PREFACE

This manual covers the construction, function and servicing procedures of the Honda BF20A/BF25A outboard motors.
Careful observance of these instructions will result in better, safer service work.
Illustrations in this manual are based primarily on the BF25A LRS.

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SERVICE PUBLICATIONS OFFICE

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SHOP MANUAL NEWS

HONDA OUTBOARD MOTOR BF20A · BF25A

Power Equipment

News No. P/P-035	Issue Date September '94

SOME PARTS OF CHANGES

Applicable information	Publication No.
BF20A · BF25A	66ZV700

CHANGE LOCATIONS
P.12-21
8. BACKLASH ADJUSTMENT
•FORWARD GEAR

BEFORE MODIFICATION

3) Turn the vertical shaft right and left while pressing it down with approximately 5 kg (11.0 lb) of force and measure the backlash.

Standard	0.10 – 0.29 mm (0.004 – 0.011 in)

4) If the backlash is too large, increase the forward gear shim thickness and recheck the backlash.
If the backlash is too small, decrease the forward gear shim thickness and recheck the backlash.

AFTER MODIFICATION

3) Turn the vertical shaft right and left while pressing it down with approximately 5 kg (11.0 lb) of force and measure the backlash.

$$\text{Backlash} = \text{Dial Gauges measures} \times \frac{17.43^{*1}}{23^{*2}}$$

*1 The pinion gear radious of pitch circle
*2 The special tools (07MGJ-0010100) lever-length

Standard	0.10 – 0.29 mm (0.004 – 0.011 in)

4) If the backlash is too large, increase the forward gear shim thickness and recheck the backlash.
If the backlash is too small, decrease the forward gear shim thickness and recheck the backlash.

Service limit	0.30 mm (0.012 in)

P.12-22
•REVERSE GEAR

3) Turn the vertical shaft right and left while pressing it down with approximately 5 kg (11.0 lb) of force and measure the backlash.

Standard	0.10 – 0.39 mm (0.004 – 0.015 in)

4) If the backlash is too large, increase the reverse gear shim thickness and recheck the backlash.
If the backlash is too small, decrease the reverse gear shim thickness and recheck the backlash.

3) Turn the vertical shaft right and left while pressing it down with approximately 5 kg (11.0 lb) of force and measure the backlash.

$$\text{Backlash} = \text{Dial Gauges measures} \times \frac{17.43}{23}$$

Standard	0.10 – 0.39 mm (0.004 – 0.015 in)

4) If the backlash is too large, increase the reverse gear shim thickness and recheck the backlash.
If the backlash is too small, decrease the reverse gear shim thickness and recheck the backlash.

Service limit	0.40 mm (0.016 in)

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HONDA OUTBOARD MOTOR BF20A · BF25A

SHOP MANUAL NEWS

Power Equipment

News No.	Issue Date
P/P-032	August '94

SOME PARTS OF CHANGES

Applicable information	Publication No.
BF20A · BF25A	66ZV700

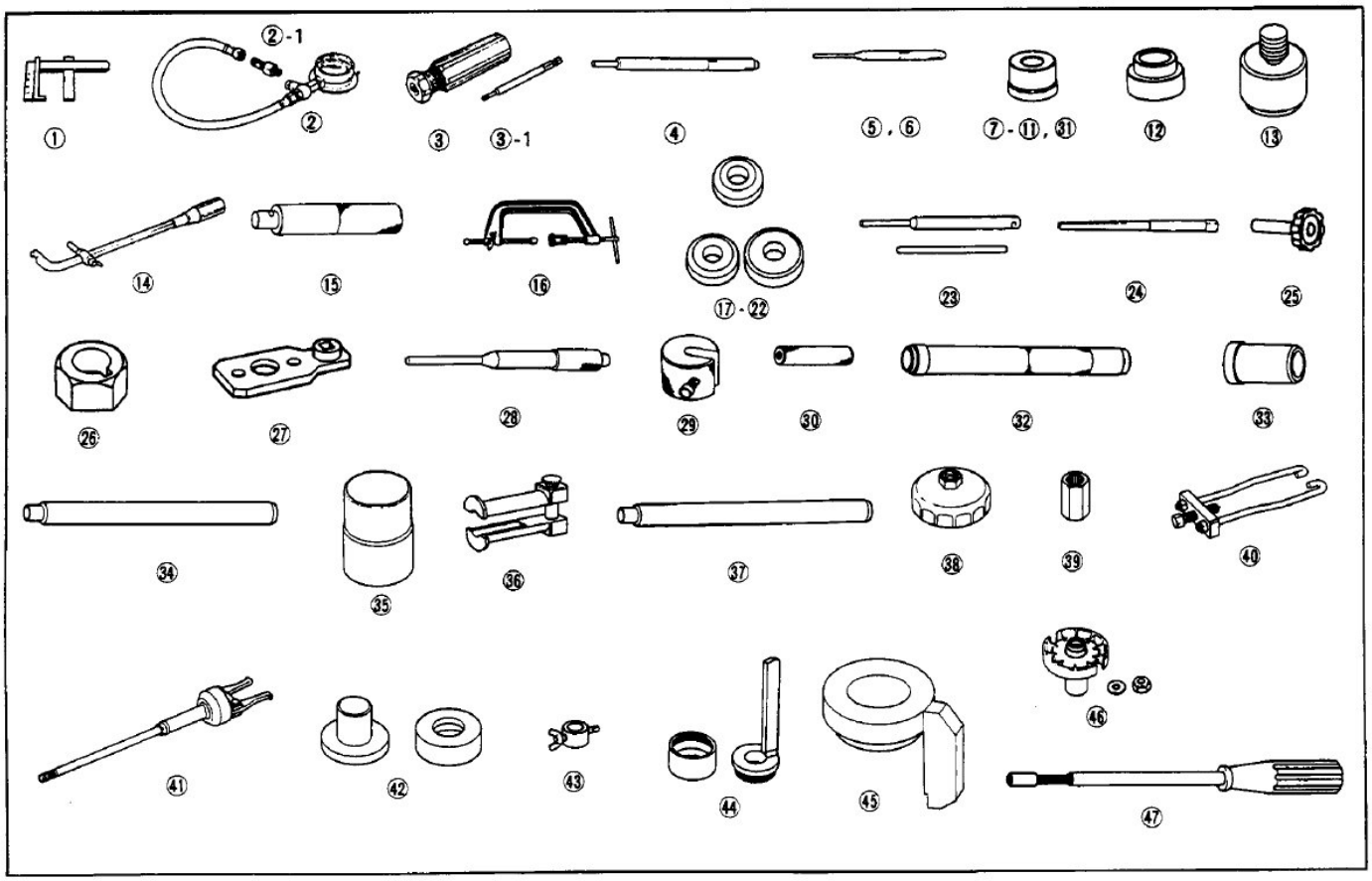
CHANGE LOCATIONS

The part numbers of the pin driver, 4mm and the special tool illustrations have been corrected as follows.

•Pin driver , 4mm

BEFORE MODIFICATION		AFTER MODIFICATION
07944—9350200	⟶	07744—0010300 or 07944—SA00000

•Special tool illustrations



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SERVICE PUBLICATIONS

1. SPECIFICATIONS 2. DIMENSIONAL DRAWINGS

1. SPECIFICATIONS

DIMENSIONS AND WEIGHTS

Item \ Model	BF20A					
Description code	BAHS	BAHL	BAHS	BAHL	BAHS	BAHL
Type	SH	LH	SHS	LHS	SRS	LRS
Overall length	*1: 675 mm (26.6 in) *2: 1,005 mm (39.6 in)				640 mm (25.2 in)	
Overall width	380 mm (15.0 in)				375 mm (14.8 in)	
Overall height	1,190 mm (46.9 in)	1,315 mm (51.8 in)	1,190 mm (46.9 in)	1,315 mm (51.8 in)	1,190 mm (46.9 in)	1,315 mm (51.8 in)
Dry weight	67 kg (147.7 lb)	69 kg (152.1 lb)	70 kg (154.3 lb)	72 kg (158.8 lb)	69 kg (152.1 lb)	71 kg (156.6 lb)
Operating weight (incld. oil)	69 kg (152.1 lb)	71 kg (156.6 lb)	72 kg (158.8 lb)	74 kg (163.2 lb)	71 kg (156.6 lb)	73 kg (161.0 lb)

*1: With Tiller Handle raised
*2: With Tiller Handle extended

DIMENSIONS AND WEIGHTS

Item \ Model	BF25A					
Description code	BAJS	BAJL	BAJS	BAJL	BAJS	BAJL
Type	SH	LH	SHS	LHS	SRS	LRS
Overall length	*1: 675 mm (26.6 in) *2: 1,005 mm (39.6 in)				640 mm (25.2 in)	
Overall width	380 mm (15.0 in)				375 mm (14.8 in)	
Overall height	1,190 mm (46.9 in)	1,315 mm (51.8 in)	1,190 mm (46.9 in)	1,315 mm (51.8 in)	1,190 mm (46.9 in)	1,315 mm (51.8 in)
Dry weight	67 kg (147.7 lb)	69 kg (152.1 lb)	70 kg (154.3 lb)	72 kg (158.8 lb)	69 kg (152.1 lb)	71 kg (156.6 lb)
Operating weight (incld. oil)	69 kg (152.1 lb)	71 kg (156.6 lb)	72 kg (158.8 lb)	74 kg (163.2 lb)	71 kg (156.6 lb)	73 kg (161.0 lb)

*1: With Tiller Handle raised
*2: With Tiller Handle extended

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FRAME

Item \ Model / Type	BF20A/BF25A					
	SH	LH	SHS	LHS	SRS	LRS
Transom height	431 mm (17.0 in)	552 mm (21.7 in)	431 mm (17.0 in)	552 mm (21.7 in)	431 mm (17.0 in)	552 mm (21.7 in)
Transom angle	5 stage adjustment (4°, 8°, 12°, 16°, 20°)					
Tilting angle	75°					
Swivel angle	40° right and left					

TYPES OF HONDA BF20A/BF25A OUTBOARD MOTORS

It may be necessary to refer to this chart for reference purposes when reading this manual.

Models	Types	Shaft Length		Tiller Handle	Remote Control	Electric Starter	Recoil Starter
		Short	Long				
BF20A/BF25A	SH	●		●			●
	LH		●	●			●
	SHS	●		●		●	●
	LHS		●	●		●	●
	SRS	●			●	●	●
	LRS		●		●	●	●

: S: Short Shaft L: Long Shaft H: Tiller Handle R: Remote Control

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ENGINE

Model	BF20A	BF25A
Type	4-stroke, O.H.C, 3-cylinder	
Displacement	499 cm^3 (30.5 cu in)	
Bore x stroke	58 x 63 mm (2.3 x 2.5 in)	
Rated power *1	20 HP (14.9 kw)/4,500—5,500 min^{-1} (rpm)	25 HP (18.7 kw)/5,000—6,000 min^{-1} (rpm)
Maximum torque	3.55 kg-m (25.7 ft-lb)/3,000 min^{-1} (rpm)	3.59 kg-m (26.0 ft-lb)/4,000 min^{-1} (rpm)
Compression ratio	9.2 : 1	
Fuel consumption ratio	214 g/PSh (7.5 oz/PSh)	239 g/PSh (8.4 oz/PSh)
Cooling system	Forced water circulation by impeller pump with thermostat	
Ignition system	CDI	
Ignition timing	5—26° B.T.D.C.	
Spark plug	DR7EA (NGK), X22ESR-U (NIPPONDENSO)	
Carburetor	Horizontal type, butterfly valve (3 carburetor)	
Lubrication system	Pressure lubrication by trochoid pump	
Lubrication capacity	1.9ℓ (2.00 US qt, 1.67 Imp qt)	
Starter system	Electric starter or Recoil starter	
Stopping system	Grounding of primary circuit	
Fuel	Regular automotive gasoline (86 pump octane; unleaded preferred)	
Fuel tank capacity	25 ℓ (6.6 US gal, 5.5 Imp gal)	
Fuel pump	Mechanical plunger type	
Exhaust system	Under water type	
Recommended oil	SAE 10W-30	

*1: Full throttle range.

LOWER UNIT

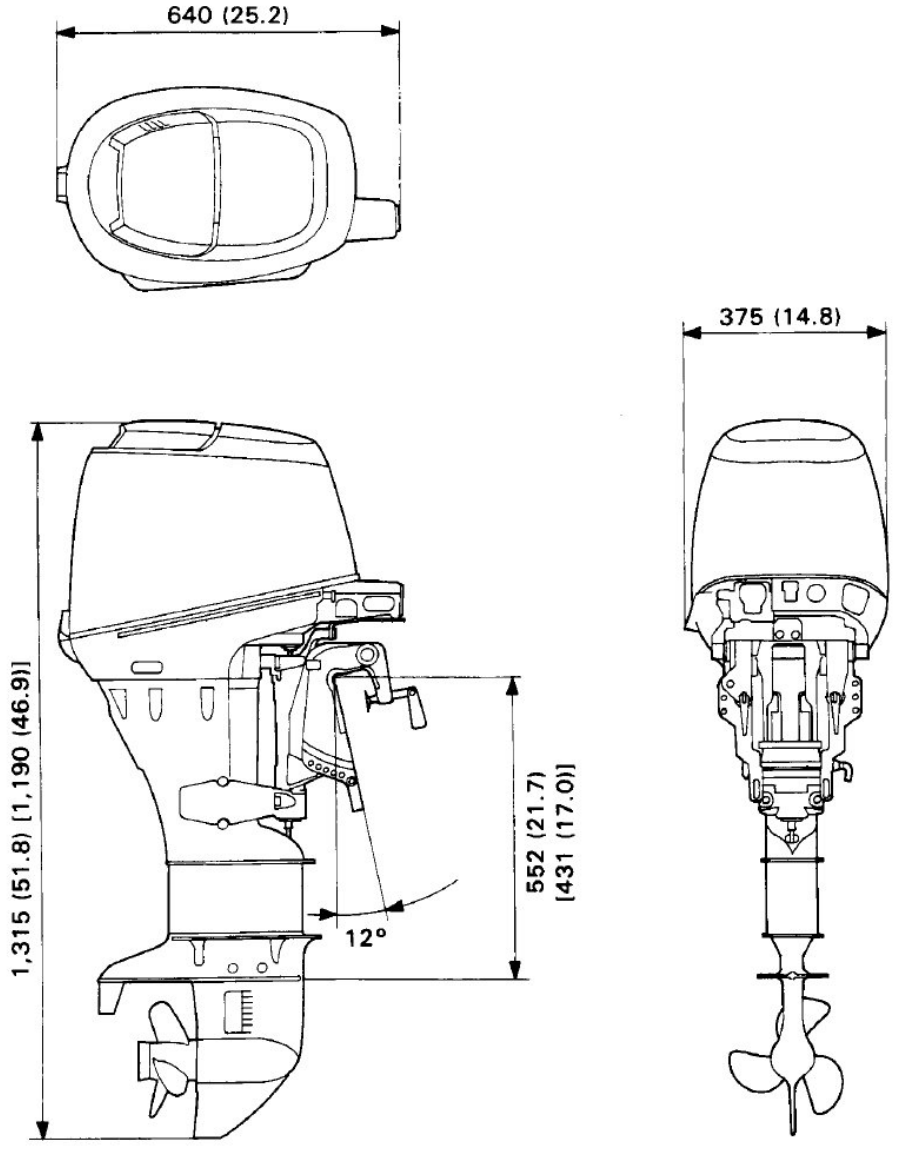
Clutch	Dog clutch (Forward—Neutral—Reverse)
Gear ratio	0.48 (13/27)
Reduction	Spiral bevel
Gear case oil capacity	0.29 ℓ(0.307 US qt, 0.255 Imp qt)
Propeller No. of blades-Dia. x Pitch	3-235 x 305 mm (9-1/4 x 12.0 in)
Propeller rotating direction	Clockwise (viewed from rear)
Propeller driving system	Spline

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2. DIMENSIONAL DRAWINGS

Unit: mm (in)

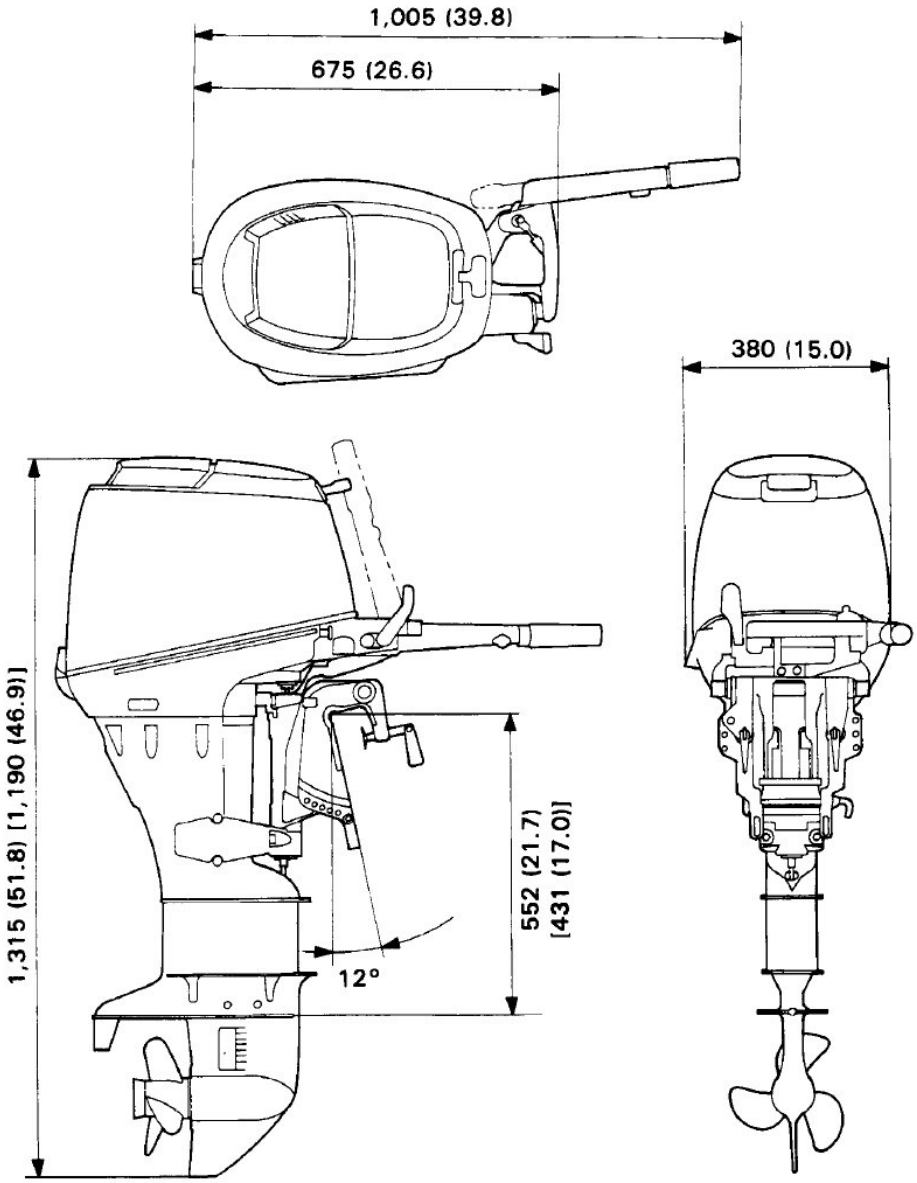
Remote control type
[ ]: Short shaft type



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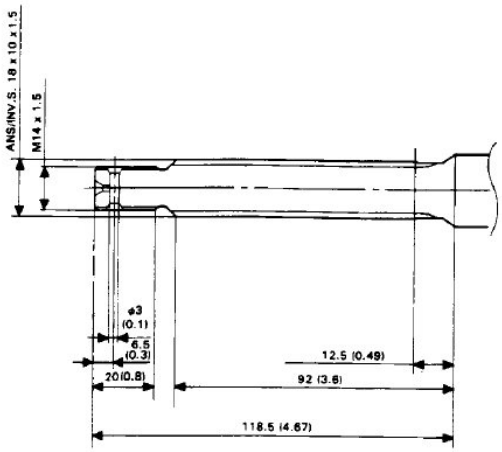
Tiller handle type
[ ]: Short shaft type

Unit: mm (in)



PROPELLER SHAFT

Unit: mm (in)



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1. GENERAL SAFETY
2. SERVICE RULES
3. SERIAL NUMBER LOCATION
4. MAINTENANCE STANDARDS
5. TORQUE VALUES
6. SPECIAL TOOLS
7. TROUBLESHOOTING
   A. HARD STARTING
      Cylinder Compression Test
   B. IGNITION SYSTEM
      Spark Test
   C. ELECTRIC STARTER
      (Electric starter type only)
   D. ENGINE DOES NOT RUN SMOOTHLY
   E. ALERT SYSTEMS
      Oil Pressure Test
   F. SHIFT LEVER
8. CABLE/HARNESS ROUTING
9. TUBE ROUTING
10. LUBRICATION
11. MAINTENANCE SCHEDULE

1. GENERAL SAFETY

Pay attention to these symbols and their meanings:

⚠WARNING **Indicates a strong possibility of severe personal injury or death if instructions are not followed.**
CAUTION: Indicates a possibility of personal injury or equipment damage if instructions are not followed.

⚠WARNING

- **Stop the engine, and remove the spark plug caps and ignition key before servicing the outboard motor.**
- **If the motor must be running to do some work, make sure the area is well ventilated. Never run the engine in a closed area; the exhaust contains poisonous carbon monoxide gas.**
- **Gasoline is extremely flammable and is explosive under certain conditions. Do not smoke or allow flames or sparks in your working area.**

CAUTION

- **Keep away from rotating or hot parts and high voltage wires when the engine is run with the engine cover off.**

2. SERVICE RULES

1. Use genuine Honda or Honda-recommended parts and lubricants or their equivalents. Parts that do not meet Honda's design specifications may damage the unit.
2. Use the special tools designed for the product.
3. Install new gaskets, O-rings, etc. when reassembling.
4. When torquing bolts or nuts, begin with larger-diameter or inner bolts first and tighten to the specified torque diagonally, unless a particular sequence is specified.
5. Clean parts in cleaning solvent upon disassembly. Lubricate any sliding surfaces before reassembly.
6. After reassembly, check all parts for proper installation and operation.
7. Many screws used in this machine are self-tapping. Be aware that cross-threading or overtightening these screws will strip the female threads and ruin the hole.
8. Use only metric tools when servicing this unit. Metric bolt, nuts and screws are not interchangeable with nonmetric fasteners. The use of incorrect tools and fasteners will damage the unit.
9. Follow the instructions represented by these symbols when they are used:



: Apply oil 

: Use special tool 

: Apply grease

O x O (O) : Indicates the type, length, and number of the flange bolt used.

P : Indicates the reference page.



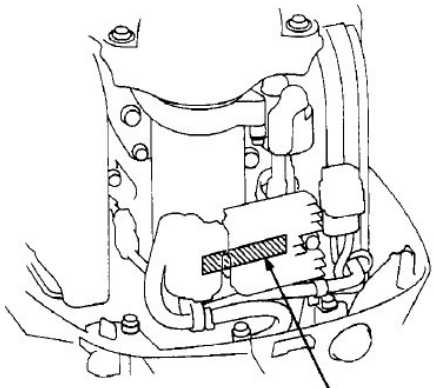
: Use molybdenum oil solution (mixture of the engine oil and molybdenum grease with the ratio 1 : 1).

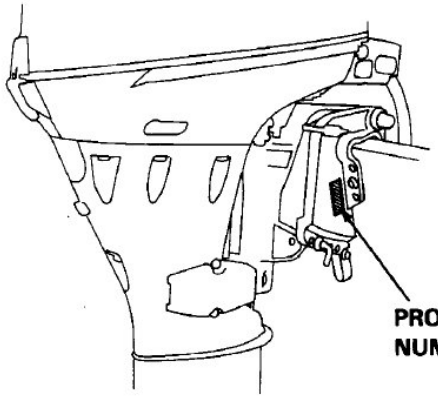
(Molybdenum disulfide oil)

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3. SERIAL NUMBER LOCATION

The engine serial number is stamped on the cylinder block and the produce identification number is located on the R. stem bracket. Always specify these numbers when inquiring about the engine or when ordering parts in order to obtain the correct parts for outboard motor being serviced.





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