YAMAHA

YFM35FAS
YFM350FAS

5UH2-AE1

SUPPLEMENTARY SERVICE MANUAL

FOREWORD

This Supplementary Service Manual has been prepared to introduce new service and data for the YFM35FAS/YFM350FAS. For complete service information procedures it is necessary to use this Supplementary Service Manual together with the following manual.

YFM4FAR/YFM400FAR SERVICE MANUAL: 5TE2-AE1

YFM35FAS/YFM350FAS
SUPPLEMENTARY
SERVICE MANUAL

EB001000

NOTICE

This manual was produced by the Yamaha Motor Company 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, so it is assumed that anyone who uses this book to perform maintenance and repairs on Yamaha machine has a basic understanding of the mechanical ideas and the procedures of machine repair. Repairs attempted by anyone without this knowledge are likely to render the machine unsafe and unfit for use.

Yamaha Motor Company, Ltd. is continually striving to improve all 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.

IMPORTANT INFORMATION

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

⚠ 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 machine operator, a bystander or a person inspecting or repairing the machine.

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

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

EB002000

HOW TO USE THIS MANUAL

MANUAL ORGANIZATION

This manual consists of chapters for the main categories of subjects. (See “Illustrated symbols”)

1st title ①: This is the title of the chapter with its symbol in the upper right corner of each page.

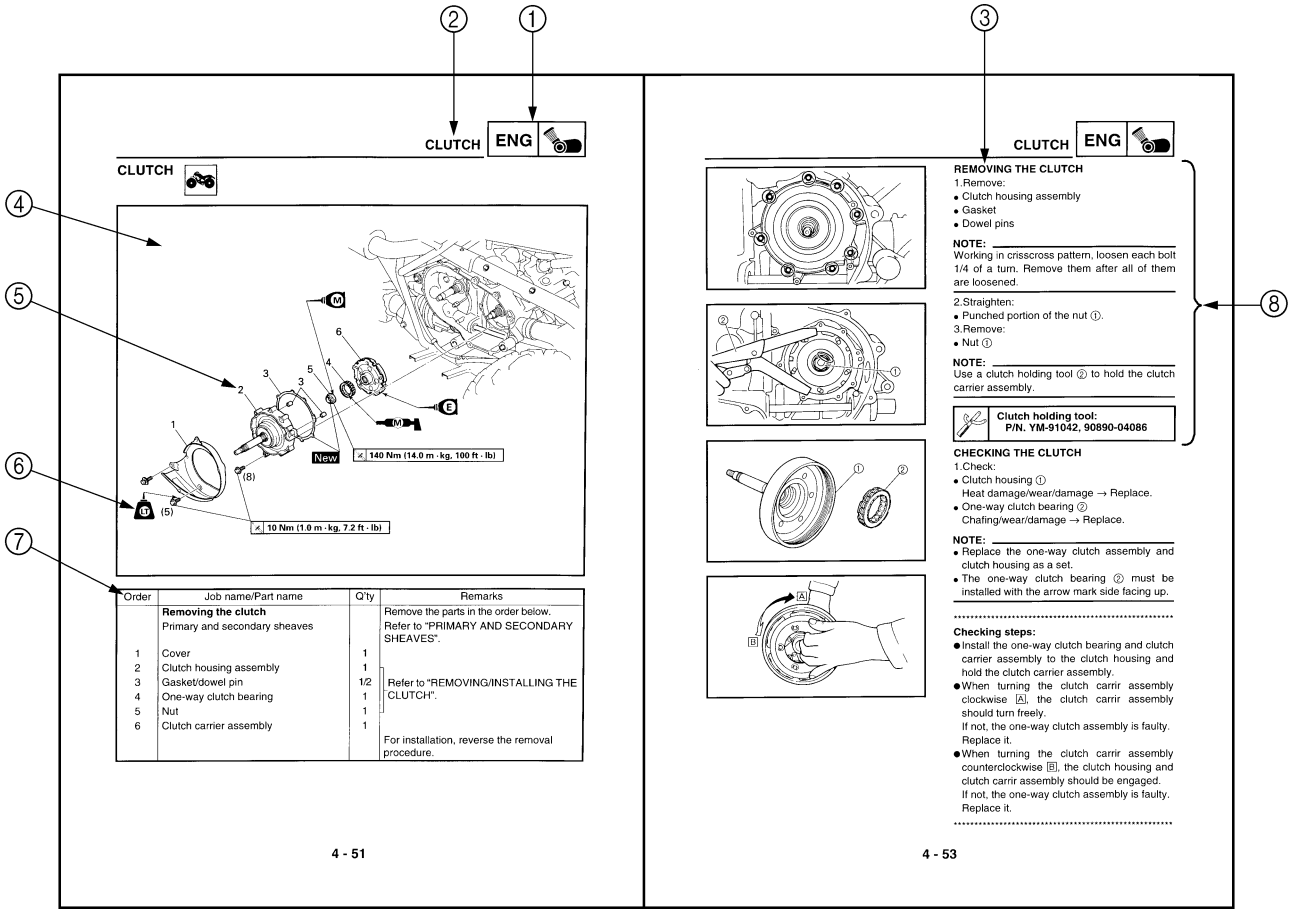
2nd title ②: This title indicates the section of the chapter and only appears on the first page of each section. It is located in the upper left corner of the page.

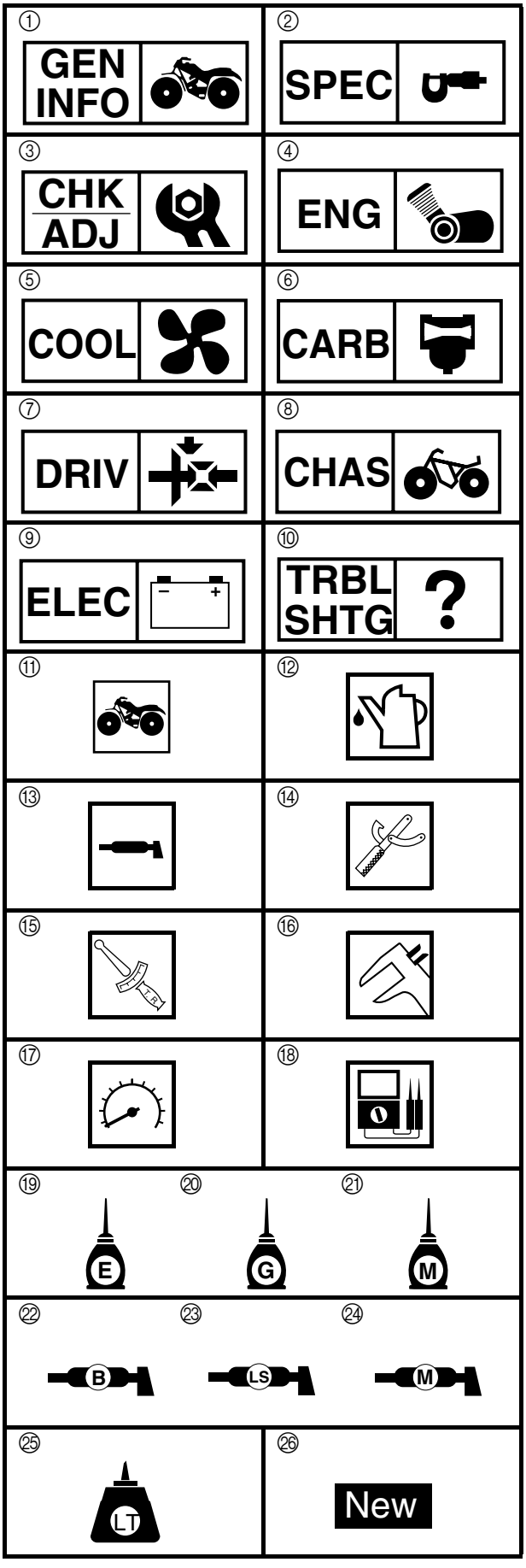
3rd title ③: This title indicates a sub-section that is followed by step-by-step procedures accompanied by corresponding illustrations.

EXPLODED DIAGRAMS

To help identify parts and clarify procedure steps, there are exploded diagrams at the start of each removal and disassembly section.

1. An easy-to-see exploded diagram ④ is provided for removal and disassembly jobs.
2. Numbers ⑤ are given in the order of the jobs in the exploded diagram. A number that is enclosed by a circle indicates a disassembly step.
3. An explanation of jobs and notes is presented in an easy-to-read way by the use of symbol marks ⑥. The meanings of the symbol marks are given on the next page.
4. A job instruction chart ⑦ accompanies the exploded diagram, providing the order of jobs, names of parts, notes in jobs, etc.
5. For jobs requiring more information, the step-by-step format supplements ⑧ are given in addition to the exploded diagram and the job instruction chart.





EB003000

ILLUSTRATED SYMBOLS

Illustrated symbols ① to ⑩ are printed on the top right of each page and indicate the subject of each chapter.

① General information
② Specifications
③ Periodic checks and adjustments
④ Engine
⑤ Cooling system
⑥ Carburetion
⑦ Drive train
⑧ Chassis
⑨ Electrical
⑩ Troubleshooting

Illustrated symbols ⑪ to ⑱ are used to identify the specifications appearing in the text.

⑪ Can be serviced with engine mounted
⑫ Filling fluid
⑬ Lubricant
⑭ Special tool
⑮ Torque
⑯ Wear limit, clearance
⑰ Engine speed
⑱ Ω, V, A

Illustrated symbols ⑲ to ㉔ in the exploded diagrams indicate the types of lubricants and lubrication points.

⑲ Apply engine oil
⑳ Apply gear oil
㉑ Apply molybdenum disulfide oil
㉒ Apply wheel bearing grease
㉓ Apply lithium-soap-based grease
㉔ Apply molybdenum disulfide grease

Illustrated symbols ㉕ to ㉖ in the exploded diagrams indicate where to apply a locking agent ㉕ and when to install a new part ㉖.

㉕ Apply the locking agent (LOCTITE®)
㉖ Replace

CONTENTS

TROUBLESHOOTING

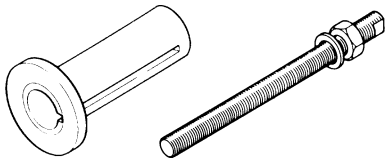
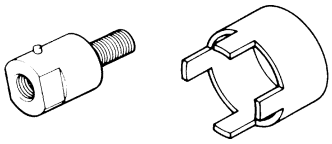
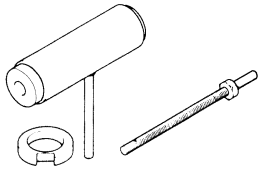
YFM35FAS/YFM350FAS WIRING DIAGRAM

GENERAL INFORMATION

EB102001
SPECIAL TOOLS

The following special tools are necessary for complete and accurate tune-up and assembly. Use only the appropriate special tools; this will help prevent damage caused by the use of inappropriate tools or improvised techniques. Special tools may differ by shape and part number from country to country. In such a case, two types are provided.
When placing an order, refer to the list provided below to avoid any mistakes.

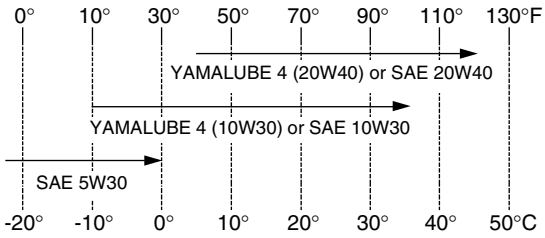
For US and CDN
P/N. YM-, YU-, YS-, YK-, ACC-
Except for US and CDN
P/N. 90890-

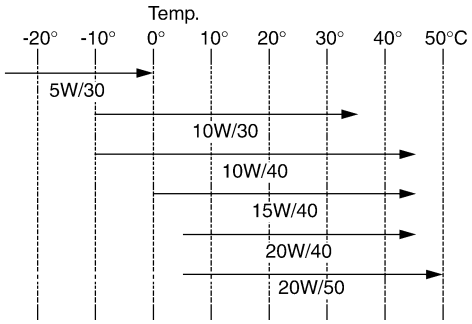
Tool No.	Tool name/How to use	Illustration
Pot 90890-01274 Bolt 90890-01275	Crankshaft installer pot Crankshaft installer bolt These tools are used to install the crankshaft.	
90890-01309	Spacer This tool is used to install the crankshaft.	
Adapter 90890-01383 YM-1383 Spacer 90890-04081 YM-91044	Adapter Spacer (crankshaft installer) These tools are used to install the crankshaft.	
YU-90050	Crankshaft installer set These tools are used to install the crankshaft.	

SPECIFICATIONS

GENERAL SPECIFICATIONS

Item	Standard
Model code:	5UH2 (for CDN) 5UH4 (for Europe) 5UH5 (for Oceania)
Dimensions:	
Overall length	1,984 mm (78.1 in)
Overall width	1,085 mm (42.7 in)
Overall height	1,120 mm (44.1 in)
Seat height	827 mm (32.6 in)
Wheelbase	1,233 mm (48.5 in)
Minimum ground clearance	245 mm (9.7 in)
Minimum turning radius	3,000 mm (118.1 in)
Basic weight:	
With oil and full fuel tank	258 kg (569 lb)
Engine:	
Engine type	Air-cooled 4-stroke, SOHC
Cylinder arrangement	Forward-inclined single cylinder
Displacement	348 cm^3
Bore × stroke	83.0 × 64.5 mm (3.27 × 2.54 in)
Compression ratio	9.2 : 1
Standard compression pressure (at sea level)	1,050 kPa (10.5 kg/cm^2, 149.3 psi) at 750 r/min
Starting system	Electric and recoil starter
Lubrication system:	Wet sump
Oil type or grade:	
Engine oil	
For CDN	API service SE, SF, SG type or higher
For Europe, Oceania	
Final gear oil	SAE 80API “GL-4” Hypoid Gear Oil
Differential gear oil	SAE 80API “GL-4” Hypoid Gear Oil



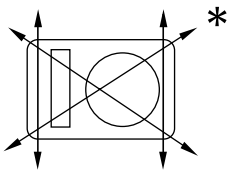
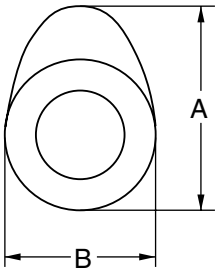
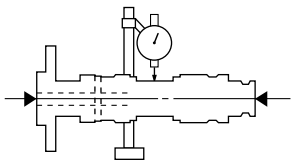


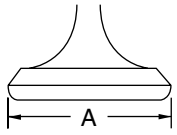
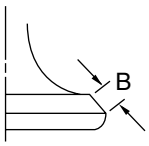
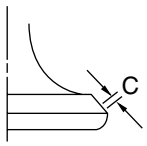
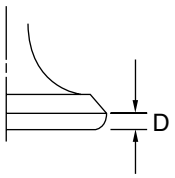
Item		Standard
Oil capacity:		
Engine oil		
Periodic oil change		2.2 L (1.94 Imp qt, 2.33 US qt)
With oil filter replacement		2.3 L (2.02 Imp qt, 2.43 US qt)
Total amount		3.1 L (2.73 Imp qt, 3.28 US qt)
Final gear case oil		
Periodic oil change		0.23 L (0.20 Imp qt, 0.24 US qt)
Total amount		0.25 L (0.22 Imp qt, 0.26 US qt)
Differential gear case oil		
Periodic oil change		0.35 L (0.31 Imp qt, 0.37 US qt)
Total amount		0.40 L (0.35 Imp qt, 0.42 US qt)
Air filter:		Wet type element
Fuel:		
Type		Regular unleaded gasoline only (for CDN, Europe) Unleaded gasoline only (for Oceania)
Fuel tank capacity		13.5 L (2.97 Imp gal, 3.57 US gal)
Fuel reserve amount		3.3 L (0.73 Imp gal, 0.87 US gal)
Carburetor:		
Type/quantity		BSR33/1
Manufacturer		MIKUNI
Spark plug:		
Type/manufacturer		DR8EA/NGK
Spark plug gap		0.6 ~ 0.7 mm (0.024 ~ 0.028 in)
Clutch type:		Wet, centrifugal automatic
Transmission:		
Primary reduction system		V-belt
Secondary reduction system		Shaft drive
Secondary reduction ratio		41/21 × 24/18 × 33/9 (9.545)
Transmission type		V-belt automatic
Operation		Left hand operation
Single speed automatic		2.60 ~ 0.75 : 1
Sub transmission ratio		35/20 (1.750)
Reverse gear		26/15 (1.733)
Chassis:		
Frame type		Steel tube frame
Caster angle		4°
Camber angle		1°
Kingpin angle		11°
Kingpin offset		–5.0 mm (–0.20 in)
Trail		21 mm (0.83 in)
Tread (STD)	front	850 mm (33.46 in)
	rear	825 mm (32.48 in)
Toe-in		0 ~ 10 mm (0 ~ 0.39 in)

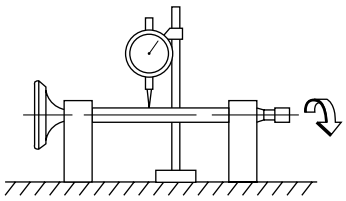
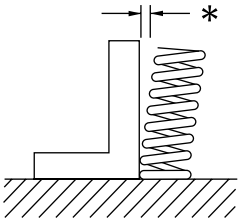
Item		Standard
Tires:		
Type		Tubeless
Size	front	AT25 × 8–12
	rear	AT25 × 10–12
Manufacturer	front	MAXXIS (for CDN, Europe) CHENG SHIN (for Oceania)
	rear	MAXXIS (for CDN, Europe) CHENG SHIN (for Oceania)
Type	front	M911Y (for CDN, Europe) C828 (for Oceania)
	rear	M912Y (for CDN, Europe) C828 (for Oceania)
Tire pressure (cold tire):		
Maximum load*		210 kg (463 lb)
Off-road riding	front	22 ~ 28 kPa (0.22 ~ 0.28 kg/cm^2, 3.2 ~ 4.0 psi)
	rear	22 ~ 28 kPa (0.22 ~ 0.28 kg/cm^2, 3.2 ~ 4.0 psi)
*Load in total weight of rider accessories		
Brakes:		
Front brake	type	Dual disc brake
	operation	Right hand operation
Rear brake	type	Drum brake
	operation	Left hand and right foot operation
Suspension:		
Front suspension		Double wishbone
Rear suspension		Swingarm (monocross)
Shock absorbers:		
Front shock absorber		Coil spring/oil damper
Rear shock absorber		Coil spring/oil damper
Wheel travel:		
Front wheel travel		160 mm (6.30 in)
Rear wheel travel		180 mm (7.09 in)
Electrical:		
Ignition system		D.C. C.D.I.
Generator system		A.C. magneto
Battery type		YTX14AH
Battery capacity		12 V 12 Ah
Headlight type:		Krypton bulb
Bulb wattage × quantity:		
Headlight		12 V 30 W/30 W × 2
Tail/brake light		12 V 5 W/21 W × 1
Meter light		14 V 3 W × 1
Indicator lights		
Neutral		12 V 1.7 W × 1
Reverse		12 V 1.7 W × 1
Oil temperature		12 V 1.7 W × 1
Four-wheel drive		14 V 1.7 W × 1

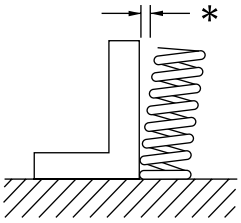
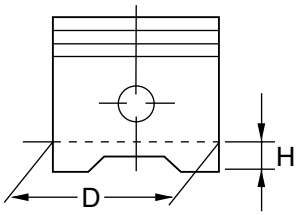
MAINTENANCE SPECIFICATIONS

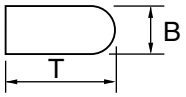
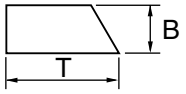
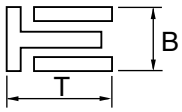
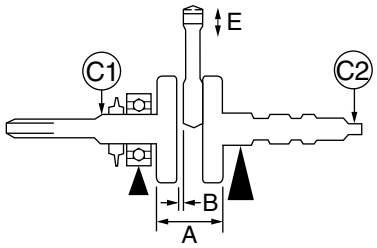
ENGINE

Item	Standard	Limit
Cylinder head:		
Warp limit * 	----	0.03 mm (0.0012 in)
Cylinder:		
Bore size	82.970 ~ 83.020 mm (3.2665 ~ 3.2685 in)	83.100 mm (3.2720 in)
Taper limit	----	0.05 mm (0.0016 in)
Out of round limit	----	0.01 mm (0.0004 in)
Camshaft:		
Drive method	Chain drive (left)	----
Cam dimensions 		
Intake “A”	40.62 ~ 40.72 mm (1.5992 ~ 1.6031 in)	40.52 mm (1.5953 in)
“B”	32.18 ~ 32.28 mm (1.2669 ~ 1.2709 in)	32.08 mm (1.2630 in)
Exhaust “A”	40.62 ~ 40.72 mm (1.5992 ~ 1.6031 in)	40.52 mm (1.5953 in)
“B”	32.18 ~ 32.28 mm (1.2669 ~ 1.2709 in)	32.08 mm (1.2630 in)
Camshaft runout limit 	----	0.03 mm (0.0012 in)

Item		Standard	Limit
Cam chain:			
Cam chain type/No. of links		92RH2005/110	----
Cam chain adjustment method		Automatic	----
Rocker arm/rocker arm shaft:			
Rocker arm inside diameter		11.980 ~ 11.998 mm (0.4717 ~ 0.4724 in)	12.058 mm (0.4747 in)
Rocker arm shaft outside diameter		11.961 ~ 11.971 mm (0.4709 ~ 0.4713 in)	11.931 mm (0.4697 in)
Rocker-arm-to-rocker-arm-shaft clearance		0.009 ~ 0.037 mm (0.0004 ~ 0.0015 in)	0.080 mm (0.0031 in)
Valves, valve seats, valve guides:			
Valve clearance (cold)	IN	0.06 ~ 0.10 mm (0.0024 ~ 0.0039 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	39.9 ~ 40.1 mm (1.5709 ~ 1.5787 in)	----
	EX	33.9 ~ 34.1 mm (1.3346 ~ 1.3425 in)	----
"B" face width	IN	2.26 mm (0.0890 in)	----
	EX	2.26 mm (0.0890 in)	----
"C" seat width	IN	1.2 ~ 1.4 mm (0.0472 ~ 0.0551 in)	1.6 mm (0.0630 in)
	EX	1.2 ~ 1.4 mm (0.0472 ~ 0.0551 in)	1.6 mm (0.0630 in)
"D" margin thickness	IN	1.0 ~ 1.4 mm (0.0394 ~ 0.0551 in)	----
	EX	0.8 ~ 1.2 mm (0.0315 ~ 0.0472 in)	----
Stem outside diameter	IN	6.975 ~ 6.990 mm (0.2746 ~ 0.2752 in)	6.950 mm (0.2736 in)
	EX	6.955 ~ 6.970 mm (0.2738 ~ 0.2744 in)	6.915 mm (0.2722 in)
Guide inside diameter	IN	7.000 ~ 7.012 mm (0.2756 ~ 0.2761 in)	7.03 mm (0.2768 in)
	EX	7.000 ~ 7.012 mm (0.2756 ~ 0.2761 in)	7.03 mm (0.2768 in)
Stem-to-guide clearance	IN	0.010 ~ 0.037 mm (0.0004 ~ 0.0015 in)	0.080 mm (0.0031 in)
	EX	0.030 ~ 0.057 mm (0.0012 ~ 0.0022 in)	0.100 mm (0.0039 in)

Item		Standard	Limit
Stem runout limit		----	0.01 mm (0.0004 in)
			
Valve seat width	IN	1.2 ~ 1.4 mm (0.0472 ~ 0.0551 in)	----
	EX	1.2 ~ 1.4 mm (0.0472 ~ 0.0551 in)	----
Valve spring:			
Inner spring			
Free length	IN	39.9 mm (1.57 in)	37.9 mm (1.49 in)
	EX	39.9 mm (1.57 in)	37.9 mm (1.49 in)
Set length (valve closed)	IN	33.6 mm (1.32 in)	----
	EX	33.6 mm (1.32 in)	----
Compressed pressure (installed)	IN	104.9 ~ 120.6 N (10.7 ~ 12.3 kg, 23.58 ~ 27.11 lb)	----
	EX	104.9 ~ 120.6 N (10.7 ~ 12.3 kg, 23.58 ~ 27.11 lb)	----
Tilt limit *	IN		2.5°/1.7 mm (2.5°/0.07 in)
	EX		2.5°/1.7 mm (2.5°/0.07 in)
			
Direction of winding (top view)	IN	Counterclockwise	----
	EX	Counterclockwise	----

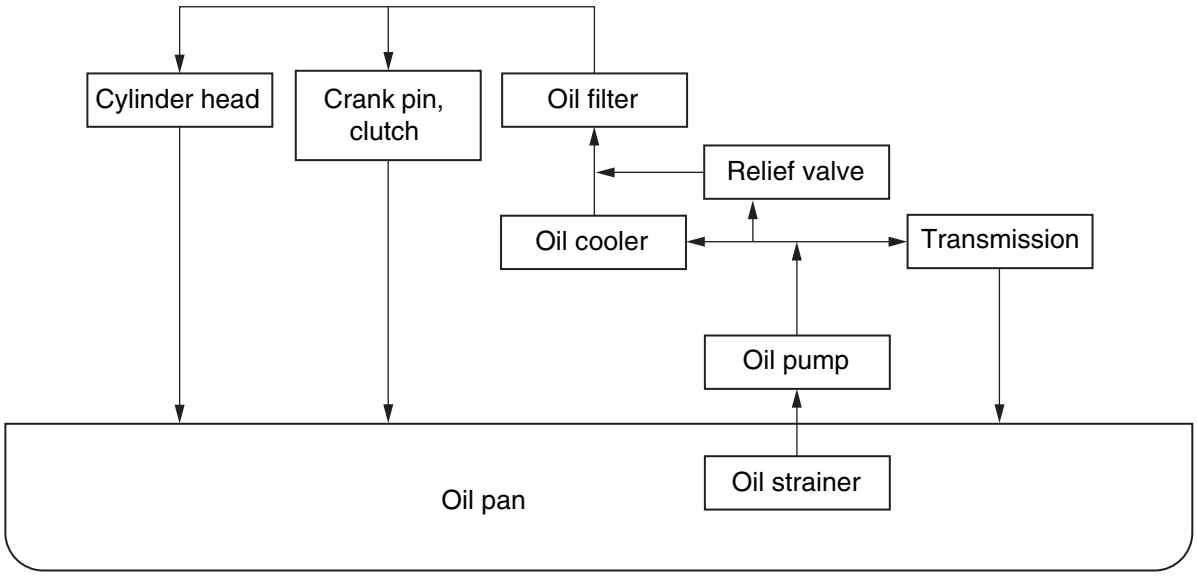
Item		Standard	Limit
Outer spring			
Free length	IN	43.27 mm (1.70 in)	41.27 mm (1.62 in)
	EX	43.27 mm (1.70 in)	41.27 mm (1.62 in)
Set length (valve closed)	IN	36.6 mm (1.44 in)	----
	EX	36.6 mm (1.44 in)	----
Compressed pressure (installed)	IN	235.4 ~ 251.1 N (24.0 ~ 25.6 kg, 52.92 ~ 56.45 lb)	----
	EX	235.4 ~ 251.1 N (24.0 ~ 25.6 kg, 52.92 ~ 56.45 lb)	----
Tilt limit *	IN	----	2.5°/1.9 mm (2.5°/0.07 in)
	EX	----	2.5°/1.9 mm (2.5°/0.07 in)
			
Direction of winding (top view)	IN	Clockwise	----
	EX	Clockwise	----
Piston:			
Piston to cylinder clearance		0.040 ~ 0.060 mm (0.0016 ~ 0.0024 in)	0.150 mm (0.0059 in)
Piston size “D”		82.920 ~ 82.970 mm (3.2646 ~ 3.2665 in)	----
			
Measuring point “H”		5 mm (0.20 in)	----
Piston offset		0.5 mm (0.0200 in)	----
Offset direction		Intake side	----
Piston pin bore inside diameter		19.004 ~ 19.015 mm (0.7482 ~ 0.7486 in)	19.045 mm (0.7498 in)
Piston pin outside diameter		18.991 ~ 19.000 mm (0.7477 ~ 0.7480 in)	18.971 mm (0.7469 in)

Item	Standard	Limit
Piston rings:		
Top ring		
		
Type	Barrel	----
Dimensions (B × T)	1.2 × 3.3 mm (0.05 × 0.13 in)	----
End gap (installed)	0.20 ~ 0.40 mm (0.008 ~ 0.016 in)	0.65 mm (0.0256 in)
Side clearance (installed)	0.03 ~ 0.08 mm (0.0012 ~ 0.0032 in)	0.13 mm (0.0051 in)
2nd ring		
		
Type	Taper	----
Dimensions (B × T)	1.5 × 3.4 mm (0.06 × 0.13 in)	----
End gap (installed)	0.20 ~ 0.40 mm (0.008 ~ 0.016 in)	0.75 mm (0.0295 in)
Side clearance	0.03 ~ 0.07 mm (0.0012 ~ 0.0028 in)	0.13 mm (0.0051 in)
Oil ring		
		
Dimensions (B × T)	2.8 × 2.8 mm (0.11 × 0.11 in)	----
End gap (installed)	0.3 ~ 0.9 mm (0.01 ~ 0.04 in)	----
Crankshaft:		
		
Crank width “A”	58.95 ~ 59.00 mm (2.321 ~ 2.323 in)	----
Runout limit C1	----	0.03 mm (0.0012 in)
C2	----	0.03 mm (0.0012 in)
Big end side clearance “B”	0.35 ~ 0.85 mm (0.0138 ~ 0.0335 in)	1.0 mm (0.04 in)
Big end radial clearance “E”	0.004 ~ 0.023 mm (0.0002 ~ 0.0009 in)	----

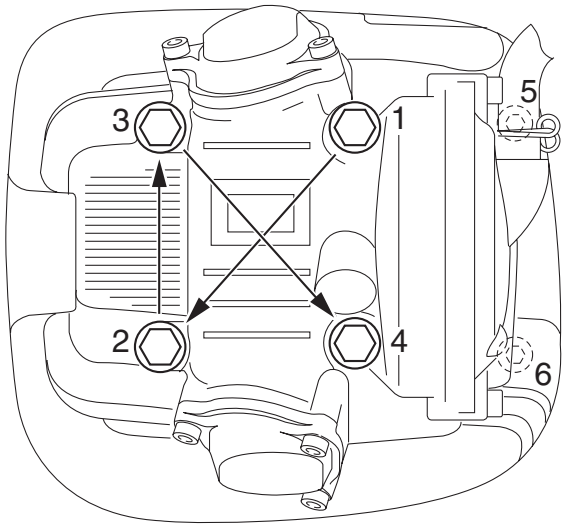
Item		Standard	Limit
Balancer:			
Balancer drive method		Gear	----
Automatic centrifugal clutch:			
Clutch shoe thickness		1.5 mm (0.06 in)	1.0 mm (0.04 in)
Clutch-in revolution		1,950 ~ 2,350 r/min	----
Clutch-stall revolution		3,350 ~ 3,850 r/min	----
Transmission:			
Main axle deflection limit		----	0.08 mm (0.0031 in)
Drive axle deflection limit		----	0.08 mm (0.0031 in)
Shifter:			
Shifter type		Shift cam and guide bar	----
Air filter oil grade:		Engine oil	----
Carburetor:			
I. D. mark		5UH1 00	----
Main jet	(M.J)	#130	----
Main air jet	(M.A.J)	#70	----
Jet needle	(J.N)	5ETY1-2	----
Needle jet	(N.J)	P-2M	----
Pilot air jet	(P.A.J.1)	#80	----
Pilot air jet	(P.A.J.2)	1.3	----
Pilot outlet	(P.O)	0.8	----
Pilot jet	(P.J)	#17.5	----
Bypass 1	(B.P.1)	0.8	----
Bypass 2	(B.P.2)	0.8	----
Bypass 3	(B.P.3)	0.8	----
Pilot screw	(P.S)	1-1/2 turns out	----
Valve seat size	(V.S)	2.0	----
Starter jet	(G.S.1)	57.5	----
Starter jet	(G.S.2)	0.9	----
Throttle valve size	(Th.V)	100	----
Float height	(F.H)	13.0 mm (0.51 in)	----
Fuel level	(F.L)	4.0 ~ 5.0 mm (0.16 ~ 0.20 in)	----
Engine idle speed		1,450 ~ 1,550 r/min	----
Intake vacuum		32 kPa (240 mmHg, 9.4 inHg)	----

Item	Standard	Limit
Oil pump:		
Oil filter type	Foam	----
Oil pump type	Trochoid	----
Tip clearance	0.15 mm (0.006 in)	0.20 mm (0.008 in)
Side clearance	0.04 ~ 0.09 mm (0.002 ~ 0.004 in)	----
Bypass valve setting pressure	78 ~ 118 kPa (0.78 ~ 1.18 kg/cm^2, 11.3 ~ 17.1 psi)	----
Oil pressure (hot)	20 kPa (0.20 kg/cm^2, 2.9 psi) at 1,500 r/min	----
Pressure check location	Cylinder head	----
Shaft drive:		
Middle gear backlash	0.1 ~ 0.3 mm (0.004 ~ 0.012 in)	----
Final gear backlash	0.1 ~ 0.2 mm (0.004 ~ 0.008 in)	----
Differential gear backlash	0.05 ~ 0.25 mm (0.0020 ~ 0.0098 in)	----

Lubrication chart:



Item	Standard	Limit
Cylinder head tightening sequence:		



Tightening torques

Part to be tightened	Part name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m·kg	ft·lb	
Cylinder head (exhaust pipe)	Stud bolt	M6	2	7	0.7	5.1	
Cylinder head	Bolt	M10	4	32	3.2	23	
	Bolt	M8	2	20	2.0	14	
Camshaft bearing retainer	Bolt	M6	2	8	0.8	5.8	
Spark plug	—	M12	1	18	1.8	13	
Oil gallery bolt	Bolt	M6	1	7	0.7	5.1	
Cylinder	Bolt	M6	1	10	1.0	7.2	
Starter pulley	Bolt	M10	1	55	5.5	40	
Balancer driven gear	Nut	M16	1	60	6.0	43	
Valve adjusting screw	Nut	M7	2	20	2.0	14	
Tappet cover (intake)	Bolt	M6	2	10	1.0	7.2	
Tappet cover (exhaust)	Bolt	M6	3	10	1.0	7.2	
Camshaft sprocket	Bolt	M10	1	60	6.0	43	
Camshaft sprocket cover	Bolt	M6	2	10	1.0	7.2	
Timing chain tensioner cap	Bolt	M11	1	23	2.3	17	
Timing chain tensioner	Bolt	M6	2	11	1.1	8.0	
Timing chain guide (intake)	Bolt	M6	2	10	1.0	7.2	
Oil strainer	Bolt	M5	2	4	0.4	2.9	
Oil filter union bolt	—	M20	1	68	6.8	49	
Oil filter cartridge	—	M20	1	17	1.7	12	
Oil cooler	Bolt	M6	4	7	0.7	5.1	
Oil cooler fan	Bolt	M6	3	6	0.6	4.3	
Oil hose union bolt	—	M14	2	50	5.0	36	
Oil hose (oil cooler side)	—	M16	2	21	2.1	15	
Oil hose (crankcase side)	—	M16	2	35	3.5	25	
Oil pump assembly	Bolt	M6	3	7	0.7	5.1	
Oil pump housing	Screw	M5	1	5	0.5	3.6	
Plate (oil pump driven gear)	Bolt	M6	2	7	0.7	5.1	
Intake manifold	Bolt	M8	2	20	2.0	14	
Crankcase	Bolt	M8	3	20	2.0	14	
	Bolt	M6	15	10	1.0	7.2	
Oil drain bolt	Bolt	M12	1	23	2.3	17	
Bearing retainer (right crankcase)	Bolt	M6	2	10	1.0	7.2	LT
Bearing retainer (left crankcase)	Torx screw	M6	1	11	1.1	8.0	
Crankcase oil passage plug	—	M14	1	25	2.5	18	
Lead holder (stator assembly)	Bolt	M5	2	7	0.7	5.1	
Drive belt case	Bolt	M6	9	10	1.0	7.2	
Bearing housing (primary sheave)	Bolt	M6	4	10	1.0	7.2	
Drive belt case cover	Bolt	M6	14	10	1.0	7.2	
Crankcase cover	Bolt	M6	12	10	1.0	7.2	
Stator assembly	Screw	M6	3	7	0.7	5.1	LT

Part to be tightened	Part name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m·kg	ft·lb	
Pickup coil	Bolt	M5	2	7	0.7	5.1	
Starter one-way clutch	Bolt	M8	3	30	3.0	22	LT
Recoil starter	Bolt	M6	4	10	1.0	7.2	LT
Clutch carrier assembly	Nut	M22	1	140	14.0	100	Stake.
Clutch housing assembly	Bolt	M6	8	10	1.0	7.2	
Middle drive shaft bearing retainer	Torx screw	M8	4	25	2.5	18	
Middle drive shaft drive pinion gear	Nut	M22	1	130	13.0	94	Stake.
Middle drive shaft bearing housing	Bolt	M8	4	32	3.2	23	
Middle driven pinion gear bearing retainer	Nut	M65	1	110	11.0	80	LT Left-handed threads
Universal joint yoke (middle driven pinion gear)	Nut	M14	1	97	9.7	70	LT
Middle driven pinion gear bearing housing	Bolt	M8	4	25	2.5	18	
Middle driven shaft bearing retainer	Nut	M55	1	80	8.0	58	LT Left-handed threads
Primary sliding sheave cap	Screw	M4	3	3	0.3	2.2	
Primary sliding sheave assembly	Nut	M16	1	100	10.0	72	
Secondary sheave assembly	Nut	M16	1	100	10.0	72	
Secondary sheave spring retainer	Nut	M36	1	90	9.0	65	
Shift shaft stopper bolt	—	M14	1	18	1.8	13	
Shift lever assembly	Bolt	M6	1	14	1.4	10	
Neutral switch	—	M10	1	17	1.7	12	
Reverse switch	—	M10	1	17	1.7	12	
Thermo unit	—	M12	1	20	2.0	14	
Muffler and exhaust pipe	Bolt	M8	2	15	1.5	11	
Exhaust pipe	Nut	M6	2	12	1.2	8.7	
Muffler	Bolt	M10	2	25	2.5	18	
Exhaust pipe bracket (exhaust pipe)	Bolt	M6	2	14	1.4	10	
Exhaust pipe bracket (engine)	Bolt	M6	2	10	1.0	7.2	
Starter motor	Bolt	M6	2	10	1.0	7.2	
Speedometer gear unit	Bolt	M6	2	10	1.0	7.2	LT
	Screw	M6	2	7	0.7	5.1	

CHASSIS

Item		Standard	Limit
Steering system:			
Steering bearing type		Ball and race bearing	----
Front suspension:			
Shock absorber travel		99 mm (3.90 in)	----
Spring free length		265 mm (10.43 in)	----
Spring fitting length		231.9 mm (9.13 in)	----
Spring rate	(K1)	13.5 N/mm (1.35 kg/mm, 75.60 lb/in)	----
Stroke	(K1)	0 ~ 99 mm (0 ~ 3.90 in)	----
Optional spring		No	----
Rear suspension:			
Shock absorber travel		126 mm (4.96 in)	----
Spring free length		317 mm (12.48 in)	----
Spring fitting length		283.1 mm (11.15 in)	----
Spring rate	(K1)	27.4 N/mm (2.74 kg/mm, 153.43 lb/in)	----
Stroke	(K1)	0 ~ 126 mm (0 ~ 4.96 in)	----
Optional spring		No	----
Swingarm:			
Free play limit	end	----	1 mm (0.04 in)
	side	----	1 mm (0.04 in)
Front wheel:			
Type		Panel wheel	----
Rim size		12 × 6.0 AT	----
Rim material		Steel	----
Rim runout limit	radial	----	2 mm (0.08 in)
	lateral	----	2 mm (0.08 in)
Rear wheel:			
Type		Panel wheel	----
Rim size		12 × 7.5 AT	----
Rim material		Steel	----
Rim runout limit	radial	----	2 mm (0.08 in)
	lateral	----	2 mm (0.08 in)

Item		Standard	Limit
Front disc brake:			
Type		Dual	----
Disc outside diameter × thickness		200.0 × 3.5 mm (7.87 × 0.14 in)	----
Pad thickness	inner	4.5 mm (0.18 in)	1 mm (0.04 in)
Pad thickness	outer	4.5 mm (0.18 in)	1 mm (0.04 in)
Master cylinder inside diameter		14 mm (0.55 in)	----
Caliper cylinder inside diameter		32 mm (1.26 in)	----
Brake fluid type		DOT 4	----
Rear drum brake:			
Type		Leading, trailing	----
Brake drum inside diameter		160 mm (6.30 in)	161 mm (6.34 in)
Lining thickness		4.0 mm (0.16 in)	2 mm (0.08 in)
Brake lever and brake pedal:			
Brake lever free play (pivot)	front	0 mm (0 in)	----
	rear	3 ~ 5 mm (0.12 ~ 0.20 in)	----
Brake pedal free play		20 ~ 30 mm (0.79 ~ 1.18 in)	----
Throttle lever free play		3 ~ 5 mm (0.12 ~ 0.20 in)	----

Tightening torques

Part to be tightened	Thread size	Tightening torque			Remarks
		Nm	m·kg	ft·lb	
Engine bracket (front-upper) and frame	M8	33	3.3	24	
Engine bracket (front-lower) and frame	M8	33	3.3	24	
Engine bracket (front-upper) and engine	M10	42	4.2	30	
Engine bracket (front-lower) and engine	M10	42	4.2	30	
Engine and frame (rear-upper)	M10	56	5.6	40	
Engine and frame (rear-lower)	M10	56	5.6	40	
Frame and bearing retainer (steering stem holder bearing)	M42	40	4.0	29	
Select lever assembly and frame	M8	23	2.3	17	
Swingarm	M12	82	8.2	59	
Rear shock absorber and frame	M12	82	8.2	59	
Final gear case and swingarm	M10	63	6.3	45	LT
Final gear case and rear axle housing	M10	63	6.3	45	
Swingarm and rear axle housing	M12	63	6.3	45	
Differential gear case and frame	M10	55	5.5	40	
Front arm and frame	M10	45	4.5	32	LS
Front shock absorber and frame	M10	45	4.5	32	
Front shock absorber and upper front arm	M10	45	4.5	32	
Steering stem, pitman arm and frame	M14	190	19.0	140	
Steering stem holder and frame	M8	23	2.3	17	Use lock washer
Steering stem and handlebar holder	M8	23	2.3	17	
Pitman arm and tie-rod end	M12	30	3.0	22	
Tie-rod and locknut	M12	40	4.0	29	
Steering knuckle and upper front arm	M12	30	3.0	22	
Steering knuckle and lower front arm	M12	30	3.0	22	
Steering knuckle and tie-rod	M12	30	3.0	22	
Fuel tank and fuel cock	M6	4	0.4	2.9	
Fuel tank	M6	10	1.0	7.2	
Front wheel and wheel hub	M10	55	5.5	40	
Front axle and wheel hub	M16	150	15.0	110	
Steering knuckle and brake caliper	M8	30	3.0	22	
Front brake disc and wheel hub	M8	30	3.0	22	LT
Rear wheel and rear wheel hub	M10	55	5.5	40	
Rear axle and nut	M16	150	15.0	110	
Brake drum cover and brake shoe plate	M6	7	0.7	5.1	
Front brake hose and steering knuckle	M6	7	0.7	5.1	
Front brake hose and upper front arm	M6	7	0.7	5.1	
Front brake hose and frame	M6	7	0.7	5.1	
Front brake pipe nut	M10	19	1.9	13	
Front brake hose union bolt	M10	27	2.7	19	
Bleed screw	M8	6	0.6	4.3	

Part to be tightened	Thread size	Tightening torque			Remarks
		Nm	m·kg	ft·lb	
Master cylinder and handlebar	M6	7	0.7	5.1	
Footrest bracket and frame	M8	16	1.6	11	
Front bumper and frame	M8	34	3.4	24	
Front carrier and frame	M8	34	3.4	24	
Front carrier and front bumper	M8	34	3.4	24	
Rear carrier and frame	M8	34	3.4	24	
Engine skid plate	M6	7	0.7	5.1	
Differential gear oil filler bolt	M14	23	2.3	17	
Differential gear oil drain bolt	M10	10	1.0	7.2	
Differential gear case and bearing housing	M8	25	2.5	18	
Gear motor	M8	13	1.3	9.4	
Final gear oil filler bolt	M14	23	2.3	17	
Final gear oil drain bolt	M14	23	2.3	17	
Bearing retainer (drive pinion gear)	M65	100	10.0	72	
Final gear case and bearing housing	M10	40	4.0	29	
	M8	23	2.3	17	
Battery holding bracket	M6	7	0.7	5.1	
Footrest board and footrest bracket	M6	7	0.7	5.1	
Trailer hitch bracket	M10	32	3.2	23	
Front brake pad holding bolt	M8	17	1.7	12	
Front brake caliper retaining bolt	M8	17	1.7	12	
Rear brake light switch bracket	M8	23	2.3	17	
Rear brake light switch cover	M6	7	0.7	5.1	
Rear brake lever holder bracket	M6	7	0.7	5.1	
Brake camshaft lever	M6	9	0.9	6.5	
Oil hose protector	M6	7	0.7	5.1	

ELECTRICAL

Item	Standard	Limit
Voltage:	12 V	----
Ignition system:		
Ignition timing (B.T.D.C.)	10°/ 1,500 r/min	----
Advancer type	Digital	----
C.D.I.:		
Magneto model/manufacturer	F4T475/MITSUBISHI	----
Pickup coil resistance/color	459 ~ 561 Ω at 20 °C (68 °F)/ White/Red – White/Green	----
Rotor rotation direction sensing coil resistance/color	0.086 ~ 0.105 Ω at 20 °C (68 °F)/ Red – White/Blue	----
C.D.I. unit model/manufacturer	F8T40371/MITSUBISHI	----
Ignition coil:		
Model/manufacturer	2JN/YAMAHA	----
Minimum spark gap	6 mm (0.24 in)	----
Primary winding resistance	0.18 ~ 0.28 Ω at 20 °C (68 °F)	----
Secondary winding resistance	6.32 ~ 9.48 kΩ at 20 °C (68 °F)	----
Spark plug cap:		
Type	Resin	----
Resistance	10 kΩ	----
Charging system:		
Type	A.C. magneto generator	----
Model/manufacturer	F4T475/MITSUBISHI	----
Nominal output	14 V 18 A at 5,000 r/min	----
Charging coil resistance/color	0.49 ~ 0.62 Ω at 20 °C (68 °F)/ White – White	----
Rectifier/regulator:		
Regulator type	Semi conductor-short circuit	----
No-load regulated voltage (DC)	14.1 ~ 14.9 V	----
Model/manufacturer	SH640E-11/SHINDENGEN	----
Capacity	14 A	----
Withstand voltage	200 V	----
Battery:		
Specific gravity	1.32	----
Electric starter system:		
Type	Constant mesh	----
Starter motor		
Model/manufacturer	SM-13/MITSUBA	----
Output	0.7 kW	----
Armature coil resistance	0.0015 ~ 0.0025 Ω at 20 °C (68 °F)	----

Item	Standard	Limit
Brush overall length	12.0 mm (0.47 in)	4 mm (0.16 in)
Spring force	7.65 ~ 10.01 N (780 ~ 1,021 g, 27.53 ~ 36.04 oz)	----
Commutator diameter	28 mm (1.10 in)	27 mm (1.06 in)
Mica undercut	0.7 mm (0.03 in)	----
Starter relay		
Model/manufacturer	MS5F-561/JIDECO	----
Amperage rating	180 A	----
Coil winding resistance	4.18 ~ 4.62 Ω at 20 °C (68 °F)	----
Electric fan:		
Running rpm	6,350 r/min	----
Thermostat switch:		
Thermo unit		
Model/manufacturer	4GB/DENSO	----
Circuit breakers:		
Type	Fuse	----
Amperage for individual circuit		
Main fuse	30 A × 1	----
Headlight fuse	15 A × 1	----
Ignition fuse	15 A × 1	----
Auxiliary DC jack fuse	10 A × 1	----
Four-wheel drive fuse	3 A × 1	----
Signaling system fuse	10 A × 1	----
Reserve	30 A × 1	----
Reserve	15 A × 1	----
Reserve	10 A × 1	----
Reserve	3 A × 1	----