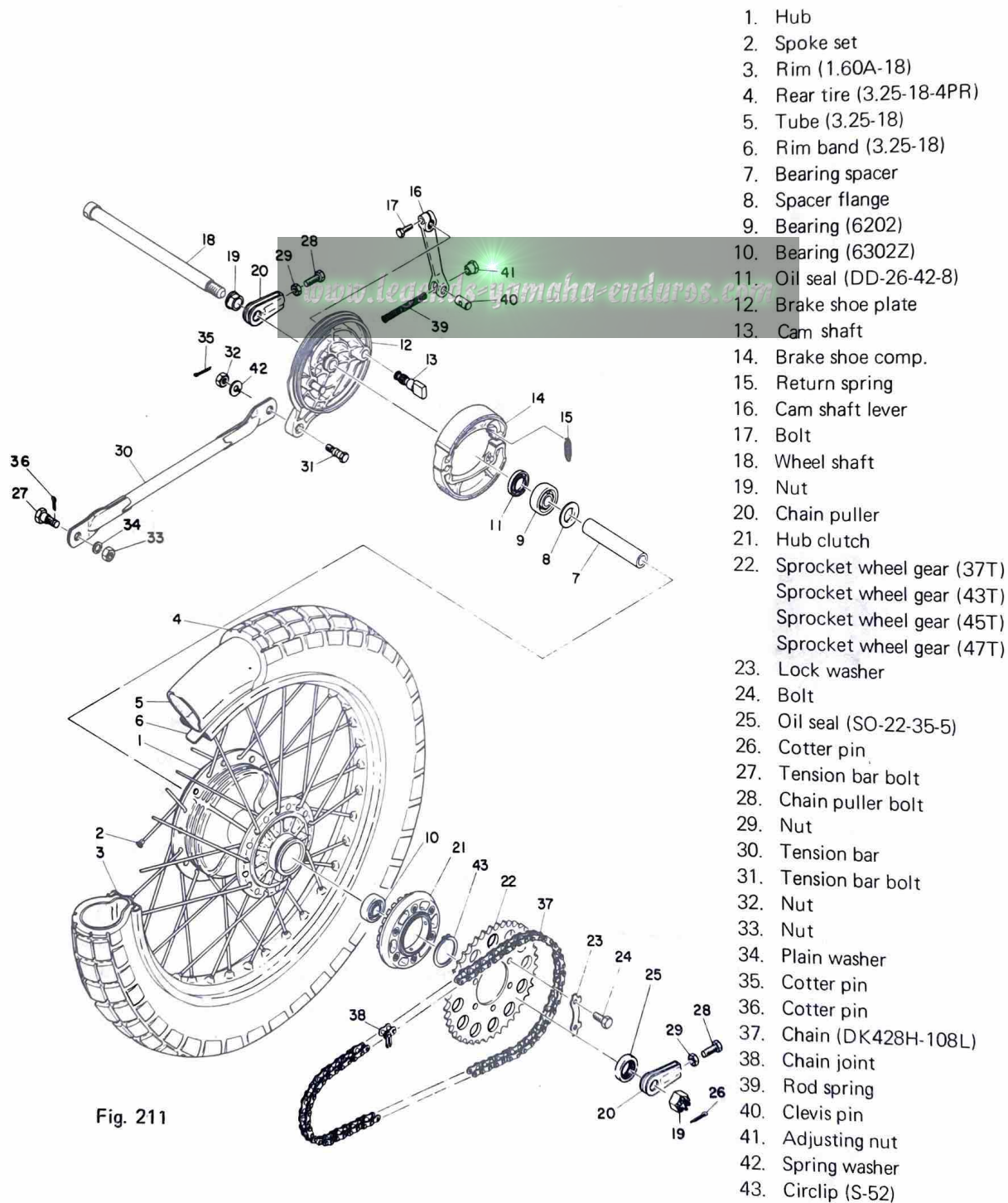


Fig. 211

- e. Remove the rear brake shoe plate.
- f. Lean the machine to the left and remove the rear wheel assembly.

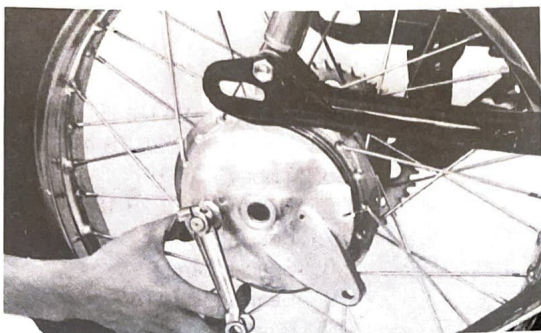


Fig. 212

2. Checking Brake Shoe Wear

- a. Measure the outside diameter at the brake shoe with slide calipers. If it measure less than specified, replace.

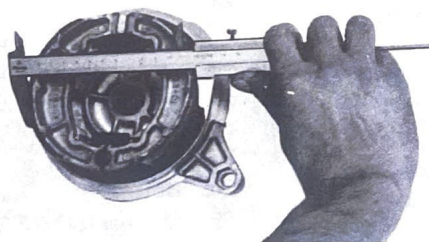


Fig. 213

REAR BRAKE SHOE DIAMETER:	5.098 in. (129.5 mm)
REPLACEMENT LIMIT:	4.941 in. (125.5 mm)

- b. Smooth out a rough shoe surface with sandpaper or with a file.

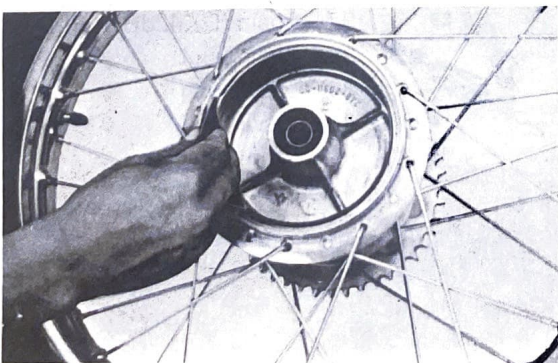


Fig. 214

3. Brake Drum

Oil or scratches on the inner surface or the brake drum will impair braking performance or result in abnormal noises. Remove oil by wiping with a rag soaked in lacquer thinner or solvent. Remove scratches by lightly and evenly rubbing with emery cloth.

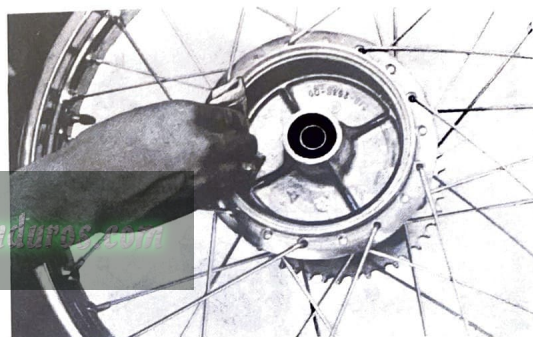


Fig. 215

4. Replacing Wheel Bearings

See front wheel section, paragraph 6-1, A, 4.

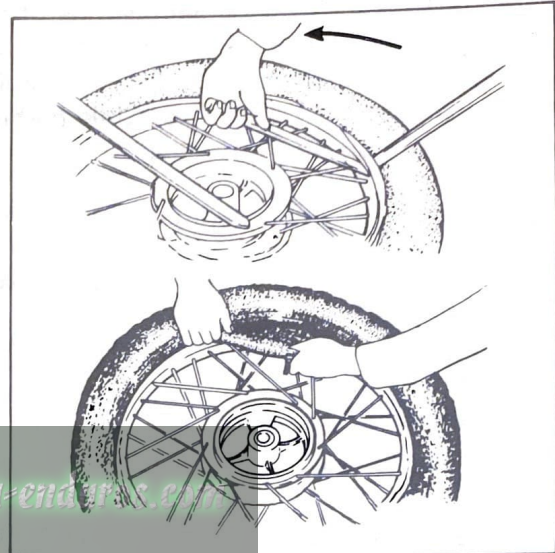
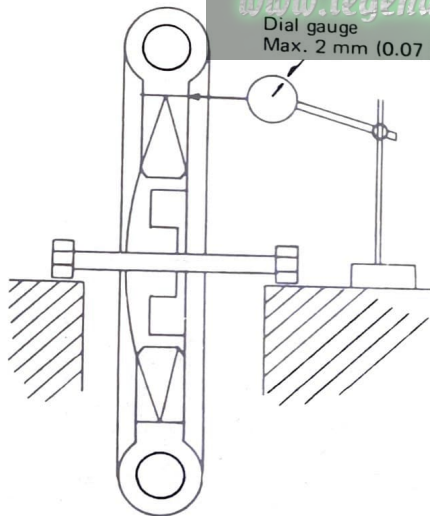
C. Checking Rims and Spokes (Front & Rear Wheels)

1. Checking for loose spokes

Loose spokes can be checked by bracing the machine off the ground so that the wheel can spin free. Slowly revolve the wheel and at the same time let the metal shaft of a fairly heavy screwdriver bounce off each spoke. If all the spokes are tightened approximately the same then the sound given off by the screwdriver hitting the spokes should sound the same. If one spoke makes a dull flat sound, then check it for looseness.

2. Checking rim "run-out"

While you have the wheel elevated, you should check that it does not have too much run-out. "Run-out" is the amount the wheel deviates from a straight line as it spins. Spin the wheel, and solidly anchor some sort of a pointer about 1/8" away from the side of the rim. As the wheel spins, the distance between the pointer and the rim should not change more than 1/16" total. Any greater fluctuation should be eliminated by properly adjusting the spokes.



3. Use two tire removal irons (with rounded edges) and begin to work the tire bead over the edge of the rim, starting 180° opposite the tube stem. Take care to avoid pinching the tube as you do this.

RUN-OUT LIMITS:	0.07" (1/16") LATERAL
RUN-OUT LIMITS:	0.07" (1/16") VERTICAL

D. Tire Repairs

1. Remove valve cap, valve core, and valve stem lock nut.
2. When all air is out of tube, separate tire bead from rim (both sides) by stepping on tire with your foot.

4. After you have worked one side of the tire completely off the rim, then you can slip the tube out. Be very careful not to damage the stem while pushing it back out of the rim hole.

NOTE: *If you are changing the tire itself, then finish the removal by working the tire off the same rim edge just previously mentioned.*

5. Installing Tire

Reinstalling the tire assembly can be accomplished by reversing the disassembly procedure. The only difference in procedure would be right after the tube has been installed, but before the tire has been completely slipped onto the rim, inflate the tube. This removes any creases that might exist. Release the air and continue with reassembly. Also, right after the tire has been completely slipped onto the rim, check to make sure that the stem comes out of the hole in the rim at a right angle to the rim.

Tire Pressure	Front	14 lbs/in ² (1.0 kg/cm ²)	Normal riding
	Rear	17 lbs/in ² (1.2 kg/cm ²)	

6-2 FRONT FORKS

A. General

The front forks on your machine utilize chrome painted tubular steel fork legs (inner tubes) and tubular aluminum sliders (outer tubes). The bearing surface is the entire inside surface of the aluminum outer tube. (DT125A/175A). The DT100A features inner tubes with steel bushings operating inside tubular steel outer tubes.

B. Front Fork Oil Change

1. With the front wheel removed or raised off the floor with a suitable frame stand, loosen pinch bolt at the top of each inner fork tube.
2. Remove cap bolts on inner fork tubes.

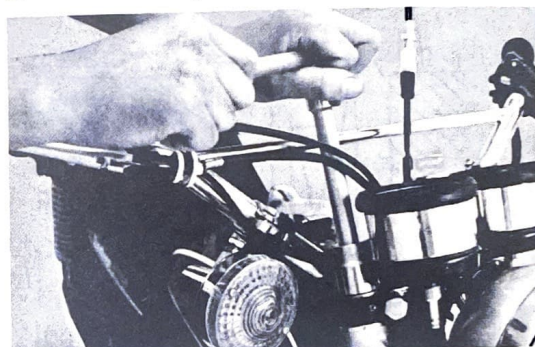


Fig. 216

3. Remove drain screw from each outer tube with open container under each drain hole.

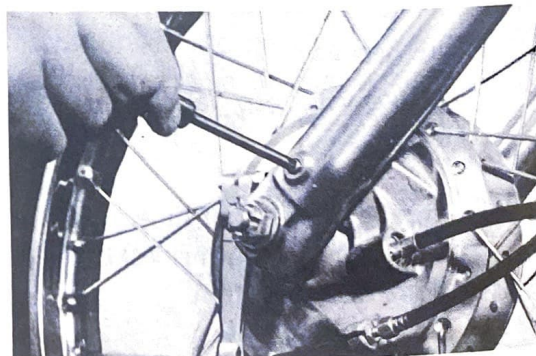


Fig. 217

4. After most of oil has drained, slowly raise and lower outer tubes to pump out remaining oil.

5. Replace drain screws.

NOTE: Check gaskets, replace if damaged.

6. Pour specified amount of oil into the inner tube through the upper end opening. Use 10W/30 "SE" motor oil.

NOTE: Specialty type fork oils of quality manufacture may be used.



Fig. 218

Fork Oil Quantity		MODEL	
	DT100A	DT125A	DT175A
	160±4 cc	130±4cc	130±4cc

NOTE: Select the weight oil that suits local conditions and your preference (lighter for less damping; heavier for more damping).

7. After filling, slowly pump the outer tubes up and down to distribute the oil.



Fig. 219

8. Inspect O-ring on fork cap bolts and replace if damaged.

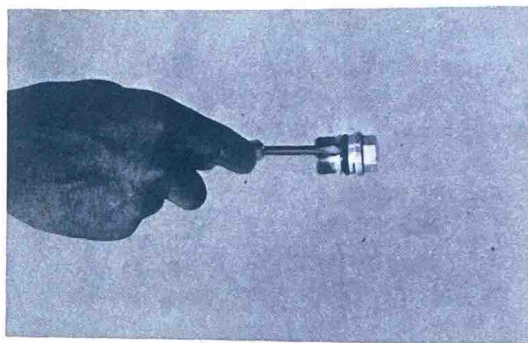


Fig. 220

9. Replace fork cap bolts and torque to specification.

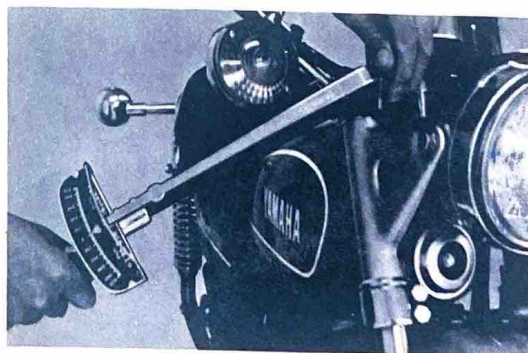


Fig. 221

FORK CAP TORQUE: 11 ~ 22 ft-lbs.
1.5 ~ 3.0 kg-m

DT100A FRONT FORKS

FRONT FORK ASS'Y

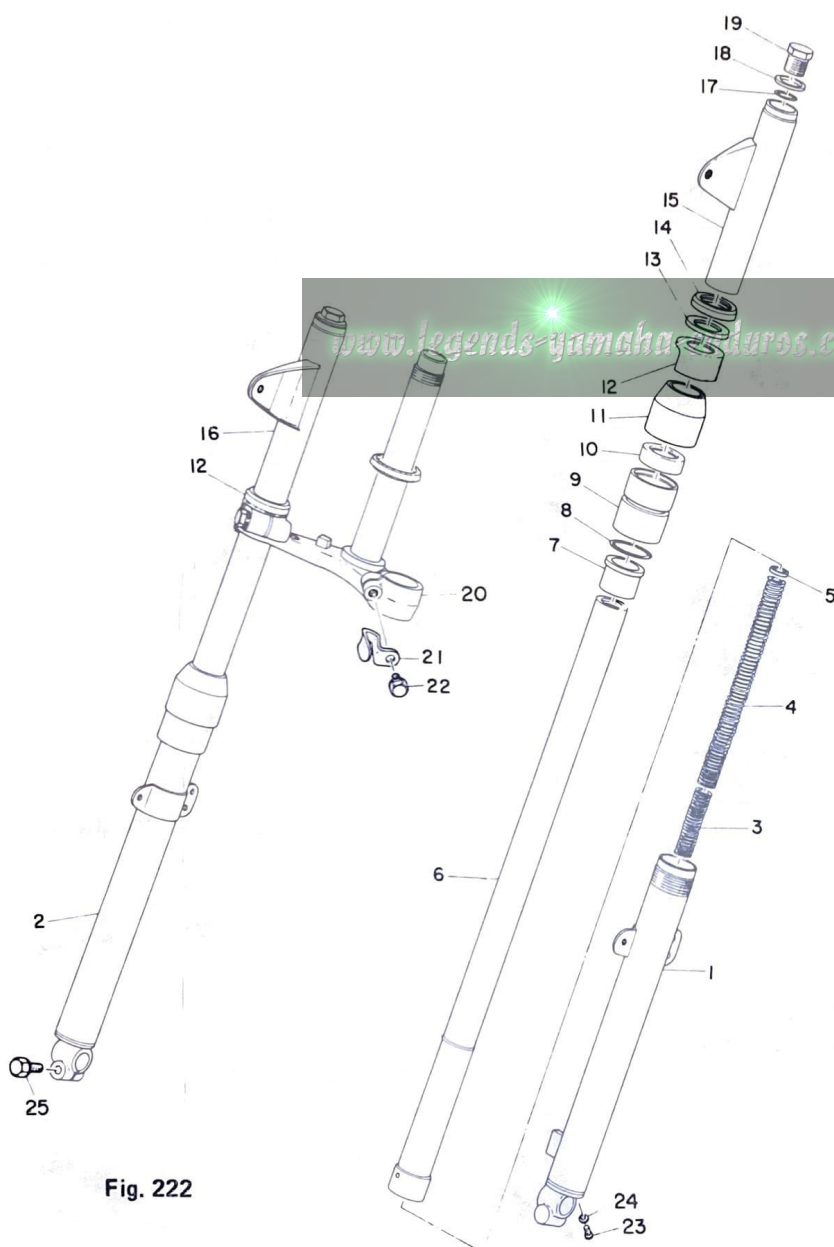


Fig. 222

1. Outer left tube
2. Outer right tube
3. Fork spring 2
4. Fork spring 2
5. Spring upper washer
6. Inner tube
7. Slide metal
8. O-ring
9. Outer nut comp.
10. Oil seal
11. Dust seal
12. Outer cover
13. Packing (lamp stay)
14. Cover under guide
15. Upper left cover
16. Upper right cover
17. Packing (O-ring)
18. Cap bolt washer
19. Cap bolt
20. Under bracket comp.
21. Wire holder
22. Under bracket bolt
23. Drain plug
24. Drain plug gasket
25. Bolt

DT125A • DT175A FRONT FORKS

FRONT FORK ASS'Y

1. Outer left tube
2. Outer right tube
3. Oil seal
4. Oil seal clip
5. Oil seal washer
6. Piston
7. Snap ring
8. Cylinder comp.
9. Fork spring
10. Spring upper seat
11. Spacer
12. Inner tube
13. Dust seal
14. Outer cover
15. Packing (lamp stay)
16. Cover under guide
17. Cover upper guide
18. Packing (O-ring)
19. Cap bolt
20. Under bracket comp.
21. Wire holder
22. Under bracket bolt
23. Spring washer
24. Packing
25. Bolt
26. Drain plug gasket
27. Drain plug
28. Holder
29. Nut
30. Upper left cover
31. Upper right cover

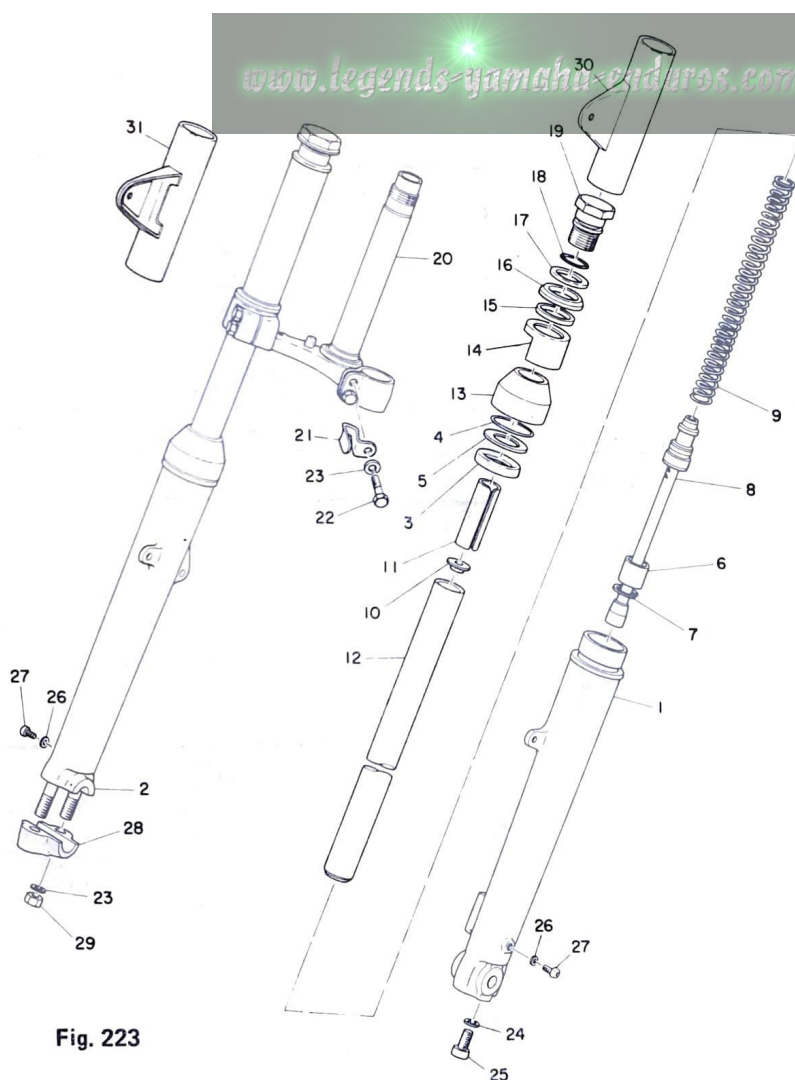


Fig. 223

10. Tighten pinch bolts at fork crown and torque to specification.

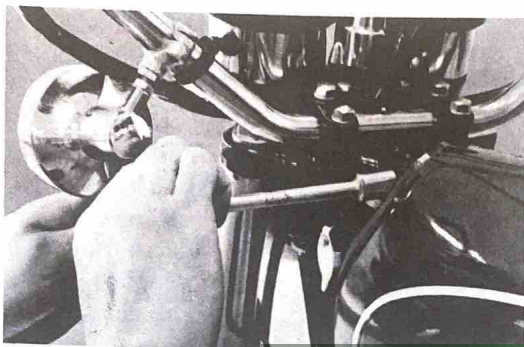


Fig. 224

2. Drain the oil from both fork tubes.

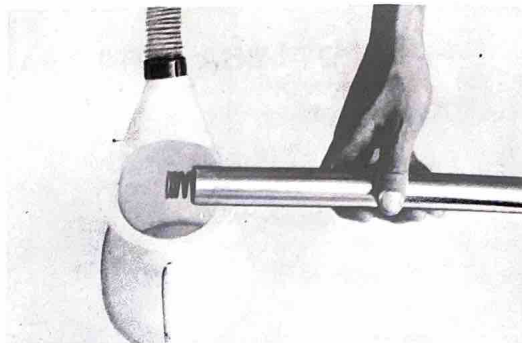


Fig. 226

3. DT100A only.

- a. Clamp the bottom fitting of the outer tube in a vise.

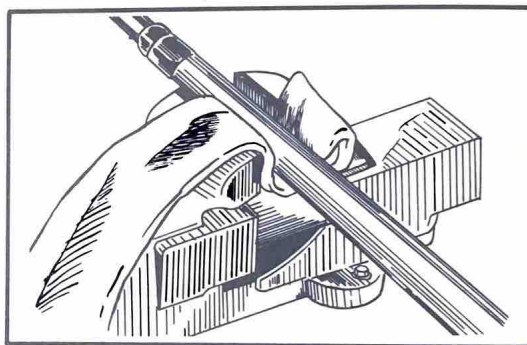


Fig. 227

- b. Squeeze the outer tube ring nut with a strap wrench and turn it counter-clockwise. The inner tube can then be separated from the outer.

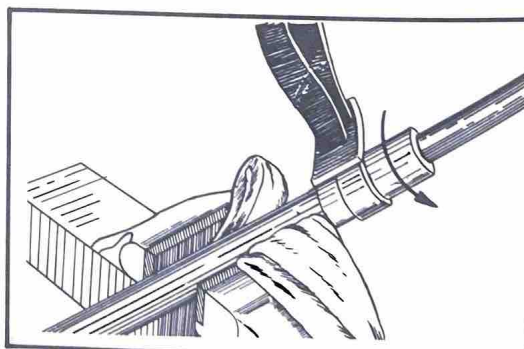


Fig. 228

FORK TUBE PINCH BOLT TORQUE	
DT125A-175A	10.1 ~ 14.5 ft-lbs. 1.4 ~ 2.0 kg-m
DT100A	11.6 ~ 16.6 ft-lbs. 1.6 ~ 2.3 kg-m

C. Front Fork Disassembly

1. With the front wheel and speedometer removed and the various pinch bolts loosened, the fork legs can be removed from the upper and lower brackets.

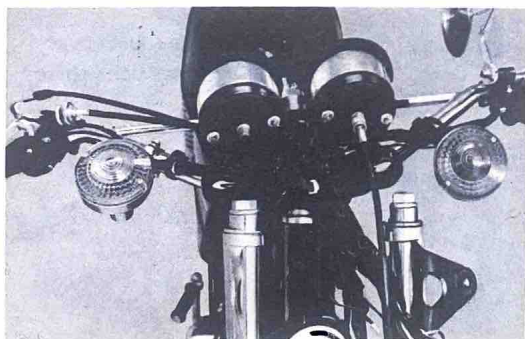


Fig. 225

- c. Carefully pry fork seal out of top of ring nut without damaging nut.

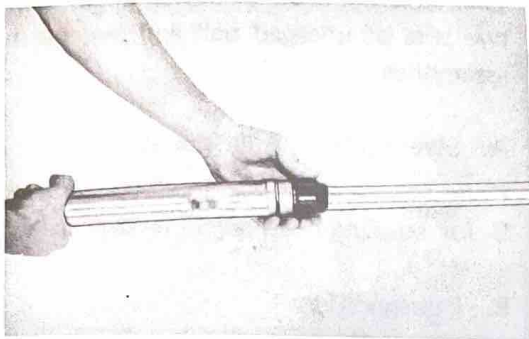


Fig. 229

- d. Replace seal. Set it in place, "open" side down and tap into place with large socket and hammer.

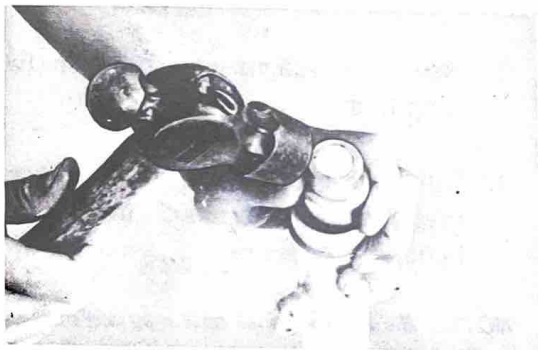


Fig. 230

4. DT125A & DT175A only.

- a. Remove the special bolt (arrow marked) from bottom of outer tubes.

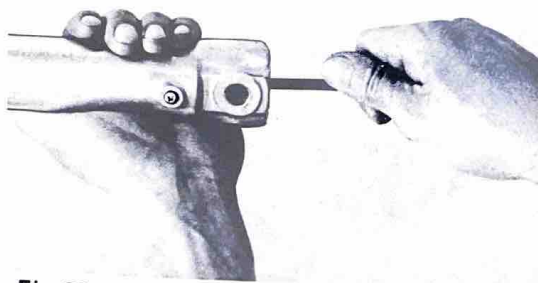


Fig. 231

- b. Remove inner tube, damper assembly from outer tube.

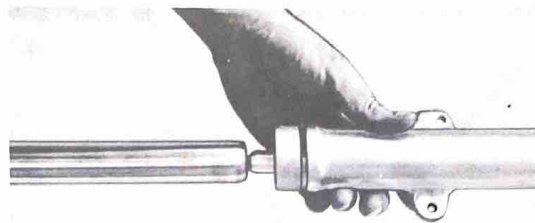


Fig. 232

- c. Remove clip from bottom of inner tube and pull out damper assembly. Inspect and replace if damaged.

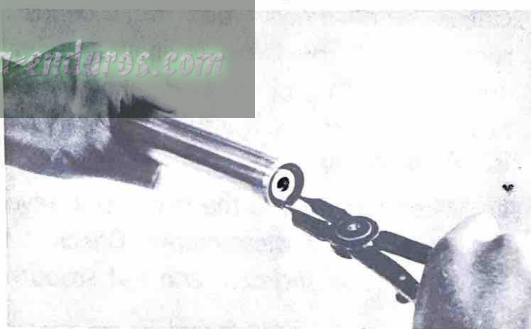


Fig. 233

- d. To replace fork seal, remove wire clip, felt ring and cover washer from outer tube.

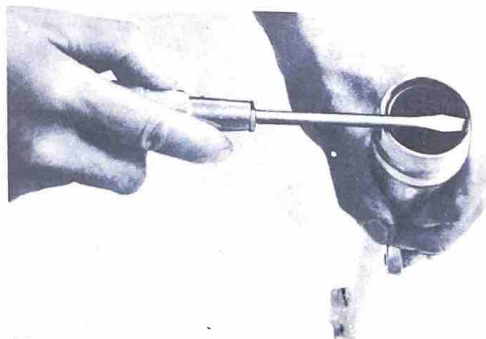


Fig. 234

- e. Carefully pry out old seal without damaging fork tube.

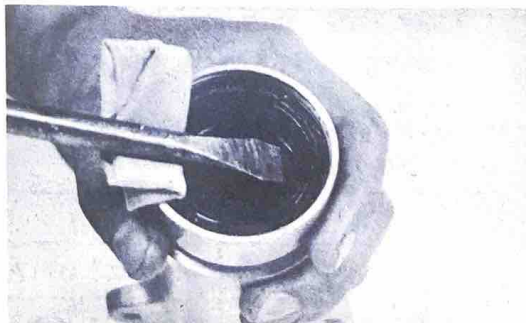


Fig. 235

- f. Insert new seal "open" side down using large socket and hammer.



Fig. 236

D. Checking

Check the inner tube for bends or scratches. If the bend is slight, it can be corrected with a press. It is recommended, however, to replace the tube if possible.

E. Assembling

1. When assembling the front fork, reverse the order of disassembly. Check if the inner tube slides in and out smoothly.
2. Installing the front fork on the frame.
 - a. Bring up the front fork to the correct position and **partially** tighten the under-bracket mounting bolt.

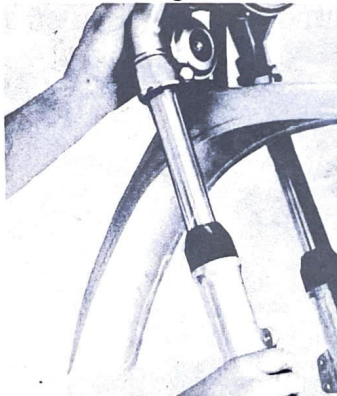


Fig. 237

- b. Pour specified amount of oil into the inner tube through the upper end opening. Use 10W/30 "SE" motor oil.

NOTE: Specialty type fork oils of quality manufacture may be used.

		MODEL	
Fork Oil Quantity	DT100A	DT125A	DT175A
	160±4 cc	130±4cc	130±4cc

6-3 STEERING HEAD

The steering head pivot is supported by two sets of uncaged ball and race bearing assemblies.

A. Steering Head Adjustment

Refer to Chapter 2, Section 2-2, paragraph D for steering head adjustment procedure.

B. Disassembly

1. Disconnect front brake, clutch and throttle cables at handlebars.
2. Disconnect speedometer and tachometer cables at instruments.
3. Remove headlight assembly from head lamp body.
4. Disconnect electrical wires between head lamp body and main wiring harness from frame.

NOTE: Removal of fuel tank may aid in disconnecting wiring.

5. Disconnect any electrical wires between handlebar switches and main wiring harness in head lamp body.
6. Remove handlebars and put aside.
7. Loosen upper fork tube pinch bolts (in crown).

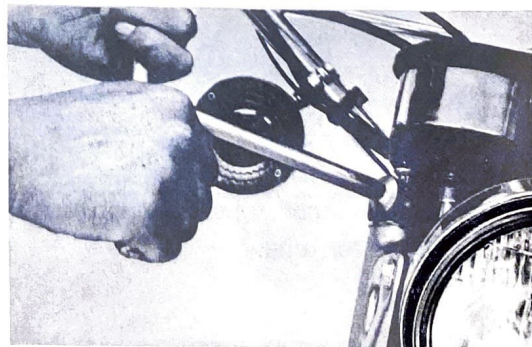
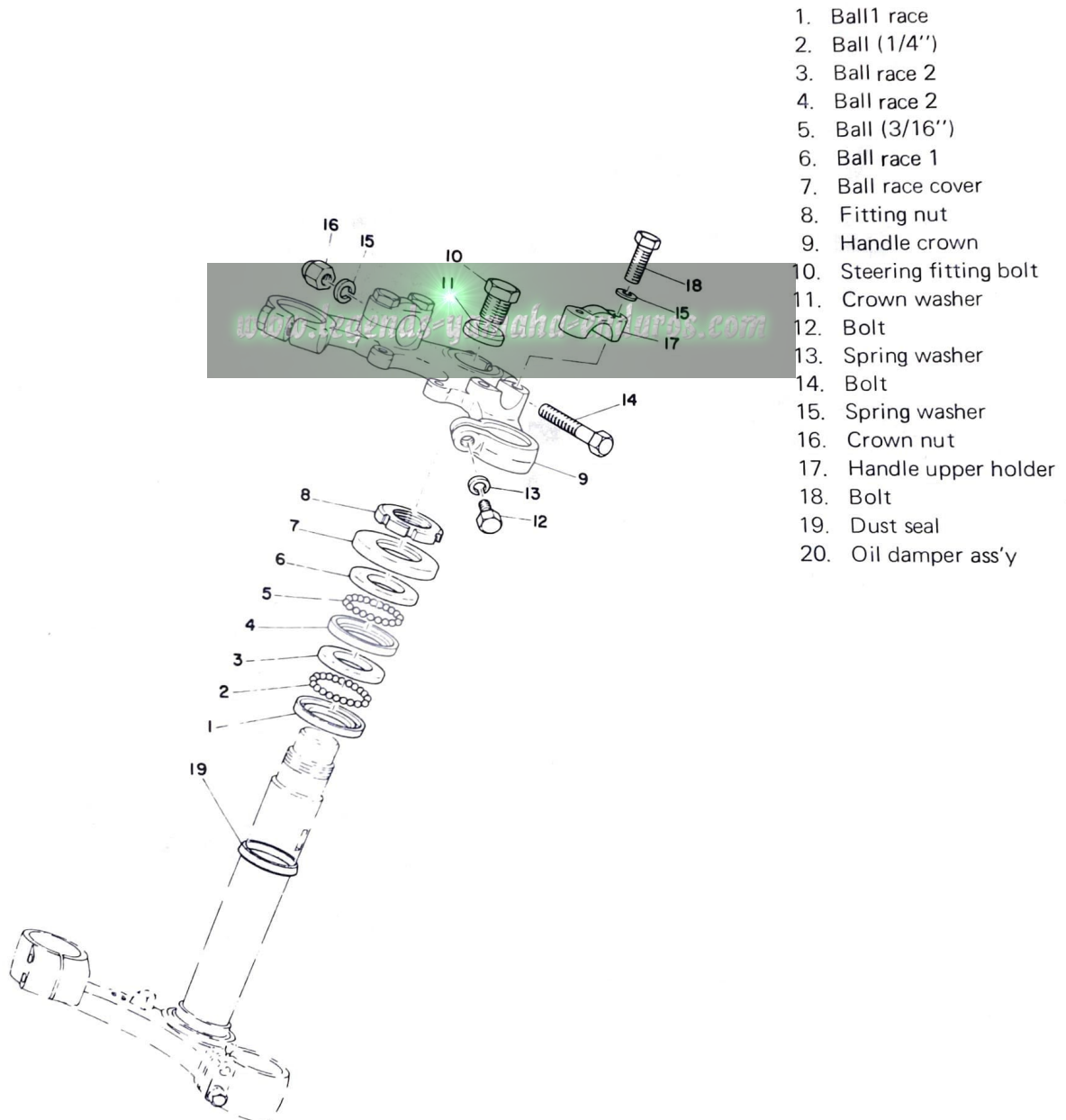


Fig. 238

STEERING HEAD



8. Loosen stem pinch bolt and remove stem bolt and crown washer.

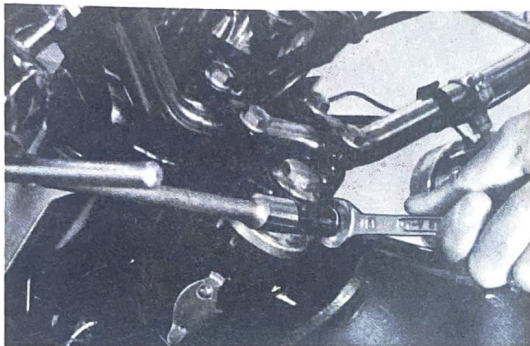


Fig. 239

9. Remove bolts holding head lamp body to head lamp brackets.

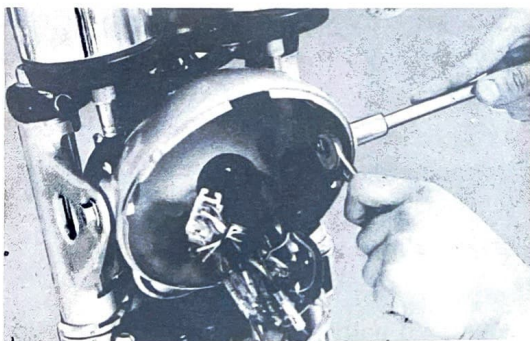


Fig. 240

10. Remove fork crown, instruments, and head lamp body at the same time and put aside.

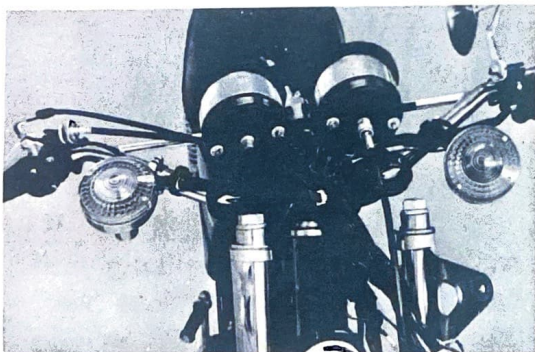


Fig. 241

WARNING

Before performing next step, support frame and front fork assembly.

***NOTE:** It is possible to remove underbracket (triple crown) and front fork assembly at the same time. If so desired, you may remove front fork assembly (& wheel assembly) at this time by loosening lower fork pinch bolts and pulling front fork assembly out.*

11. Remove steering nut with steering nut wrench.

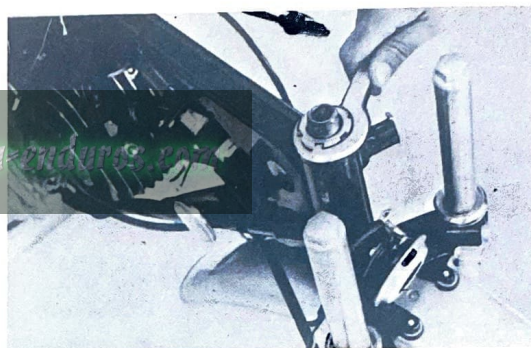


Fig. 242

12. Place a soft rag beneath upper ball bearing area to catch any ball bearings that may fall out when upper ball race cover is removed.

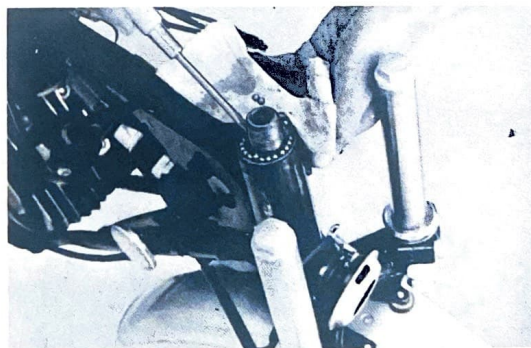


Fig. 243

13. Remove ball race cover.
14. Carefully remove upper ball race 1.

***NOTE:** Some ball bearings may stick to upper ball race 1. Do not lose.*

15. Carefully remove all upper ball bearings. There should be 22.

16. Remove underbracket while being very careful not to lose any of the 19 ball bearings in the lower race.

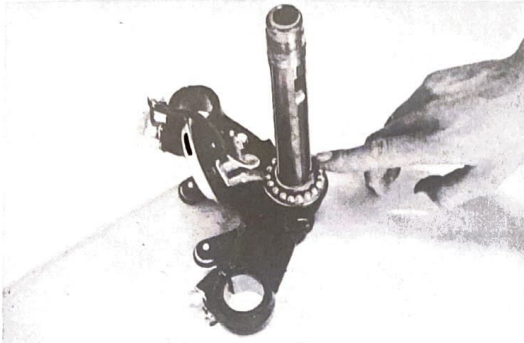


Fig. 244

17. Carefully remove all lower ball bearings. There should be 19.

2. Carefully slip the underbracket stem up into the steering head. Hold the top bearing assembly in place so the stem does not knock any balls out of position.

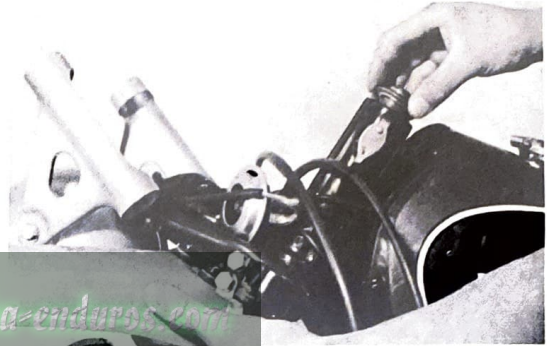


Fig. 246

C. Inspection

1. Examine all the balls for pits or partial flatness. If any one is found defective, the entire set (including both races) should be replaced. If either race is pitted, shows rust spots, or is damaged in any way, replace both races and all balls.
2. Examine dust seal under lowest race and replace if worn.

D. Reassembling

1. Mount both bottom races and the balls onto the underbracket (balls completely greased).

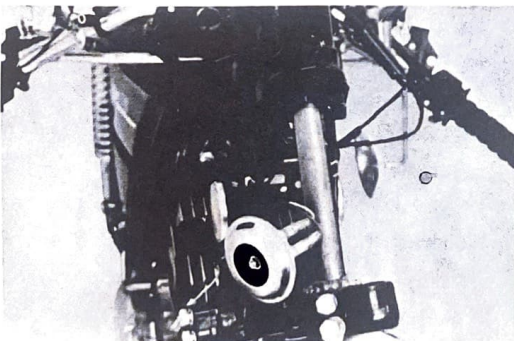


Fig. 245

3. Install both top races and balls into the top of the steering head. Be sure the balls are completely greased during installation.

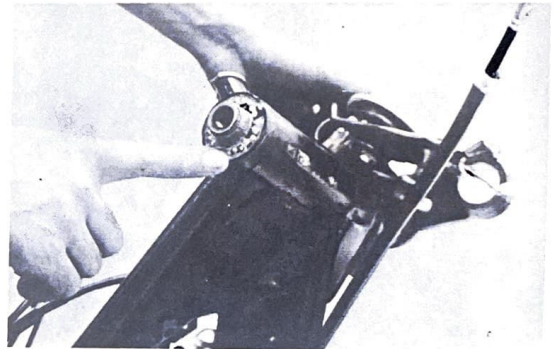


Fig. 247

NOTE: The lowest of the top races will usually remain in the frame when the underbracket is removed.

4. Thread the ring nut down over the stem to hold the underbracket in place.

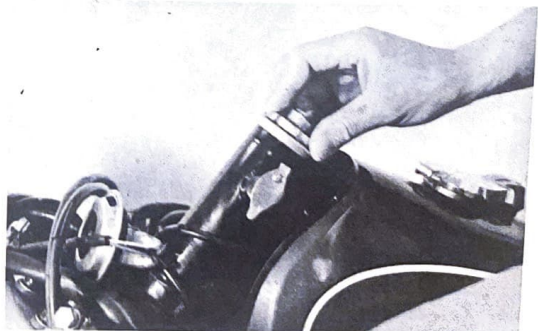


Fig. 248

5. Tighten the lower ring nut so that all free play is taken up, but so the bracket can still pivot freely from lock to lock. Recheck for free play after the entire fork unit has been installed and tighten the upper ring nut.



Fig. 249

6. Set the crown, instruments and head lamp body into position. Locate both crown arms over the fork tubes and lock crown in place by threading in and tightening the stem bolt.

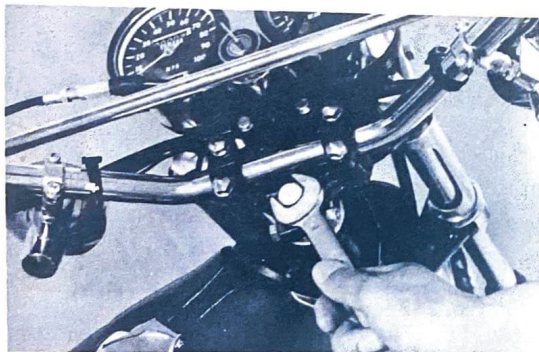


Fig. 250

7. Tighten upper fork crown pinch bolts and torque to specification.

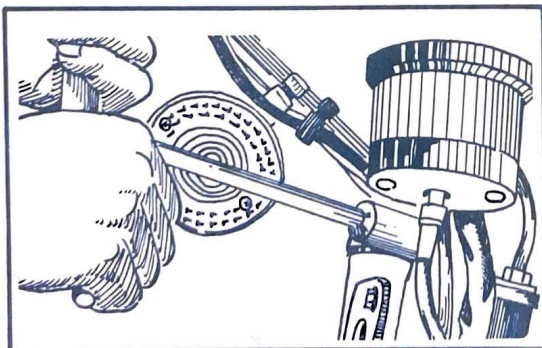


Fig. 251

UNDER FORK TUBE	10.1 ~ 14.5 ft-lbs.
PINCH BOLT TORQUE	1.4 ~ 2.0 kg-m

8. Install head lamp body mounting bolts.
9. Tighten stem pinch bolt and torque to specification.

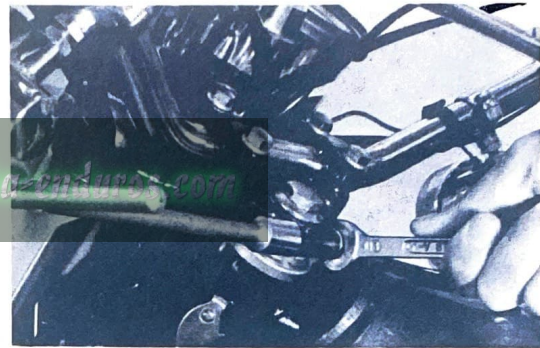


Fig. 252

STEM PINCH	8.0~13.0 ft-lbs.
BOLT TORQUE	1.1~1.1 kg-m

10. Install handlebars and torque to specifications;

HANDLE BAR MOUNT-	10.1 ~ 15.9 ft-lbs.
ING BOLT TORQUE	1.4 ~ 2.2 kg-m

11. Reconnect all electrical wiring and check operation.
12. Install headlight and check operation.
13. Reconnect speedometer and tachometer cables.
14. Reconnect clutch, front brake and throttle cables and check operation.

6-4 REAR SHOCK ABSORBERS AND SWING ARM

A. Rear Shock Removal and Inspection

1. After rear wheel has been removed, remove two bolts, lock washers and flat washers from each shock.

REAR CUSHION BOLT NUT TORQUE	21.7~34.7 ft-lbs. 3.0~4.8 kg-m.
---------------------------------	------------------------------------

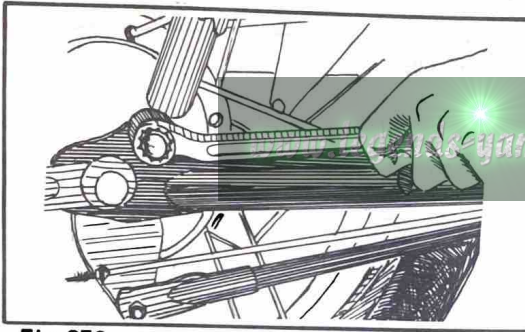


Fig. 253

2. Remove shock.
3. Place shock bottom eyelet in vise. Grasp and compress spring from top. Remove upper spring seat and spring.

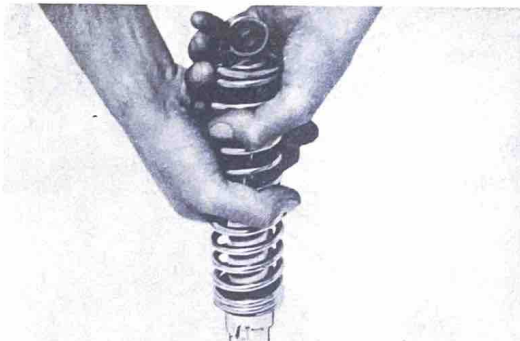


Fig. 254

4. Operate shock absorber shaft to check damping. As you push down, only slight damping should be felt. Return stroke will have considerable damping. If there is no damping, replace shock.

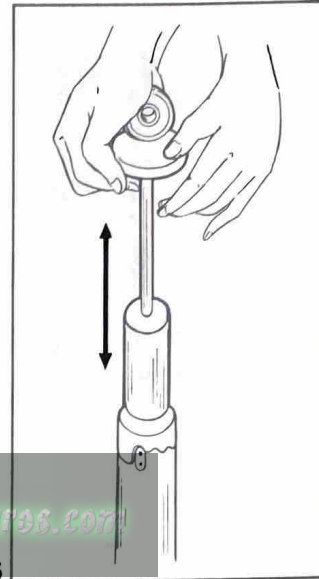


Fig. 255

B. Swing Arm Inspection

1. With rear wheel and shock absorbers removed, grasp the ends of the arm and move from right to left to check for freeplay.

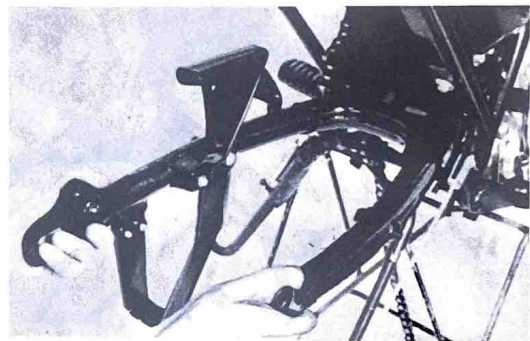


Fig. 256

SWING ARM FREEPLAY: 0.012 in. (0.3 mm)

2. If freeplay is excessive, remove swing arm and replace swing arm bushings.

C. Swing Arm Lubrication

1. Apply grease to zerk fitting on top of pivot with low pressure hand operated gun. Apply until fresh grease appears at both ends of pivot shaft.

2. Wipe off excess.

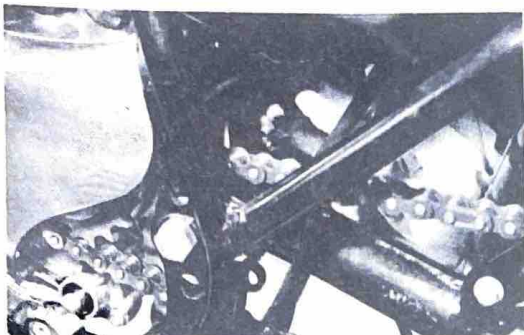


Fig. 257

RECOMMENDED LUBRICANT:
90wt., smooth lube grease

2. Tap out old bushing from each side of pivot using the long rod.

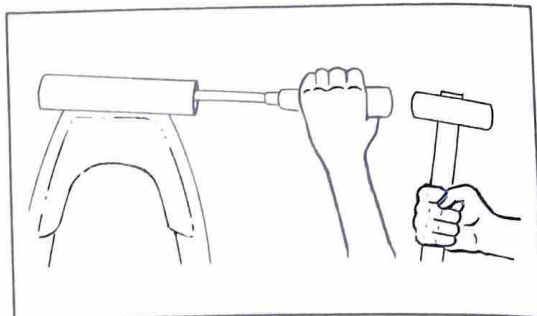


Fig. 259

3. Install new bushings using a soft hammer.

D. Swing Arm Removal

1. Remove nut on swing arm pivot bolt and tap out bolt with a long aluminum or brass rod.

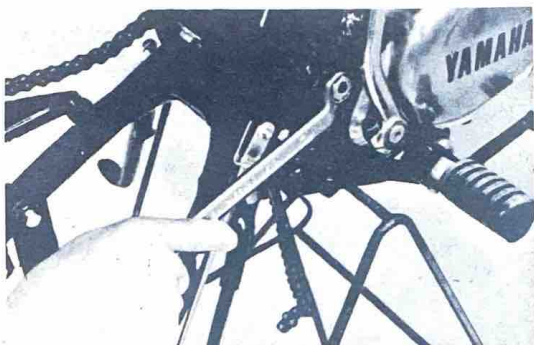
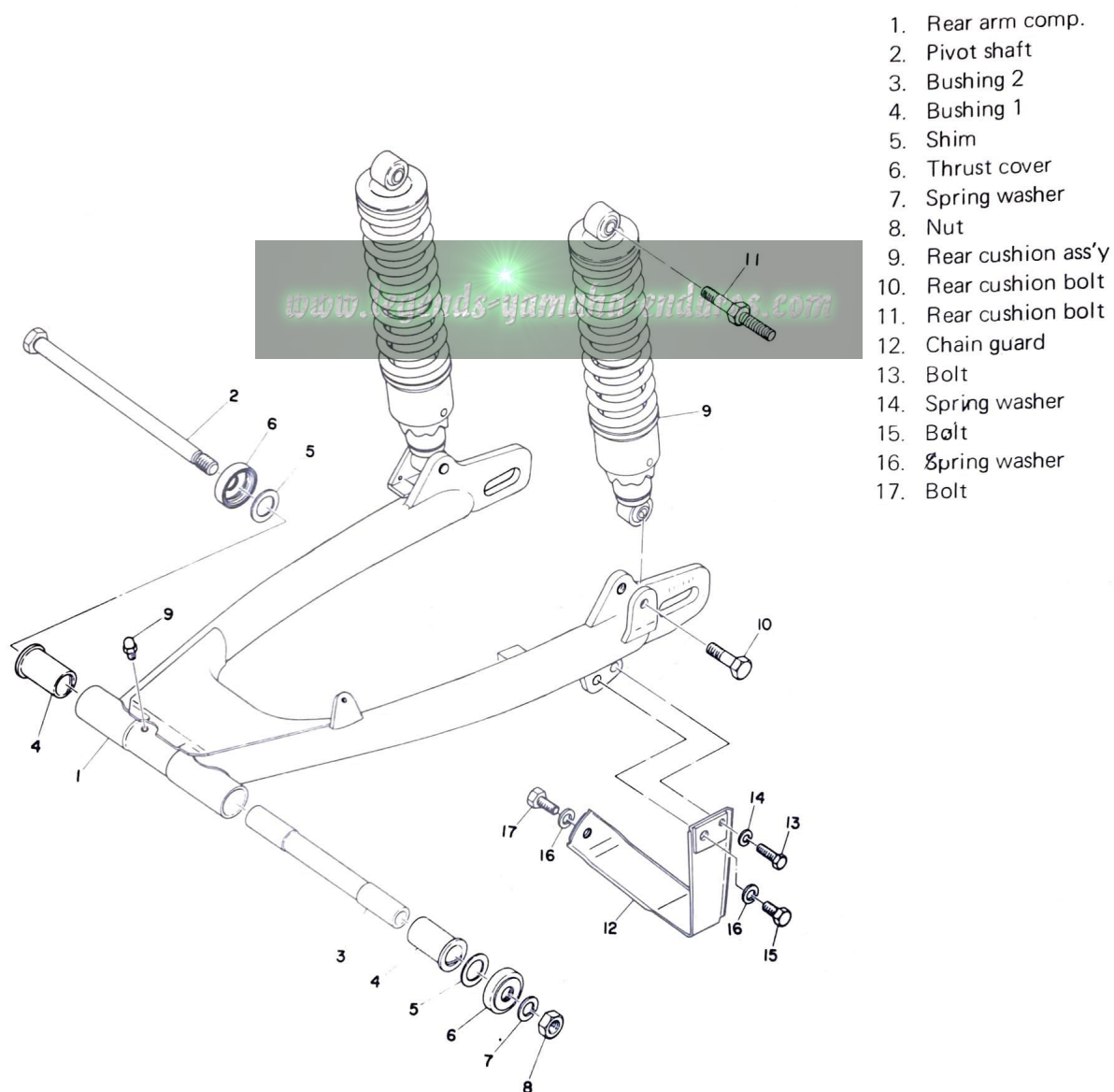


Fig. 258

NOTE: Carefully remove the arm while noting the location of spacing washers and shims.

PIVOT BOLT TORQUE	47.8 ~ 76.0 ft-lbs.
	6.6 ~ 10.5 kg-m.

DT100A • DT175A REAR ARM • REAR CUSHION



DT125A REAR ARM • REAR CUSHION

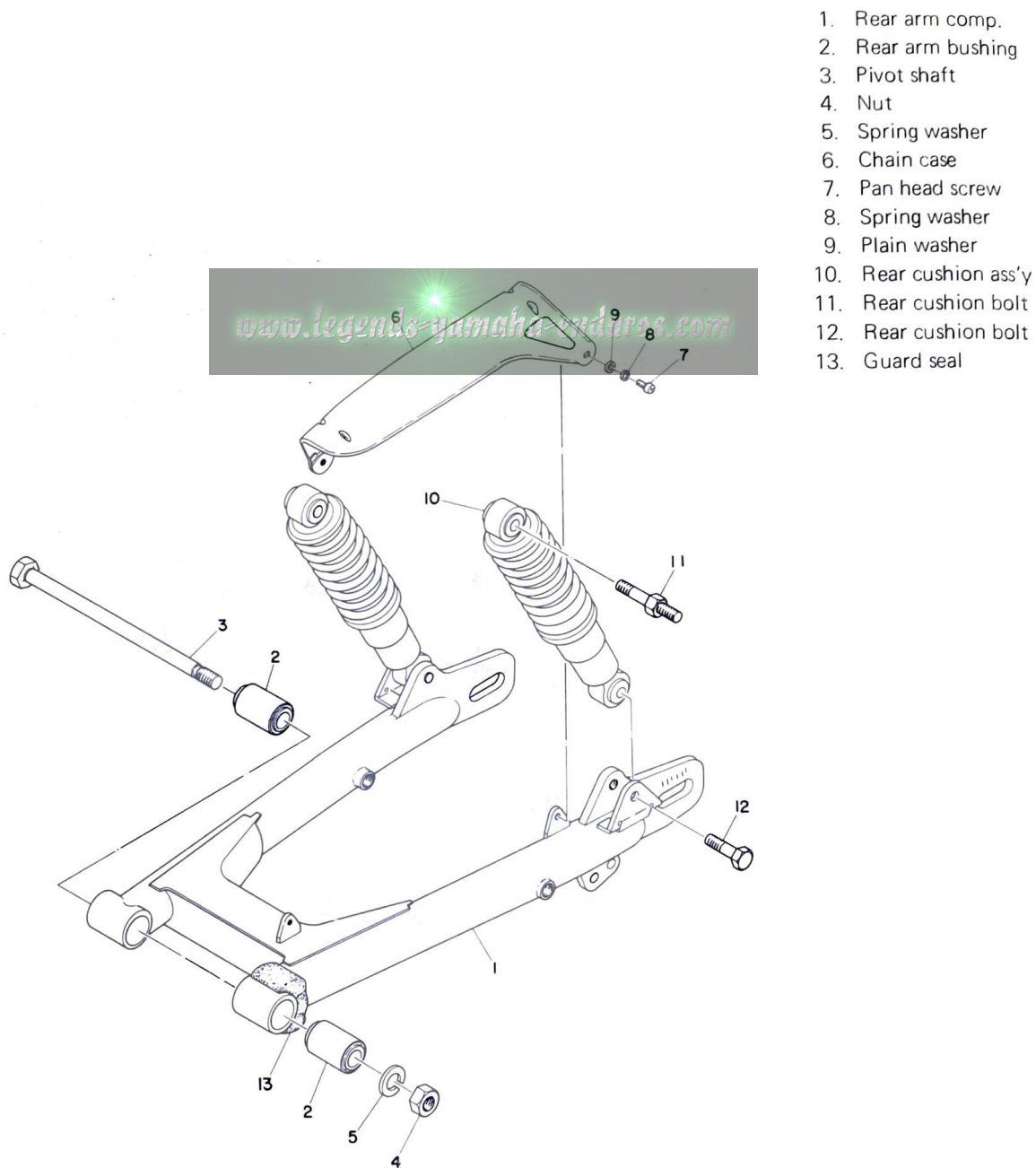


Fig. 260

1. TROUBLESHOOTING GUIDE CHAPTER 7.

The following guide is not complete in itself. If a problem is found within an individual component mentioned within

APPENDICES

the chart, refer to the section or chapter involved for inspection procedures.

NO START OR DIFFICULT TO START

IGNITION SYSTEM	
POSSIBLE CAUSE	REMEDY
No spark.	1. Check ignition main switch. 2. Check ignition kill button. 3. Check battery (DT125A). 4. Check fuse (DT125A). 5. Check point assembly. 6. Check condenser. 7. Check wiring, points—coil. 8. Check coil. 9. Check high tension lead. 10. Check spark plug. 11. Check ignition timing.
Weak or intermittent spark.	1. Use Electro Tester, spark gap test. 2. Check spark plug. 3. Check high tension lead. 4. Check ignition point assembly.
AIR/FUSE SYSTEMS	
POSSIBLE CAUSE	REMEDY
No Fuel.	1. Check fuel tank. 2. Check petcock. 3. Remove main jet, check fuel flow.
Intermittent or poor fuel flow.	1. Clean fuel tank. 2. Clean petcock. 3. Remove carburetor, service.
Bad fuel.	1. Flush fuel system complete. 2. Add fresh fuel, proper grade.
Blocked air intake or malfunction.	1. Clean and lube filter. 2. Check reed valve assembly.

ENGINE/EXHAUST SYSTEMS	
POSSIBLE CAUSE	REMEDY
Incorrect compression pressure.	1. If reading too high, check for excessive carbon. 2. If reading too low, check: a. Cylinder head gasket. b. Cylinder base gasket. c. Piston, rings, cylinder.
Poor bottom end compression.	1. Check crankcase seals L. & R.
Blocked exhaust system.	1. Check muffler/spark arrester. 2. Check exhaust port carbon formation. 3. Check exhaust pipe for internal damage.

POOR IDLE AND/OR LOW SPEED PERFORMANCE

IGNITION SYSTEM	
POSSIBLE CAUSE	REMEDY
Spark plug fouled or incorrect gap.	1. Clean and gap, or replace if necessary.
Contact points bad.	1. Clean and gap, or replace if necessary.
Incorrect ignition timing.	1. Reset timing.
Weak spark.	1. Check ignition coil and condenser.
Partially discharged or defective battery (DT125A)	1. Weak horn and lights, check fluid level, recharge.
AIR/FUEL SYSTEMS	
POSSIBLE CAUSE	REMEDY
Tank cap vent plugged.	1. Clean or repair as necessary.
Fuel petcock plugged.	1. Clean or repair as necessary.
Carburetor slow speed system inoperative.	1. Clean or repair as necessary.

AIR/FUEL SYSTEMS

POSSIBLE CAUSE

REMEDY

Pilot screw out of adjustment or plugged. 1. Clean or repair as necessary.

Carburetor float level incorrect. 1. **Adjust to specification.**

Starter lever on. 1. Clean or repair as necessary.

Air leak. 1. Clean or repair as necessary.

Carburetor not level. 1. **Level.**

ENGINE/EXHAUST SYSTEMS (See "No Start"),

www.legends-yamaha-enduros.com

POOR MID-RANGE AND HIGH SPEED PERFORMANCE

IGNITION SYSTEMS

POSSIBLE CAUSE

REMEDY

Spark plug incorrect. 1. Clean and gap or change plug if necessary.

Advance defective (DT125A). 1. Check for correct "retard" to "full advance" position.

Ignition timing incorrect. 1. Re-set.

Points set too close. 1. Re-gap.

AIR/FUEL SYSTEMS

POSSIBLE CAUSE

REMEDY

Dirty air filter element. 1. Clean.

Carburetor float level incorrect. 1. Measure and change if required.

Incorrect main jet size. 1. Remove jet and check size.

Incorrect jet needle notch. 1. Check position of clip in needle.

Cracked or leaking reeds. 1. Remove.

Carburetor not level. 1. Level.

2. CONVERSION TABLES

A Metric to Inch System

	KNOWN	MULTIPLIER (Rounded off)	RESULT
TORQUE	kg-m	7.235	ft-lbs
	kg-m	86.82	in.-lbs
	kg-cm	0.0724	ft-lbs
	kg-cm	0.8682	in.-lbs
WEIGHT	kg	2.205	lb
	g	0.03527	oz
FLOW/DISTANCE	km/l	2.352	mpg
	km/hr	0.6214	mph
	km	0.6214	mi
	m	3.281	ft
	m	1.094	yd
	cm	0.3937	in.
	mm	0.03937	in.
VOLUME/CAPACITY	cc (cm ³)	0.03381	oz (U.S. liq.)
	cc (cm ³)	0.06102	cu-in.
	l (liter)	2.1134	pt (U.S. liq.)
	l (liter)	1.057	qt (U.S. liq.)
	l (liter)	0.2642	gal (U.S. liq.)
MISC.	kg/mm	56.007	lb/in.
	kg/cm ²	14.2234	psi (lb/in. ²)
	Centigrade(°C) $\frac{9}{5}$ (°C-32)		Fahrenheit(°F)

B Inch to Metric System

	KNOWN	MULTIPLIER (Rounded off)	RESULT
TORQUE	ft-lbs	0.13826	kg-m
	in.-lbs	0.01152	kg-m
	ft-lbs	13.825	kg-cm
	in.-lbs	1.1518	kg-cm
WEIGHT	lb	0.4536	kg
	oz	28.35	g
FLOW/DISTANCE	mpg	0.4252	km/l
	mph	1.609	km/hr
	mi	1.609	km
	ft	0.3048	m
	yd	0.9144	m
	in.	2.54	cm
	in.	25.4	mm
VOLUME/CAPACITY	oz (U.S. liq.)	29.57	cc (cm ³)
	cu in.	16.387	cc (cm ³)
	pt (U.S. liq.)	0.4732	l (liter)
	qt (U.S. liq.)	0.9463	l (liter)
	gal (U.S. liq.)	3.7853	l (liter)
MISC.	lb/in.	0.017855	kg/mm
	psi (lb/in. ²)	0.07031	kg/cm ²
	Fahrenheit(°F) $\frac{5}{9}$ (°F+32)		Centigrade(°C)

DEFINITION OF TERMS:

- kg-m = Kilogram meters: Usually torque.
- g = Gram(s).
- kg = Kilogram(s): 1,000 grams.
- km = Kilometer(s).
- l = Liter(s).
- km/l = Kilometer(s) per liter: Mileage.
- cc = Cubic centimeter(s) (cm³): Volume or capacity.
- kg/mm = Kilogram(s) per millimeter: Usually spring compression rate.
- kg/cm² = Kilogram(s) per square centimeter: Pressure.

C Millimeters to Inches

	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
0		0.0039	0.0079	0.0018	0.0157	0.0197	0.0236	0.0276	0.0315	0.0354
1	0.0394	0.0433	0.0472	0.0512	0.0551	0.0591	0.0630	0.0669	0.7099	0.0748
2	0.0787	0.0827	0.0866	0.0906	0.0945	0.0984	0.1024	0.1063	0.1102	0.1142
3	0.1181	0.1200	0.1260	0.1299	0.1339	0.1378	0.1417	0.1457	0.1496	0.1535
4	0.1575	0.1614	0.1654	0.1693	0.1732	0.1772	0.1811	0.1850	0.1890	0.1929
5	0.1969	0.2000	0.2047	0.2087	0.2126	0.2165	0.2205	0.2244	0.2283	0.2323
6	0.2362	0.2402	0.2441	0.2480	0.2520	0.2559	0.2598	0.2638	0.2677	0.2717
7	0.2756	0.2795	0.2835	0.2874	0.2913	0.2953	0.2992	0.3031	0.3071	0.3110
8	0.3150	0.3189	0.3228	0.3268	0.3307	0.3346	0.3386	0.3425	0.3465	0.3504
9	0.3542	0.3583	0.4016	0.3661	0.3701	0.3740	0.3780	0.3819	0.3858	0.3898
10	0.3937	0.3976	0.4016	0.4055	0.4094	0.4134	0.4134	0.4213	0.4252	0.4291

0.01 mm = 0.004 0.03 mm = 0.0012 0.05 mm = 0.0020 0.07 mm = 0.0028 0.09 mm = 0.0035
0.02 mm = 0.008 0.04 mm = 0.0016 0.06 mm = 0.0024 0.08 mm = 0.0031 0.10 mm = 0.0039

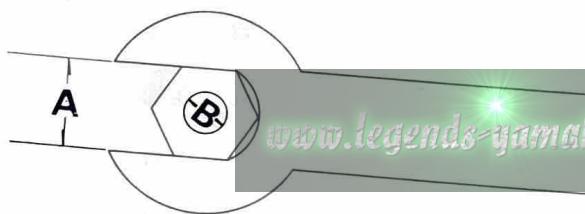
D Inches to Millimeters

	0	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0		0.254	0.508	0.762	1.016	1.270	1.524	1.778	2.032	2.286
0.1	2.540	2.794	3.048	3.302	3.556	3.810	4.064	4.318	4.572	4.826
0.2	5.080	5.334	5.588	5.842	6.096	6.350	6.604	6.858	7.112	7.366
0.3	7.620	7.874	8.128	8.382	8.636	8.890	9.144	9.398	9.652	9.906
0.4	10.160	10.414	10.668	10.922	11.176	11.430	11.684	11.938	12.192	12.446
0.5	12.700	12.954	13.208	13.462	13.716	13.970	14.224	14.478	14.732	14.986
0.6	15.240	15.494	15.748	16.002	16.256	16.510	16.764	17.018	17.272	17.526
0.7	17.780	18.034	18.288	18.542	18.796	19.050	19.304	19.558	19.812	20.066
0.8	20.320	20.574	20.828	21.082	21.336	21.590	21.844	22.098	22.352	22.606
0.9	22.860	23.114	23.368	23.622	23.876	24.130	24.384	24.638	24.892	25.146
1.0	25.400	25.654	25.908	26.162	26.416	26.670	26.924	27.178	27.432	27.686

0.001" = 0.0254 mm 0.003" = 0.0762 mm 0.005" = 0.1270 mm 0.007" = 0.1778 mm 0.009" = 0.2286 mm
0.002" = 0.0508 mm 0.004" = 0.1016 mm 0.006" = 0.1524 mm 0.008" = 0.2032 mm 0.010" = 0.254 mm

3. TORQUE SPECIFICATIONS

Torque specifications call for dry, clean threads. Components such as the cylinder or cylinder head should be at room temperature prior to torquing. A cylinder head or any other item with several fasteners should be torqued down in a cross-hatch pattern in successive stages until torque specifications is reached. The method is similar to installing an automobile wheel and will avoid warping the component.



Standard I.S.O. Pitch Threads

A (NUT)	B (BOLT)	TORQUE SPECIFICATION		
		kg-m	Ft-lbs	In-lbs
10mm	6mm	1.0	7.2	85
13mm	8mm	2.0	15	175
14mm	8mm	2.0	15	175
17mm	10mm	3.5–4.0	25–29	300–350
19mm	12mm	4.0–4.5	29–33	350–400
22mm	14mm	4.5–5.0	33–36	400–440
26mm	17mm	5.8–7.0	42–50	500–600
27mm	18mm	5.8–7.0	42–50	500–600
30mm	20mm	7.0–8.3	50–60	600–700
SPARK PLUG		2.7–2.9	19–21	230–250

4. CLEANING AND STORAGE

A. Cleaning

Frequent thorough cleaning of your motorcycle will not only enhance its appearance but will improve general performance and extend the useful life of many components.

1. Before cleaning the machine:
 - a. Block off end of exhaust pipe to prevent water entry; a plastic bag and strong band may be used.
 - b. Remove air cleaner or protect it from water with plastic covering.
 - c. Make sure spark plug(s), gas cap, oil tank cap, transmission oil filler cap and battery caps are properly installed.
2. If engine case is excessively greasy, apply degreaser with a paint brush. Do not apply degreaser to chain, sprockets, or wheel axles.
3. Rinse dirt and degreaser off with garden hose, using only enough hose pressure to do the job. Excessive hose pressure may cause water seepage and contamination of wheel bearings, front forks, brake drums, and transmission seals. Many expensive repair bills have resulted from improper high-pressure detergent applications such as those available in coin-operated car washes.
4. Once the majority of dirt has been hosed off, wash all surfaces with warm water and mild, detergent-type soap. An old tooth brush or bottle brush is handy to reach those hard-to-get-to places.
5. Rinse machine off immediately with clean water and dry all surfaces with a chamois skin, clean towel, or soft absorbent cloth.
6. Immediately after washing, remove excess moisture from chain and lubricate to prevent rust.
7. Chrome-plated parts such as handlebars, rims, spokes, forks, etc., may be further cleaned with automotive chrome cleaner.
8. Clean the seat with a vinyl upholstery cleaner to keep the cover pliable and glossy.
9. Automotive-type wax may be applied to all painted and chrome-plated surfaces. Avoid combination cleaner-waxes. Many contain abrasives which may mar paint or protective finish on fuel and oil tanks.
10. After finishing, start the engine immediately and allow to idle for several minutes.

B. Storage

Long term storage (30 days or more) of your motorcycle will require some preventive procedures to insure against deterioration. After cleaning machine thoroughly, prepare for storage as follows:

1. Drain fuel tank, fuel lines, and carburetor float bowl(s).
2. Remove empty fuel tank, pour a cup of 10W to 30W oil in tank, shake tank to coat inner surfaces thoroughly and drain off excess oil. Reinstall tank.
3. Remove spark plug(s), pour about one tablespoon of 10W to 30W oil in spark plug hole(s) and reinstall spark plugs. Kick engine over several times (with ignition off) to coat cylinder walls with oil.
4. Remove drive chain. Clean thoroughly with solvent and lubricate with graphite-base chain lubricant. Reinstall chain or store in a plastic bag (tie to frame for safe-keeping).
5. Lubricate all control cables.
6. Remove battery and charge. Store in a dry place and re-charge once a month. Do not store battery in an excessively warm or cold place (less than 32°F or more than 90°).
7. Block up frame to raise both wheels off ground. (Main stands can be used on machines so equipped.)
8. Deflate tires to 15psi.
9. Tie a plastic bag over exhaust pipe outlet(s) to prevent moisture entering.
10. If storing in humid or salt-air atmosphere, coat all exposed metal surfaces with a light film of oil. Do not apply oil to rubber parts or seat cover.

PERTINENT TECHNICAL BULLETINS

www.legends-yamaha-enduros.com

Note

THE FOLLOWING INFORMATION MUST BE USED AS A GUIDE ONLY TO INDICATE THE DIRECTION TAKEN BY VARIOUS MODIFICATIONS. IT IS INCLUDED ONLY AS AN AID TO SERVICING.

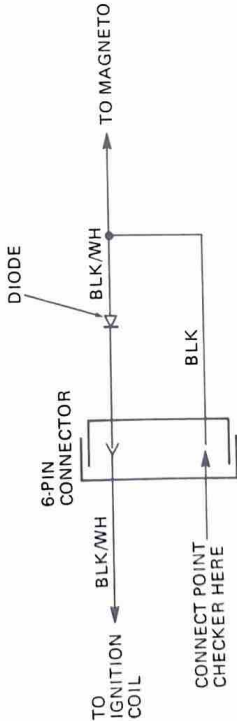
SHOULD A QUESTION ARISE REGARDING A CERTAIN PART, THE MECHANIC SHOULD REFER TO AN UP-TO-DATE MODEL PARTS BOOK, SERVICE OR PARTS NEWS BULLETIN, OR THE MANUFACTURER.



IGNITION TIMING, Electrical Connections

On DT100A and DT175A models, a diode has been installed in the Black/White wire between the ignition source coil (in magneto) and the ignition coil primary winding. This diode will prevent the engine from running backwards. It will also prevent using the Black/White wire for checking ignition points operation when setting ignition timing.

To check ignition point operation, a black wire which bypasses the diode has been provided in the same 6-pin connector. The wires going to the connector are covered with black vinyl tape. Separate the 6-pin connector on the right side of the machine. Connect one lead of the point checker to the male terminal which does not have a mating female terminal in the other connector or half. The other point checker lead is connected to a good engine ground. See drawing below.



↑ ↑ ↑ ↑

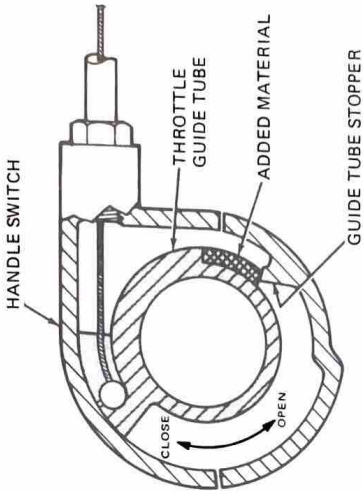
TECHNICAL BULLETIN



TECHNICAL BULLETIN

THROTTLE GUIDE TUBE, modification to reduce cable freeplay

Early production units have excessive throttle cable freeplay because the throttle guide tube can rotate too far in the "throttle closed" direction.



A new guide tube is available that will reduce cable freeplay. Material has been added as shown in the illustration.

AFFECTED MACHINES

- DT100A

E/N ~ 011910
- DT125A

E/N ~ 011244
- DT175A

E/N ~ 011650
- DT250A

E/N ~ 017806
- DT360A

E/N ~ 012646
- All units after these engine numbers have new guide tube installed.

PARTS ORDERING

PARTS BOOK	OLD PART NUMBER	NEW PART NUMBER	DESCRIPTION	PRICE
DT100A, DT125A, DT175A	434-26243-01-00	434-26243-00-00	TUBE, throttle guide	
DT250A/360A	434-26243-00-00	No change		

WARRANTY

PROBLEM CODE: 70

JOB CODE: 9000

HOURS: .3 hours

Use multiple warranty claim form.

PLEASE BRING YOUR PARTS LISTS UP-TO-DATE!

↑ ↑ ↑ ↑

M4-008

M4-008

M4-008

ALL MODELS

PISTON RING HANDLING

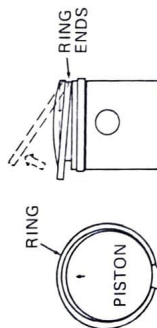


TECHNICAL BULLETIN

Recent changes in piston ring material require considerable care in handling and troubleshooting. Use following procedure.

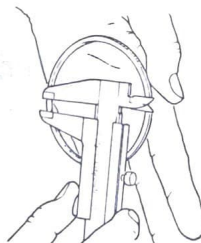
NOTE: See appropriate Service Manual for four-stroke oil ring handling and troubleshooting procedures.

1. Using your thumb nails, spread ring ends only as far as necessary for back of ring to clear piston crown. If ring ends are opened excessively, rings will be deformed.

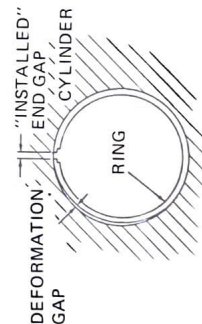


SLIP BACK OF RING OUT OF GROOVE AND REMOVE

2. Using vernier calipers, measure ring end gap in "free" position. Replace as required.



3. Using piston crown to keep ring at right angle to cylinder bore, insert ring into cylinder. Measure end gap in "installed" position. Replace as required.



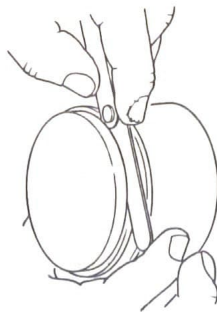
4. With ring still in position in cylinder, hold cylinder towards light. Check for full seating of ring against cylinder wall. If ring not fully seated, check cylinder for out-of-round. Repair cylinder and/or replace ring as required.

ALL MODELS – PISTON RING HANDLING

5. Service piston, ring expanders (if fitted), ring grooves, and wrist pin hole as required per established procedure for carbon removal, etc.

6. Install piston rings, reversing Step 1. Again take care that ring ends are not spread too far. Such action will cause ring deformation.

6. With rings installed, check ring groove clearance. Replace piston and/or rings as required.

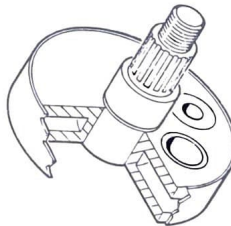
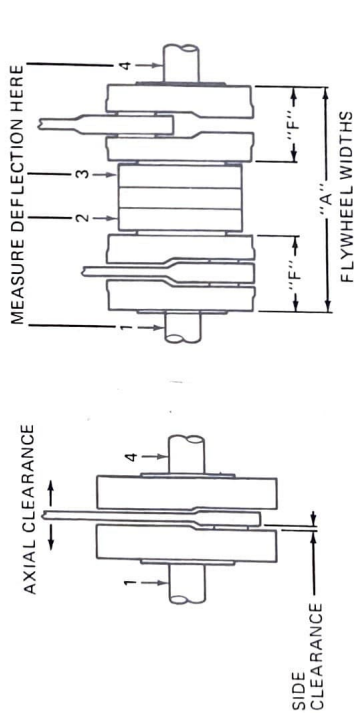


NOTE: The primary concern in handling rings is to make sure the rings are not deformed during removal or installation. "Free" end gap measurement (Step 2) and checking for full seating (Step 4) are the best methods to check for possible ring deformation. Any deformed ring (out-of-round) should be immediately replaced.



MOTORCYCLE
M4-021
ALL 1974 MODELS
CRANKSHAFT SPECIFICATIONS

Following is crankshaft data for all 1974 model machines. There will be no wall chart containing this information this year. However, a wall chart will be printed containing both 1974 and 1975 crankshaft data after 1975 models are released.



NOTE: On YZ250 model only, the crank wheel design has been changed to reduce weight. The crank wheels, after forging, are fly-cut and a steel band is heat-shrunk over the opening to reduce crankcase volume. For further information refer to Motorcycle Service News Bulletin No. 393.

See Page 2 for data chart.

MODEL	DISP. (cc)	DEFLECTION TOLERANCE				FLYWHEEL WIDTHS		ROD CLEARANCE	
		1	2	3	4	F	A	AXIAL	SIDE
								NEW	MAX MIN
RD60A	55	0.03			0.03	$38 \pm .05$		0.8~1.0	2.0 0.5
RD200A	195	0.03	0.05	0.05	0.03	$47 \pm .05$	$140 \pm .20$	0.8~1.0	2.0 0.3
RD250A	247	0.03	0.05	0.05	0.03	$52 \pm .05$	$154 \pm .05$	0.8~1.0	2.0 0.3
RD350A	347	0.03	0.05	0.05	0.03	$52 \pm .05$	$154 \pm .05$	0.8~1.0	2.0 0.3
TX500/A	498								
TX650A	653	0.03	0.05	0.05	0.03	$66 \pm .05$	$186 \pm .03$	0.8~1.0	2.0 0.6
GT80A	73	0.03			0.03	$38 \pm .05$		0.8~1.0	2.0 0.5
DT100A	97	0.03			0.03	$50 \pm .05$		0.8~1.0	2.0 0.5
DT125A	123	0.03			0.03	$56 \pm .05$		0.8~1.0	2.0 0.5
DT175A	171	0.03			0.03	$56 \pm .05$		0.8~1.0	2.0 0.5
DT250A	246	0.03			0.03	$64 \pm .05$		0.8~1.0	2.0 0.5
DT360A	351	0.03			0.03	$64 \pm .05$		0.8~1.0	2.0 0.5
GTMXA	73	0.03			0.03	$38 \pm .05$		0.8~1.0	2.0 0.5
MX100A	97	0.03			0.03	$50 \pm .05$		0.8~1.0	2.0 0.5
MX125A	123	0.03			0.03	$56 \pm .05$		0.8~1.0	2.0 0.5
MX175A	171	0.03			0.03	$56 \pm .05$		0.8~1.0	2.0 0.5
MX250A	246	0.03			0.03	$64 \pm .05$		0.8~1.0	2.0 0.5
MX360A	351	0.03			0.03	$64 \pm .05$		0.8~1.0	2.0 0.5
SC500A	496	0.03			0.03	$64 \pm .05$		0.8~1.0	2.0 0.5
YZ80A	73	0.03			0.03	$38 \pm .05$		0.8~1.0	2.0 0.5
YZ125A	123	0.03			0.03	$56 \pm .05$		0.8~1.0	2.0 0.5
YZ250A	246	0.03			0.03	$62 \pm .05$		0.8~1.0	2.0 0.5
YZ360A	351	0.03			0.03	$62 \pm .05$		0.8~1.0	2.0 0.5
TY80A	73	0.03			0.03	$38 \pm .05$		0.8~1.0	2.0 0.5
TY250A	246	0.03			0.03	$64 \pm .05$		0.8~1.0	2.0 0.6
TA125A	124	0.03	0.05	0.05	0.03	$43 \pm .05$	$126 \pm .30$	0.8~1.0	2.0 0.3
TZ250A	247	0.03	0.05	0.05	0.03	$52 \pm .05$	$154 \pm .05$	0.8~1.0	2.0 0.3
TZ350A	347	0.03	0.05	0.05	0.03	$52 \pm .05$	$154 \pm .05$	0.8~1.0	2.0 0.3
TZ750A	694	0.03	0.05	0.05	0.03	$52 \pm .05$	$154 \pm .05$	0.8~1.0	2.0 0.3

ALL TWO-STROKE MODELS MOTORCYCLE
YAMAHA CRANKCASE PRESSURE TESTER

M4-023

ALL TWO-STROKE MODELS - YAMAHA CRANKCASE PRESSURE TESTER

M4-023



TECHNICAL BULLETIN

NOW AVAILABLE - ORDER YOURS TODAY

Part Number 908-90910-25-00

INTRODUCTION

For two-stroke engines to perform properly, the carburetor must deliver the correct fuel/air mixture and as this mixture circulates through the engine, the proportion of fuel to air must remain the same. To maintain proper mixture, the crankcase must be as nearly air-tight as possible. The Yamaha Crankcase Pressure Tester is an instrument used to determine whether or not the crankcase of any two-stroke engine is, in fact, air-tight.

The tester consists of a double action pump which will pressurize or create a vacuum within the crankcase, a gauge to measure the amount of pressure or vacuum within the crankcase, and various plugs to seal intake and exhaust ports on 1974 Yamaha two-strokes (motorcycles) and some older models.*

If a particular crankcase leaks, air enters the engine while it is running and causes a lean fuel/air mixture. Of course, the lean mixture will cause increased temperature, a decrease in horsepower and eventually engine damage. The crankcase pressure tester should be used on all two-stroke engines which suffer from overheating, poor performance, piston seizure, or piston holing. In order to determine whether or not a crankcase leak is at fault, it is very important that the crankcase pressure tester be used before engine disassembly begins.

Remember, however, that most problem machines suffer from a combination of ailments and you must use other diagnostic equipment to isolate other possible problems. In other words, crankcase pressure testing is important, but it is not the final authority. The symptoms listed above can also be caused by problems in the ignition system, carburetor, lubrication system, and/or exhaust system. **CHECK ALL OF THEM.**

All engines can be pressure checked in the frame. Carburetors and exhaust pipes are the only items that need be removed.

The procedures for connecting and operating the tester are relatively easy. The more difficult aspect of crankcase pressure testing is locating the leak, deciding whether or not it will be harmful to the performance of the engine and then eliminating the leak.

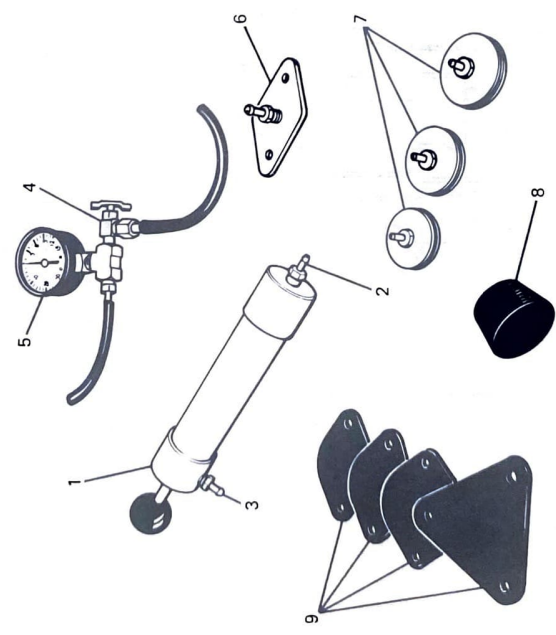
* Inlet and exhaust plugs can be easily made for any other two-stroke engine.

TEST PROCEDURE

A. MACHINE PREPARATION

1. Remove carburetor(s) from engine.
2. Remove exhaust pipe(s) from cylinder(s).
3. On Enduro and MX models, remove the exhaust pipe flange from the cylinder.
4. Select the proper exhaust plug(s) and install between cylinder and exhaust pipe flange. Bolt the flange onto the cylinder with the plug between.

NOTE: Make certain that cylinder and flange surfaces are clean and free from anything that will interrupt the air-tight seal between flange and cylinder.



- | | |
|-------------------------|---|
| 1. Pressure/Vacuum Pump | 5. Pressure/Vacuum Gauge |
| 2. Pressure Fitting | 6. Inlet Air Fitting (AT & CT Series, DT125) |
| 3. Vacuum Fitting | 7. Inlet Air Fittings (all other models) |
| 4. Shut-off Valve | 8. Rubber Inlet Plug (left cylinder on twins) |
| | 9. Exhaust Plug Set |



ALL TWO-STROKE MODELS – YAMAHA CRANKCASE PRESSURE TESTER

M4-023

M4-023

ALL TWO-STROKE MODELS – YAMAHA CRANKCASE PRESSURE TESTER

M4-023

5. On twin cylinder models, place the tapered rubber plug in the carburetor manifold on left-hand cylinder. Use carburetor mounting clamp to hold plug tightly in place.
NOTE: Late Yamaha twins (from 1967) have aluminum labyrinth crank center seals. This seal is effective only when engine is running. For this reason, both cylinders are sealed and tested at one time. Since labyrinth seals are not subject to normal seal problems, you can assume that they are operating correctly.

6. Place the proper inlet fitting into the (right-hand) carburetor manifold and seal it with the carburetor mounting clamp.

The engine is now ready for both pressure and vacuum tests.

B. PRESSURE TEST

1. Connect rubber hose from shut-off valve to fitting marked "P" on end of pump.
2. Connect rubber hose from pressure gauge to fitting on engine inlet plug.
3. Make certain shut-off valve is open and operate pump until crankcase is pressurized to eight (8) p.s.i. Hold pressure at this level while you close shut-off valve.
4. Watch the second hand on a clock and the pressure gauge. Write down the amount of pressure decrease during the first minute, the second minute, and so on. The leakage rate equals the pressure decrease per minute. For example, if the gauge goes from eight (8) p.s.i. to six (6) p.s.i. during the first minute and from six (6) to four (4) p.s.i. during the second minute, the leakage is two (2) p.s.i. per minute.

MAXIMUM LEAKAGE RATE: 1 p.s.i. per minute

NOTE: This maximum leakage rate is only a guide. The overall effect of a given leakage rate upon the performance of an engine depends on the exact location of the leak. If the leak is located around the spark plug gasket or around the head gasket, it will not cause a great performance problem. However, if the leak is located in the reed valve or cylinder base gasket area, it will cause a lean mixture.

5. In order to find the leakage, you must use your eyes and ears. Quite often, you can locate the leak by listening closely for escaping air. Positive identification can be made by squirting a few drops of oil around the area you suspect. The escaping air will bubble through the oil at the leak.

C. VACUUM TEST

1. Connect rubber hose from shut-off valve to fitting marked "V" on side of pump.
2. Connect rubber hose from gauge to fitting on engine inlet plug.
3. Operate pump until crankcase reaches a vacuum of six (6) inches. Close shut-off valve.
4. Watch the second hand on a clock and vacuum gauge and note rate of leakage as before.

MAXIMUM LEAKAGE RATE: 1 inch per minute

5. Find point of leakage by applying a few drops of oil to the spot that you suspect. The oil will be sucked through the point of leakage into the engine.

4. Watch the second hand on a clock and vacuum gauge and note rate of leakage as before.
MAXIMUM LEAKAGE RATE: 1 inch per minute
5. Find point of leakage by applying a few drops of oil to the spot that you suspect. The oil will be sucked through the point of leakage into the engine.

D. ELIMINATION OF LEAKS

1. Crankshaft seal leakage:

- a. If leakage is between shaft and seal, replace seal.

NOTE: If main bearings are badly worn or crankshaft is not properly aligned, new seal may also leak.

- b. If leakage is between crankcase and seal, replace seal using Silastic Sealant (Part Number ACC-11001-05-00) around its outside diameter.

2. Crankcase mating surface leakage: disassemble cases, check each half on a surface plate, re-surface using No. 600 wet sandpaper on a surface plate as required and re-assemble using Yamaha Bond No. 5 or Silastic Sealant.

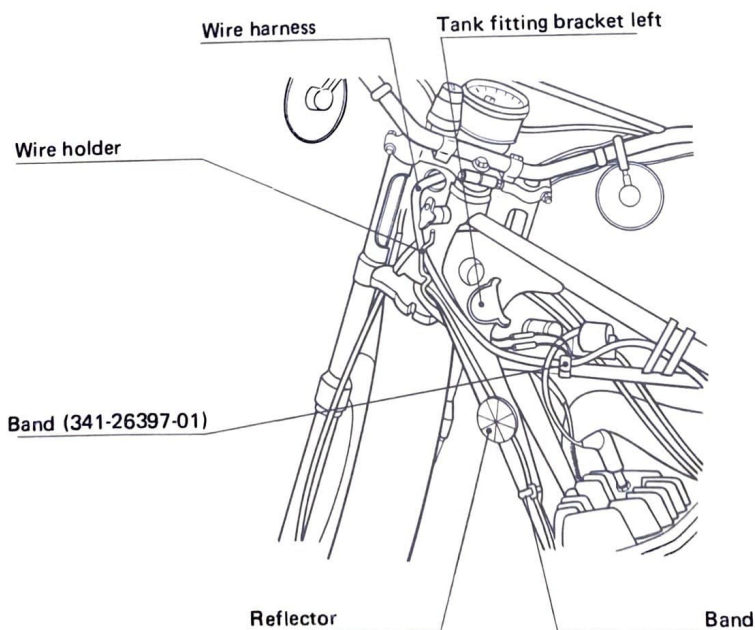
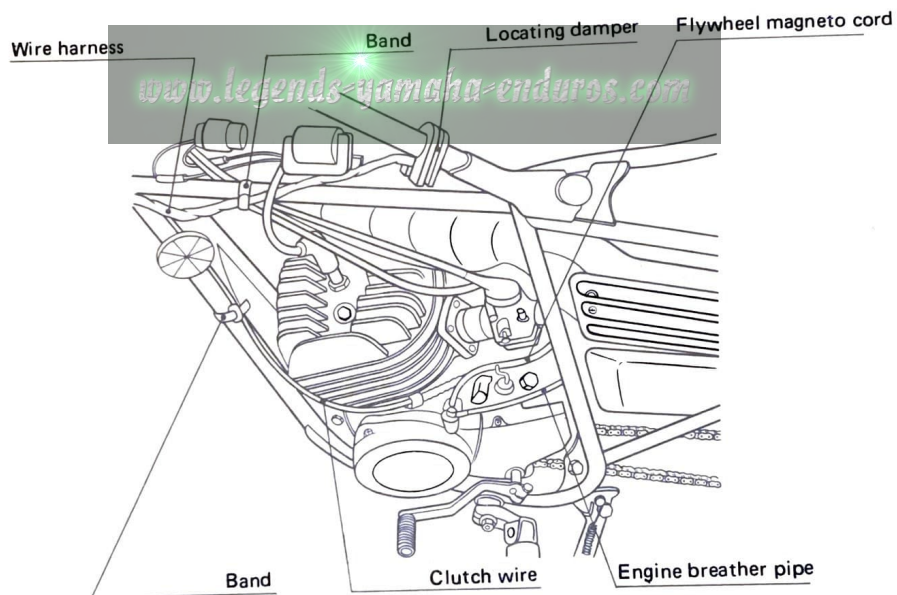
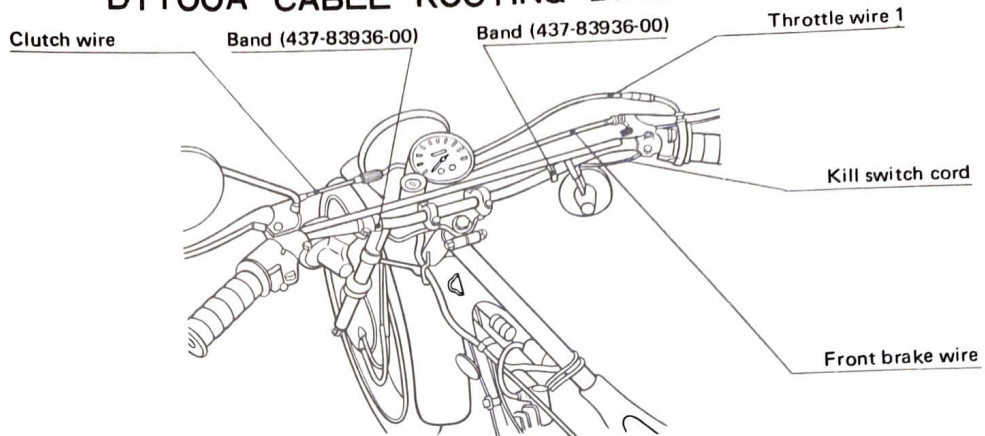
3. Cylinder head and base gasket leakage: re-surface head and top of cylinder using No. 600 wet sandpaper, replace gaskets and use Silastic Sealant on both sides of both gaskets.

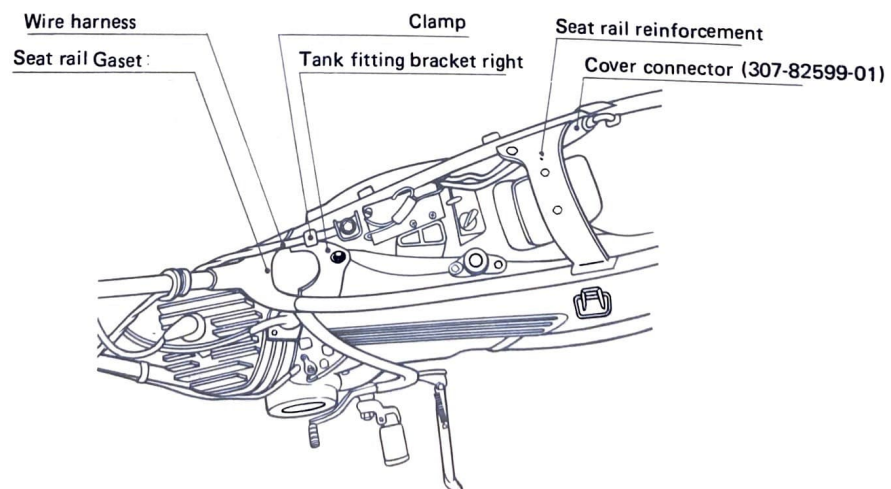
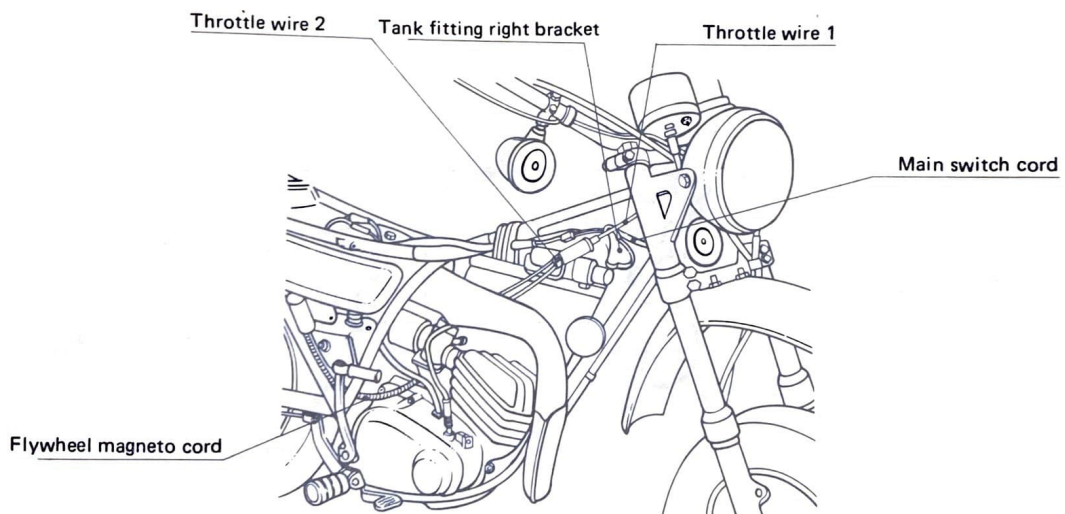
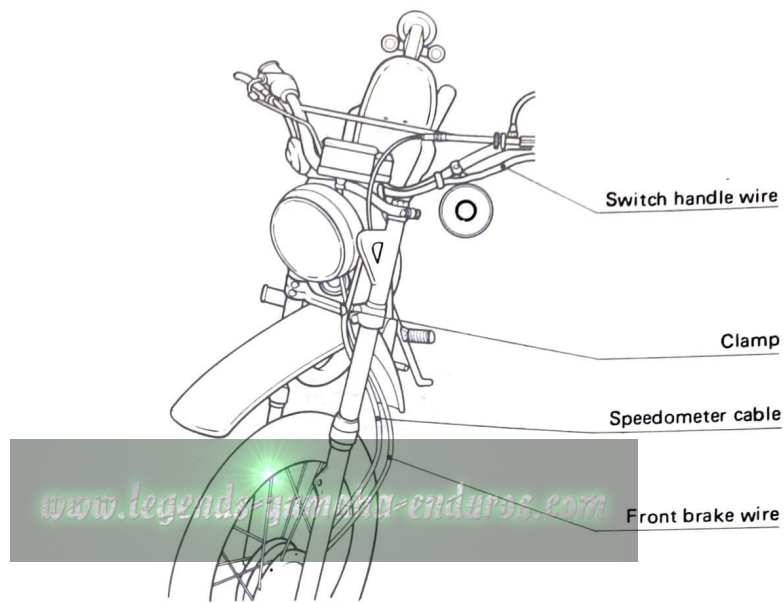
4. Leakage due to porous castings: replace the defective part.

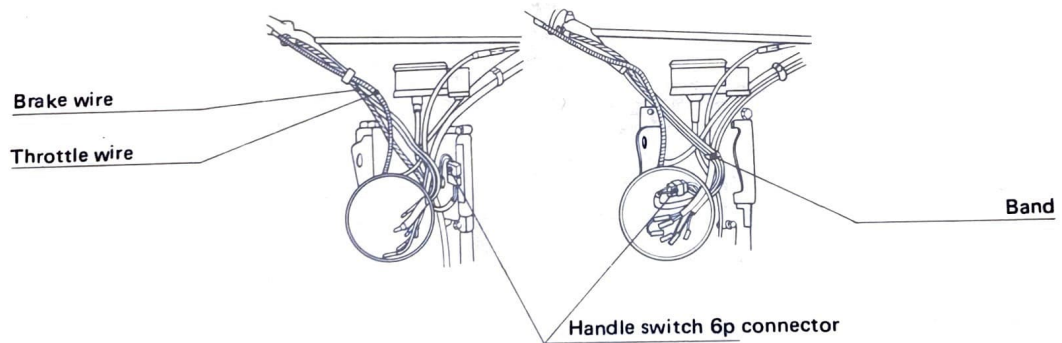
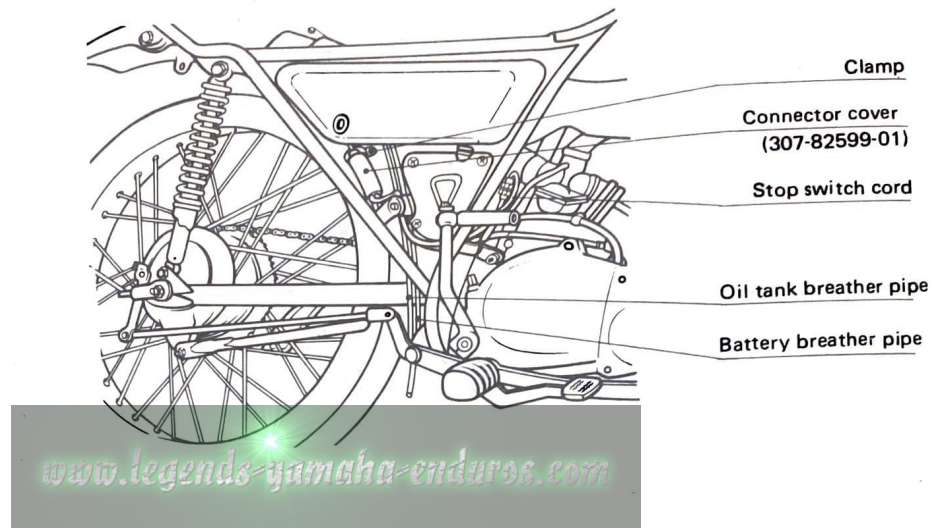
D. SUGGESTIONS FOR MORE EFFICIENT TESTING

1. Make exhaust gasket templates for all models so new gaskets can be cut to replace damaged ones.
2. Watch for leaks in the various connectors of the tester.
3. Some engines will leak down to six (6) or seven (7) p.s.i. rather quickly after being pressurized. This is normal so long as leakage does not exceed one (1) p.s.i. per minute below six (6) p.s.i.
4. Some mechanics prefer to use a solution of hot water and liquid soap for finding leakage. This solution will bubble vigorously when it finds a leak.
CAUTION: Do not use soap and water solution for vacuum test.
5. If the leak is situated so that air seeps into the transmission or primary drive gear area, it will be more difficult to find. Check for this by pressurizing the engine and placing a few drops of oil in the transmission vent tube. If air is leaking into the transmission, it will push the oil out of the vent tube. To investigate this leakage further, drain the transmission and remove the primary drive cover.
6. It is often necessary to remove the electrical generating unit from the engine to isolate a leak behind it.
7. Sometimes, the only way to find an elusive leak is to remove the engine from the frame, pressurize it and submerge in solvent. Air will bubble from the leak.
8. Due to expansion and contraction of engine cases and other parts, some leaks will only occur when engine is hot. It is a good idea to test both hot and cold.

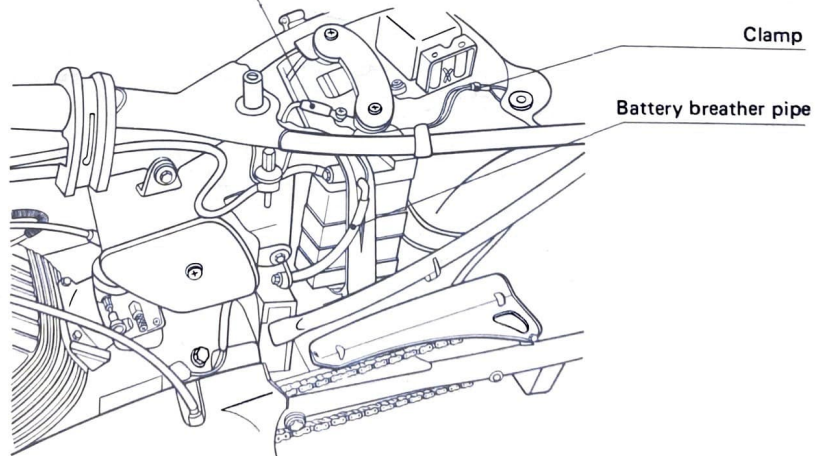
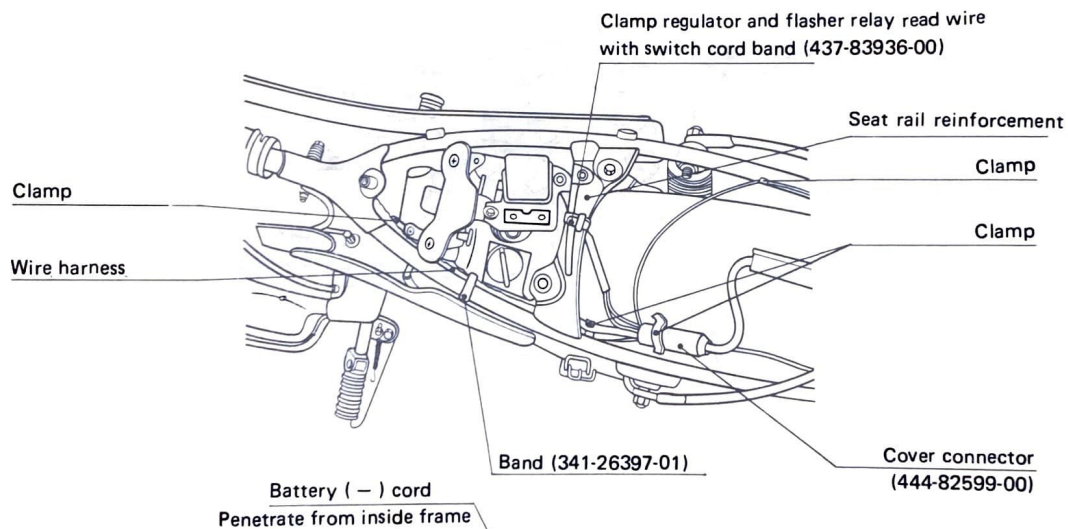
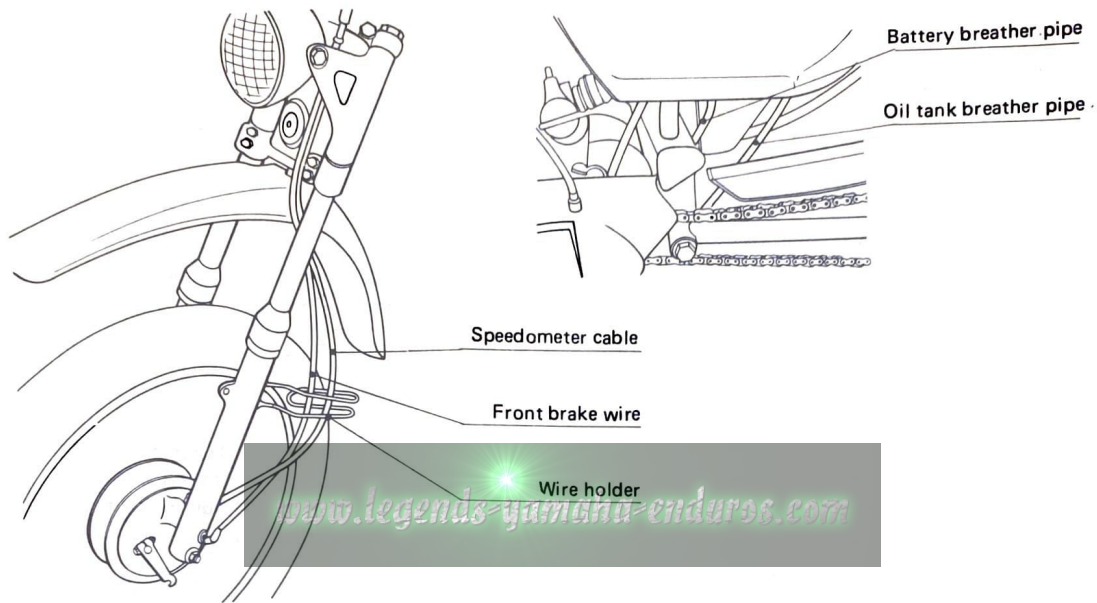
DT100A CABLE ROUTING DIAGRAM

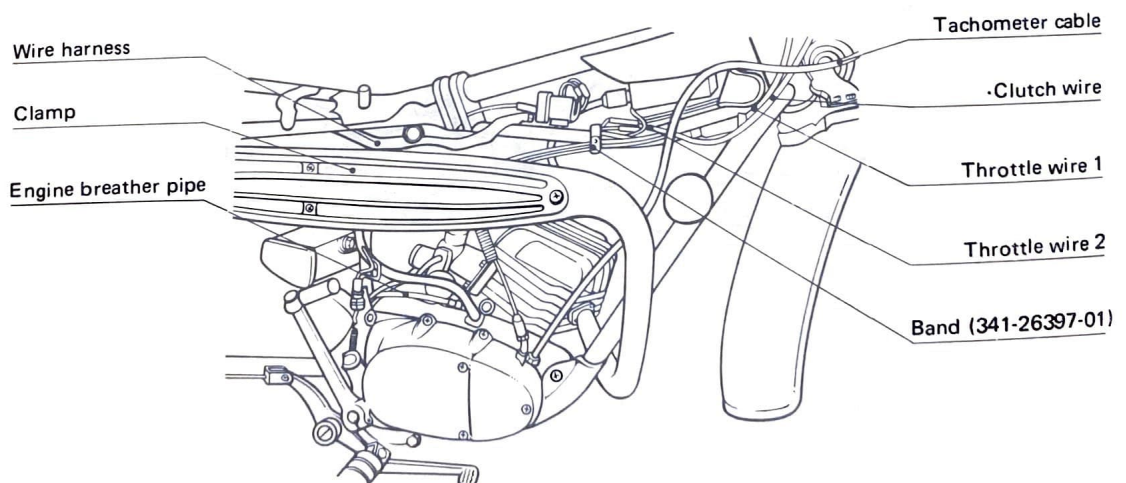
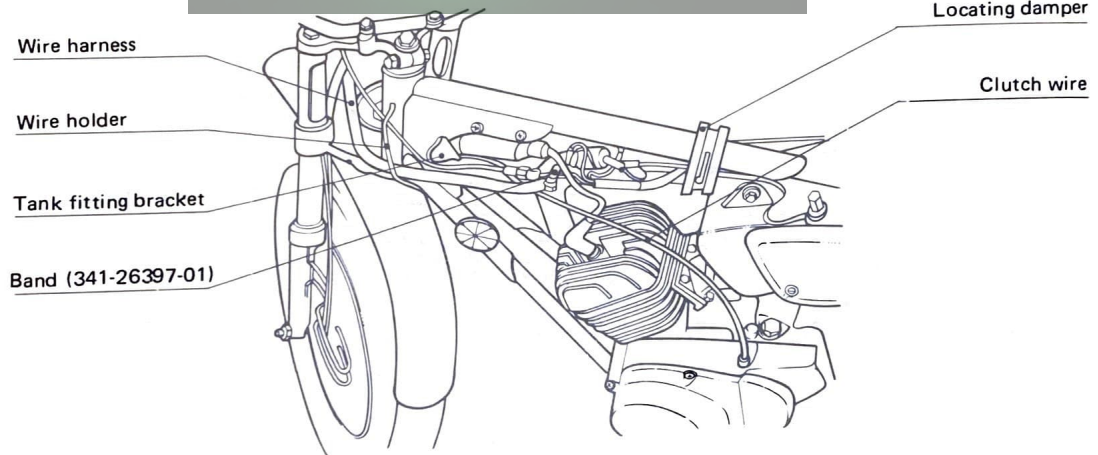
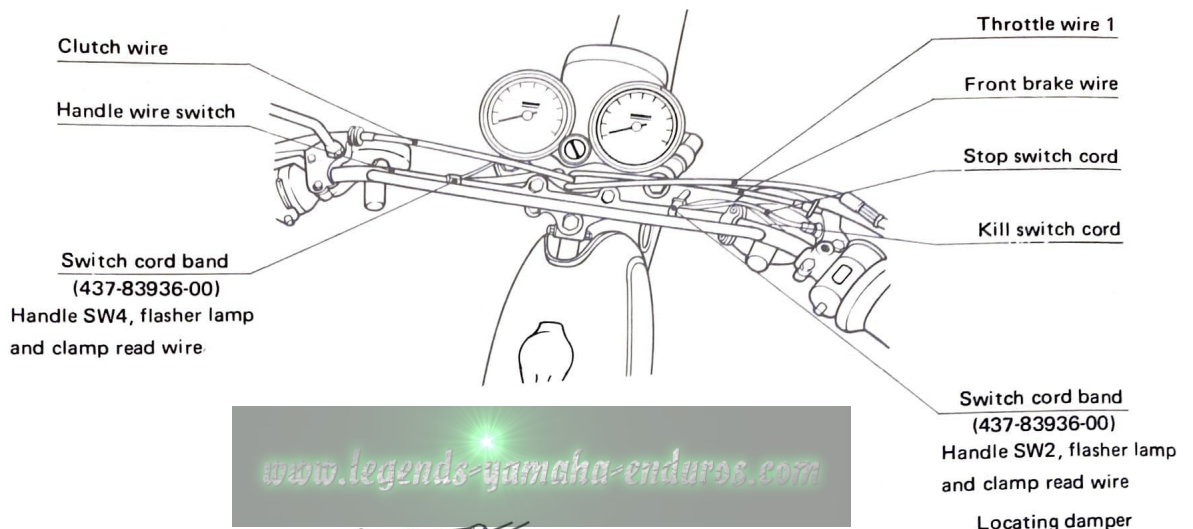




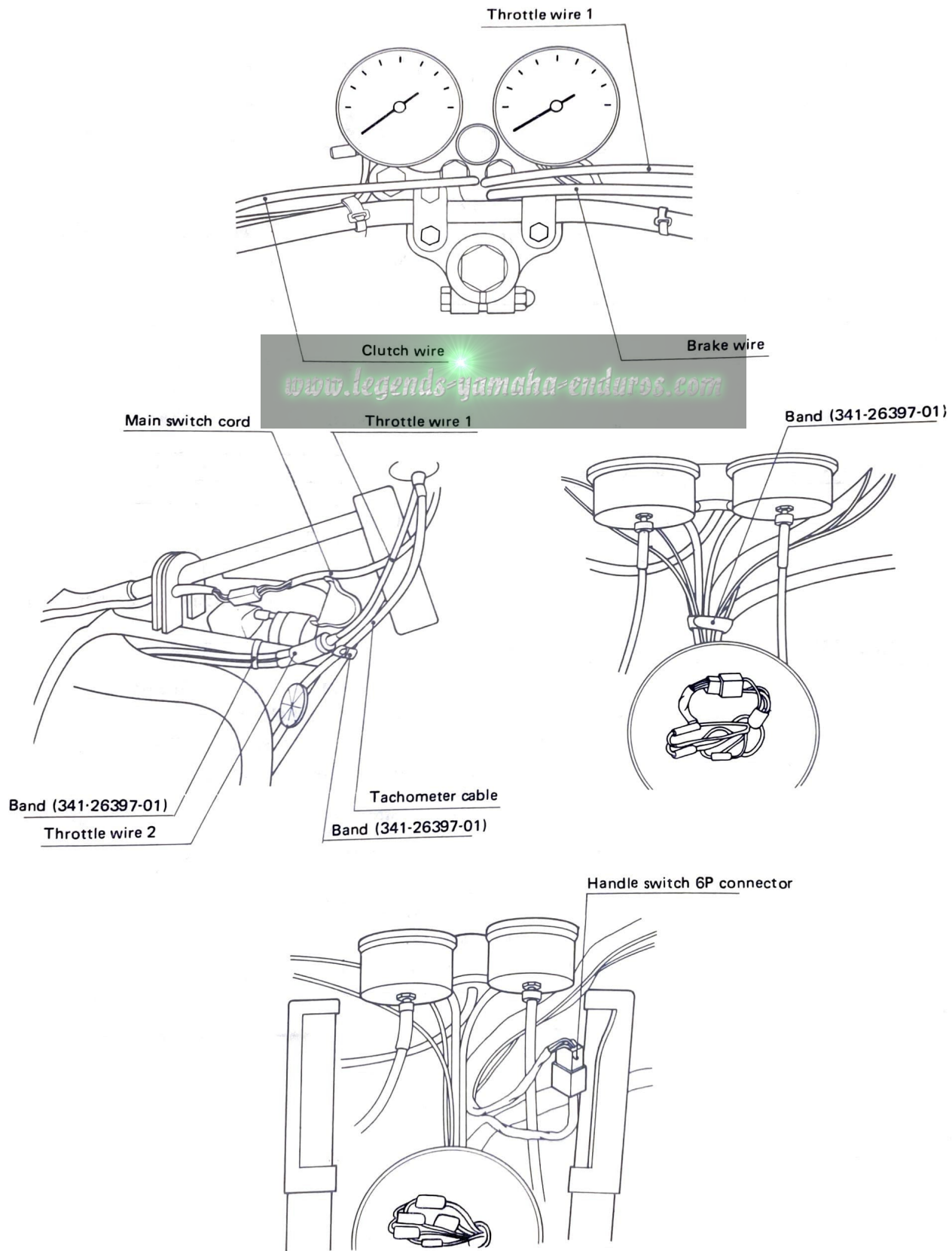


DT125A CABLE ROUTING DIAGRAM





DT175A CABLE ROUTING DIAGRAM



Note: For other details, refer to the DT100A cable routing diagram.

YAMAHA

CONSUMER INFORMATION

1974 MODEL DT100A

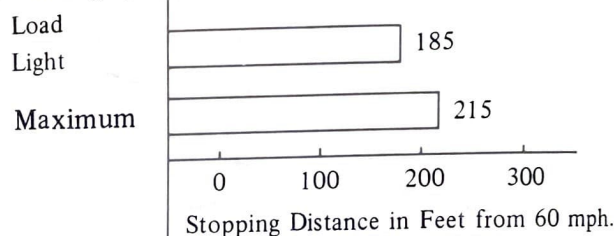
NOTICE

The information presented represents results obtainable by skilled drivers under controlled road and vehicle conditions, and the information may not be correct under other conditions.

STOPPING DISTANCE

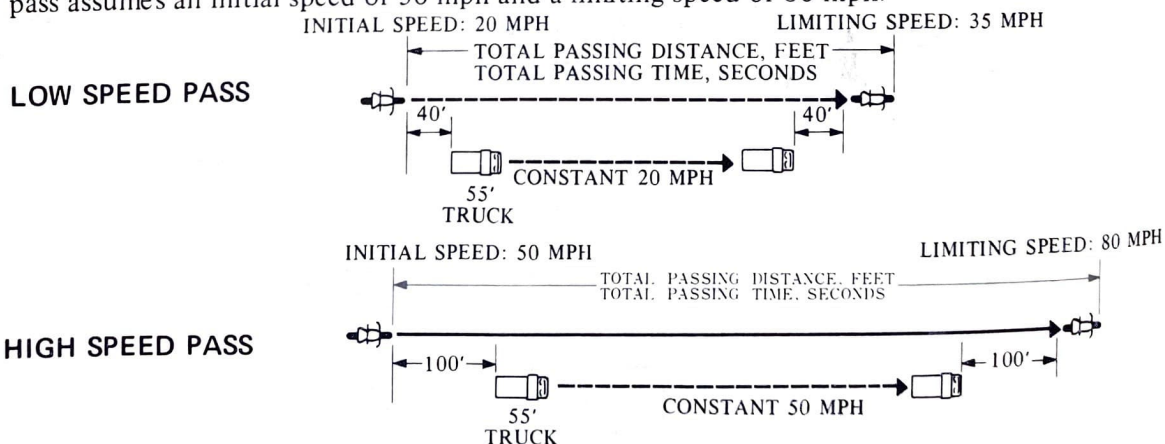
This figure indicates braking performance that can be met or exceeded by the vehicles to which it applies, without locking the wheels, under different conditions of loading and with partial failures of the braking system.

A. Fully Operational Service Brake



ACCELERATION AND PASSING ABILITY

This figure indicates passing times and distances that can be met or exceeded by the vehicles to which it applies, in the situations diagrammed below. The low-speed pass assumes an initial speed of 20 mph and a limiting speed of 35 mph. The high-speed pass assumes an initial speed of 50 mph and a limiting speed of 80 mph.



SUMMARY

Low-speed pas..	382 feet;	8.2 seconds
High-speed pass	1,980 feet;	23.3 seconds

YAMAHA

CONSUMER INFORMATION

1974 MODEL DT125A

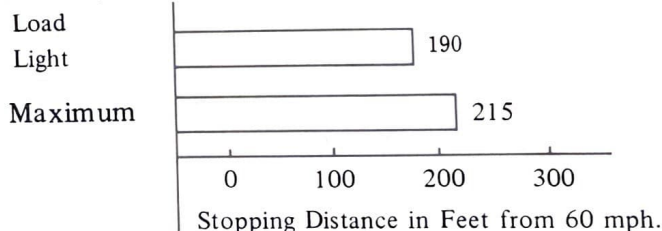
NOTICE

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STOPPING DISTANCE

This figure indicates braking performance that can be met or exceeded by the vehicles to which it applies, without locking the wheels, under different conditions of loading and with partial failures of the braking system.

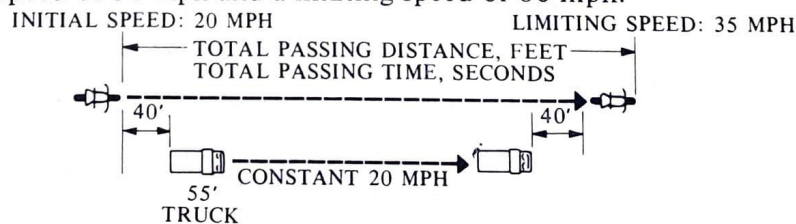
A. Fully Operational Service Brake



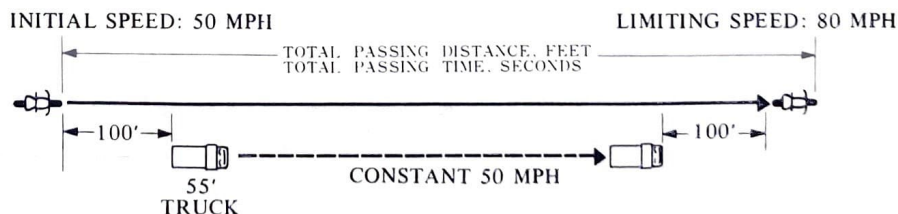
ACCELERATION AND PASSING ABILITY

This figure indicates passing times and distances that can be met or exceeded by the vehicles to which it applies, in the situations diagrammed below. The low-speed pass assumes an initial speed of 20 mph and a limiting speed of 35 mph. The high-speed pass assumes an initial speed of 50 mph and a limiting speed of 80 mph.

LOW SPEED PASS



HIGH SPEED PASS



SUMMARY

Low-speed pass	380 feet;	8.2 seconds
High-speed pass	1,990 feet;	23.6 seconds

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CONSUMER INFORMATION

1974 MODEL DT175A

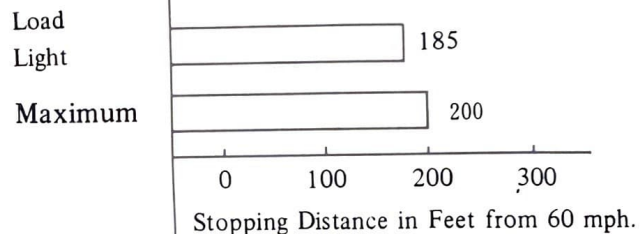
NOTICE

The information presented represents results obtainable by skilled drivers under controlled road and vehicle conditions, and the information may not be correct under other conditions.

STOPPING DISTANCE

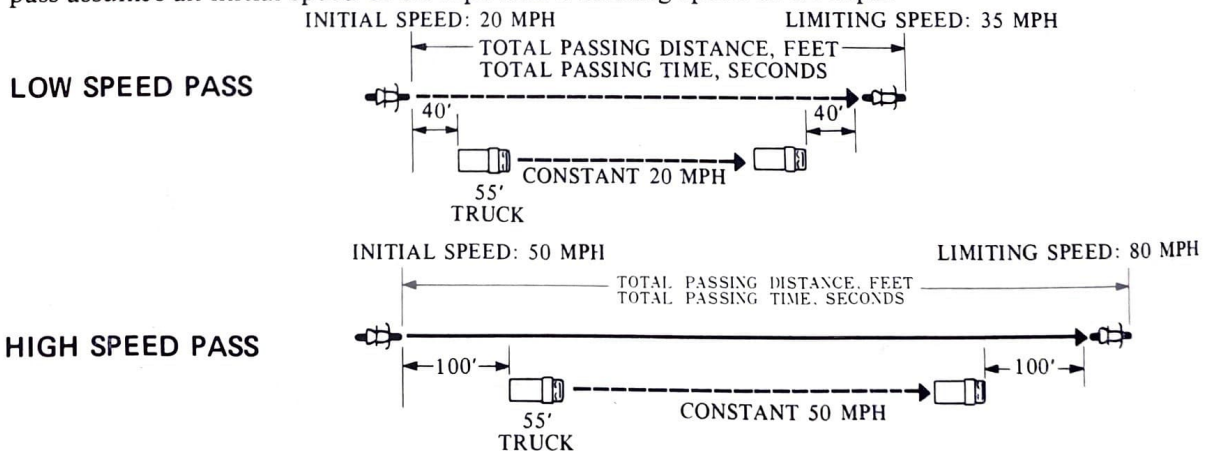
This figure indicates braking performance that can be met or exceeded by the vehicles to which it applies, without locking the wheels, under different conditions of loading and with partial failures of the braking system.

A. Fully Operational Service Brake



ACCELERATION AND PASSING ABILITY

This figure indicates passing times and distances that can be met or exceeded by the vehicles to which it applies, in the situations diagrammed below. The low-speed pass assumes an initial speed of 20 mph and a limiting speed of 35 mph. The high-speed pass assumes an initial speed of 50 mph and a limiting speed of 80 mph.

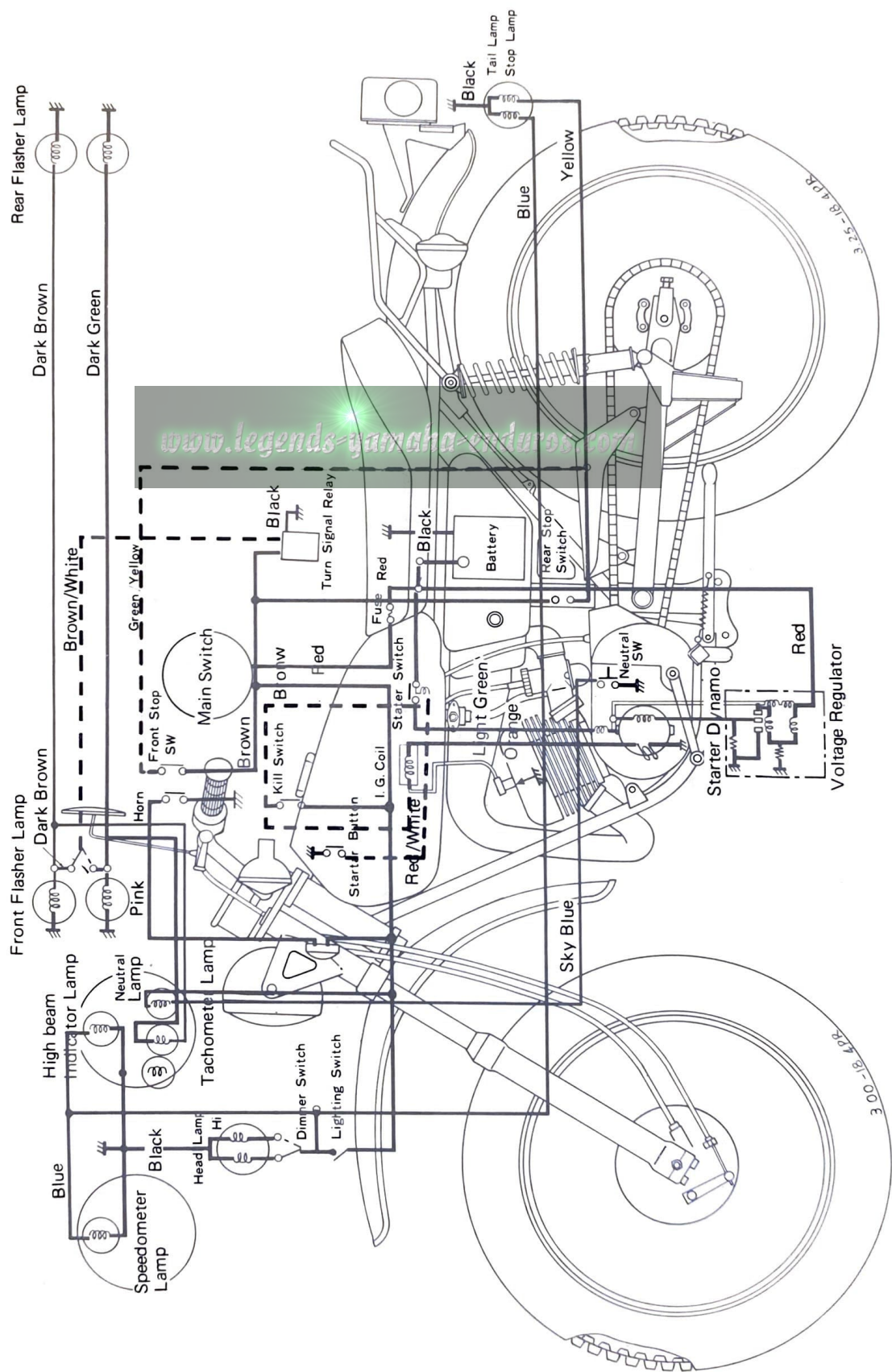


SUMMARY

Low-speed pass	365 feet;	7.7 seconds
High-speed pass	1,530 feet;	17.3 seconds

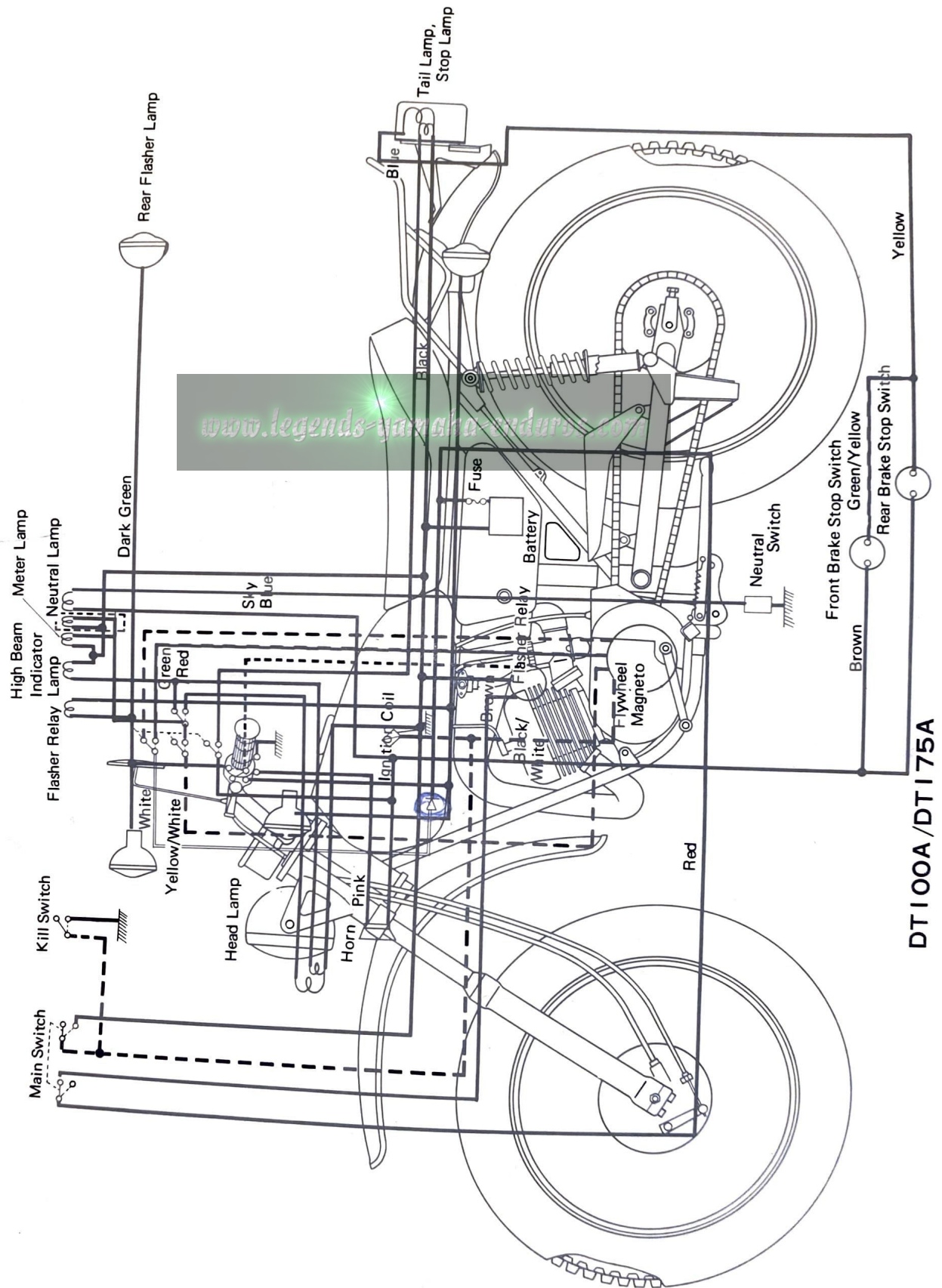
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WIRING DIAGRAM



DT125A

WIRING DIAGRAM



DT100A/DT175A

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