

SUZUKI OUTBOARD MOTOR

SET-UP MANUAL

DF9.9B/BE/BR/BT

DF15A/AE/AR/AT

DF20A/AE/AR/AT

Applicable model and effective serial number:

00995F-410001 and later

01504F-410001 and later

02002F-410001 and later



FOREWORD

This outboard motor has been designed and produced utilizing Suzuki's most modern technology. The finest product, however, cannot perform properly unless it is correctly assembled and serviced. This set-up manual has been produced to aid you in properly assembling and servicing this outboard motor.

NOTE:

This Set-up manual has been prepared exclusively for following models.

Applicable model and effective serial number:

00995F-410001 and later

01504F-410001 and later

02002F-410001 and later

- * This manual has been prepared on the basis of the latest specifications at the time of publication. If modifications have been made since then, differences may exist between the content of this manual and the actual outboard motor.
- * Illustrations in this manual are used to show the basic principles of operation and work procedures and may not represent the actual outboard motor exactly in detail.
- * This manual is intended for those who have enough knowledge and skills to service SUZUKI outboard motors. Without such knowledge and skills, you should not attempt servicing by relying on this manual only. Instead, please contact your nearby authorized SUZUKI outboard motor dealer.

▲ WARNING

Apprentice mechanics or do-it-yourself mechanics that don't have the proper tools and equipment may not be able to properly perform the services described in this manual. Improper assembly and/or servicing may result in injury to the mechanic and may render the engine unsafe for the boat operator and passengers.

CONTENTS

IMPORTANT	3	CONTROL CABLES AND WIRE	
SYMBOL	4	HARNESS INSTALLATION	15
MATERIALS REQUIRED	4	REMOTE CONTROL BOX SIDE	15
GENERAL INFORMATION	5	ENGINE SIDE	15
HANG TAGS	5	STEERING SYSTEM	21
EMISSION-RELATED		DRAG LINK INSTALLATION	21
INSTALLATION INSTRUCTIONS ..	6	BATTERY	23
OUTBOARD MOTOR INSTALLATION ..	7	BATTERY REQUIREMENT	23
HORSEPOWER SELECTION	7	INSTALLATION OF BATTERY	23
MOTOR DIMENSIONS	7	CONNECTION OF BATTERY	
TRANSOM DIMENSIONS	11	CABLE	24
ESTABLISHING		WIRING DIAGRAM	25
THE CENTER-LINE	12	Side Mount Remote Control	25
LIFTING THE MOTOR	12	R-model	26
MOUNTING TO THE TRANSOM	13	T-model	27

IMPORTANT

▲ WARNING/▲ CAUTION/NOTICE/NOTE

Please read this manual and follow its instructions carefully. To emphasize special information, the symbol ▲ and the words WARNING, CAUTION, NOTICE and NOTE have special meanings. Pay special attention to the messages highlighted by these signal words.

▲ WARNING

Indicates a potential hazard that could result in death or serious injury.

▲ CAUTION

Indicates a potential hazard that could result in minor or moderate injury.

NOTICE

Indicates a potential hazard that could result in damage to the motor or boat.






NOTE:

Indicates special information to make maintenance easier or instructions clearer.


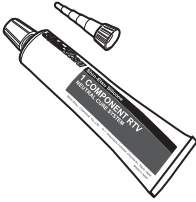
Please note, however, that the warnings and cautions contained in this manual cannot possibly cover all potential hazards relating to the servicing, or lack of servicing, of the outboard motor. In addition to the WARNINGS, CAUTIONS and NOTICE stated, you must use good judgement and basic mechanical safety principles.

SYMBOL

Listed in the table below are symbols indicating special instructions and other important information necessary for proper servicing. Please note the definition for each symbol. You will find these symbols used throughout this manual. Refer back to this table if you are not sure of any symbol(s) meanings.

SYMBOL	DEFINITION	SYMBOL	DEFINITION
	Torque control required. Data beside it indicates specified torque.		Apply THREAD LOCK "1342".
	Apply SUZUKI WATER RESISTANT GREASE.		Use special tool.
	Apply SUZUKI SILICONE SEAL.		

MATERIALS REQUIRED

<p>WATER RESISTANT GREASE EP2</p>  <p>99000-25350 (250 g/8.8 oz)</p>	<p>SUZUKI SILICONE SEAL</p>  <p>93691-80030 (100 g/3.5 oz)</p>
--	---

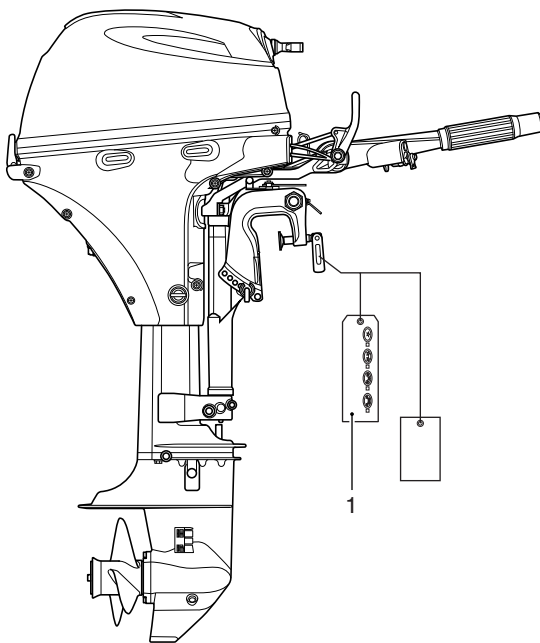
GENERAL INFORMATION

HANG TAGS

It is mandatory that every new Suzuki outboard motor be assembled and serviced in accordance with the instructions in the set-up manual.





A critical step in the set-up and pre-delivery process of every outboard motor is to attach the hang tags to the outboard motor. Hang tags are required to remain on the motor until it is delivered to the customer.

Be sure the hang tags are attached to the outboard motor as shown.



1. Tag, CARB emission

The Star Label means Cleaner Marine Engines
This engine has been certified as a:

			
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The Symbol for Cleaner Marine Engines:
Cleaner Air and Water - for a healthier lifestyle and environment.
Better Fuel Economy - burns up to 30 - 40 percent less gas and oil than conventional carbureted two-stroke engines, saving money and resources.
Longer Emissions Warranty - protects consumer for worry free operation.

EMISSION-RELATED INSTALLATION INSTRUCTIONS

Fuel lines and fuel tanks used for a vessel must meet the requirements of federal law (40 CFR 1045.112 and 40 CFR 1060).

If you install the engine in a way that makes the engine's emission control information label hard to read during normal engine maintenance, you must place a duplicate label on the vessel, as described in 40 CFR 1068.105

Failing to follow these instructions when installing a certified engine in a vessel violates federal law (40 CFR 1068.105(b)), subject to fines or other penalties as described in the Clean Air Act.

OUTBOARD MOTOR INSTALLATION

HORSEPOWER SELECTION

⚠ WARNING

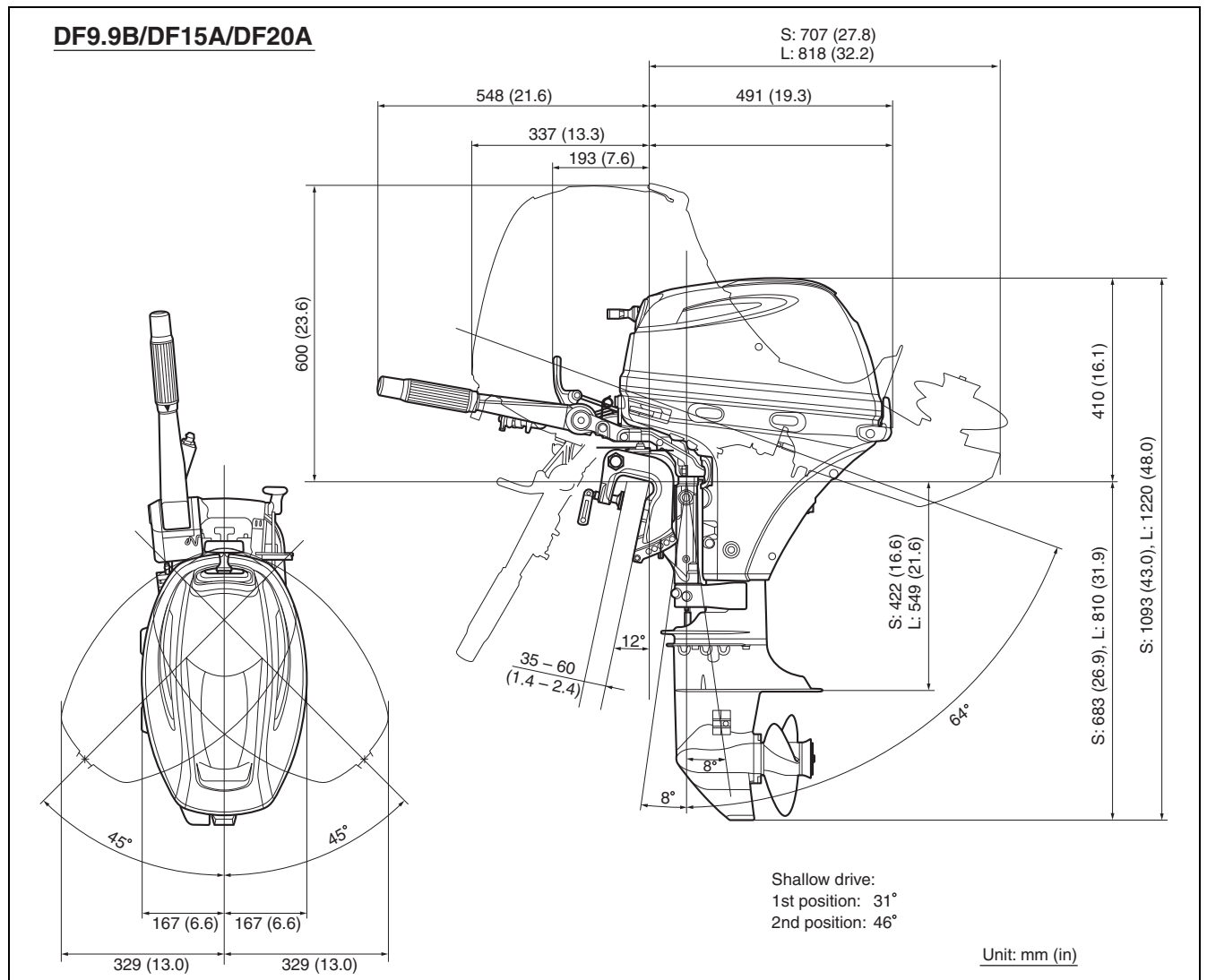
Overpowering your boat may cause operating/handling difficulties which could result in a crash. The boat may also sustain hull damage or other damage due to stress.

- Do not overpower your boat.
- Never install an outboard motor with horsepower exceeding the boat manufacturer's recommended maximum horsepower.

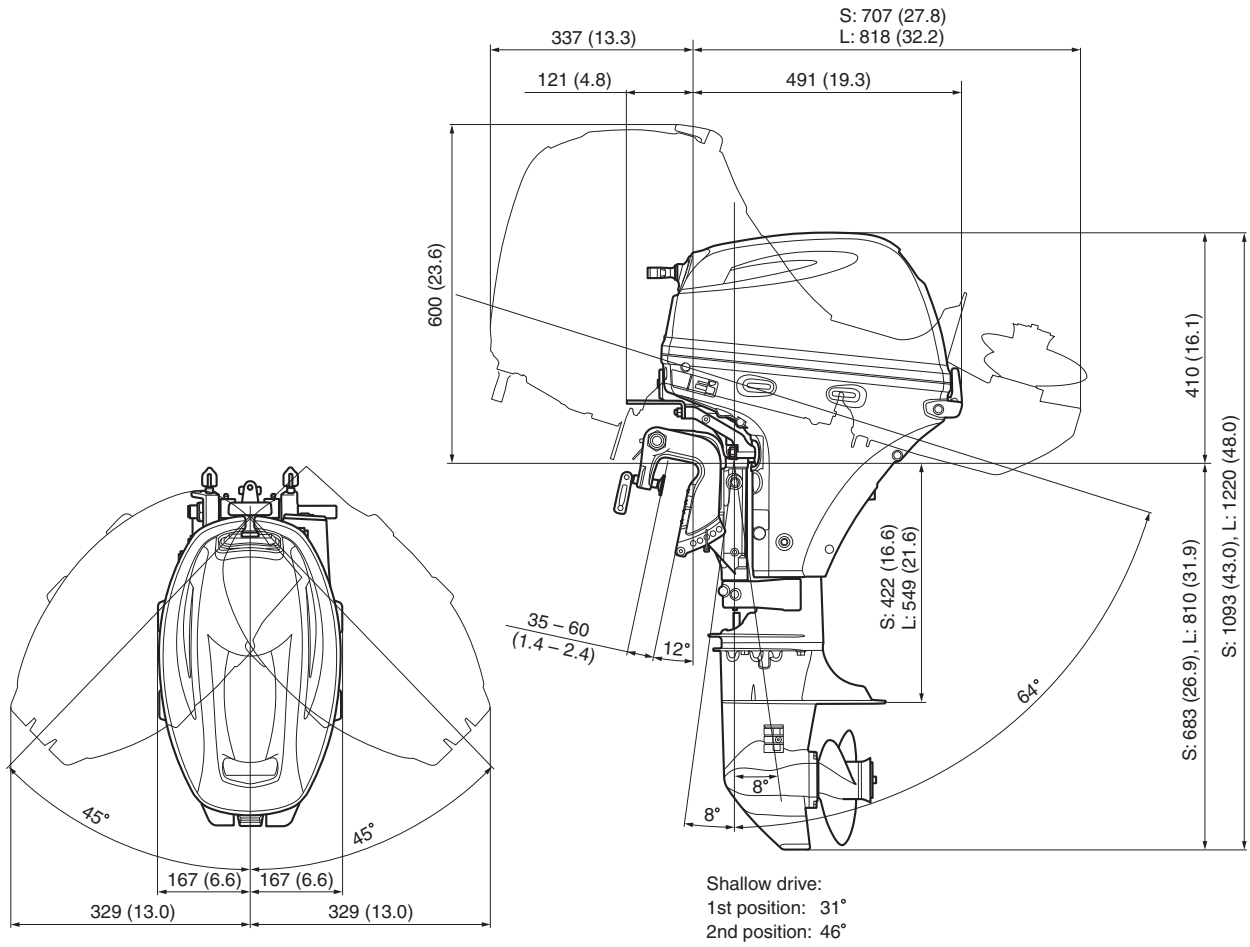
NOTE:

- State the maximum horsepower outboard motor that can be safely used on that boat. There is severe product liability potential connected with rigging and selling a boat with an outboard motor exceeding the horsepower capacity limitation.
- The rig should not be underpowered, as this will not allow the performance balance you are trying to achieve. Determine the customer's needs, application and use of the perspective rig to make the best overall horsepower recommendation.

MOTOR DIMENSIONS

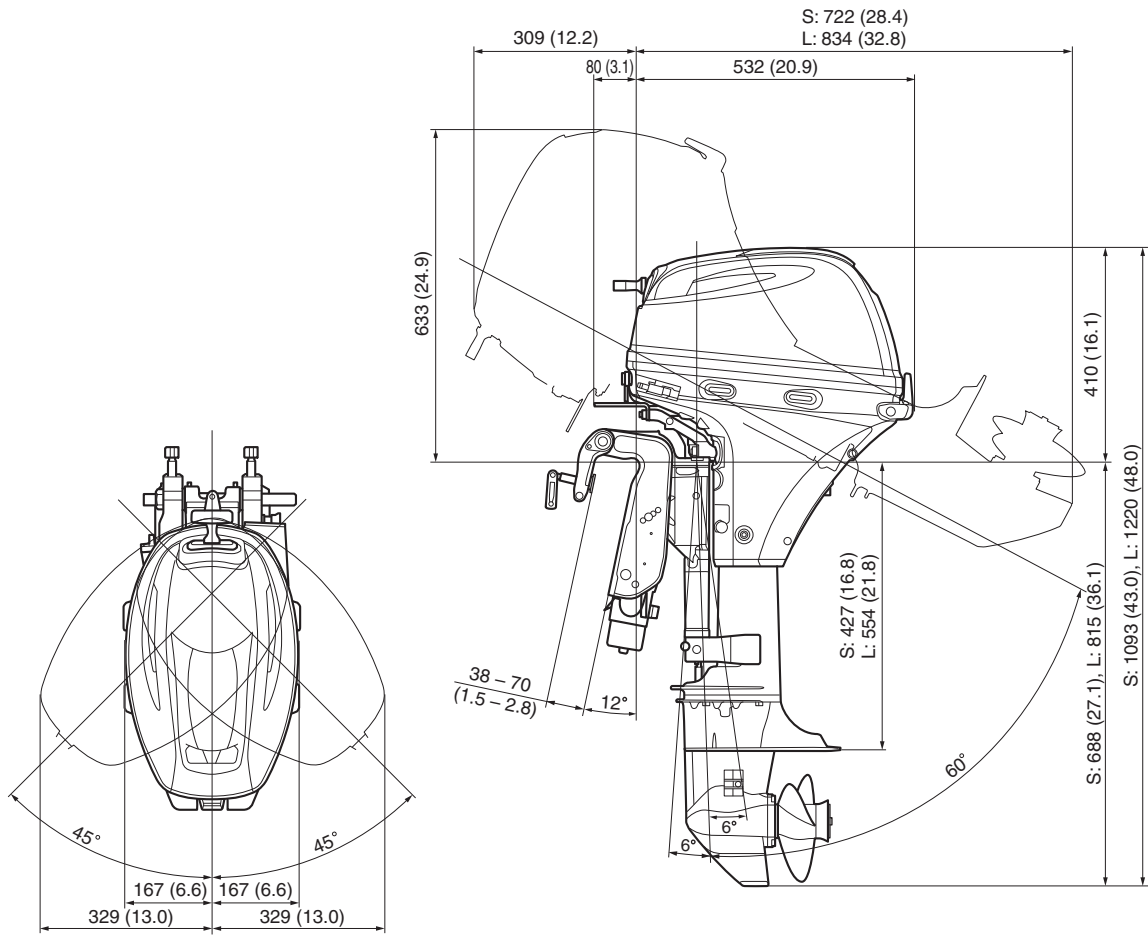


DF9.9BR/DF15AR/DF20AR



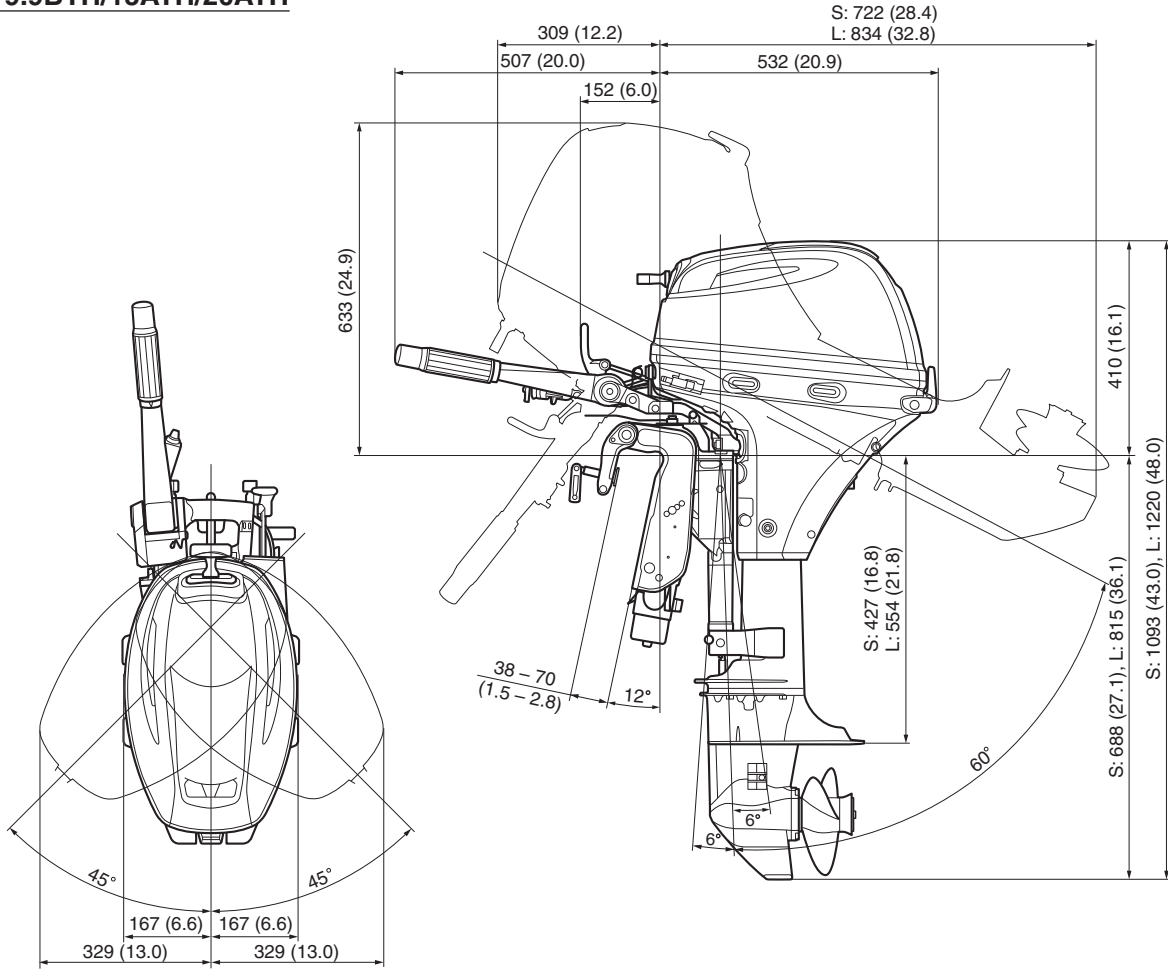
Unit: mm (in)

DF9.9BT/15AT/20AT



Unit: mm (in)

DF9.9BTH/15ATH/20ATH

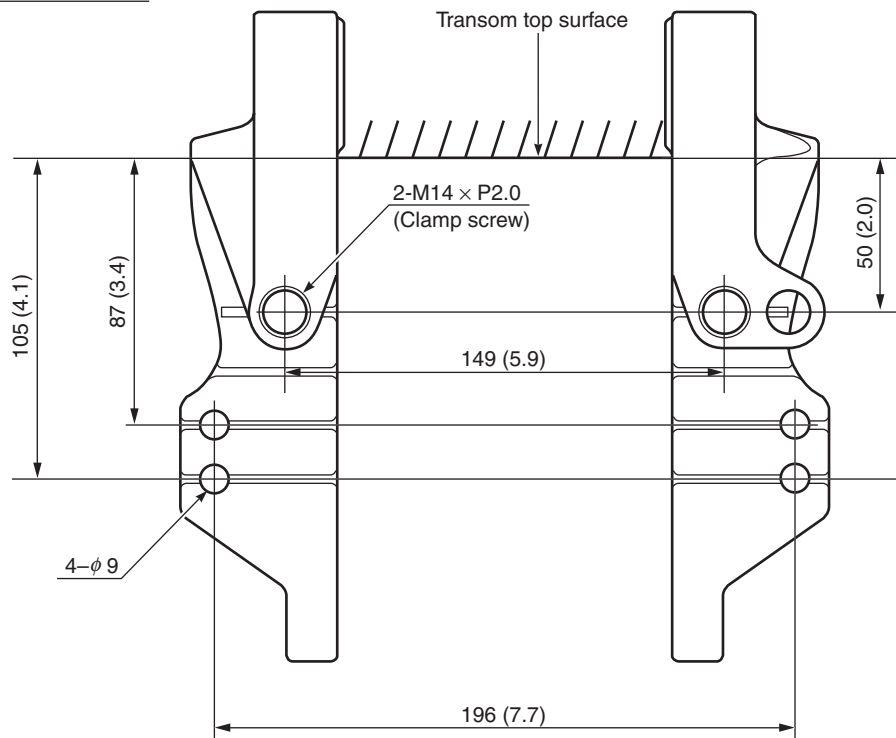


Unit: mm (in)

TRANSOM DIMENSIONS

DF9.9B/15A/20A

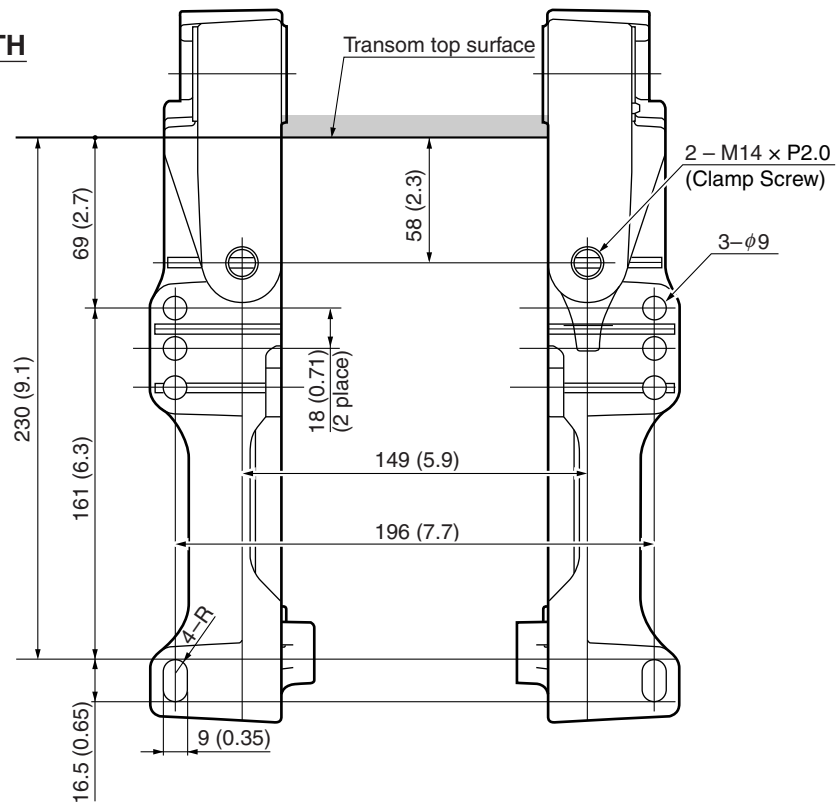
DF9.9BR/15AR/20AR



Unit: mm (in)

DF9.9BT/15AT/20AT

DF9.9BTH/15ATH/20ATH

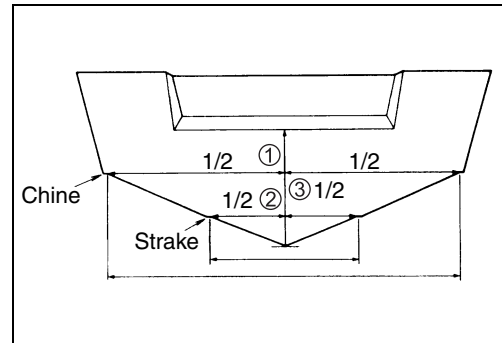


Unit: mm (in)

ESTABLISHING THE CENTER-LINE

To establish the center of the transom you may use the following procedure:

- (1) Measure across the transom from chine to chine and make a mark on the transom face at $1/2$ of this measurement.
- (2) Measure across the transom from strake to strake and make a second mark on the transom face at $1/2$ of this measurement.
- (3) Align a straightedge with the marks on the transom face and draw a line. This is the vertical center-line of the transom for a single engine installation.



LIFTING THE MOTOR

⚠ WARNING

Lifting the outboard motor using a hoist with insufficient capacity can result in serious injury and/or damage to the outboard motor.

Use a hoist which has a minimum lift capacity of at least 450 kg (1000 lbs.) when lifting the motor.

⚠ WARNING

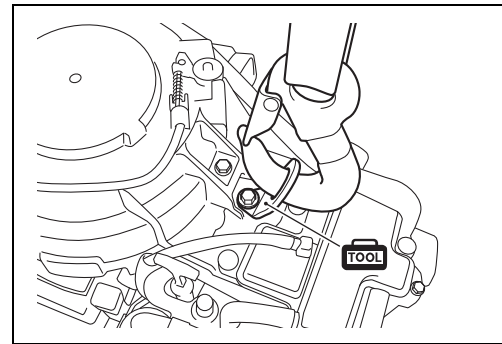
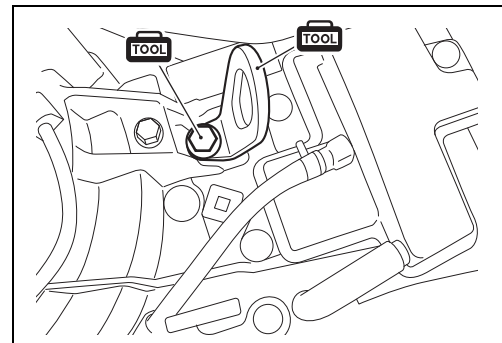
Failure to use the proper attachment point for lifting the outboard motor can result in severe injury and/or damage to the outboard motor.

Use the lifting eye only. Do not lift the motor using a flywheel lifting attachment.

- (1) Install the lifting eye on cylinder block, then securely tighten it with bolt.

TOOL 11291-91B50: Engine hook (Lifting eye)
01550-08207: Bolt

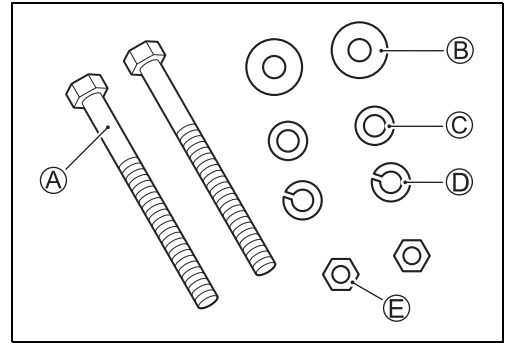
- (2) Attach lift to lifting eye on cylinder block, then lift the engine.



MOUNTING TO THE TRANSOM

Contained parts

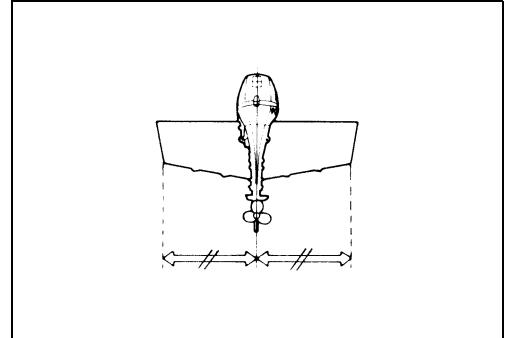
Item	Part name	Part number	Q'ty
(A)	Bolt (M 8 × 90 mm)	09100-08311	2
(B)	Washer No.1 (Large) $\phi 23 \times \phi 8.5$	41154-91J00	2
(C)	Washer No.2 ($\phi 16 \times \phi 8.5$)	09160-08170	2
(D)	Lock washer ($\phi 15 \times \phi 8$)	29162-93J10	2
(E)	Nut	09140-08016	2



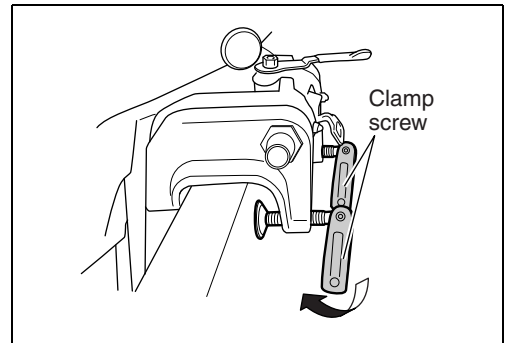
⚠ WARNING

If the motor is not properly secured to the transom, it can come off.

Be sure to bolt the motor to the transom. The motor may come off if it is held only by the clamp screws. Occasionally check the clamp screws for tightness.

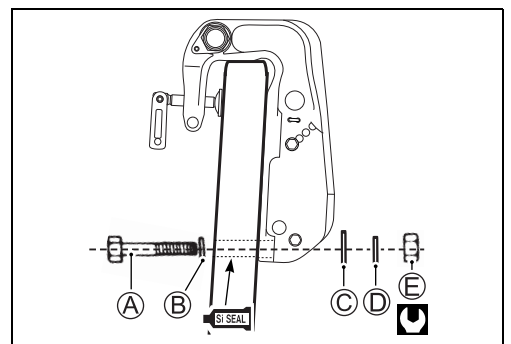
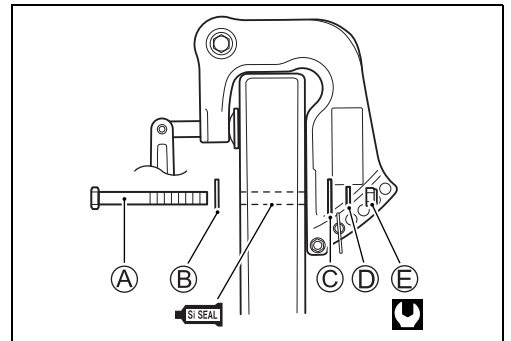


- (1) Center the motor on the transom and secure it by alternately tightening the clamp screws by hand. Make sure that anti-cavitation plate is located 0 – 25 mm (0 – 1 in.) below the boat bottom.



- (2) Install motor mounting bolts with large diameter flat washer from inside of transom and through clamp brackets.
- (3) Install flat washers, lock washers and nuts on clamp bracket side.
- (4) Tighten all mounting bolts securely.

🔩 Mounting bolt/nut: 13 N·m (1.3 kgf·m, 9.5 lb·ft)



NOTE:

- *Drill the mounting holes vertically to the transom board.*
- *To insure water-tightness, sealant (SUZUKI SILICONE SEAL or equivalent) should be applied to all bolt holes. Apply the sealant to the shanks of the bolts, but not the threads.*
- *Do not use an impact tool to tighten or loosen the transom nuts.*
- *If the specified tightening torque can not be reached due to weak transom material, it may be necessary to install a reinforcement plate between the transom board and washer ⑥. If a reinforcement plate is required, contact the boat manufacturer for recommendations.*

NOTE:

Make sure that there is no clearance on matting surfaces between the transom board and motor clamp brackets. Otherwise, the motor clamp brackets may be damaged.

CONTROL CABLES AND WIRE HARNESS INSTALLATION

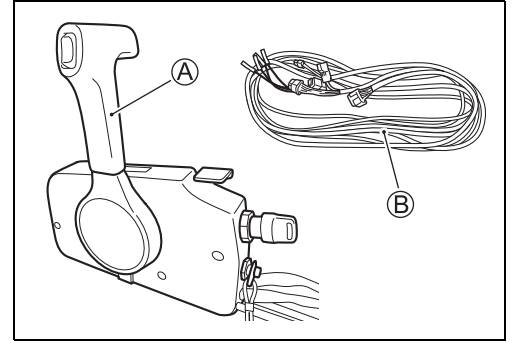
Contained parts (Remote control model)

R model

Item	Part name	Part number	Q'ty
(A)	Remote control box	67200-94J15	1
(B)	Remote control harness	36620-94J01	1

T model

Item	Part name	Part number	Q'ty
(A)	Remote control box	67200-93J06	1
(B)	Remote control harness	36620-93J02	1



Required parts (Remote control model)

Part name	Part number	Q'ty	Part name	Part number	Q'ty
Control cable 8ft (2.4 m)	67320-93J00	2	Control cable 18ft (5.4 m)	67320-93J50	2
Control cable 10ft (3.1 m)	67320-93J10	2	Control cable 20ft (6.0 m)	67320-93J60	2
Control cable 12ft (3.7 m)	67320-93J20	2	Control cable 22ft (6.7 m)	67320-93J70	2
Control cable 14ft (4.2 m)	67320-93J30	2	Control cable 24ft (7.3 m)	67320-93J80	2
Control cable 16ft (4.8 m)	67320-93J40	2			

Choose one item which is matched to the boat in length.

REMOTE CONTROL BOX SIDE

For the procedure to connect the throttle control cable and shift control cable to the remote control box, refer to the "REMOTE CONTROL BOX SET-UP INSTRUCTION" that comes supplied with each unit of remote control box.

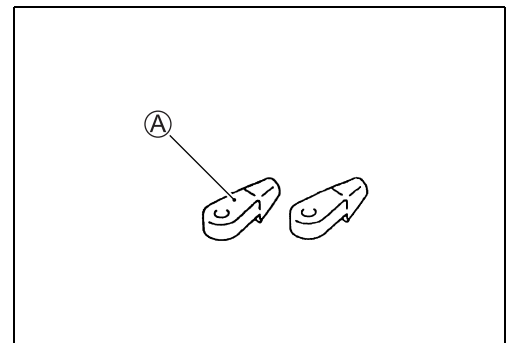
ENGINE SIDE

Contained parts (Remote control model)

Item	Part name	Part number	Q'ty
(A)	Cable connector	67467-89J01	2

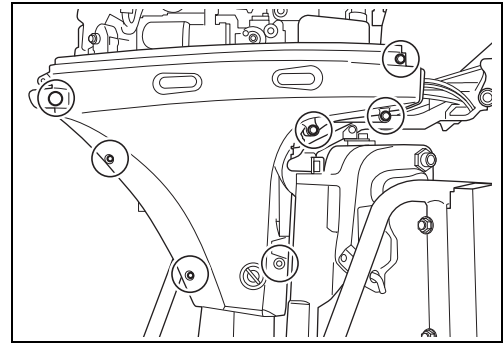
NOTE:

Before performing the following procedures, be sure that the throttle/shift control cables are installed in the remote control box according to the "REMOTE CONTROL BOX SET-UP INSTRUCTION".



Procedure

- (1) Remove the STBD engine side cover.
- (2) Position the remote control handle into "NEUTRAL".



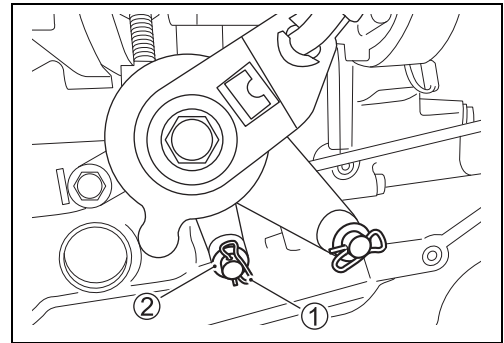
⚠ WARNING

If the cable connector is not threaded far enough onto the cable, the cable connector could break causing a loss of control and a crash.

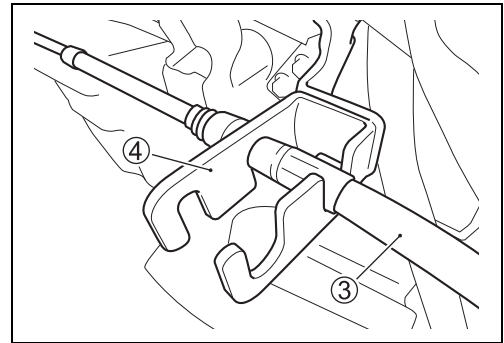
Thread the cable connector at least 8 mm (0.3 in.) onto cable.

— Shift control cable —

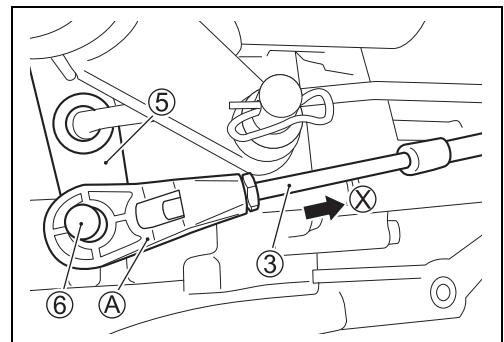
- (3) Remove the lock pin ① and washer ② from clutch control lever.



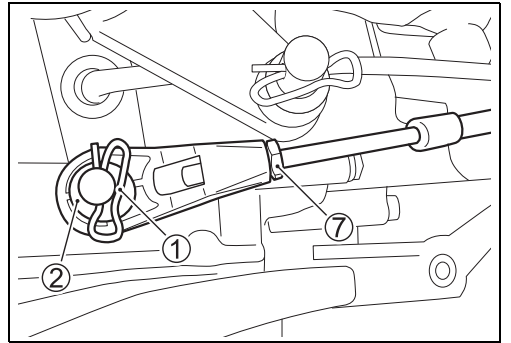
- (4) Route the shift cable ③, then secure the cable in the cable holder ④ by fitting groove on the cable into a slot on the holder.



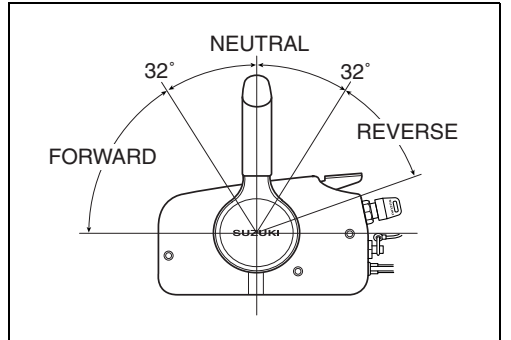
- (5) Make sure that clutch control lever ⑤ is in the neutral position.
- (6) While pushing cable end as shown by arrow X, thread the connector A onto the shift control cable ③ until the connector hole aligns with the pivot pin ⑥ on the clutch control lever ⑤.
- (7) Set the connector A onto the pivot pin ⑥ with the flat side of connector towards the lever.



- (8) Install the washer ② and lock pin ①, then tighten the lock nut ⑦.

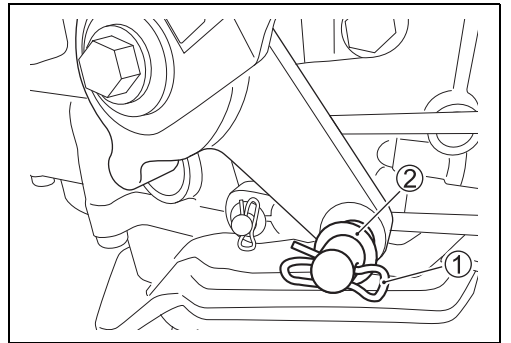


- (9) Make sure that both forward and reverse gear can be engaged with the same angle of remote control handle travel from “NEUTRAL” position.

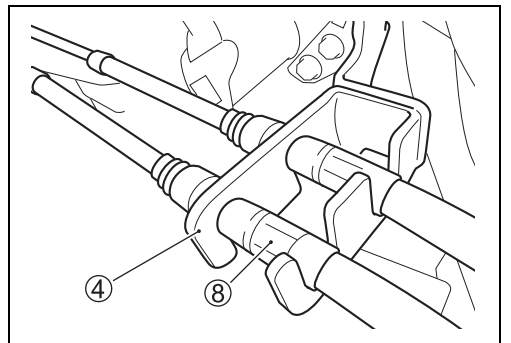


— Throttle control cable —

- (10) Remove the lock pin ① and washer ② from throttle control lever.

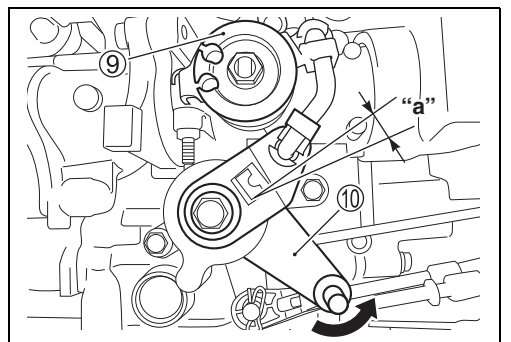


- (11) Position the remote control handle into “NEUTRAL”.
 (12) Route the throttle cable ⑧, then secure the cable in the cable holder ④ by fitting groove on the cable into a slot on the holder.

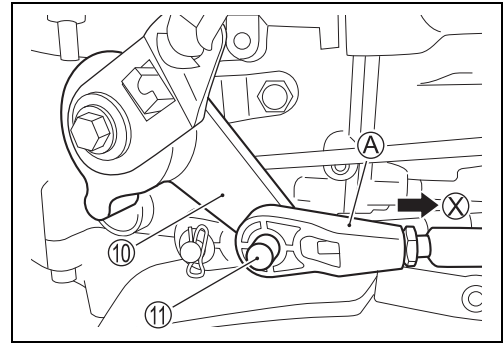


- (13) Check that throttle drum ⑨ is fully closed position.
 (14) Turn the throttle control lever ⑩ counterclockwise until the clearance “a” exists.

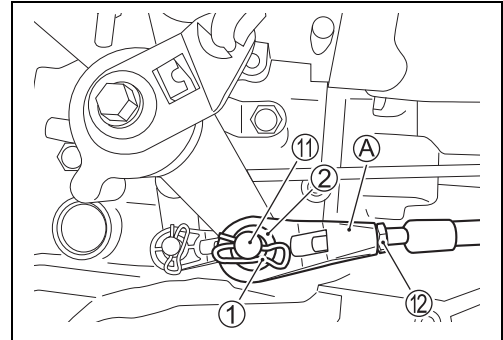
Clearance “a”	1 – 2 mm
---------------	----------



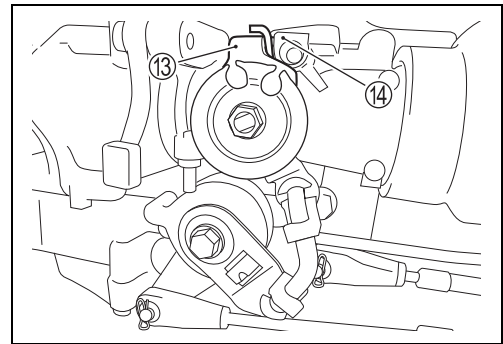
- (15) Thread the throttle cable connector (A) onto the cable end.
- (16) While pushing cable end as shown by arrow (X), adjust the connector (A) until the center of connector hole aligns with the pivot pin (11) on the throttle control lever (10).



- (17) Set the connector (A) onto the pivot pin (11) with the flat side of connector towards the throttle control lever.
- (18) Install the washer (2) and lock pin (1), then tighten the lock nut (12).

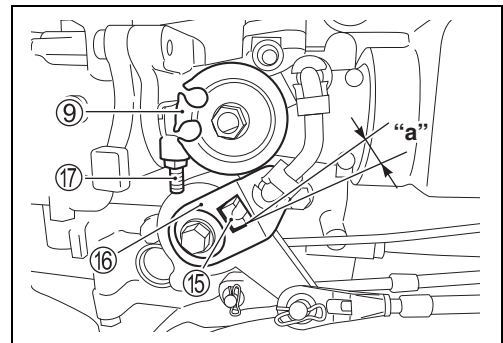


- (19) Make sure the throttle stopper (13) contacts the stopper (14) with throttle control fully opened. If not, adjust the connector (A) again.



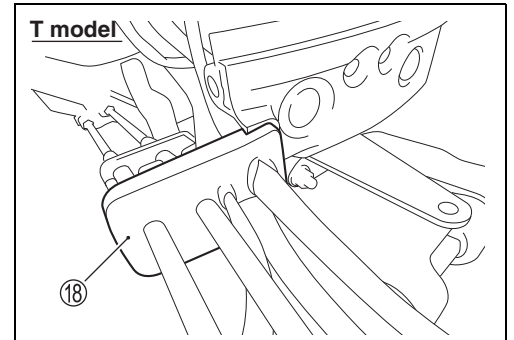
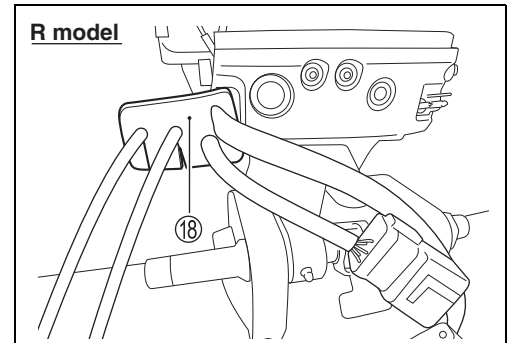
- (20) Return the remote control handle to the neutral position. Check that the throttle drum (9) is in fully closed position. Also make sure the clearance "a" exists between the inter-link lever (15) and the link lever (16) with throttle control fully closed position.

Clearance "a"	1 – 2 mm
---------------	----------



NOTE:
Do not attempt to adjust the throttle valve opening such as by turning the throttle stop screw (17).

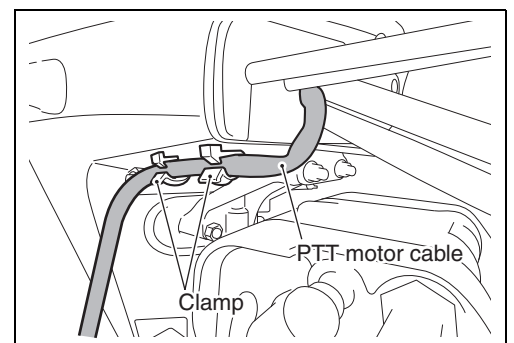
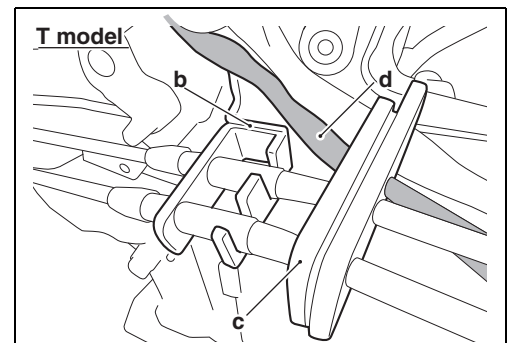
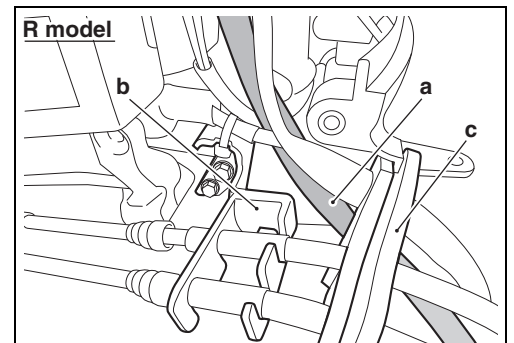
- (21) Install grommet ⑱.
- (22) Reinstall the engine side covers.



NOTE:

Before installing side cover, confirm that the remote control harness and PTT motor cable are properly routed and they must not contact with the remote control cable holder.
If the harness touches with the cable holder, pull the harness outward at its grommet.

- a:** Remote control harness
- b:** Remote control cable holder
- c:** Grommet
- d:** PTT motor cable



— Remote control wire harness —

(23) Connect the coupler of the remote control wire harness to the coupler in the engine side.

NOTE:

After assembly, make sure that the cables are not stretched or otherwise stressed when the outboard motor is turned all the way to the right and left.

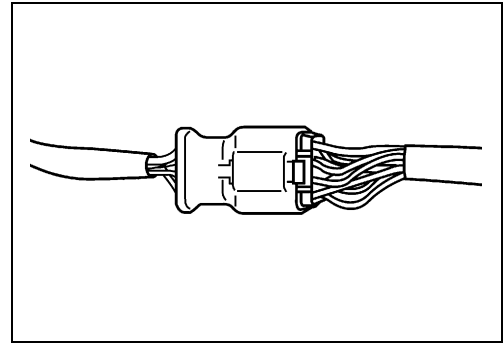
NOTICE

On the T model;

Do not connect the sub-battery cable to the remote control harness.

For this model, it is not necessary to connect the sub-battery cable to provide power for operation of the engine control system.

If you connect the sub-battery cable, the sub-battery fuse will blow.



STEERING SYSTEM

⚠ WARNING

Selection of an improper steering system or improperly installing a steering system on the outboard motor can cause steering/handling difficulties, resulting in loss of control and a crash.

Be sure to follow the steering system manufacturer's instructions for proper selection and installation.

DRAG LINK INSTALLATION

NOTE:

These instructions are for connecting a mechanical push-pull steering system with the following specifications:

- Single cable
- Starboard cable entry into the motor tilt tube.
- Steering cable meeting the current American Boat and Yacht Council's Safety standard (P-17).

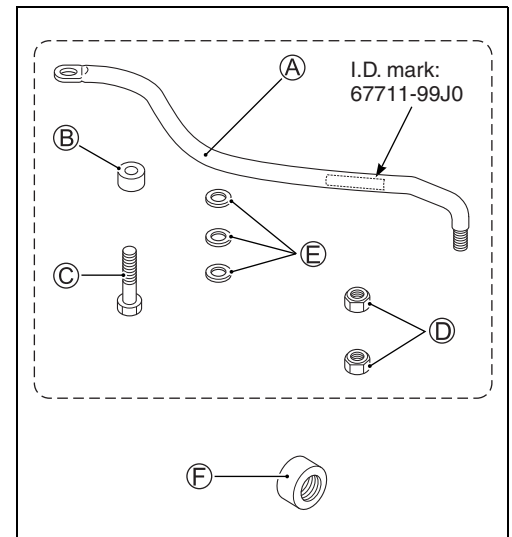
Contained parts (Remote control model)

Item	Part name	Part number	Q'ty
	Drag link assembly	67701-99J01	
Ⓐ	• Drag link	• Not available separately	1
Ⓑ	• Spacer	• 67721-89J00	1
Ⓒ	• Bolt	• 67725-99J00	1
Ⓓ	• Safety nut	• 67726-99E00	2
Ⓔ	• Washer	• 67728-99E00	3
Ⓕ	Steering cable seal	41161-94400	1

NOTICE

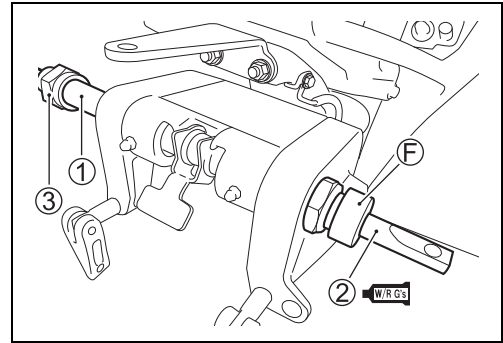
Never reuse the lock nut Ⓓ after it has been threaded into position and torqued.

Once you have tightened the lock nut Ⓓ, it will no longer have the necessary fastening performance if you reuse it.



Procedure

- (1) Thread the steering cable seal (F) onto the port side end of the motor tilt tube (1).
- (2) Apply SUZUKI WATER RESISTANT GREASE to the steering cable (2).
- (3) Insert the cable (2) into the tube (1) from the starboard side, then tighten the cable retaining nut (3) to the torque specified by the cable manufacturer.

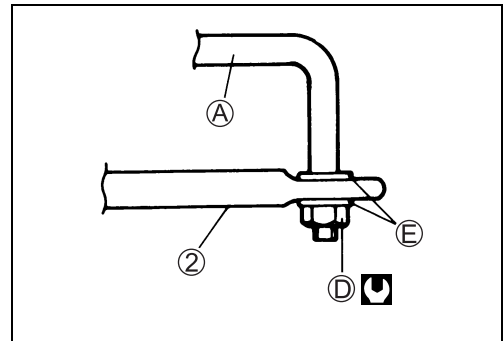


NOTE:


On most outboard motor installations, it will be necessary to install the steering cable prior to the outboard motor installation.

- (4) Connect the drag link (A) to the steering cable end (2) with washers (E) and safety nut (D) as shown. Tighten the nut (D) to the specified torque, then BACK THE NUT OFF 1/8 TURN.

 **Safety nut (D): 10 N·m (1.0 kgf-m, 7.0 lb-ft)**

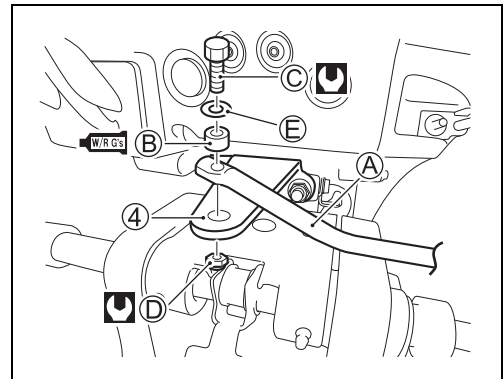


- (5) Move the steering cable until the hole of drag link (A) aligns with the thread hole on the attachment (4).
- (6) Connect the drag link to the attachment (4) by tightening the bolt (C) with the spacer (B) and washer (E) as shown.

 **Bolt (C): 34 N·m (3.4 kgf-m, 24.5 lb-ft)**

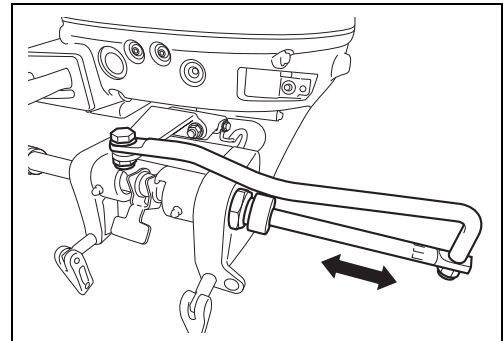
- (7) Tighten the safety nut (D).

 **Safety nut (D): 34 N·m (3.4 kgf-m, 24.5 lb-ft)**



NOTE:

After assembly, check for smooth and free steering operation by turning the steering wheel all the way to the right and left.



BATTERY

BATTERY REQUIREMENT

Suzuki recommends a 12-volt cranking-type lead acid battery for the DF9.9B/15A/20A.

Minimum battery requirement for starting the engine is provided below.

The battery must satisfy one of the specifications described below.

**450 Marine Cranking Amps (MCA)/ABYC,
or 330 Cold Cranking Amps (CCA)/SAE
or 70 Reserve Capacity (RC) Minutes/SAE
or 12 V 35 AH**

NOTE:

- *The specifications listed above are the minimum battery rating requirements for starting the engine.*
- *Additional electrical loads from the boat will require larger capacity batteries.*
- *Dual-purpose (Cranking/Deep Cycle) batteries can be used if they meet the minimum specifications listed above (MCA, CCA, or RC).*
- *Do not use a Deep Cycle battery for the main cranking battery.*
- *The use of Maintenance-Free, sealed, or Gel-Cell batteries is not recommended because they may not be compatible with Suzuki's charging system.*
- *When connecting batteries in parallel, they must be of the same type, capacity, manufacturer, and of similar age. When replacement is necessary, they should be replaced as a set.*

INSTALLATION OF BATTERY

▲ WARNING

Failure to take proper precautions when handling the battery may cause severe injury.

Be sure to take the following precautions when handling the battery:

- **Never expose the battery to open flames or electric sparks as batteries generate gas which is flammable and explosive.**
- **Do not place the battery near the fuel tank.**
- **Battery acid is poisonous and corrosive. Avoid contact with eyes, skin, clothing and painted surfaces.**
If you come in contact with battery acid, flush immediately with large amounts of water and seek immediate medical attention.
- **Batteries should always be kept out of reach of children.**
- **When checking or servicing battery, disconnect the negative (black) cable. Be careful not to cause a short circuit by allowing metal objects to contact the battery posts and motor at the same time.**
- **Wear approved eye protection.**

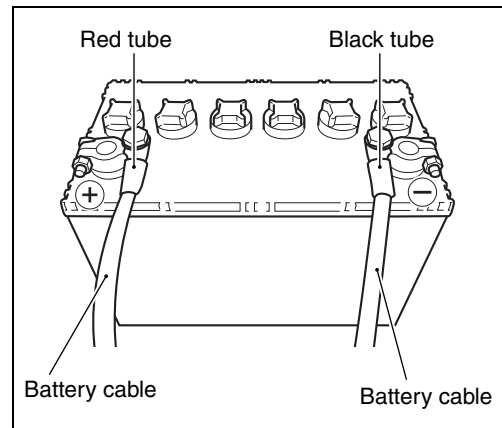
Store the battery free from splash of water, etc. and fix it securely to the hull with a battery band or the like to prevent it from falling down during boating.

NOTE:

It is recommended that the battery be installed in an enclosed battery case.

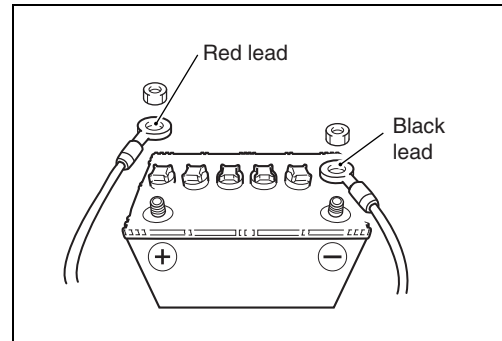
NOTE:

When extending the battery cable, use a cable of diameter larger than equivalence of AV8 (AWG8).



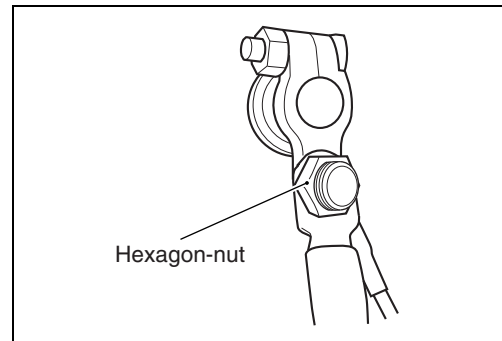
CONNECTION OF BATTERY CABLE

- First connect positive battery cable to positive battery terminal, then connect negative battery cable to negative battery terminal.



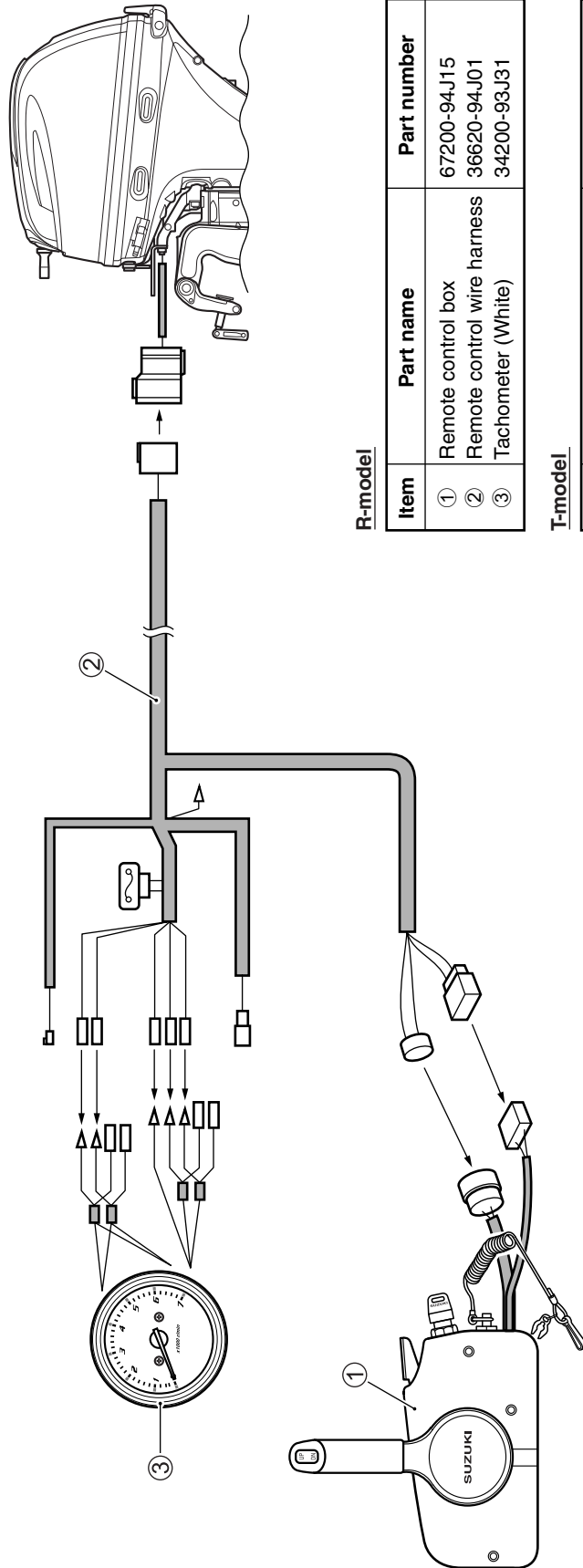
NOTE:

When connecting batteries, hexagon-nuts must be used to secure battery leads (cables) to battery terminals.



WIRING DIAGRAM

Side Mount Remote Control



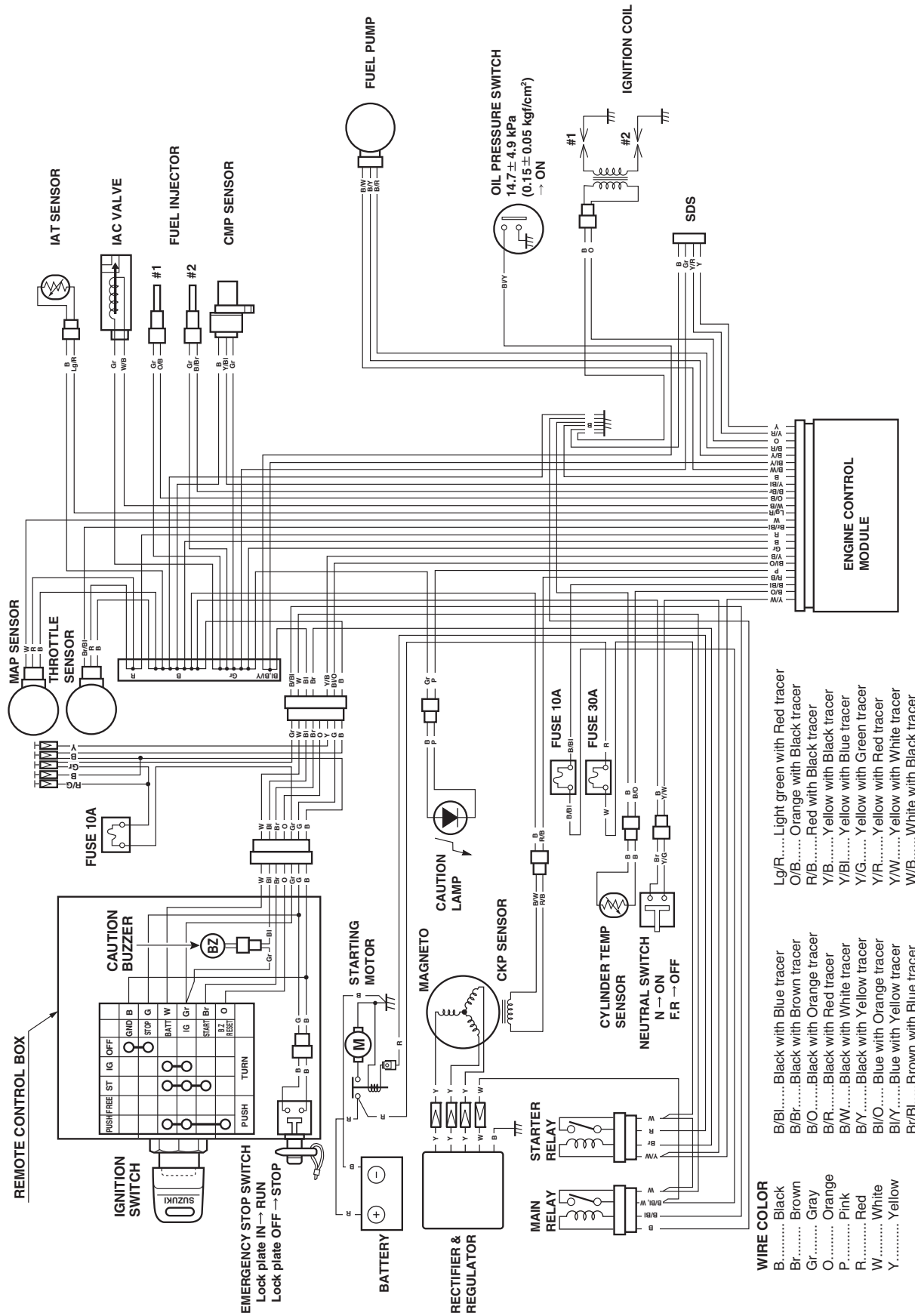
R-model

Item	Part name	Part number
①	Remote control box	67200-94J15
②	Remote control wire harness	36620-94J01
③	Tachometer (White)	34200-93J31

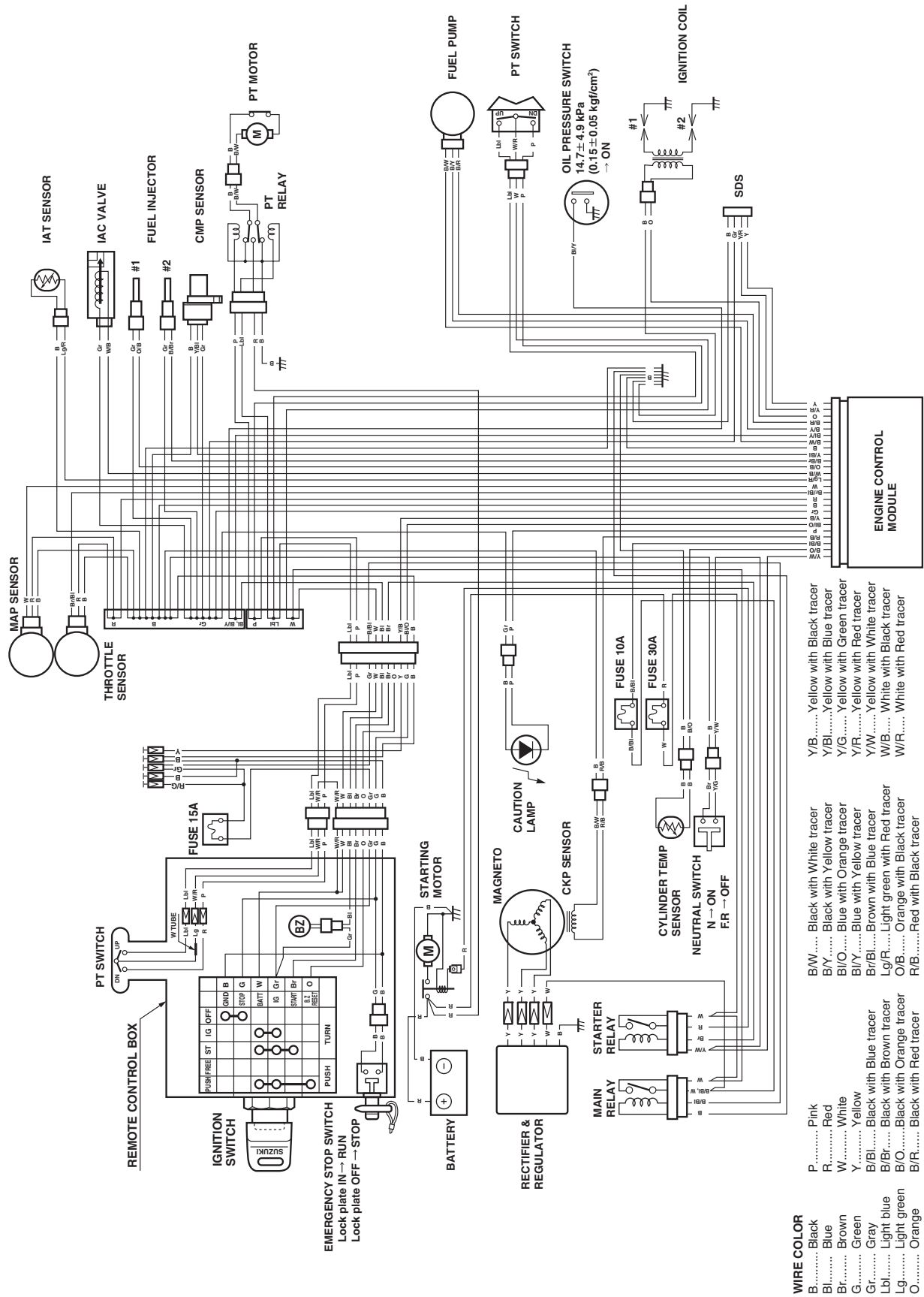
T-model

Item	Part name	Part number
①	Remote control box	67200-93J06
②	Remote control wire harness	36620-93J02
③	Tachometer (White)	34200-93J31

R-model



T-model



Prepared by

SUZUKI MOTOR CORPORATION

Outboard Motor Engineering Department

March, 2013

Part No. 99505-89L10-01E

Printed in U.S.A.

