

YAMAHA

Marine

Outboards

**150A, 150F,
L150F, D150H,
175D, 200F,
L200F, 200G,
225D**

**SERVICE
MANUAL**

64C-28197-Z8-11

PREFACE

This manual has been prepared by the Yamaha Motor Company, Ltd. 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 the Yamaha Motor Company, Ltd. 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.

**150A, 150F, L150F, D150H, 175D,
200F, L200F, 200G, 225D
SERVICE MANUAL**

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1st Edition, October 1998**

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HOW TO USE THIS MANUAL

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 an easy to read, handy reference that contains comprehensive explanations of all disassembly, repair, assembly, and inspection operations.

For instance, the condition of a faulty component will precede an arrow symbol and the course of action required will follow the symbol.

- 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 mentioned in this manual and their model indications are noted as follows.

Model name	150AET	L150AET	150FETO		L150FETO		150GETO
USA and Canada name	C150TR	—	—	S150TR	—	L150TR	P150TR
Indication	150AET	L150AET	150FETO	S150FETO	L150FETO	LS150FETO	150GETO
Model name	D150HETO	175AET	175DETO		175FETO	200AET	L200AET
USA and Canada name	D150TR	—	—	S175TR	P175TR	—	—
Indication	D150HETO	175AET	175DETO	S175DETO	175FETO	200AET	L200AET
Model name	200FETO		L200FETO		200GETO	225DET	225DETO
USA and Canada name	200TR	S200TR	—	L200TR	P200TR	—	—
Indication	200FETO	S200FETO	L200FETO	LS200FETO	200GETO	225DET	225DETO

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.

SPECIFICATIONS

These are given in bold type at each procedure. It is not necessary to leave the section dealing with the procedure in order to look up the specifications.

It is important to note the differences in specifications of models. When a procedure relates to more than one model, the main differences in specifications will be shown in a table similar to the following.

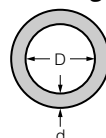
Model name	150AET	L150AET	150FETO		L150FETO		150GETO
USA and Canada name	C150TR	—	—	S150TR	—	L150TR	P150TR
Lubrication system	Pre-mixed	Pre-mixed	Oil injection		Oil injection		Oil injection
Model name	D150HETO	175AET	175DETO		175FETO	200AET	L200AET
USA and Canada name	D150TR	—	—	S175TR	P175TR	—	—
Lubrication system	Oil injection	Pre-mixed	Oil injection		Oil injection	Pre-mixed	Pre-mixed
Model name	200FETO		L200FETO		200GETO	225DET	225DETO
USA and Canada name	200TR	S200TR	—	L200TR	P200TR	—	—
Lubrication system	Oil injection		Oil injection		Oil injection	Pre-mixed	Oil injection

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.

Example:

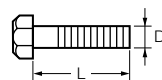
O-ring size 39.5×2.5 mm: inside diameter (D) \times ring diameter (d)



- 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) \times 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.

LOWR **LOWER UNIT (REGULAR ROTATION MODELS)** E

LOWER UNIT (REGULAR ROTATION MODELS)
REMOVING/INSTALLING THE LOWER UNIT

Order	Job/Part	Q'ty	Remarks
1	Speedometer hose	1	
2	Propeller nut	1	
3	Washer	1	
4	Propeller	1	
5	Spacer	1	
6	Bolt	1	
7	Trim tab	1	(with washer)
8	Bolt	6	(with washer)
9	Bolt	6	(with washer)
10	Lower unit	1	
11	Dowel pin	2	

For installation, reverse the removal procedure.

6-1

LOWR **DRIVE SHAFT (REGULAR ROTATION MODELS)** E

REMOVING THE DRIVE SHAFT
Loosen:
• Pinion nut

Drive shaft holder ①
YB-06201 / 90890-06520
Pinion nut holder ②
90890-06505
Pinion nut holder attachment ③
90890-06507

DISASSEMBLING THE DRIVE SHAFT HOUSING ASSEMBLY
Remove:
• Needle bearing

Bearing/oil seal attachment ①
YB-06196 / 90890-06610
Driver rod ②
YB-06071 / 90890-06652

DISASSEMBLING THE FORWARD GEAR ASSEMBLY
1. Remove:
• Tapered roller bearing

























Bearing separator ③
YB-06219 / 90890-06534

CAUTION:
Do not reuse the bearing, always replace it with a new one.

2. Remove:
• Needle bearing

Slide hammer ①
YB-06096
Guide plate ②
90890-06501
Guide plate stand ③
90890-06538
Bearing puller ④
90890-06535
Small universal claws ⑤
90890-06536

6-18

① GEN INFO 	② SPEC 
③ INSP 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 

SYMBOLS

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

- ① General information
- ② Specifications
- ③ Periodic inspections 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 ⑱ in an exploded diagram indicate the grade of lubricant and the location of the lubrication point.

- ⑯ Apply Yamaha 2-stroke outboard motor oil (TC-W3)
- ⑰ Apply water resistant grease (Yamaha grease A, Yamaha marine grease)
- ⑱ Apply molybdenum disulfide oil

Symbols ⑲ to ㉔ in an exploded diagram indicate the grade of the sealing or locking agent and the location of the application point.

- ⑲ Apply Gasket Maker®
- ⑳ Apply Yamabond #4 (Yamaha bond number 4)
- ㉑ Apply LOCTITE® No. 271 (Red LOCTITE)
- ㉒ Apply LOCTITE® No. 242 (Blue LOCTITE)
- ㉓ Apply LOCTITE® No. 572
- ㉔ Apply silicon sealant

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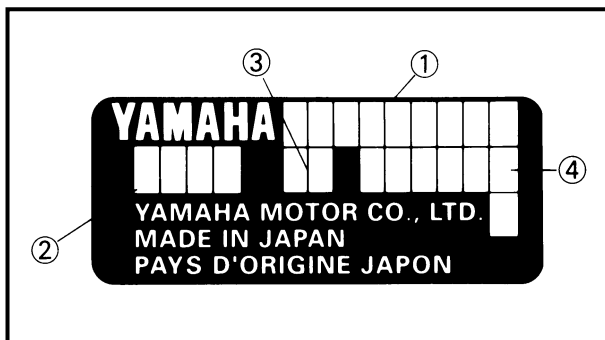
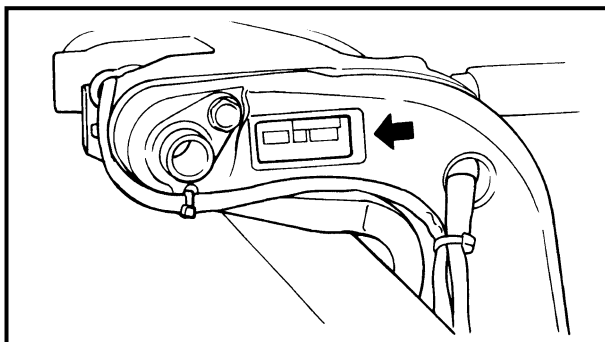
GENERAL INFORMATION	 GEN INFO	1
SPECIFICATIONS	 SPEC	2
PERIODIC INSPECTIONS AND ADJUSTMENTS	 INSP ADJ	3
FUEL SYSTEM	 FUEL	4
POWER UNIT	 POWR	5
LOWER UNIT	 LOWR	6
BRACKET UNIT	 BRKT	7
ELECTRICAL SYSTEMS	 ELEC	8
TROUBLE ANALYSIS	 TRBL ANLS	9

CHAPTER 1

GENERAL INFORMATION



IDENTIFICATION	1-1
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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

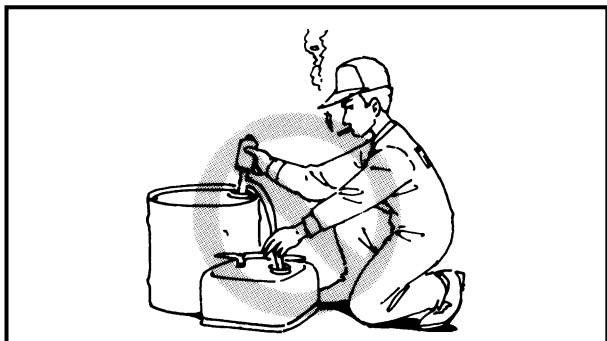
STARTING SERIAL NUMBERS

The starting serial number blocks are as follows:

Model name			Approval model code	Starting serial number	Model name			Approval model code	Starting serial number
World-wide	USA	Canada			World-wide	USA	Canada		
150AET	C150TR	—	6G4	L: 305521 - X: 704396 -	175FETO	P175TR		62H	L: 500647 -
L150AET	—	—	6K0	X: 750347 -	200AET	—		6G6	L: 308781 - X: 707018 -
150FETO	—	—	6G4	L: 352137 - X: 504118 -	L200AET	—		6K1	X: 752202 -
L150FETO	S150TR		6K0	L: 350142 - X: 501152 -	200FETO	200TR	—	6G6	L: 350991 - X: 506004 -
150GETO	P150TR		6J9	L: 502379 -	L200FETO	—		6K1	L: 350141 - X: 501625 -
D150HETO	D150TR	—	6J9	L: 601301 -	200GETO	P200TR		61H	L: 502516 -
175AET	—	—	6G5	L: 302440 - X: 701017 -	225DET	—		6K7	L: 400393 - X: 500160 -
175DETO	—	—	6G5	L: 350273 - X: 501252 -	225DETO	—		6K7	L: 450255 - X: 550266 -
	S175TR	—							

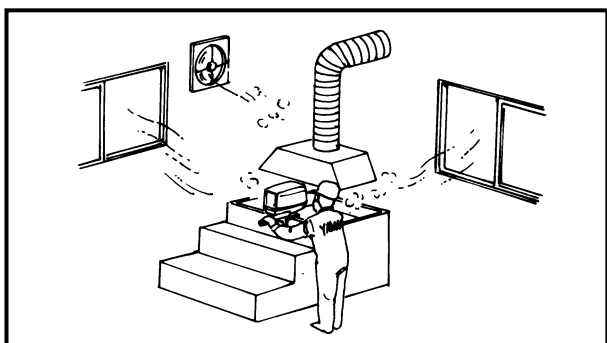
SAFETY WHILE WORKING

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



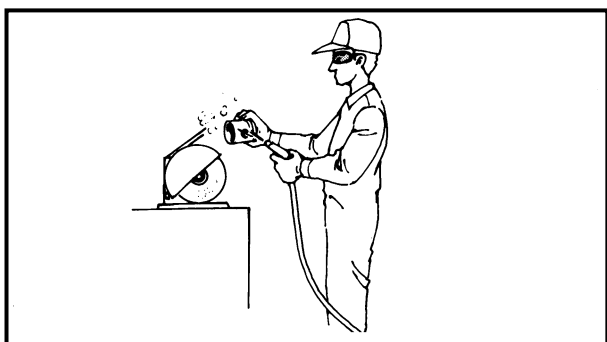
FIRE PREVENTION

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.

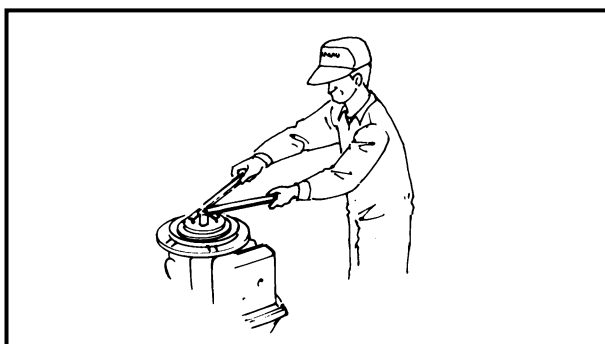


OILS, GREASES AND SEALING FLUIDS

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

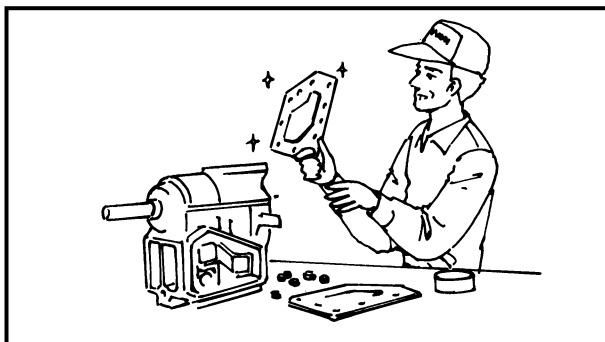
Under normal conditions of use, there should be no hazards from the use of the lubricants mentioned in this manual, but safety is all-important, and by adopting good safety practices, any risk is minimized. A summary of the most important precautions is as follows:

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.



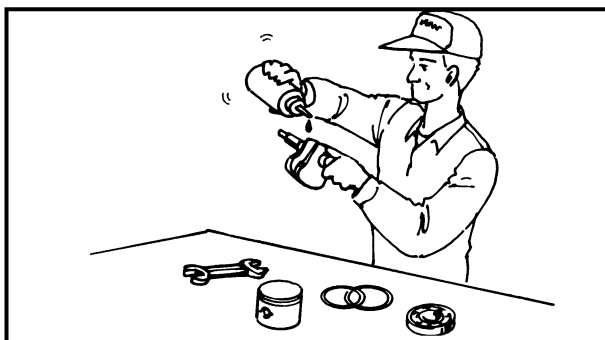
GOOD WORKING PRACTICES

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.



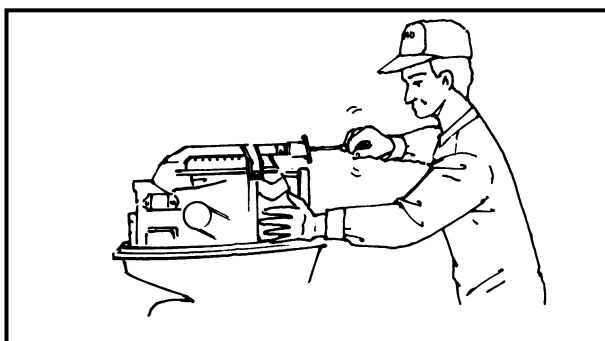
3. Non-reusable items

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

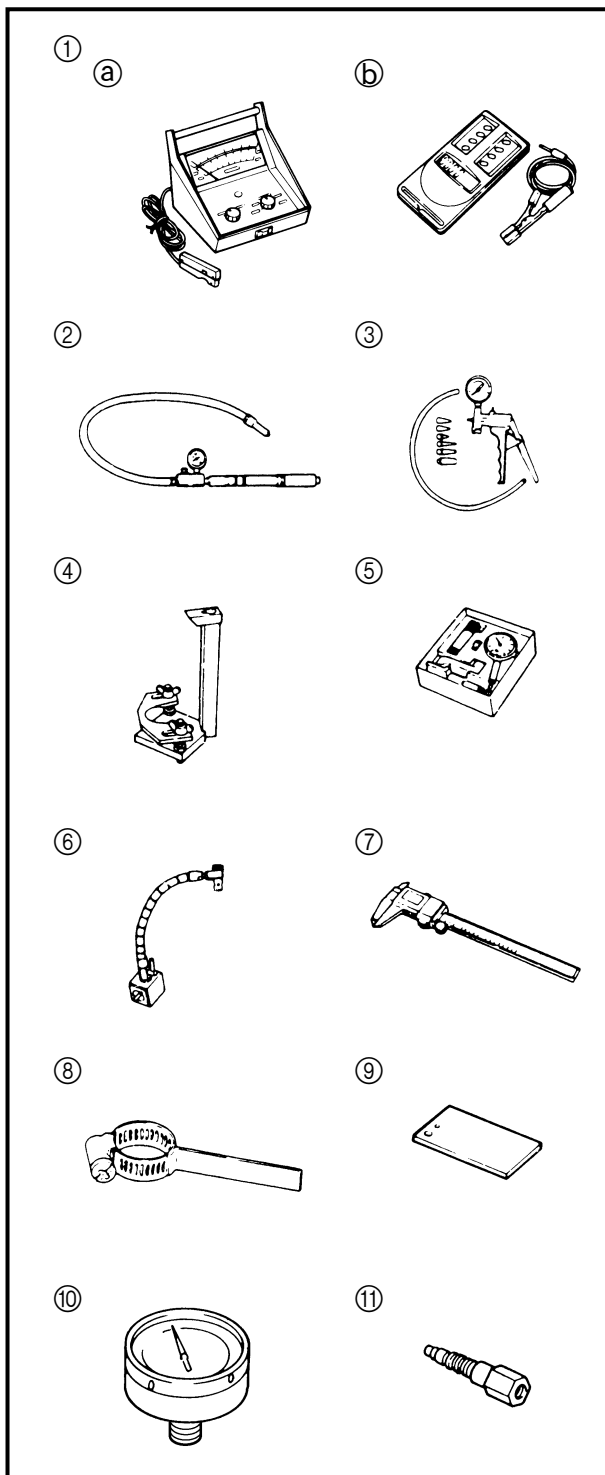
Using the correct special tools recommended by Yamaha, will aid the work and enable accurate assembly and tune-up. Improvising and using improper tools can damage the equipment.

NOTE:

- For U.S.A. and Canada, use part numbers that start with "J-", "YB-", "YM-", "YU-" or "YW-".
- For others countries, use part numbers that start with "90890-".

MEASURING

- ① Tachometer
P/N. YU-08036-A ①
90890-06760 ②
- ② Pressure tester
P/N. YB-35956
90890-06762
- ③ Mity vac
P/N. YB-35956
90890-06756
- ④ Pinion height gauge
P/N. YB-34432-7, YB-34432-11,
YB-34432-97
90890-06702
- ⑤ Dial gauge set
P/N. YU-03097
90890-01252
- ⑥ Magnetic base
P/N. YU-34481
90890-06705
- ⑦ Digital caliper
P/N. 90890-06704
- ⑧ Backlash indicator
P/N. YB-06265
90890-06706
- ⑨ Magnetic base attaching plate
P/N. YB-07003
90890-07003
- ⑩ Hydraulic pressure gauge
P/N. 90890-06776
- ⑪ Up-relief valve attachment
P/N. 90890-06773
Down-relief valve attachment
P/N. 90890-06774

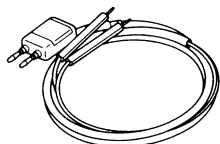


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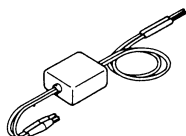


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a

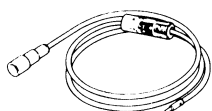


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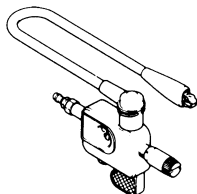


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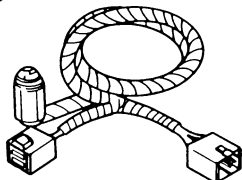
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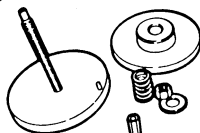
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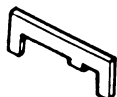
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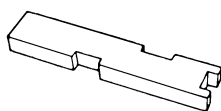
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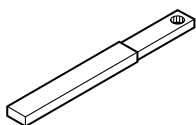
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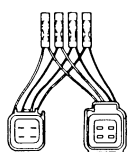
18



19



20



12 Digital tester

P/N. J-39299

90890-06752

13 Peak voltage adapter

P/N. YU-39991 a

90890-03169 b

14 Spark gap tester

P/N. YM-34487 a

90890-06754 b

15 Diagnostic indicator

P/N. YB-06765

90890-06765

16 Shimming gauge

P/N. YB-34446-1, YB-34446-3,

YB-34446-4, YB-34446-7,

YB-34446-8

17 Shimming gauge

P/N. YB-34468-1, YB-34468-2,

YB-34468-6

18 Shimming plate

P/N. 90890-06701

19 Shift rod wrench

P/N. YB-06052

90890-06052

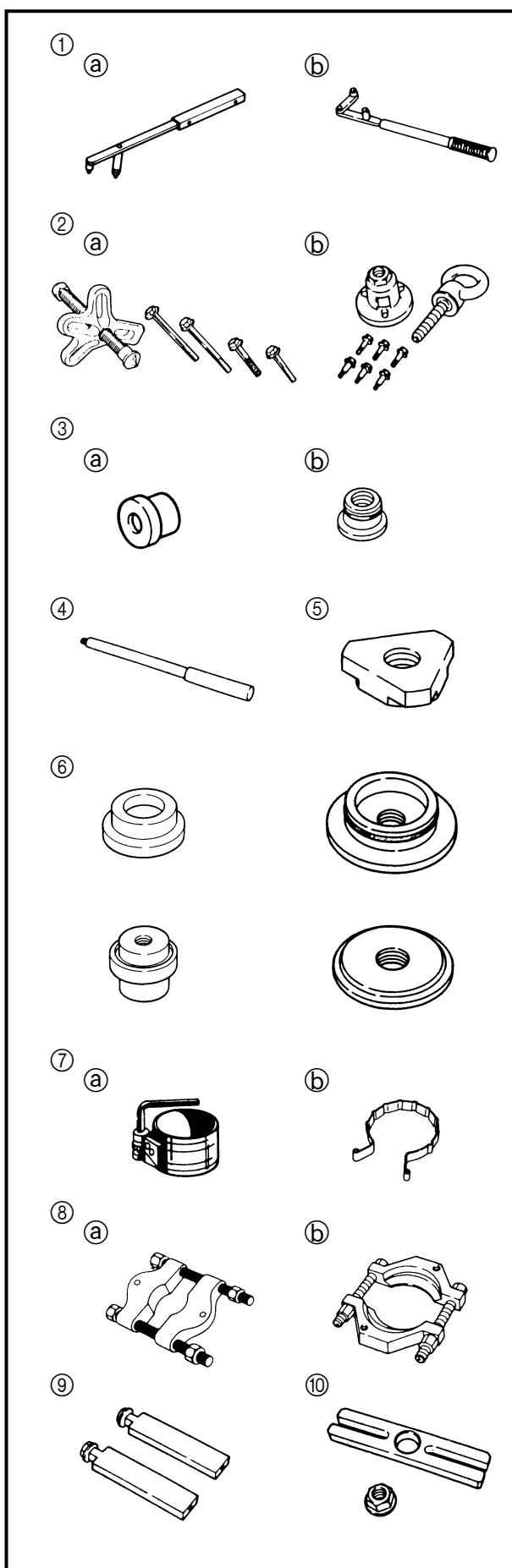
20 Test harness

P/N. YB-06770, YB-38831,

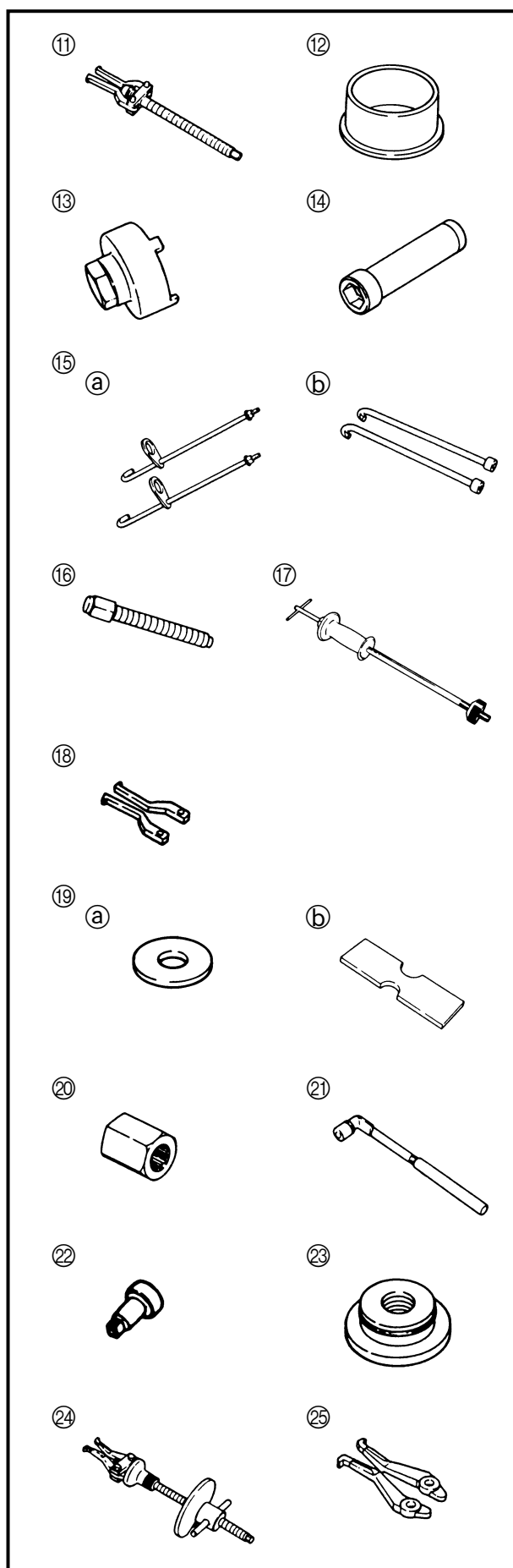
YB-38832

90890-06770, 90890-06771,

90890-06772


REMOVING AND INSTALLING

- ① Flywheel magnet assembly holder
P/N. YB-06139 (a)
90890-06522 (b)
- ② Universal puller
P/N. YB-06117 (a)
90890-06521 (b)
- ③ Bearing/oil seal attachment
P/N. YB-06196 (a)
90890-06610, 90890-06637 (b)
- ④ Driver rod
P/N. YB-06071
90890-06602, 90890-06604,
90890-06605, 90890-06606,
90890-06652
- ⑤ Bearing/oil seal attachment
P/N. YB-06205
90890-06663
- ⑥ Bearing/oil seal attachment
P/N. YB-06194, YB-06195,
YB-06200, YB-06246,
YB-06258, YB-06276,
YB-06336
90890-06619, 90890-06622,
90890-06623, 90890-06624,
90890-06629
- ⑦ Piston ring compressor
P/N. YU-33294 (a)
90890-06530 (b)
- ⑧ Bearing separator
P/N. YB-06219 (a)
90890-06534 (b)
- ⑨ Guide plate stand
P/N. 90890-06538
- ⑩ Guide plate
P/N. 90890-06501



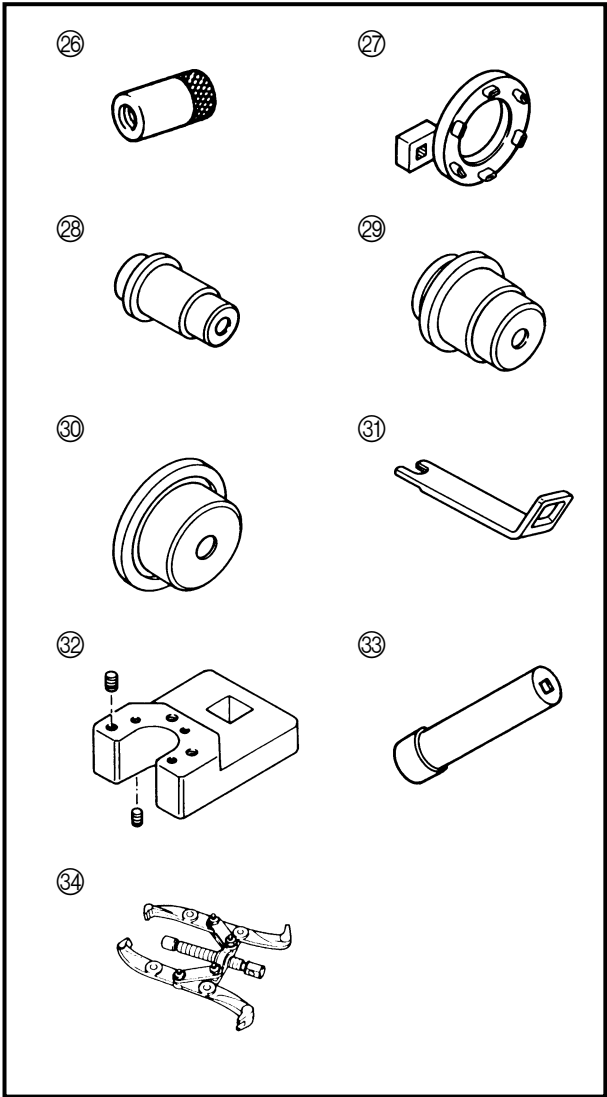
- ⑪ Bearing puller
P/N. 90890-06535
- ⑫ Bearing/oil seal attachment
P/N. 90890-06659, 90890-06660,
90890-06661, 90890-06662
- ⑬ Ring nut wrench
P/N. YB-34447
90890-06512
- ⑭ Ring nut wrench extension
P/N. YB-06513
90890-06513
- ⑮ Propeller shaft housing puller
P/N. YB-06207 ①
YB-06502 ②
90890-06502
- ⑯ Center bolt
P/N. 90890-06504
- ⑰ Slide hammer
P/N. YB-06096
90890-06531
- ⑱ Small universal claws
P/N. 90890-06536
- ⑲ Bearing/oil seal depth plate
P/N. YB-06213, YB-34474 ①
90890-06603 ②
- ⑳ Drive shaft holder
P/N. YB-06201
90890-06520
- ㉑ Pinion nut holder
P/N. 90890-06505
- ㉒ Pinion nut holder attachment
P/N. 90890-06508
- ㉓ Bearing/oil seal attachment
P/N. 90890-06609, 90890-06612,
90890-06631, 90890-06633,
90890-06636, 90890-06653
- ㉔ Bearing puller
P/N. YB-06029, YB-06247
90890-06523
- ㉕ Large universal claws
P/N. 90890-06532

**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.



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Slide hammer attachment

P/N. YB-06335

90890-06514
- 27

Ring nut wrench

P/N. YB-42223
- 28

Bearing/oil seal attachment

P/N. YB-42225
- 29

Bearing/oil seal attachment

P/N. YB-42227
- 30

Bearing/oil seal attachment

P/N. YB-42229

90890-06607
- 31

Pinion nut holder

P/N. YB-42224
- 32

End screw wrench

P/N. YB-06548

90890-06548
- 33

End screw wrench

P/N. YB-06175-1A
- 34

Universal puller

P/N. YB-06540

90890-06540

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