YAMAHA

Manual Clutch and Automatic

T135SE
T135S

T135 SERVICE MANUAL

Sniper / Jupiter MX / Spark 135 / Exciter / 135LC

YamahaT135.COM 03212007 5YP-F8197-E0

EAS00000

T135SE/T135S
SERVICE MANUAL

EAS00002

NOTICE

This manual was produced by the Yamaha Motor Company, Ltd. primarily for use by Yamaha dealers and their qualified mechanics. It is not possible to include all the knowledge of a mechanic in one manual. Therefore, anyone who uses this book to perform maintenance and repairs on Yamaha vehicles should have a basic understanding of mechanics and the techniques to repair these types of vehicles. Repair and maintenance work attempted by anyone without this knowledge is likely to render the vehicle unsafe and unfit for use.

Yamaha Motor Company, Ltd. is continually striving to improve all of its models. Modifications and significant changes in specifications or procedures will be forwarded to all authorized Yamaha dealers and will appear in future editions of this manual where applicable.

NOTE:

Designs and specifications are subject to change without notice.

EAS00004

IMPORTANT MANUAL INFORMATION

Particularly important information is distinguished in this manual by the following.

⚠ The Safety Alert Symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

⚠WARNING Failure to follow WARNING instructions could result in severe injury or death to the vehicle operator, a bystander or a person checking or repairing the vehicle.

CAUTION: A CAUTION indicates special precautions that must be taken to avoid damage to the vehicle.

NOTE: A NOTE provides key information to make procedures easier or clearer.

EASF0001

HOW TO USE THIS MANUAL

CONSTRUCTION OF THIS MANUAL

This manual consists of chapters for the main categories of subjects. (See “Illustrated symbols”)
1st title ①:This is a chapter with its symbol on the upper right of each page.
2nd title ②:This title appears on the upper of each page on the left of the chapter symbol. (For the chapter “Periodic inspection and adjustment” the 3 rd title appears.)
3rd title ③:This is a final title.

MANUAL FORMAT

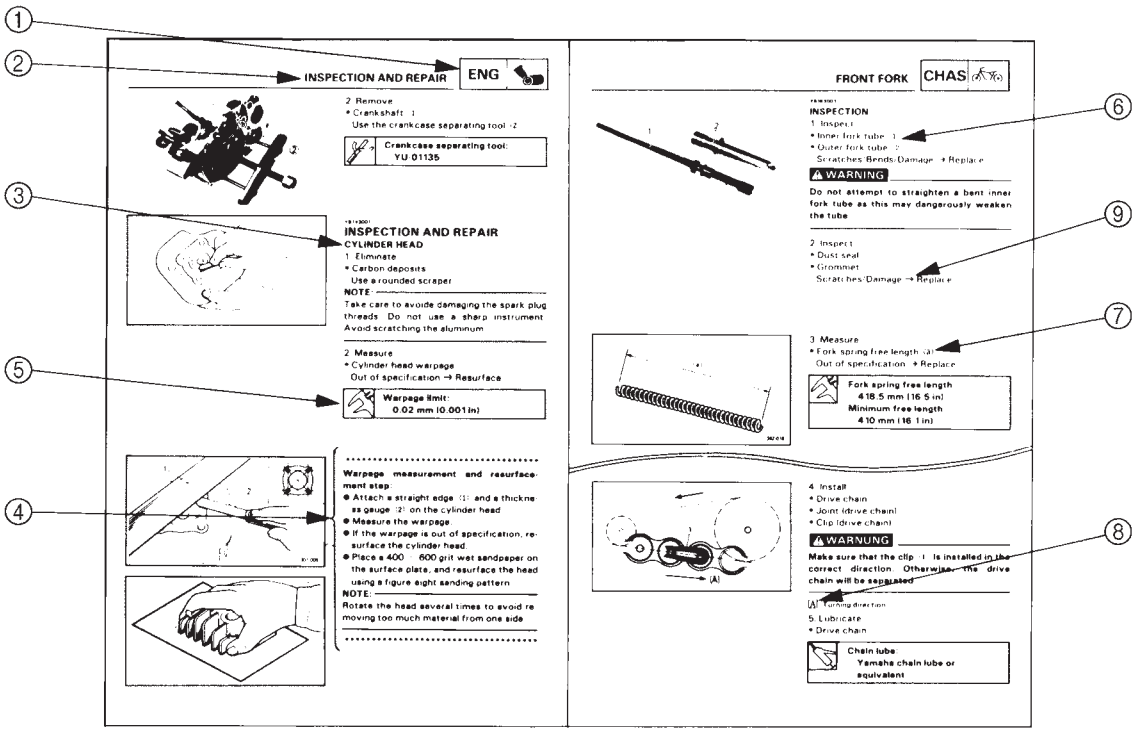
All of the procedures in this manual are organized in a sequential, step - by - step format. The information has been compiled to provide the mechanic with a easy to read, handy reference that contains comprehensive explanations of all disassembly, repair, assembly, and inspections.
A set of particularly important procedure ④ is placed between a line of mark “▼” or “▲” with each procedure preceded by “●”.

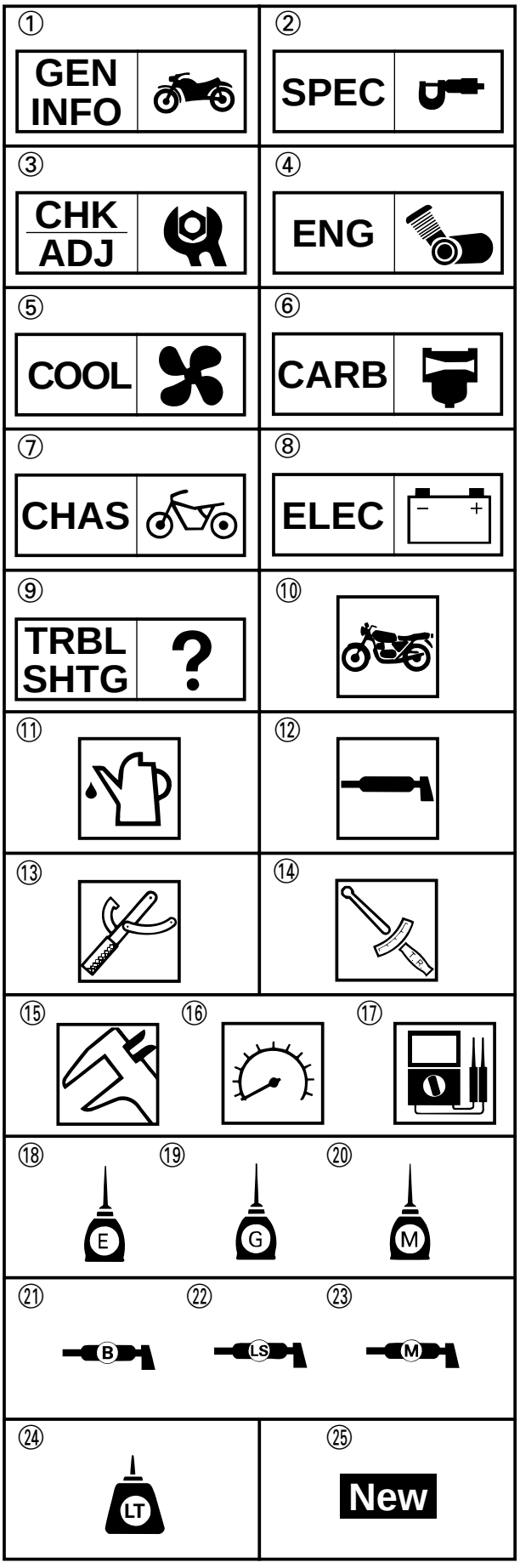
IMPORTANT FEATURES

- ●Data and a special tool are framed in a box preceded by a relevant symbol ⑤ .
- ●An encircled numeral ⑥ indicates a part name, and an encircled alphabetical letter date or an alignment mark ⑦, the others being indicated by an alphabetical letter in a box ⑧ .
- ●A condition of a faulty component will precede an arrow symbol and the course of action required the symbol ⑨ .

EXPLODED DIAGRAM

Each chapter provides exploded diagrams before each disassembly section for ease in identifying correct disassembly and assembly procedures.





SYMBOLS

The following symbols are not relevant to every vehicle.

Symbols ① to ⑨ indicate the subject of each chapter.

① General information
② Specifications
③ Periodic checks and adjustments
④ Engine
⑤ Cooling system
⑥ Carburetor
⑦ Chassis
⑧ Electrical system
⑨ Troubleshooting

Symbols ⑩ to ⑰ indicate the following.

⑩ Serviceable with engine mounted
⑪ Filling fluid
⑫ Lubricant
⑬ Special tool
⑭ Tightening torque
⑮ Wear limit, clearance
⑯ Engine speed
⑰ Electrical data

Symbols ⑱ to ㉓ in the exploded diagrams indicate the types of lubricants and lubrication points.

⑱ Engine oil
⑲ Gear oil
⑳ Molybdenum-disulfide oil
㉑ Wheel-bearing grease
㉒ Lithium-soap-based grease
㉓ Molybdenum-disulfide grease

Symbols ㉔ to ㉕ in the exploded diagrams indicate the following.

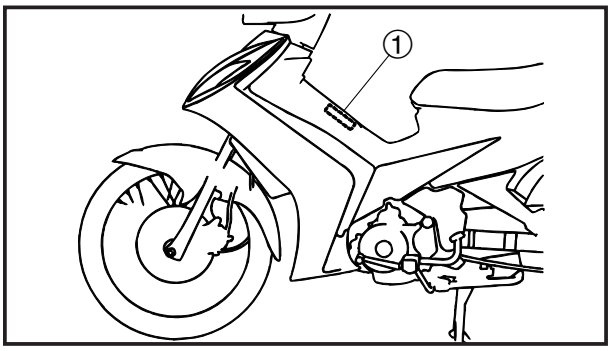
㉔ Apply locking agent (LOCTITE®)
㉕ Replace the part

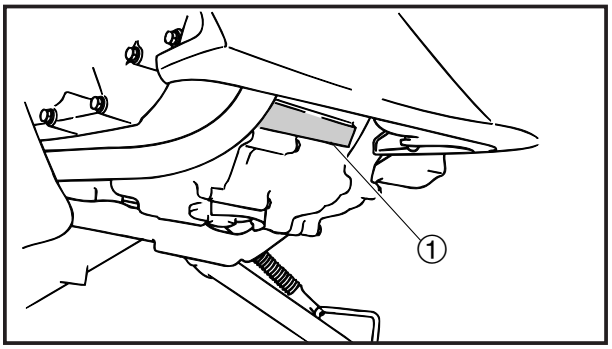
EAS00011

TABLE OF CONTENTS

GEN INFO 

CHAPTER 1
GENERAL INFORMATION





EAS00014

GENERAL INFORMATION

VEHICLE IDENTIFICATION

EAS00017

VEHICLE IDENTIFICATION NUMBER

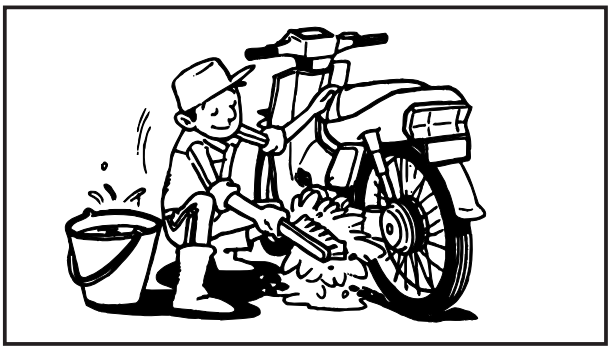
The number ① is stamped into the center of the frame.

ENGINE SERIAL NUMBER

The engine serial number ① is stamped into the crankcase.

NOTE:

Designs and specifications are subject to change without notice.

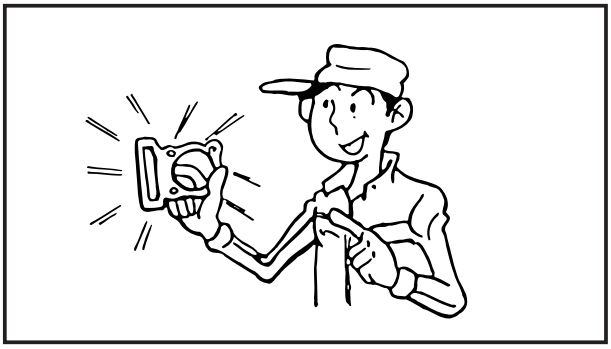


EAS00020

IMPORTANT INFORMATION

PREPARATION FOR REMOVAL AND DISASSEMBLY

1. Before removal and disassembly, remove all dirt, mud, dust and foreign material.
2. Use only the proper tools and cleaning equipment.
   Refer to the “SPECIAL TOOLS”.
3. When disassembling, always keep mated parts together. This includes gears, cylinders, pistons and other parts that have been “mated” through normal wear. Mated parts must always be reused or replaced as an assembly.
4. During disassembly, clean all of the parts and place them in trays in the order of disassembly. This will speed up assembly and allow for the correct installation of all parts.
5. Keep all parts away from any source of fire.



EAS00021

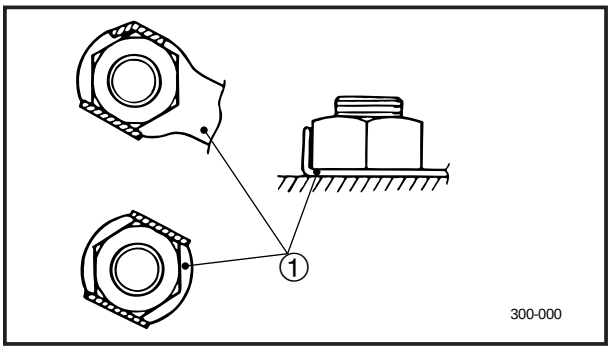
REPLACEMENT PARTS

Use only genuine Yamaha parts for all replacements. Use oil and grease recommended by Yamaha for all lubrication jobs. Other brands may be similar in function and appearance, but inferior in quality.

EAS00022

GASKETS, OIL SEALS AND O-RINGS

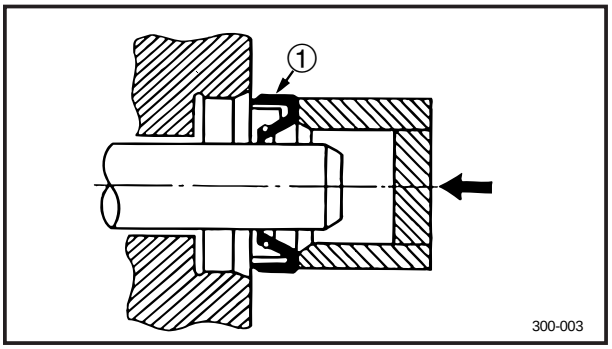
1. When overhauling the engine, replace all gaskets, seals and O-rings. All gasket surfaces, oil seal lips and O-rings must be cleaned.
2. During reassembly, properly oil all mating parts and bearings and lubricate the oil seal lips with grease.



EAS00023

LOCK WASHERS/PLATES AND COTTER PINS

After removal, replace all lock washers/plates ① and cotter pins. After the bolt or nut has been tightened to specification, bend the lock tabs along a flat of the bolt or nut.



EAS00024

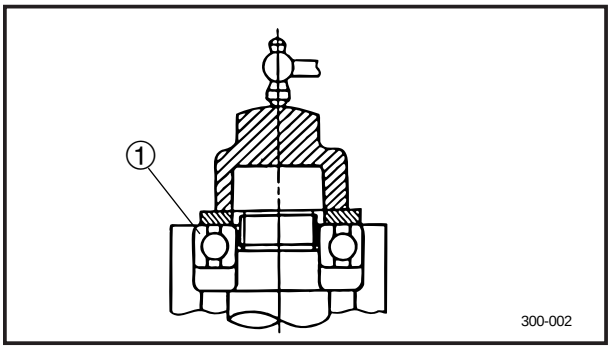
BEARINGS AND OIL SEALS

Install bearings and oil seals so that the manufacturer's marks or numbers are visible. When installing oil seals, lubricate the oil seal lips with a light coat of lithium-soap-based grease. Oil bearings liberally when installing, if appropriate.

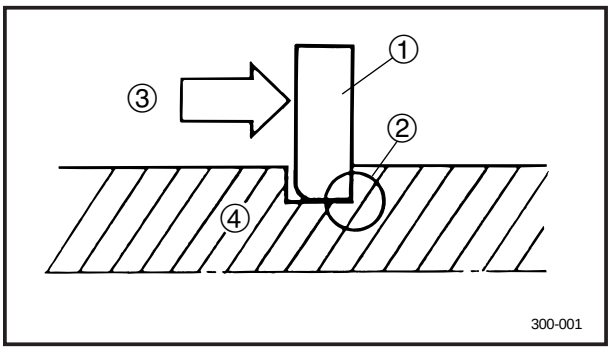
① Oil seal

CAUTION:

Do not spin the bearing with compressed air because this will damage the bearing surfaces.



① Bearing



EAS00025

CIRCLIPS

Before reassembly, check all circlips carefully and replace damaged or distorted circlips. Always replace piston pin clips after one use. When installing a circlip ①, make sure the sharp-edged corner ② is positioned opposite the thrust ③ that the circlip receives.

④ Shaft

EAS00026

CHECKING THE CONNECTIONS

Check the leads, couplers, and connectors for stains, rust, moisture, etc.

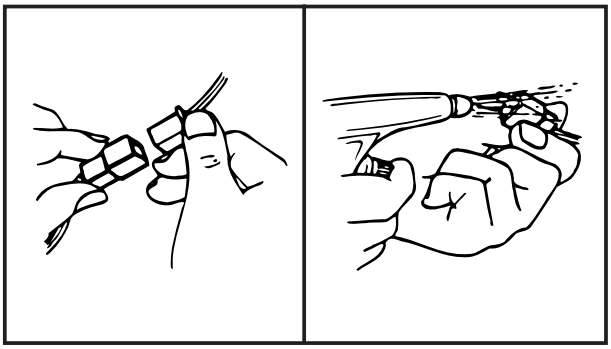
1. Disconnect:
   - lead
   - coupler
   - connector
2. Check:
   - lead
   - coupler
   - connector

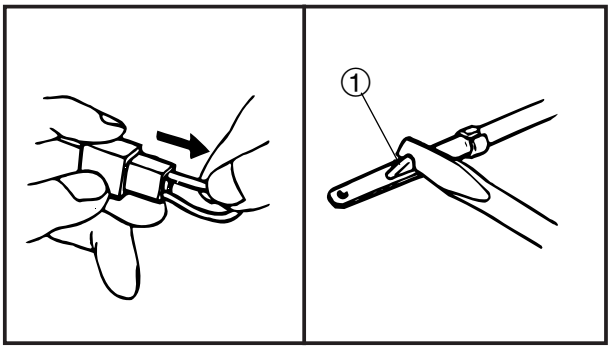
   Moisture → Dry with compressed air.
   Rust/stains → Connect and disconnect several times.
3. Check:
   - all connections

   Loose connection → Connect properly.

NOTE:

If the pin ① on the terminal is flattened, bend it up.

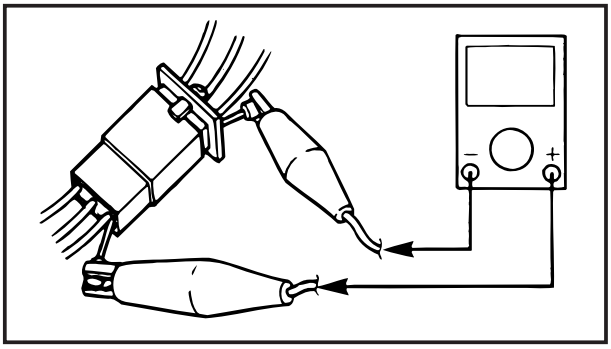




4. Connect:
   - lead
   - coupler
   - connector

NOTE:

Make sure all connections are tight.



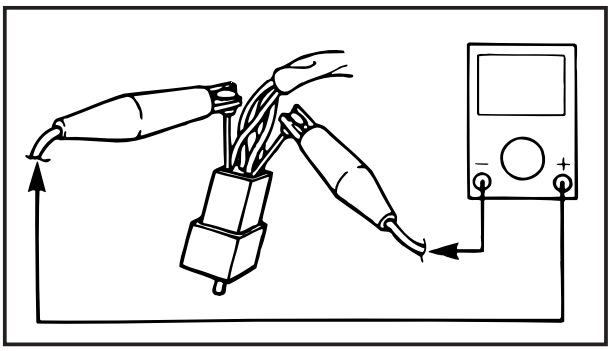
5. Check:
   - continuity

   (with the pocket tester)

	Pocket tester **90890-03112**

NOTE:

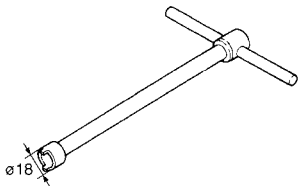
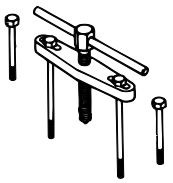
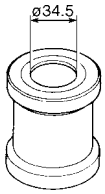
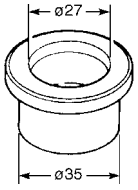
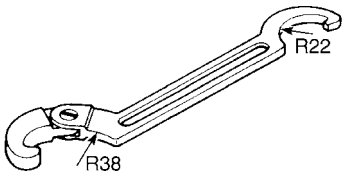
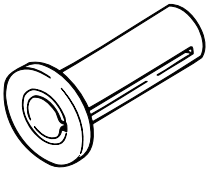
- If there is no continuity, clean the terminals.
- When checking the wire harness, perform steps (1) to (3).
- As a quick remedy, use a contact revitalizer available at most part stores.

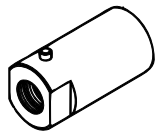
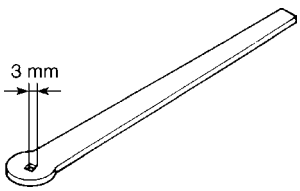
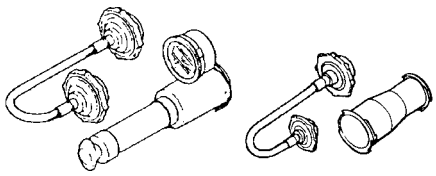
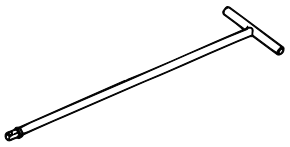
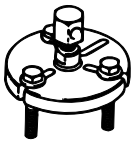
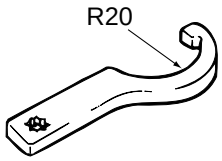
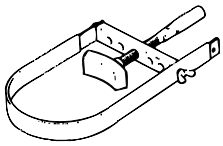
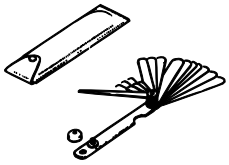


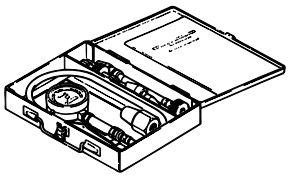
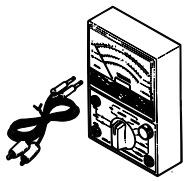
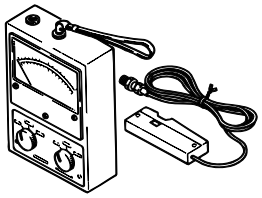
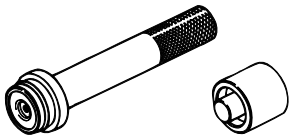
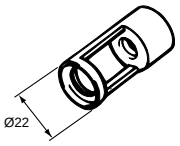
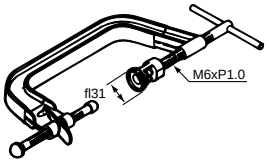
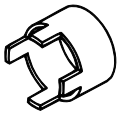
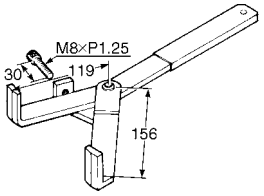
EAS00027

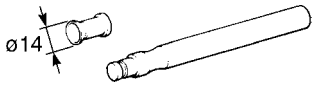
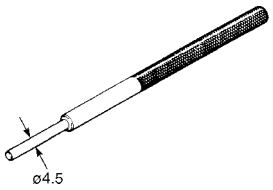
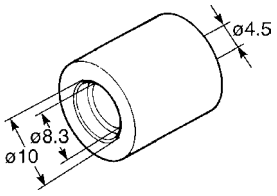
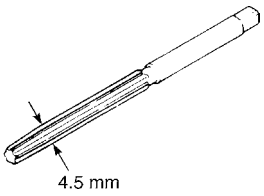
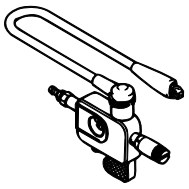
SPECIAL TOOLS

The following special tools are necessary for complete and accurate tune-up and assembly. Use only the appropriate special tools as this will help prevent damage caused by the use of inappropriate tools or improvised techniques. Special tools, part numbers or both may differ depending on the country. When placing an order, refer to the list provided below to avoid any mistakes.

Tool No.	Tool name/Usage	Illustration
90890-01052	Meter gear bush tool This tool is used to remove or install the bushing.	
90890-01135	Crankcase separating tool This tool is necessary for separating the crankcase.	
90890-01184	Fork seal driver weight This tool is used for to install the oil seal.	
90890-01186	Fork seal driver attachment This tool is used to install the oil seal.	
90890-01268	Ring nut wrencht This tool is used to loosen and tighten the steering ring nut	
90890-01274	Crankshaft instoller pot This tool is necessary for installing the crankshaft.	
90890-01275	Crankcase installer bolt This tool is necessary for installing the crankshaft.	

Tool No.	Tool name/Usage	Illustration
90890-01278	Adoptor (M12) This tool is necessary for installing the crankshaft.	
90890-01311	Tappet adjusting tool This tool is necessary for adjusting valve clearance.	
Radiator cap tester 90890-01325 Radiator cap tester adapter 90890-01352	Radiator cap tester Radiator cap tester adapter These tools are used to check the cooling syatem.	
90890-01326	T-handle This tool is used for holding the damper rod holder when removing or installing the damper rod holder.	
90890-01362	Flywheel puller This tool is used for removing the roter.	
90890-01403	Steering nut wrencht This tool is used to loosen and tighten the steering ring nut	
90890-01701	Sheave holder This tool is used for holding the generator roter.	
90890-03079	Thickness gauge This tool is used to measure the valve clearance.	

Tool No.	Tool name/Usage	Illustration
90890-03081	Compression gauge These tools are used to measure the engine compression.	
90890-03112	Pocket tester This instrument is necessary for checking the electrical system.	
90890-03113	Engine tachometer This tool is needed for detecting engine rpm.	
Middle driven shaft bearing driver 90890-04058 Mechanical seal installer 90890-04145	Middle driven shaft bearing driver Mechanical seal installer These tools are used to install the water pump seal.	
90890-04108	Valve spring compressor Attachment This tool is used when removing or installing the valve and valve spring.	
90890-04019	Valve spring compressor This tool is used when removing or installing the valve and valve spring.	
90890-04081	Spacer This tool is necessary for insatlling the crankshaft.	
90890-04086	Universal clutch holder This tool is needed to hold the clutch when removing or installing the clutch boss nut.	

Tool No.	Tool name/Usage	Illustration
90890-04101	Valve lapper This tool is used for removeing and installing the lifter and for lapping the valve.	
90890-04116	Valve guide remover (4.5 mm) This tool is needed to remove and installing the valve guide.	
90890-04117	Valve guide installer (4.5 mm) This tool is needed to install the valve guide.	
90890-04118	Valve guide reamer (4.5 mm) This tool is needed rebore the new valve guide.	
90890-06754	Ignition checker This instrument is necessary for checking the ignition system components.	

CHAPTER 2
SPECIFICATIONS

SPECIFICATIONS

GENERAL SPECIFICATIONS

Model	T135SE/T135S
Model code	5YP1 (T135SE) 5YP2 (T135S)
Dimensions	
Overall length	1,945 mm (76.6 in)
Overall width	705 mm (27.8 in)
Overall height	1,065mm (41.9 in)
Seat height	770 mm (30.3 in)
Wheelbase	1,245 mm (49.0 in)
Minimum ground clearance	140 mm (5.51 in)
Minimum turning radius	1,900 mm (74.8 in)
Weight	
Wet (with oil and full fuel tank)	109 kg (240 lb)
Engine	
Engine type	Liquid-cooled 4-stroke, SOHC
Cylinder arrangement	Forward-inclined single cylinder
Displacement	134.4 cm^3 (8.20 cu.in)
Bore × stroke	54.0 × 58.7 mm (2.13 × 2.31 in)
Compression ratio	10.9 : 1
Compression pressure (STD)	560 kPa (80 psi) (5.6 kgf/cm^2) at 500 r/m/ with electric starter
Starting system	Kick and electric starter
Lubrication system	Wet sump
Engine idling speed	1,300 – 1,500 r/min
Oil type or grade	
Engine oil	SAE 20W40 type SF or higher grade motor oil
Periodic oil change amount	0.8 L (0.70 Imp.qt, 0.85 US qt)
Total amount	1.15 L (1.01 Imp.qt, 1.22 US qt)
Oil filer	Paper
Oil pump	Gear pump
Cooling system	
Coolant	YAMAHA GENUINE COOLANT
Coolant reservoir capacity (up to the maximum level mark)	0.28L (0.25 Imp.qt, 0.30 US qt)
Radiator capacity (include all routes)	0.62L (0.55 Imp.qt, 0.66 US qt)
Air filter	Dry type paper element
Fuel	
Recommended fuel	Regular gasoline
Fuel tank capacity	4.0 L (0.88 Imp.gal, 1.06 US gal)

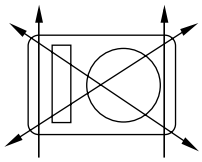
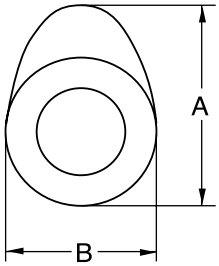
Model		T135SE/T135S
Carburetor		
Type/quantity		VM22/1
Manufacturer		MIKUNI
Spark plug		
Type		CPR8EA-9
Manufacturer		NGK
Spark plug gap		0.8 – 0.9 mm (0.031 – 0.035 in)
Clutch type		Wet, multiple-disc and centrifugal automatic
Transmission		
Primary reduction system		Spur gear
Primary reduction ratio		69/24 (2.875)
Secondary reduction system		Chain drive
Secondary reduction ratio		39/15 (2.600)
Transmission type		Constant mesh 4 speed
Operation		Left foot operation
Gear ratio	1st	34/12 (2.833)
	2nd	30/16 (1.875)
	3rd	23/17 (1.353)
	4th	23/22 (1.045)
Chassis		
Frame type		Diamond
Caster angle		25.3°
Trail		73.0 mm (2.87 in)
Tire		
Type		With tube
Size	front	60/100-17M/C 33P
	rear	80/90-17M/C 44P
Model (manufacturer)	front	IRC/NF63B, Vee Rubber/V304
	rear	IRC/NR78Y, Vee Rubber/V304
Min. tire tread depth	front	0.8 mm (0.03 in)
	rear	0.8 mm (0.03 in)
Tire pressure (cold tire)		
Maximum load*-except vehicle		110 kg (243 lb)
	front	200 kPa (29 psi) (2.00 kgf/cm^2)
	rear	225 kPa (33 psi) (2.25 kgf/cm^2)

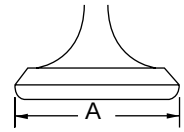
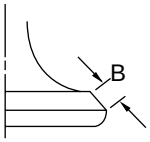
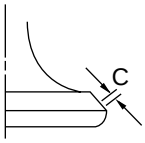
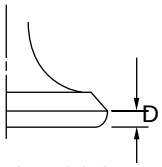
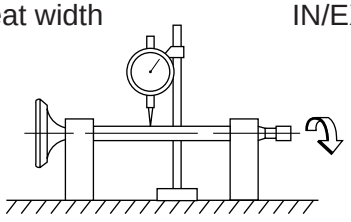
* Load is the total weight of cargo, rider, passenger,and accessories.

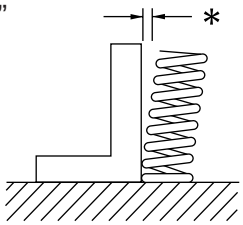
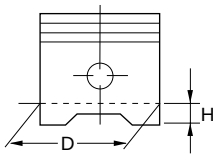
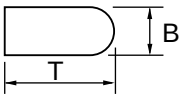
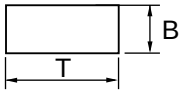
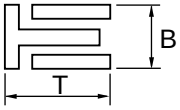
Model		T135SE/T135S
Brake		
Front brake	type	Single disc brake
	operation	Right hand operation
Rear brake	type	Drum brake
	operation	Right foot operation
Suspension		
Front suspension		Telescopic fork
Rear suspension		Swingarm (monocross)
Shock absorber		
Front shock absorber		Coil spring/oil damper
Rear shock absorber		Coil spring/oil damper
Wheel travel		
Front wheel travel		100 mm (3.94 in)
Rear wheel travel		90 mm (3.54 in)
Electrical		
Ignition system		DC. C.D.I.
Generator system		A.C. magneto
Battery type/manufacturer		GM5Z-3B/LOCAL MADE
Battery capacity		12 V 5 AH
Headlight type		Krypton bulb
Bulbs (voltage/wattage × quantity)		
Headlight		12 V 32 W/32 W × 1
Auxiliary light		12 V 5 W × 2
Tail/brake light		12 V 5 W/21 W × 1
Front turn signal light		12 V 10 W × 2
Rear turn signal light		12 V 10 W × 2
Meter light		12 V 1.7 W × 1
High beam indicator light		12 V 1.7 W × 1
Neutral indicator light		12 V 1.7 W × 1
Turn signal indicator light		12 V 1.7 W × 1
Coolant temperature warning light		12 V 1.7 W × 1
Gear position indicator light		12 V 1.7 W × 4

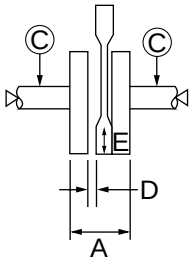
MAINTENANCE SPECIFICATIONS

ENGINE

Item	Standard	Limit
Cylinder head		
Max. warpage "*" 	----	0.03 mm (0.0012 in)
Cylinder		
Bore	54.000 – 54.010 mm (2.1260 – 2.1264 in)	54.1 mm (2.1299 in)
Out of round limit	----	0.05 mm (0.002 in)
Camshaft		
Drive Method	Chain drive (left)	
Cam dimensions 		
Intake "A"	29.643 – 29.743 mm (1.1670 – 1.1710 in)	29.613 mm (1.1659 in)
"B"	25.073 – 25.173 mm (0.9871 – 0.9911 in)	25.043 mm (0.9859 in)
Exhaust "A"	29.942 – 30.042 mm (1.1788 – 1.1828 in)	29.912 mm (1.1776 in)
"B"	25.019 – 25.119 mm (0.9850 – 0.9889 in)	24.989 mm (0.9838 in)
Camshaft runout limit	----	0.03 mm (0.0012 in)
Timing chain		
Timing chain type/No. of links	SILENT CHAIN/96	----
Tensioning system	Automatic	----
Rocker arm/rocker arm shaft		
Rocker arm inside diameter	9.985 – 10.000 mm (0.3931 – 0.3937 in)	10.030 mm (0.0012 in)
Rocker arm shaft outside diameter	9.966 – 9.976 mm (0.3924 – 0.3928 in)	9.950 mm (0.3917 in)
Rocker-arm-to-rocker-arm-shaft clearance	0.009 – 0.034 mm (0.0004 – 0.0130 in)	0.08 mm (0.0031 in)

Item		Standard	Limit
Valve, valve seat, valve guide			
Valve clearance (cold)	IN	0.10 – 0.14 mm (0.0039 – 0.0055 in)	----
	EX	0.16 – 0.20 mm (0.0063 – 0.0079 in)	----
Valve dimensions			
 Head Diameter		 Face Width	 Seat Width
 Margin Thickness			
“A” head diameter	IN	19.40 – 19.60 mm (0.7638 – 0.7717 in)	----
	EX	16.90 – 17.10 mm (0.6654 – 0.6732 in)	----
“B” face width	IN	1.583 – 2.138 mm (0.060 – 0.0842 in)	----
	EX	1.538 – 2.138 mm (0.0606 – 0.0842 in)	----
“C” seat width	IN	0.9 – 1.1 mm (0.035 – 0.043 in)	1.6 mm (0.0630 in)
	EX	0.9 – 1.1 mm (0.035 – 0.043 in)	1.6 mm (0.0630 in)
“D” margin thickness	IN	0.5 – 0.9 mm (0.20 – 0.36 in)	----
	EX	0.5 – 0.9 mm (0.20 – 0.36 in)	----
Valve stem outside diameter	IN	4.475 – 4.490 mm (0.1762 – 0.1768 in)	4.450 mm (0.1752 in)
	EX	4.460 – 4.475 mm (0.1756 – 0.1762 in)	4.435 mm (0.1746 in)
Guide inside diameter	IN	3.950 – 4.050 mm (0.1555 – 0.1594 in)	4.542 mm (0.1788 in)
	EX	3.950 – 4.050 mm (0.1555 – 0.1594 in)	4.542 mm (0.1788 in)
Valve-stem-to-guide clearance	IN	0.0010 – 0.037mm (0 – 0.0015 in)	0.080 mm (0.0032 in)
	EX	0.025 – 0.052 mm (0.0010 – 0.0020 in)	0.100 mm (0.0039 in)
Valve stem runout limit		----	0.01 mm (0.0004 in)
Valve seat width	IN/EX	0.9 – 1.1 mm (0.035 – 0.043 in)	1.6 mm (0.0630 in)
			

Item		Standard	Limit
Valve spring			
Free length	IN/EX	47.33 mm (1.86 in)	44.96 mm (1.77 in)
Installed length (valve closed)	IN/EX	35.30 mm (1.39 in)	----
Compressed spring force	IN/EX	135.6 – 156.0 N (13.8 – 15.8 kgf) at 35.3 mm (1.39 in)	----
Tilt limit “*” 	IN/EX	----	2.0 mm (0.08 in)
Winding direction	IN/EX	Clockwise	----
Piston			
Piston-to-cylinder clearance		0.015 – 0.048 mm (0.0006 – 0.0019 in)	0.150 mm (0.0059 in)
Piston size “D” 		53.962 – 53.985 mm (2.1245 – 2.1254 in)	----
Measuring point “H”		5.0 mm (0.1969 in)	----
Offset		0.25 mm (0.0098 in)	----
Offset direction		Intake side	----
Piston pin bore inside diameter		14.002 – 14.013 mm (0.5513– 0.5517 in)	14.043 mm (0.5529 in)
Piston pin outside diameter		13.995 – 14.000 mm (0.5510– 0.5512 in)	13.975 mm (0.5502 in)
Piston rings			
Top ring			
Ring type		Barrel	----
Dimensions (B × T) 		0.80 × 1.90 mm (0.03 × 0.07 in)	----
End gap (installed)		0.10 – 0.25 mm (0.0098 in) (0.00-0.01 in)	0.40 mm (0.0157 in)
Ring side clearance (installed)		0.030 – 0.065 mm (0.0012-0.0026 in)	0.10 mm (0.0039 in)
2nd ring			
Ring type		Taper	----
Dimensions (B × T) 		0.80 × 2.15 mm (0.03 × 0.08 in)	----
End gap (installed)		0.10 – 0.25 mm (0.0098 in) (0.00-0.01 in)	0.40 mm (0.0157 in)
Ring side clearance		0.020 – 0.055 mm (0.0008-0.0022 in)	0.10 mm (0.0039 in)
Oil ring 			
Dimensions (B × T)		1.50 × 1.95 mm (0.06 × 0.08 in)	----
End gap (installed of oil ring rails)		0.20 – 0.70 mm (0.01 – 0.03 in)	----

Item	Standard	Limit
Crankshaft 		
Crank width “A”	45.95 – 46.00 mm (1.81-1.81 in)	----
Max. runout limit “C”	----	0.03 mm (0.0012 in)
Big end side clearance “D”	0.11 – 0.41 mm (0.0403 – 0.016 in)	----
Big end radial clearance “E”	0.004 – 0.014 mm (0.10 – 0.11 in)	----
Clutch		
Friction plate #1		
Thickness	2.5 – 2.7 mm (0.10 – 0.11 in)	2.4 mm (0.09 in)
Plate quantity	3	----
Friction plate #2		
Thickness	2.5 – 2.7 mm (0.10 – 0.11 in)	2.4 mm (0.09 in)
Plate quantity	1	----
Clutch plates		
Thickness	1.59 – 1.68 mm (0.06-0.07 in)	----
Plate quantity	3	----
Max. warpage	----	0.05 mm (0.0020 in)
Clutch springs		
Free length	40.5 mm (1.60 in)	38.5 mm (1.52 in)
Spring quantity	4	----
Clutch release method	Inner push, cam push	----
Clutch shoe thickness	2.0 mm (0.08 in)	----
Clutch shoe groove depth	1.0 mm (0.04 in)	0.1 mm (0.0039 in)
Clutch housing inside diameter	116 mm (4.57 in)	117 mm (4.6063 in)
Weight outside diameter	116 mm (4.57 in)	115 mm (4.5276 in)
Clutch - in revolution	1,750 – 2,150 r/min	----
Clutch - stall revolution	2,930 – 3,430 r/min	----
Push rod bending limit	----	0.5 mm (0.02 in)
Transmission		
Main axle runout limit	----	0.03 mm (0.0012 in)
Drive axle runout limit	----	0.03 mm (0.0012 in)

MAINTENANCE SPECIFICATIONS

SPEC

Item		Standard	Limit
Kickstarter			
Kickstarter type		Ratchet type	----
Spring free length		15.5 mm (0.61 in)	----
Carburetor			
Type		VM22	----
I.D. mark		5YP1 00	----
Main jet	(M.J)	#105	----
Main air jet	(M.A.J)	ø1.2	----
Jet needle	(J.N)	5 K010	----
Needle jet	(N.J)	N-9M	----
Pilot outlet	(P.O)	ø1	----
Pilot jet	(P.J)	#20	----
Pilot air screw turns out		1-5/8	----
Pilot air jet 1		#55	----
Valve seat size		ø2	----
Throttle valve size		#2.0	----
Float height		9.2 mm (0.3622 in)	----
Oil pump			
Oil pump type		Trochoid type	----
Inner-rotor-to-outer-rotor-tip clearance		0.15 mm (0.0059 in)	0.20 mm (0.0079 in)
Outer-rotor-to-oil-pump housing clearance		0.06 – 0.11 mm (0.0024 – 0.0043 in)	0.15 mm (0.0059 in)
Oil-pump-housing-to-inner-rotor-and-outer-rotor clearance		0.06 – 0.11 mm (0.0024 – 0.0043 in)	0.15 mm (0.0059 in)

Model	T135SE/T135S

Lubrication chart