YAMAHA

Marine

Outboards

WORLD WIDE

20D, 25N

USA

20T, 25T

CANADA

20T$_2$, 25T$_2$

SERVICE MANUAL (E)

WARTUNGSHANDBUCH (D)

MANUEL D'ENTRETIEN (F)

MANUAL DE SERVICIO (ES)

290221

PREFACE

This service manual is intended to provide Yamaha dealers with information for maintaining or reconditioning models.
The information is limited for right & correct, prior to information weight and basic service skill.
Please read "NOTICE" and reinforce your knowledge to have best service with your updated service ability.

A10001-0*

20, 25
SERVICE MANUAL
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NOTICE

This manual has been compiled to Yamaha dealers and their trained service staff. The service staff should have a skill for basic outboard motor service and to read the manual for catching the information.

MANUAL FORMAT

Basically, each section is composed by 1)Exploded diagram 2)Disassembly/Assembly chart 3)Service point.

1) Exploded diagram:
   Torque indication, type of Oil/grease with symbols and requirement for parts directions are discribed. The unit for the diagram is devided depend on the service steps.
2) Disassembly/assembly chart:
   According to the exploded diagram and removal sequence, the chart is designed also for reassembling by reverse. Some important/identical informations such as bolt size and O-ring size, are described on the right side of the chart in "Service points".
3) Service point:
   Condensed for just service point. Therefore previous step-by-step description has been eliminated. Basic description is composed following step as the example.

1. Measure:	(Order number).(Service order):
● Length ⓐ	(Objective parts)
Out of specification → Replace.	(Specified condition) → (Recovery action order).

Chapter 8 "Electrical" is composed by viewing from trouble analysis, therfore each systems and all the relational parts is listed according to the system flow. Especially "Ignition system", Checking start from running condition (entire system check) then to each components.

Chapter 9 "Trouble analysis" is not trouble servey flow, its a relation chart between the trouble and the system. Regarding chapter is pointed and solvement priority as your experience and skill for your market.

MANUAL RELATION

Service manual is not mentioned about the model concept and its backup technical information, also described information will be changed for improvement, therefore catch the information from following publications and update your manual to latest version.

Model concept and backup technical information	: Refer to Service guide
Yearly update information	: Refer to Model guide
Update information in the year model	: Technical Service Information
Additional or modified serviceinformation	: Supplementary Service manual

MODEL IDENTIFICATION

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 following table.

World wide	20DM	20DEM	20DMO	20DEO	20DERO	20DEMO
USA	20MH	–	–	–	–	–
Canada	20MH	20EH	20MH2	–	–	20EH2
Tiller handle	●	●	●	●	–	●
703 remote control	–	–	–	●	●	–
Recoil starter	●	●	●	●	●	●
Electric motor	–	●	–	●	●	●
Neutral switch	–	●	–	–	–	●
Oil injection	–	–	●	●	●	●
Overheat warning	–	–	–	–	–	–
Oil level warning	–	–	–	–	–	–

World wide	25NM	25NE	25NMO	25NEO	25NERO	25NEMO
USA	–	–	25MH	–	25ER	25EH
Canada	25MH	–	25MH2	–	25ER	25EH
Tiller handle	●	●	●	●	–	●
701 remote control	–	●	–	–	–	–
703 remote control	–	–	–	●	●	–
Recoil starter	●	●	●	●	●	●
Electric motor	–	●	–	●	●	●
Neutral switch	–	–	–	–	–	●
Oil injection	–	–	●	●	●	●
Overheat warning	●	●	●	●	●	●
Oil level warning	–	–	●	●	●	●

THE ILLUSTRATIONS

Some illustrations in this manual may differ from the model you have. This is because a procedure described may relate to several models, though only one may be illustrated. (The name of model described will be mentioned in the description).

REFERENCES

These have been kept to a minimum; however, when you are referred to another section of the manual, you are told the page to go to.

WARNINGS, CAUTIONS AND NOTES

Attention is drawn to the various Warnings, Cautions and Notes which distinguish important information in this manual 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.

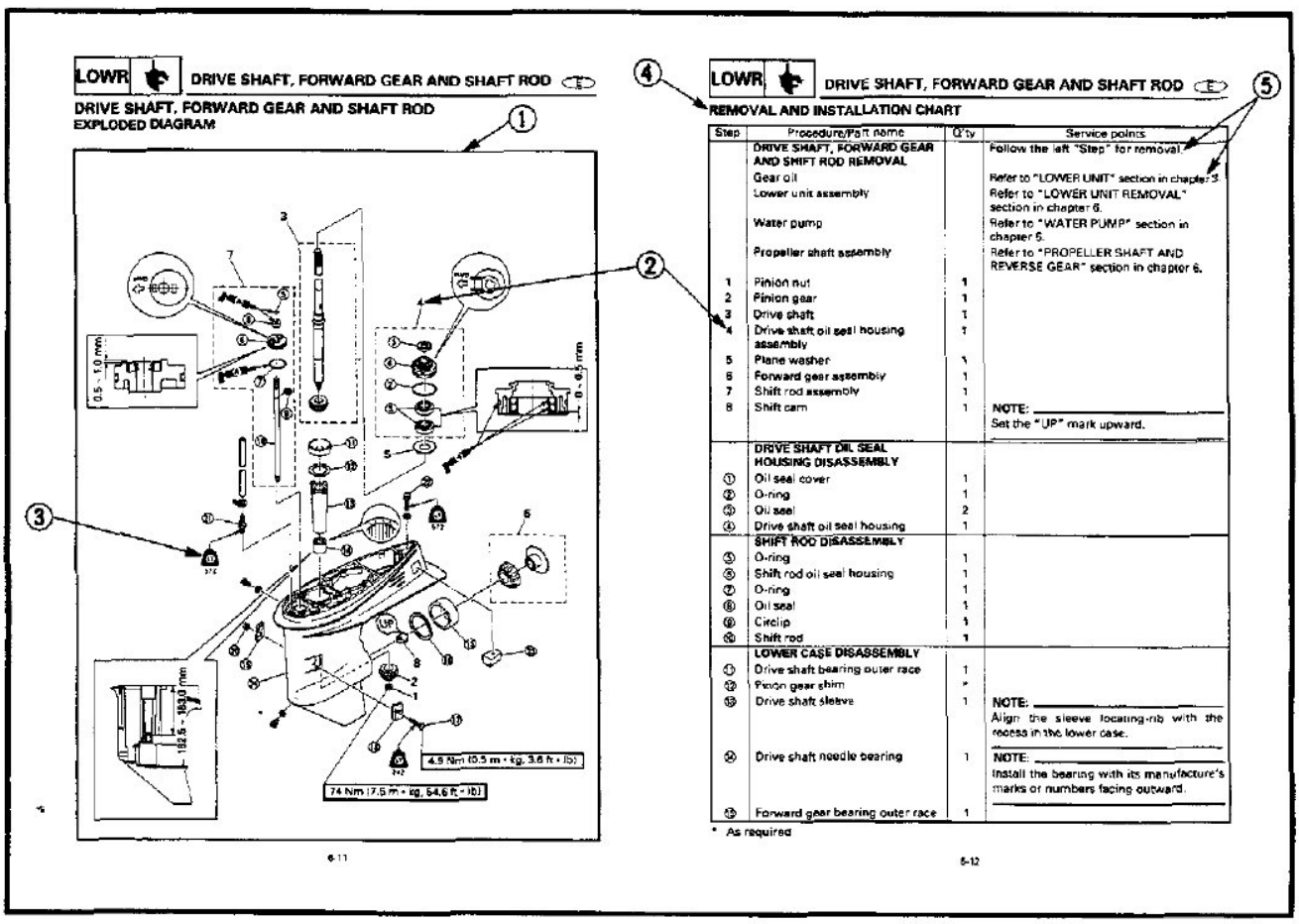
IMPORTANT:

This part has been subjected to change of specification during production.

BASE INFORMATION
End of February 1995

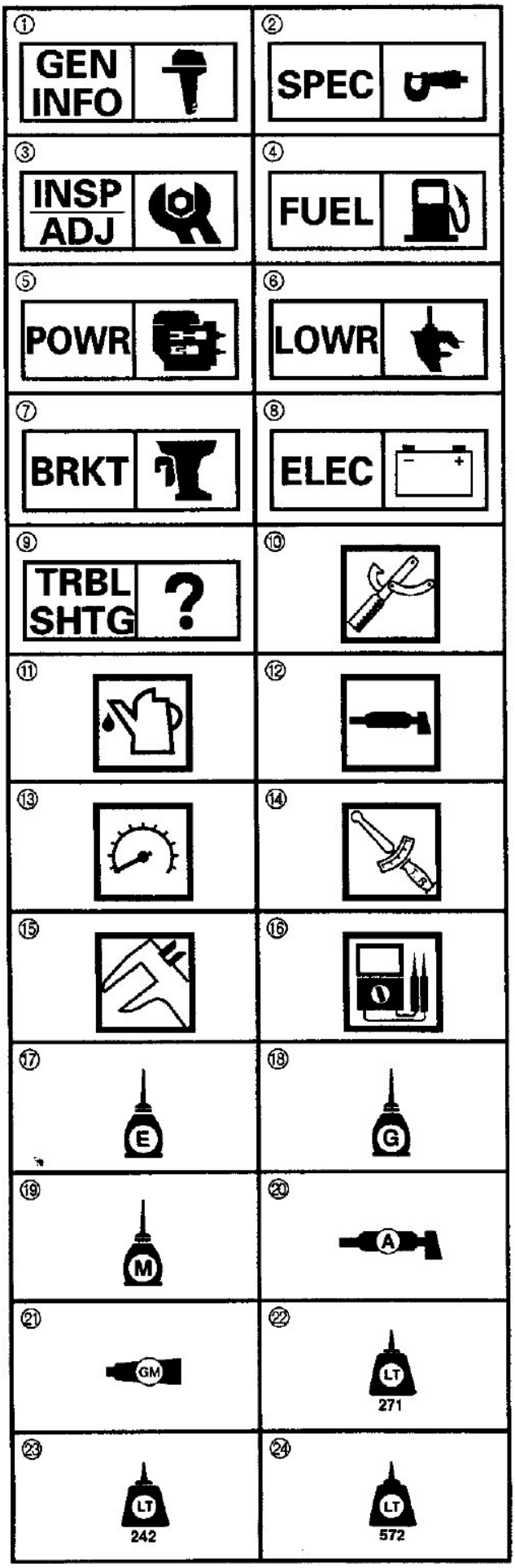
HOW TO READ DESCRIPTIONS

1. A disassembly installation job mainly consists of the exploded diagram ①.
2. The numerical figures represented by the number ② indicates the order of the job steps.
3. The symbols represented by the number ③ indicates the contents and notes of the job. For the meanings of the symbols, refer to the "SYMBOLS".
4. The REMOVAL AND INSTALLATION CHART ④ is attached to the exploded diagram and explains the job steps, part names, notes for the jobs, etc.
5. The SERVICE POINTS, other than the exploded diagram, explains in detail the items difficult to explain in the exploded diagram or REMOVAL AND INSTALLATION CHART, the Service points requiring the detailed description ⑤, etc.



Step	Procedure/Part name	Q'ty	Service points
	DRIVE SHAFT, FORWARD GEAR AND SHIFT ROD REMOVAL		Follow the left "Step" for removal.
	Gear oil		Refer to "LOWER UNIT" section in chapter 3.
	Lower unit assembly		Refer to "LOWER UNIT REMOVAL" section in chapter 6.
	Water pump		Refer to "WATER PUMP" section in chapter 5.
	Propeller shaft assembly		Refer to "PROPELLER SHAFT AND REVERSE GEAR" section in chapter 6.
1	Pinion nut	1	
2	Pinion gear	1	
3	Drive shaft	1	
4	Drive shaft oil seal housing assembly	1	
5	Plane washer	1	
6	Forward gear assembly	1	
7	Shift rod assembly	1	
8	Shift cam	1	NOTE: Set the "UP" mark upward.
	DRIVE SHAFT OIL SEAL HOUSING DISASSEMBLY		
①	Oil seal cover	1	
②	O-ring	1	
③	Oil seal	2	
④	Drive shaft oil seal housing	1	
	SHIFT ROD DISASSEMBLY		
⑤	O-ring	1	
⑥	Shift rod oil seal housing	1	
⑦	O-ring	1	
⑧	Oil seal	1	
⑨	Circlip	1	
⑩	Shift rod	1	
	LOWER CASE DISASSEMBLY		
⑪	Drive shaft bearing outer race	1	
⑫	Pinion gear shim	*	
⑬	Drive shaft sleeve	1	NOTE: Align the sleeve locating rib with the recess in the lower case.
⑭	Drive shaft needle bearing	1	NOTE: Install the bearing with its manufacture's marks or numbers facing outward.
⑮	Forward gear bearing outer race	1	

* As required



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SYMBOLS

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

① General Information
② Specifications
③ Periodic Inspection and Adjustment
④ Fuel System
⑤ Power Unit
⑥ Lower Unit
⑦ Bracket Unit
⑧ Electrical System
⑨ Trouble-shooting

Symbols ⑩ to ⑯ indicate specific data:

⑩ Special tool
⑪ Specified liquid
⑫ Specified grease
⑬ Specified engine speed
⑭ Specified torque
⑮ Specified measurement
⑯ Specified electrical value
[Resistance (Ω), Voltage (V), Electric current (A)]

Symbol ⑰ to ⑳ in an exploded diagram indicate grade of lubricant and location of lubrication point:

⑰ Apply Yamaha 2-stroke outboard motor oil
⑱ Apply Yamaha gear-case lubricant
⑲ Apply molybdenum disulfide oil
⑳ Apply water resistant grease
(Yamaha grease A, Yamaha marine grease)

Symbols ㉑ to ㉔ in an exploded diagram indicate grade of sealing or locking agent, and location of application point:

㉑ Apply Gasket maker®
㉒ Apply LOCTITE® No. 271 (Red LOCTITE)
㉓ Apply LOCTITE® No. 242 (Blue LOCTITE)
㉔ Apply LOCTITE® No. 572 (White LOCTITE)

NOTE:

In this manual, the above symbols may not be used in every case.

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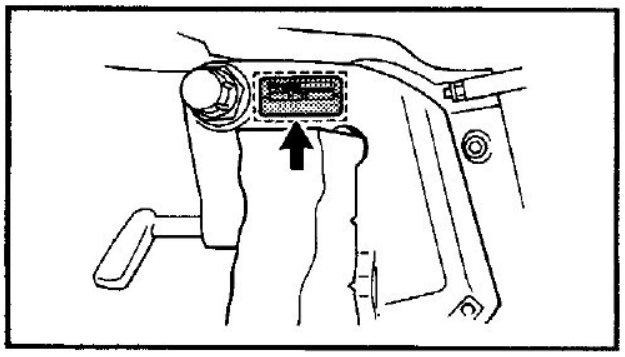
TROUBLE-ANALYSIS

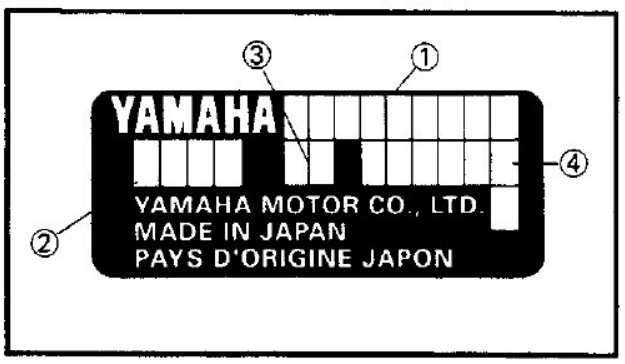
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IDENTIFICATION

SERIAL NUMBER

The serial number of the outboard motor is stamped on a plate attached to the port side of the clamp bracket.

NOTE:

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

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

STARTING SERIAL NUMBERS

The starting serial number blocks are as follows:

Model ①			Approved model code ②	③	Starting serial No. ④
World wide	USA	Canada			
20DM	20MH	20MH	6L3	S	002760
				L	303329
				LL	600241
				UL	700216
20DMO		20MH2		S	105572
				L	402458
20DEM		20EH		S	230359
				L	532856
				LL	640381
				UL	740216
20DEMO		20EH2		S	250101
20DEO				S	154736
				L	451561
20DERO				S	180628
				L	480444

Model ①			Approved model code ②	③	Starting serial No. ④
World wide	USA	Canada			
25NM		25MH	6L2	S	003553
				L	304910
				LL	600236
25NMO	25MH	25MH2		S	110009
				L	404531
25NEMO	25EH	25EH		S	252858
				L	552241
25NE				S	050200
				L	351619
				LL	620116
25NEO				S	151087
				L	451730
25NERO	25ER	25ER		S	280246
				L	480666

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