

EK25BMH

SERVICE MANUAL

290404

69T-28197-ZA-11

NOTICE

This manual has been prepared by Yamaha primarily for use by Yamaha dealers and their trained mechanics when performing maintenance procedures and repairs to Yamaha equipment. It has been written to suit the needs of persons who have a basic understanding of the mechanical and electrical concepts and procedures inherent in the work, for without such knowledge attempted repairs or service to the equipment could render it unsafe or unfit for use.

Because Yamaha has a policy of continuously improving its products, models may differ in detail from the descriptions and illustrations given in this publication. Use only the latest edition of this manual. Authorized Yamaha dealers are notified periodically of modifications and significant changes in specifications and procedures, and these are incorporated in successive editions of this manual.

EK25BMH

SERVICE MANUAL

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Printed in Japan

HOW TO USE THIS MANUAL

MANUAL FORMAT

All of the procedures in this manual are organised in a sequential, step-by-step format. The information has been compiled to provide the mechanic with an easy to read, handy reference that contains comprehensive explanations of all disassembly, repair, assembly, and inspection operations.

In this revised format, the condition of a faulty component will precede an arrow symbol and the course of action required will follow the symbol, e.g.,

- Bearings
Pitting/scratches → Replace.

To assist you in finding your way through this manual, the section title and major heading is given at the top of every page.

MODEL INDICATION

Multiple models are referred to in this manual and their model indications are noted as follows.

Model name	EK25BMH
Indication	EK25BMH

ILLUSTRATIONS


The illustrations within this service manual represent all of the designated models.

CROSS REFERENCES

The cross references have been kept to a minimum. Cross references will direct you to the appropriate section or chapter.

IMPORTANT INFORMATION

In this Service Manual particularly important information is distinguished in the following ways.

 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 outboard motor.

CAUTION:

A **CAUTION** indicates special precautions that must be taken to avoid damage to the outboard motor.

NOTE:

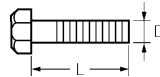
A **NOTE** provides key information to make procedures easier or clearer.

HOW TO USE THIS MANUAL

- ① The main points regarding removing/installing and disassembling/assembling procedures are shown in the exploded views.
- ② The numbers in the exploded views indicate the required sequence of the procedure and should be observed accordingly.
- ③ Symbols are used in the exploded views to indicate important aspects of the procedure. A list of meanings for these symbols is provided on the following page.
- ④ It is important to refer to the job instruction charts at the same time as the exploded views. These charts list the sequence that the procedures should be carried out in, as well as providing explanations on part names, quantities, dimensions and important points relating to each relevant task.
- ⑤ In addition to tightening torques, the dimensions of the bolts and screws are also mentioned.

Example:

Bolt and screw size 10 × 25 mm : bolt and screw diameter (D) × length (L)



- ⑥ In addition to the exploded views and job instruction charts, this manual provides individual illustrations when further explanations are required to explain the relevant procedure.

LOWER UNIT

REMOVING THE LOWER UNIT

Step	Job/Part	Q'ty	Remarks
1	Split pin	1	Not reusable
2	Castle nut	1	
3	Washer	1	
4	Spacer	1	
5	Propeller	1	
6	Spacer	1	
7	Nut	1	
8	Shift connector	1	
9	Bolt (with washer)	1	
10	Trim tab	1	
11	Bolt	1	
12	Anode	1	
13	Screw	2	

Continued on next page.

PROPELLER SHAFT HOUSING

REMOVING THE PROPELLER SHAFT HOUSING

Remove:

- Propeller shaft housing

- ① Bearing housing puller claw 90890-06546
- ② Stopper guide plate 90890-06501
- ③ Center bolt 90890-06504

DISASSEMBLING THE PROPELLER SHAFT HOUSING

1. Remove:










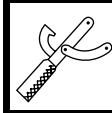

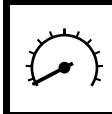


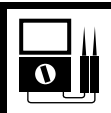











- Reverse gear

- ① Bearing separator 90890-06534
- ② Stopper guide plate 90890-06501
- ③ Stopper guide stand 90890-06538
- ④ Bearing puller ass'y 90890-06535

2. Remove:

- Ball bearing

- ① Stopper guide plate 90890-06501
- ② Stopper guide stand 90890-06538
- ③ Bearing puller ass'y 90890-06535

① GEN INFO 	② SPEC 
③ CHK ADJ 	④ FUEL 
⑤ POWR 	⑥ LOWR 
⑦ BRKT 	⑧ ELEC 
⑨ TRBL ANLS 	⑩ 
⑪ 	⑫ 
⑬ 	⑭ 
⑮ 	⑯ 
⑰ 	⑱ 
⑲ 	⑳ 
㉑ 	㉒ 
㉓ 	㉔ 
㉕ 	㉖ 

SYMBOLS

Symbols ① to ⑨ are designed as thumb-tabs to indicate the content of a chapter.

- ① General information
- ② Specifications
- ③ Periodic check and adjustments
- ④ Fuel system
- ⑤ Power unit
- ⑥ Lower unit
- ⑦ Bracket unit
- ⑧ Electrical systems
- ⑨ Trouble analysis

Symbols ⑩ to ⑮ indicate specific data.

- ⑩ Special tool
- ⑪ Specified liquid
- ⑫ Specified engine speed
- ⑬ Specified torque
- ⑭ Specified measurement
- ⑮ Specified electrical value
[Resistance (Ω), Voltage (V), Electric current (A)]










Symbol ⑯ to ⑳ in an exploded diagram indicate the grade of lubricant and the location of the lubrication point.

- ⑯ Apply Yamaha 2-stroke motor oil
- ⑰ Apply water resistant grease (Yamaha grease A, Yamaha marine grease)
- ⑱ Apply water resistant grease (Yamaha grease C, Yamaha marine grease)
- ⑲ Apply water resistant grease (Yamaha grease D, Yamaha marine grease)
- ⑳ Apply molybdenum disulfide grease

Symbols ㉑ to ㉖ in an exploded diagram indicate the grade of the sealing or locking agent and the location of the application point.

- ㉑ Apply Gasket Maker[®]
- ㉒ Apply Yamabond #4 (Yamaha bond number 4)
- ㉓ Apply LOCTITE[®] No.271 (Red LOCTITE)
- ㉔ Apply LOCTITE[®] No.242 (Blue LOCTITE)
- ㉕ Apply LOCTITE[®] No.572
- ㉖ Apply silicon sealant

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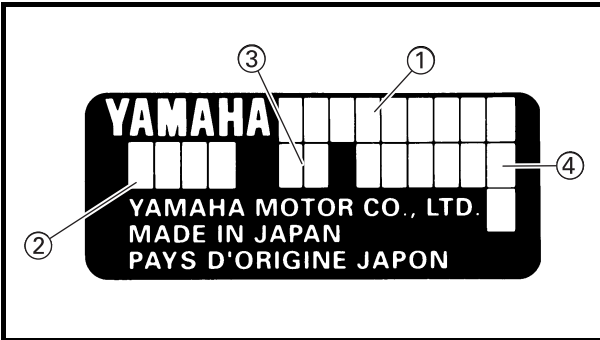
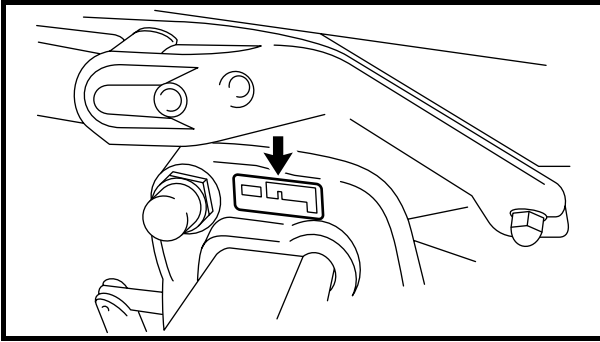
GENERAL INFORMATION	 GEN INFO	1
SPECIFICATIONS	 SPEC	2
PERIODIC CHECK AND ADJUSTMENT	 CHK ADJ	3
FUEL SYSTEM	 FUEL	4
RECOIL STARTER	 POWR	5
LOWER UNIT	 LOWR	6
BRACKET UNIT	 BRKT	7
ELECTRICAL SYSTEM	 ELEC	8
TROUBLE ANALYSIS	 TRBL ANLS	9

CHAPTER 1

GENERAL INFORMATION



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IDENTIFICATION

SERIAL NUMBER

The outboard motor's serial number is stamped on a label which is attached to the port clamp bracket.

NOTE:

As an antitheft measure, a special label on which the outboard motor's serial number is stamped is bonded to the port clamp bracket. The label is specially treated so that peeling it off causes cracks across the serial number.

- ① Model name
- ② Approval model code
- ③ Transom height
- ④ Serial number

STARTING SERIAL NUMBERS

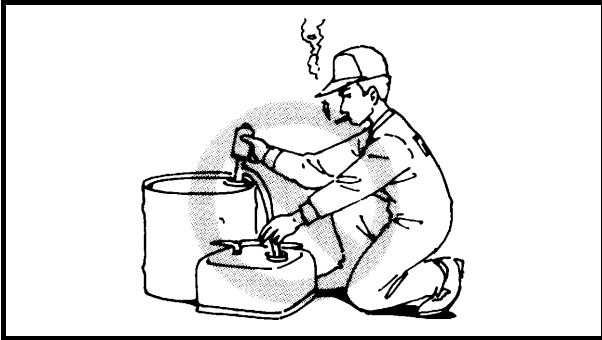
The starting serial number blocks are as follows:

Model name	Approval model code	Starting serial number
Worldwide		
EK25BMH	62C	S:100101
		L:400101
		Y:750101



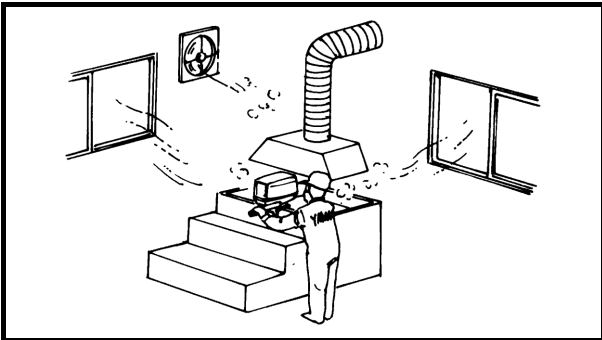
SAFETY WHILE WORKING

The procedures given in this manual are those recommended by Yamaha to be followed by Yamaha dealers and their mechanics.



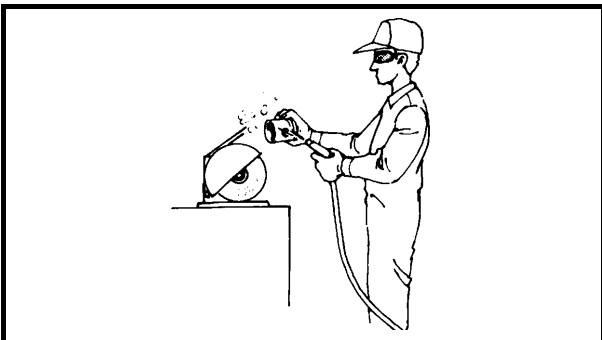
FIRE PREVENTION

Gasoline (petrol) is highly flammable. Petroleum vapor is explosive if ignited. Do not smoke while handling gasoline and keep it away from heat, sparks and open flames.



VENTILATION

Petroleum vapor is heavier than air and is deadly if inhaled in large quantities. Engine exhaust gases are harmful to breathe. When test-running an engine indoors, maintain good ventilation.



SELF-PROTECTION

Protect your eyes with suitable safety glasses or safety goggles, when grinding or when doing any operation which may cause particles to fly off. Protect hands and feet by wearing safety gloves or protective shoes if appropriate to the work you are doing.



OILS, GREASES AND SEALING FLUIDS

Use only genuine Yamaha oils, greases and sealing fluids or those recommended by Yamaha.



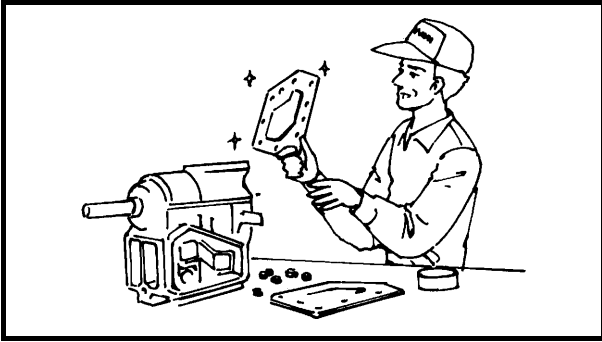
Under normal conditions or use, there should be no hazards from the use of the lubricants mentioned in this manual, but safety is all-important, and by adopting good safety practices, any risk is minimized. A summary of the most important precautions is as follows:

1. While working, maintain good standards of personal and industrial hygiene.
2. Clothing which has become contaminated with lubricants should be changed as soon as practicable, and laundered before further use.
3. Avoid skin contact with lubricants; do not, for example, place a soiled wiping-rag in your pocket.
4. Hands and any other part of the body which have been in contact with lubricants or lubricant-contaminated clothing, should be thoroughly washed with hot water and soap as soon as practicable.
5. To protect the skin, the application of a suitable barrier cream to the hands before working, is recommended.
6. A supply of clean lint-free cloths should be available for wiping purposes.

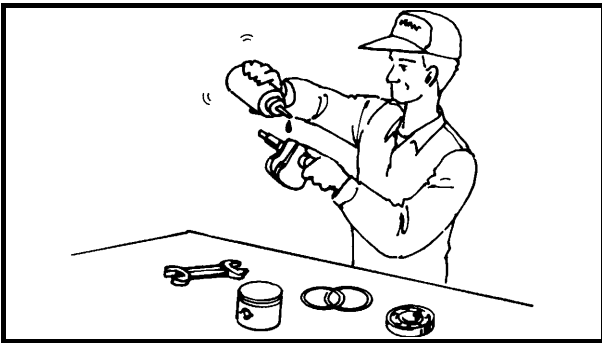


GOOD WORKING PRACTICES

1. The right tools
Use the recommended special tools to protect parts from damage. Use the right tool in the right manner - do not improvise.
2. Tightening torque
Follow the tightening torque instructions. When tightening bolts, nuts and screws, tighten the large sizes first, and tighten inner-positioned fixings before outer-positioned ones.

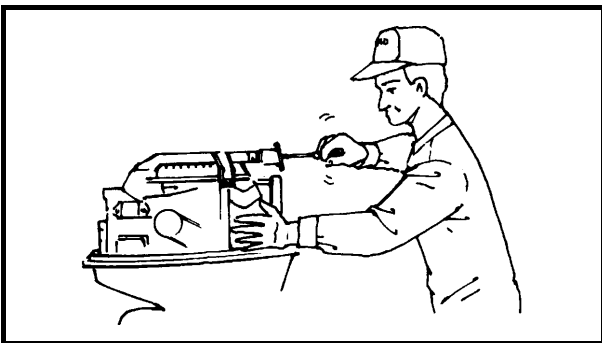


3. Non-reusable items
Always use new gaskets, packings, O-rings, split-pins, circlips, etc., on reassembly.



DISASSEMBLY AND ASSEMBLY

1. Clean parts with compressed air when disassembling.
2. Oil the contact surfaces of moving parts before assembly.



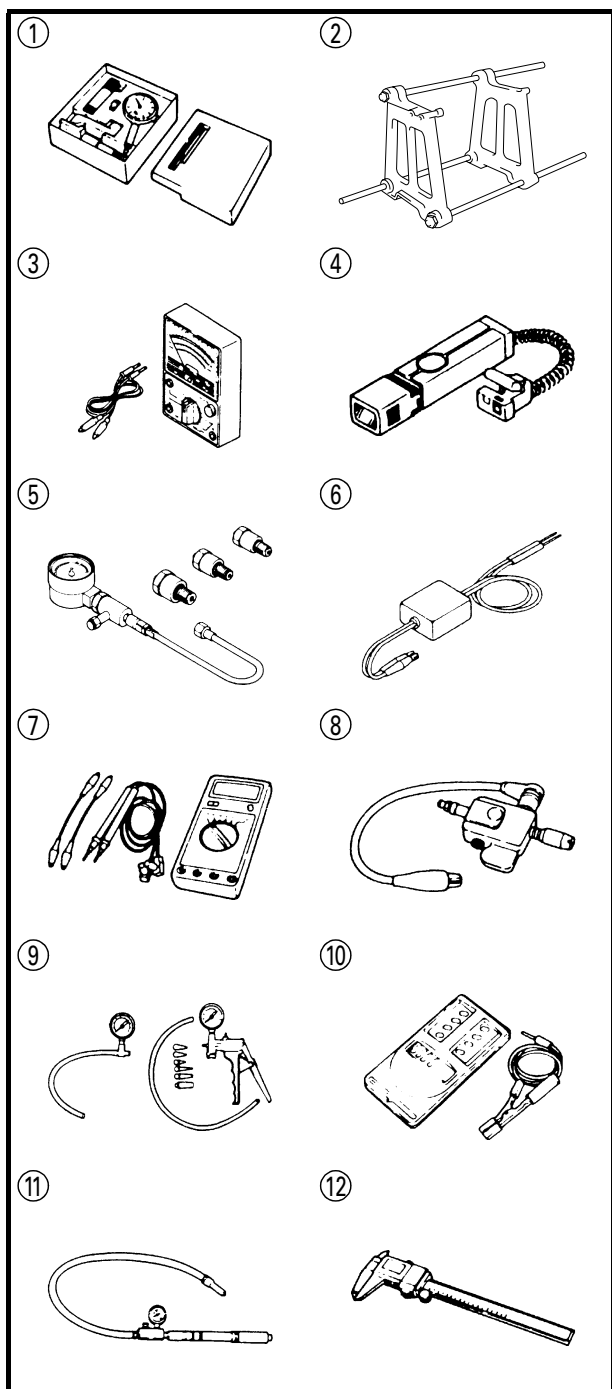
3. After assembly, check that moving parts operate normally.

4. Install bearings with the manufacturer's markings on the side exposed to view, and liberally oil the bearings.
5. When installing oil seals, apply a light coating of water-resistant grease to the outside diameter.



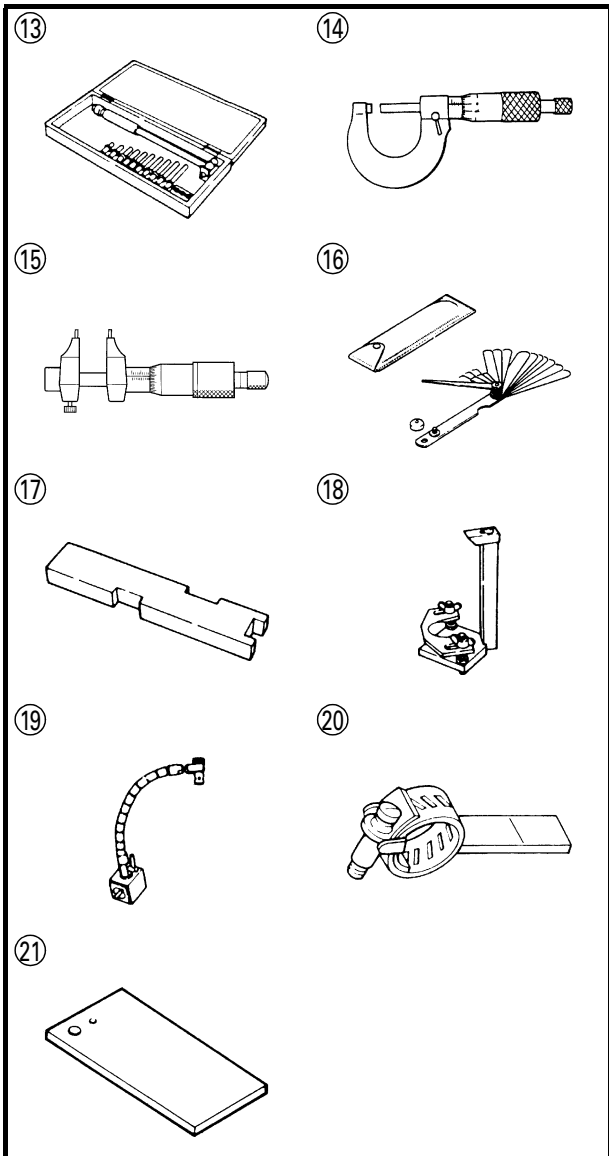
SPECIAL TOOLS

Using the correct special tools recommended by Yamaha, will aid the work and enable accurate assembly and tune-up. Improvising and using improper tools can damage the equipment.

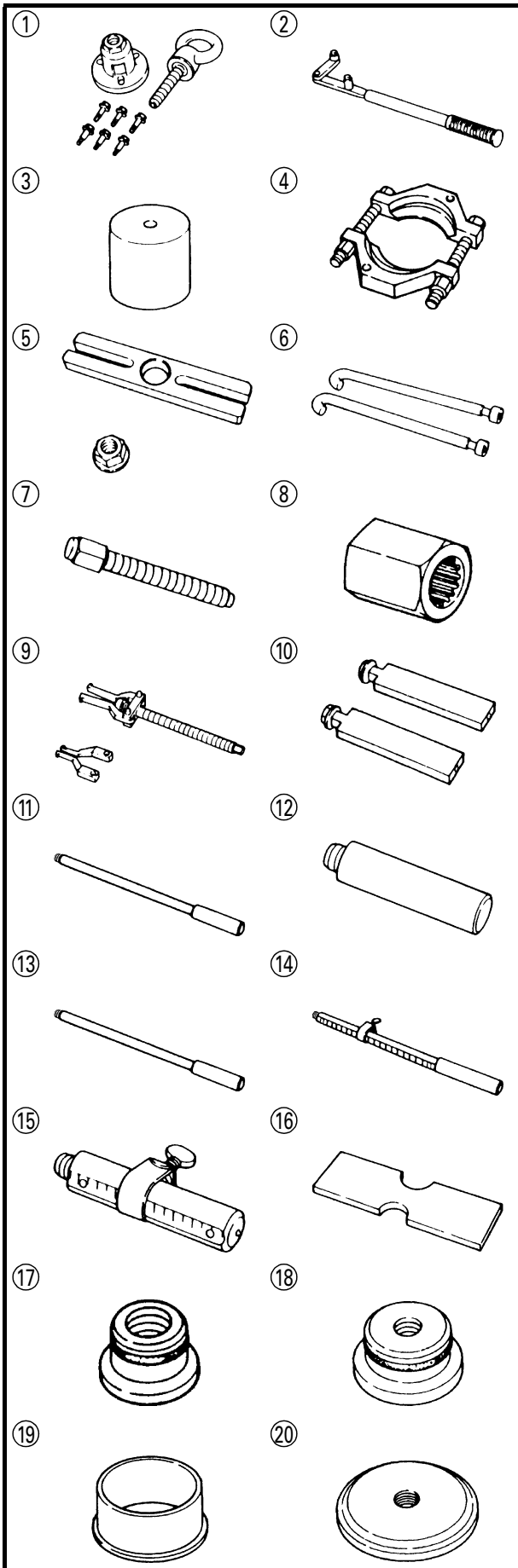


MEASURING

- ① Dial gauge set
P/N. 90890-01252
- ② Crank stand alignment
P/N. 90890-03107
- ③ Pocket tester
P/N. 90890-03112
- ④ Timing light
P/N. 90890-03141
- ⑤ Compression Gauge
P/N. 90890-03160
- ⑥ Peak voltage adaptor
P/N. 90890-03172
- ⑦ Digital circuit tester
P/N. 90890-03174
- ⑧ Ignition tester
P/N. 90890-06754
- ⑨ Vacuum/pressure pump gauge set
P/N. 90890-06756
- ⑩ Digital tachometer
P/N. 90890-06760
- ⑪ Leakage tester
P/N. 90890-06762
- ⑫ Digital caliper
P/N. 90890-06704

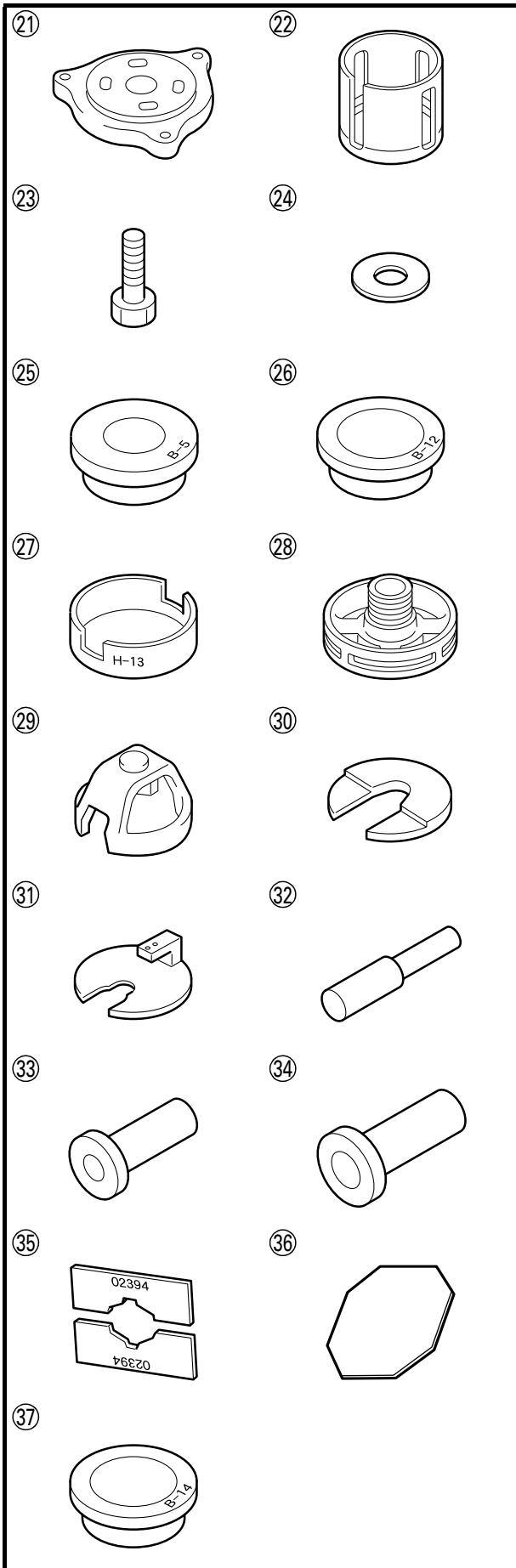


- ⑬ Cylinder gauge
P/N. 90890-06759
- ⑭ Outside micrometer
P/N. 90890-03006
P/N. 90890-03008
- ⑮ Inside micrometer
P/N. 90890-03010
- ⑯ Thickness gauge
P/N. 90890-03079
- ⑰ Shimming plate
P/N. 90890-06701
- ⑱ Pinion height gauge
P/N. 90890-06702
- ⑲ Magnet base
P/N. 90890-06705
- ⑳ Backlash indicator
P/N. 90890-06706
- ㉑ Magnet base plate
P/N. 90890-07003



REMOVING AND INSTALLING

- ① Flywheel puller
P/N. 90890-06521
- ② Flywheel holder
P/N. 90890-06522
- ③ Small end bearing installer
P/N. 90890-06527
- ④ Bearing separator
P/N. 90890-06534
- ⑤ Stopper guide plate
P/N. 90890-06501
- ⑥ Bearing housing puller claw
P/N. 90890-06564
- ⑦ Center bolt
P/N. 90890-06504
- ⑧ Drive shaft holder 3
P/N. 90890-06517
- ⑨ Bearing puller ass'y
P/N. 90890-06535
- ⑩ Stopper guide stand
P/N. 90890-06538
- ⑪ Driver rod LL
P/N. 90890-06605
- ⑫ Driver rod LS
P/N. 90890-06606
- ⑬ Driver rod L3
P/N. 90890-06652
- ⑭ Driver rod SL
P/N. 90890-06602
- ⑮ Driver rod SS
P/N. 90890-06604
- ⑯ Bearing depth plate
P/N. 90890-06603
- ⑰ Needle bearing attachment
P/N. 90890-06608
P/N. 90890-06611
P/N. 90890-06615
- ⑱ Ball bearing attachment
P/N. 90890-06633
- ⑲ Bearing inner race attachment
P/N. 90890-06643
P/N. 90890-06644
P/N. 90890-06645
- ⑳ Bearing outer race attachment
P/N. 90890-06622
P/N. 90890-06628



- Crank jig ass'y
P/N. 90890-02421
- ②① Frange
P/N. 90890-02351
- ②② Body
P/N. 90890-02352
- ②③ Bolt
P/N. 90890-02353
- ②④ Washer
P/N. 90890-02354
- ②⑤ Bushing-5 (D25)
P/N. 90890-02359
- ②⑥ Bushing-12 (D35)
P/N. 90890-02366
- ②⑦ Height ring-13 (H57)
P/N. 90890-02379
- ②⑧ Pressure Plate
P/N. 90890-02384
- ②⑨ Press body
P/N. 90890-02385
- ③⑩ Plate A
P/N. 90890-02386
- ③① Plate B
P/N. 90890-02387
- ③② Pressure pin B
P/N. 90890-02390
- ③③ Bearing pressure B
P/N. 90890-02392
- ③④ Bearing pressure C
P/N. 90890-02393
- ③⑤ Support
P/N. 90890-02394
- ③⑥ Spacer B
P/N. 90890-02396
- ③⑦ Bushing-14
P/N. 90890-02419

FEATURES AND BENEFITS

POWER UNIT

The EK25B is designed to provide superior fuel economy, serviceability, and durability. They are based on the previous EK25A with newly designed linkage to control both throttle opening and ignition timing mechanically and simultaneously. Special attention was paid on the crankshaft bearings. Collar is now added to the upper main journal of the crankshaft. Roller bearing is applied for the center bearing. The collar added on the upper main journal contributes to get and better serviceability.

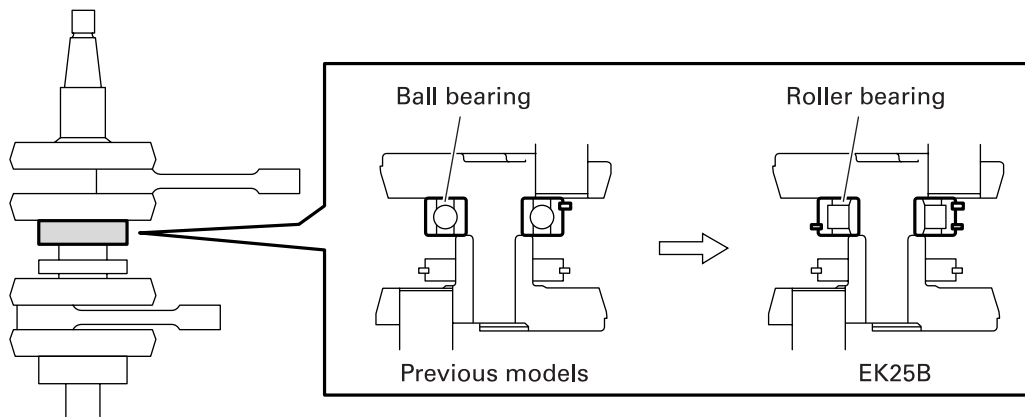


Fig. 1

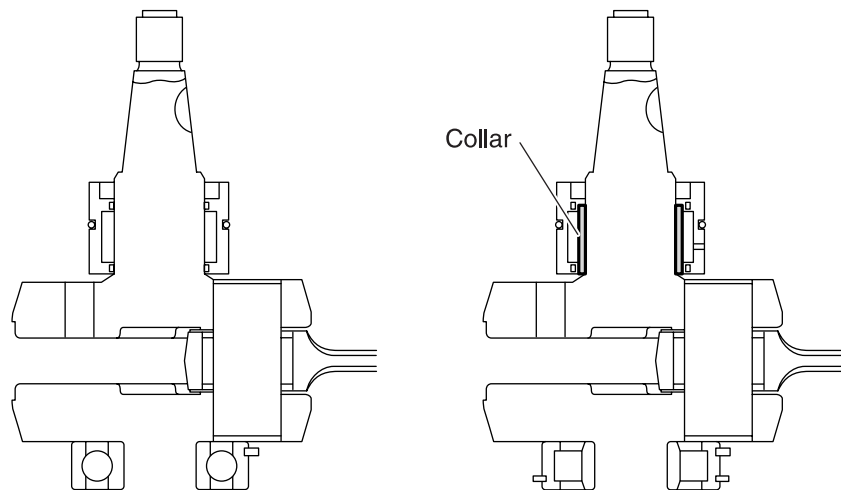


Fig. 2

IGNITION SYSTEM

Ignition system on the EK25B consists of flywheel magnet, charge coil, pulser coil, CDI unit, and ignition coil.

Similar to the previous EK25A, the engine has the mechanical ignition timing advance system that works by way of the linkage.

Superior fuel economy is attained by the modified ignition timing control arrangement.

Also the system restricts the ignition timing advance to prevent engine kickback when the shift is in neutral.

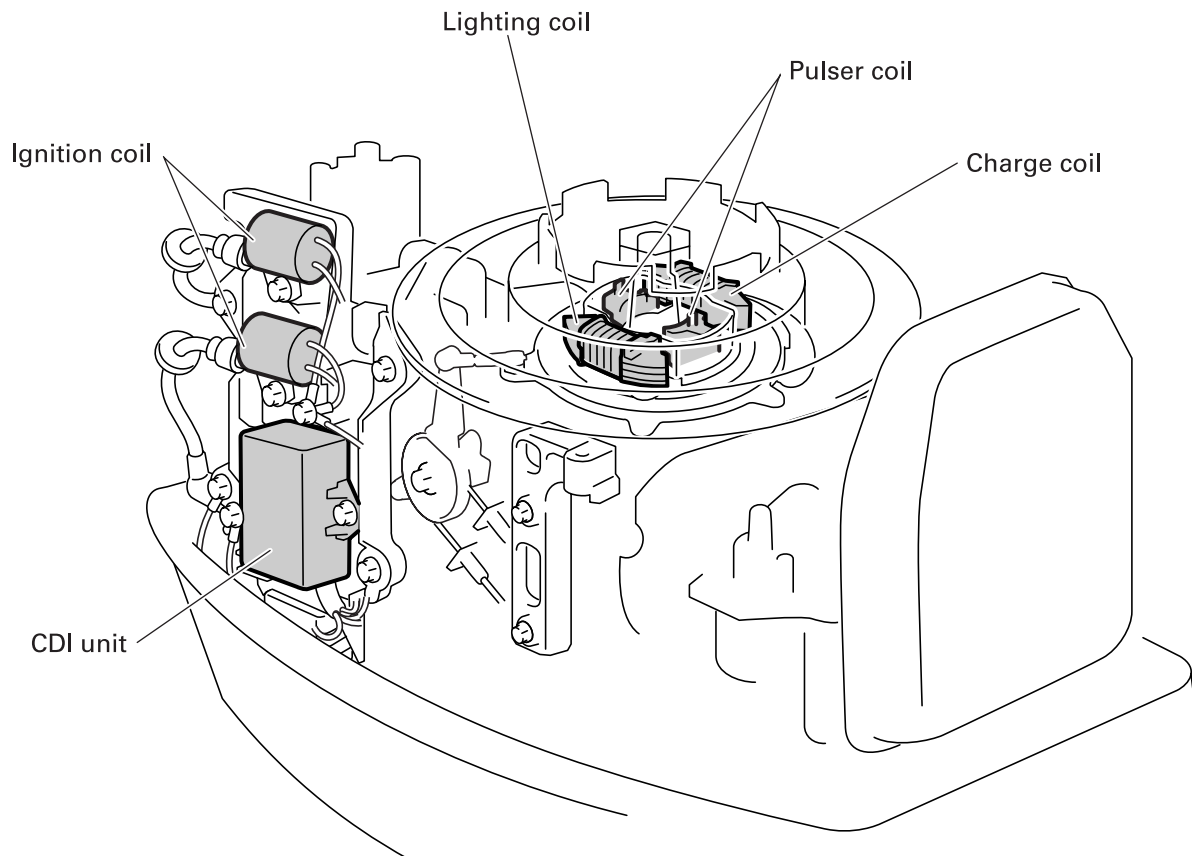


Fig. 3

COOLING SYSTEM

New structure applied to the cooling system provides additional cooling capacity in the upper casing.

With additional cooling water passage (indicated by \leftarrow), water walls contained in the new upper casing contribute to the reduction of outer surface temperature.

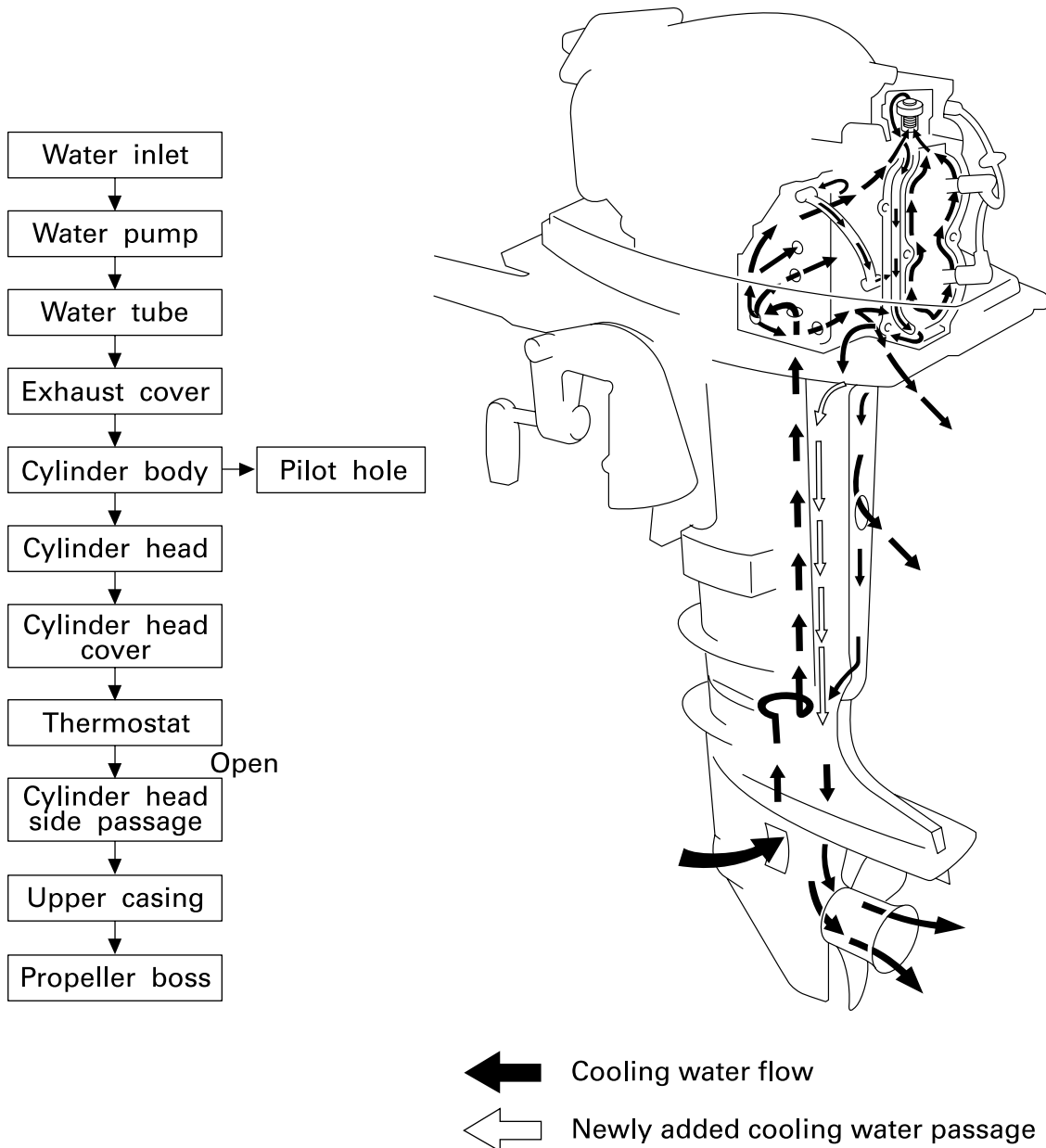


Fig. 4

COOLING SYSTEM

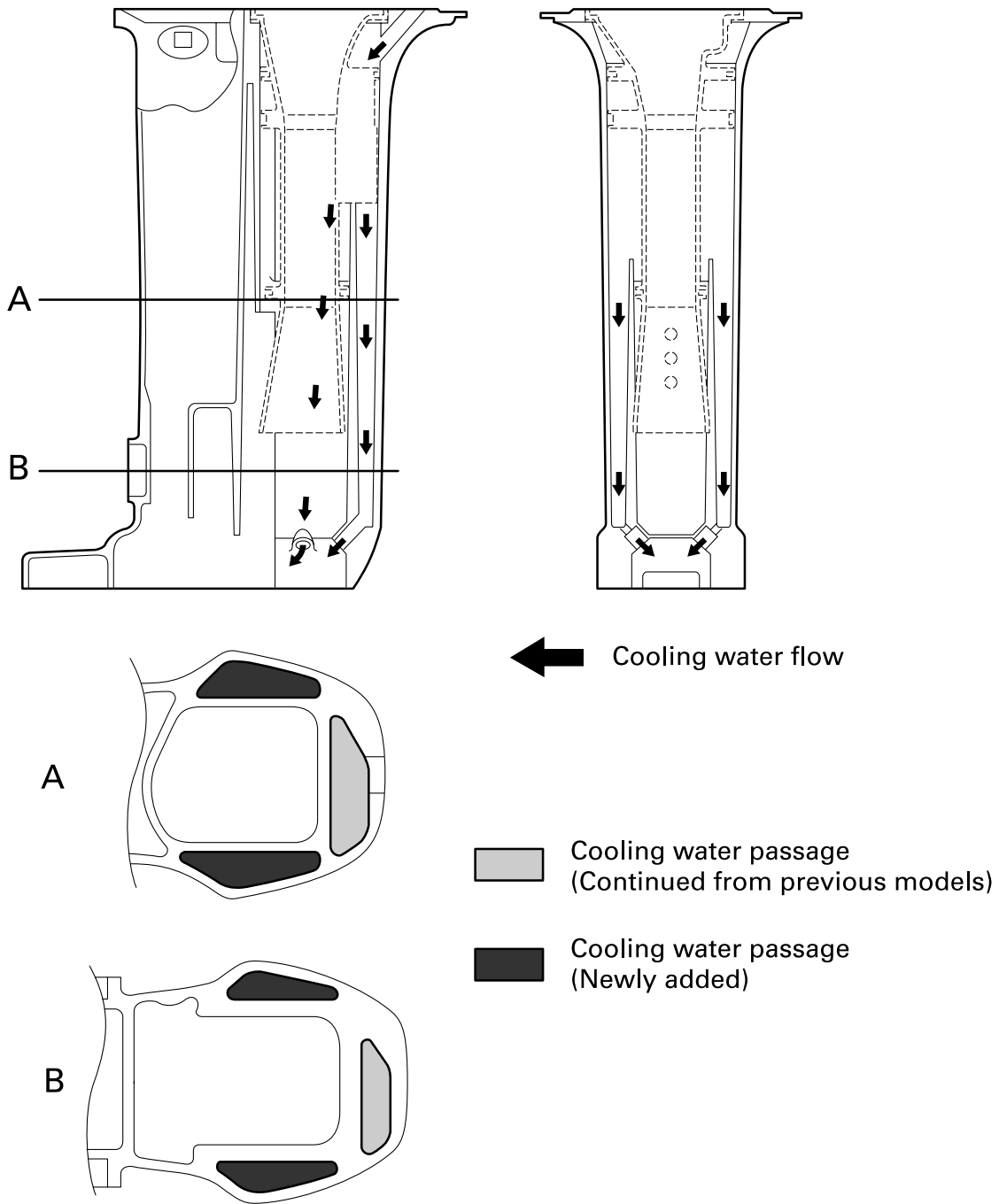


Fig. 5

**Thank you very much
for your reading.**

**Please click here and go
back to the website.**

**Then, you can
download the complete
manual instantly.**

No waiting.

TILLER HANDLE

For the throttle grip on the steering handle of the EK25B, 100 degrees of opening angle covers all ranges from full-closed to wide-open positions.

Also, new steering handle parts were developed to assume the long use. Inner diameter of the steering handle engagement area, and both inner and outer diameters of steering bracket are increased.

Please note that if the new steering handle is installed on the previous models, Steering handle 2, Steering bracket, Collar, and Washer must be replaced.

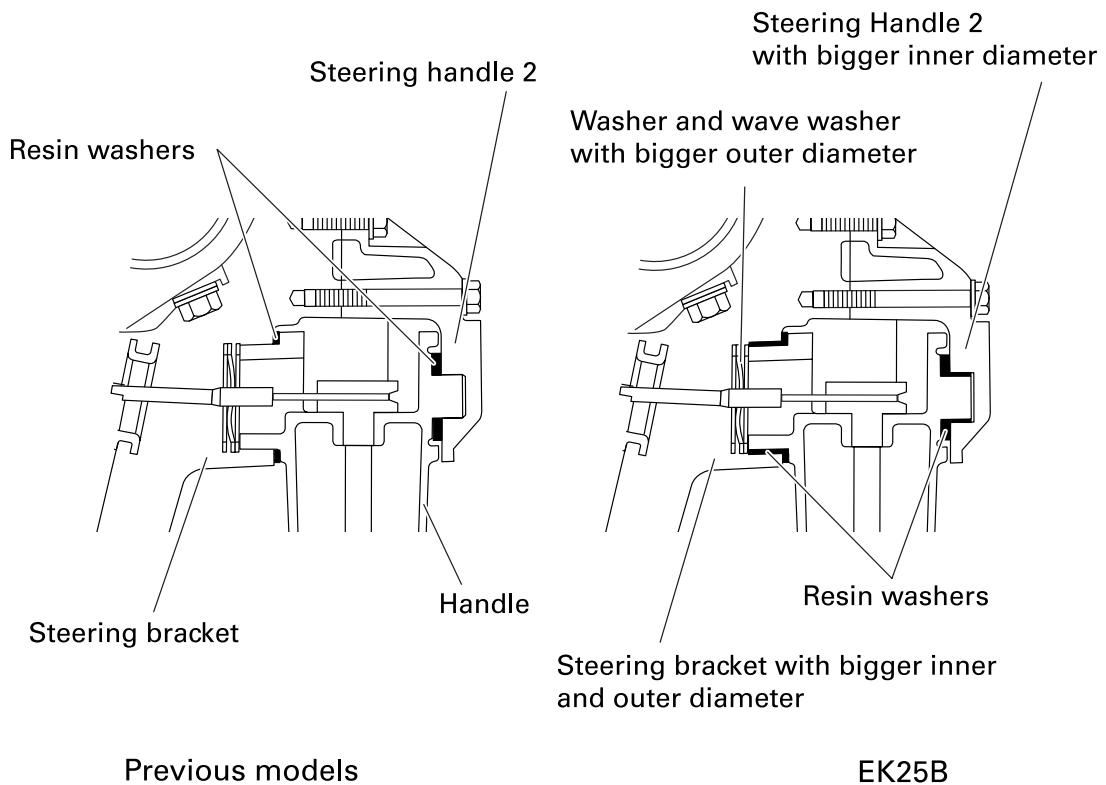


Fig. 6

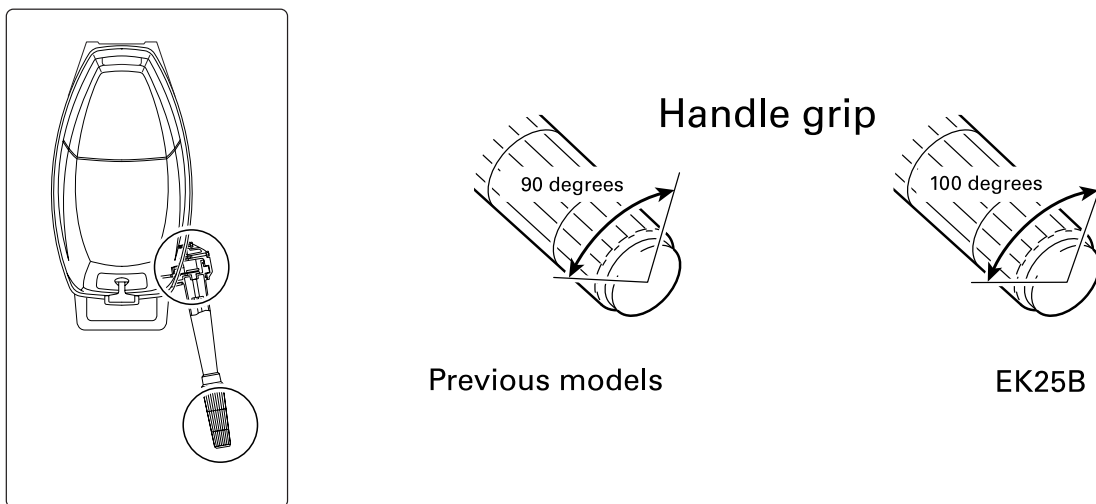


Fig. 7



BRACKET AND BOTTOM COWLING

The Bracket 1 is modified on the EK25B, and newly designed rubber seal is added to provide better sealing ability for the bottom cowling.

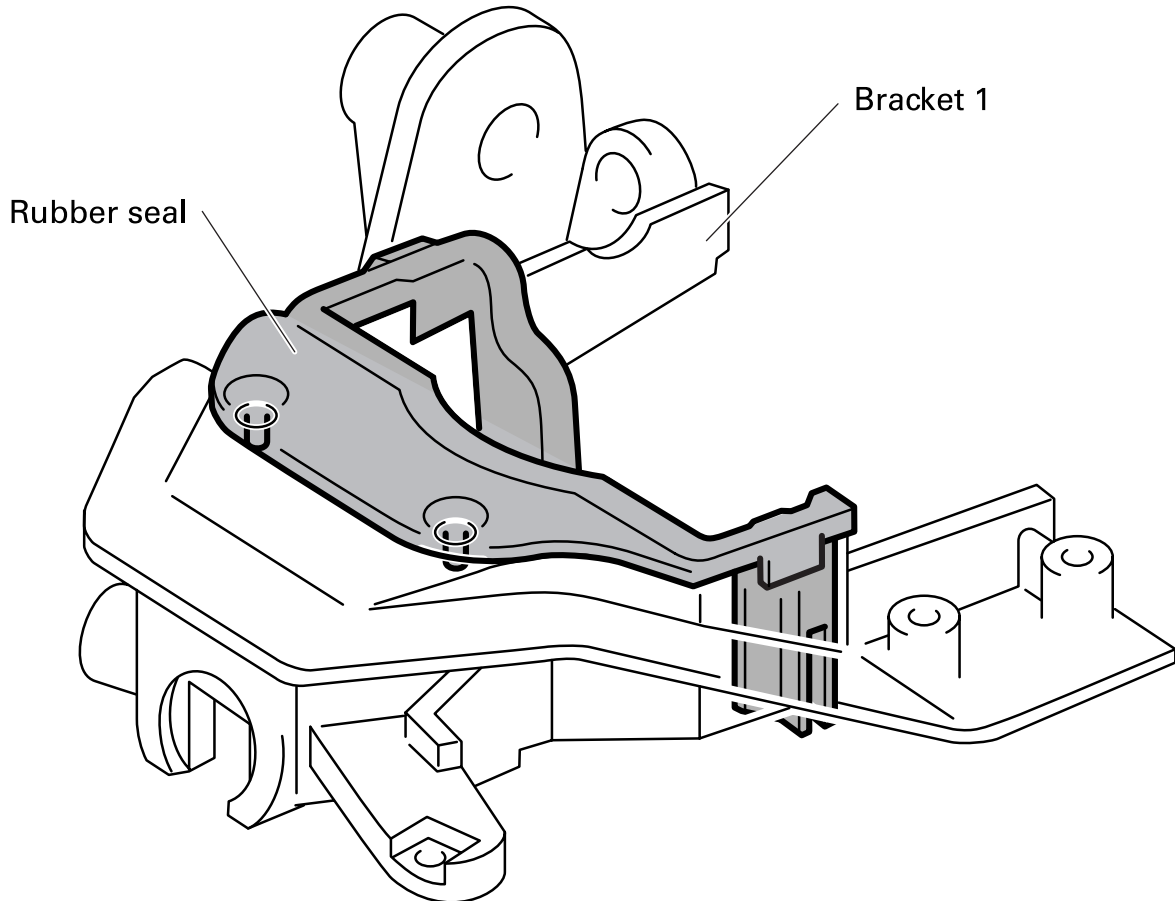


Fig. 8