Power Trim and Tilt

Precautions

Precaution for Power Trim and Tilt

CENFL3122200001

⚠ WARNING

Failure to take proper precaution when servicing a PTT unit can cause severe personal injury.

Be sure to take the following precautions when servicing the PTT system:

- **During removal or installation of PTT unit, the engine must be firmly secured and its weight fully supported by the hoist.**
- **Before checking PTT fluid level, tilt the motor to the full-up position and engage the tilt lock lever.**

NOTE

- **To prevent system malfunctions, ensure that all components are kept free from dirt or contamination.**
- **Reinstall all O-rings, seals, springs etc. with the component(s) to which they belong. This will prevent possible confusion and will ensure correct reassembly.**

General Description

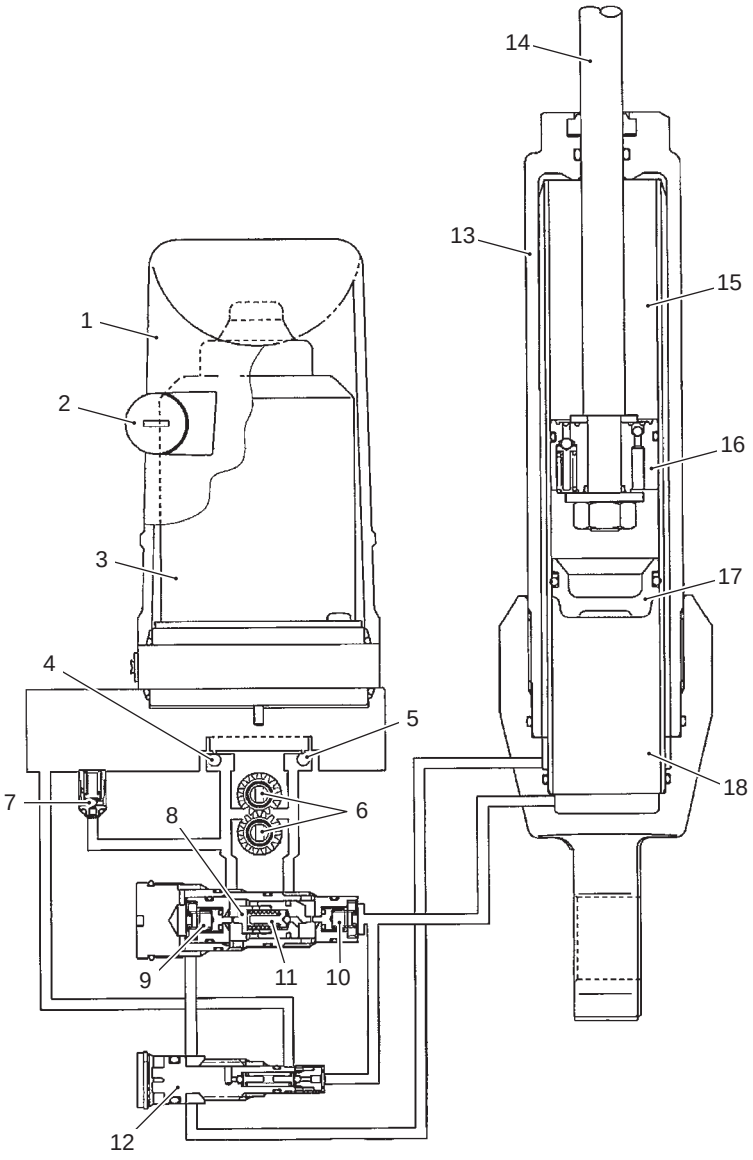
Power Trim and Tilt Description

CENFL3122201001

The power trim and tilt system components are an electric motor, a pump unit, a fluid reservoir and one tilt cylinder. The outboard can be trimmed “UP” or “DOWN” while under way, and can be tilted for beaching, operating in shallow water or trailering.

Trim and tilt “UP” or “DOWN” is obtained by supplying power to a permanent magnet type motor. This motor will rotate clockwise for “UP” or counterclockwise for “DOWN”, according to power delivered via the PTT relay, which is mounted on the electric part holder.

Power Trim and Tilt Hydraulic Diagram



IFL312220055-02

1. Oil reservoir	7. “Down” relief valve	13. PTT cylinder
2. Oil filler cap	8. Spool valve	14. Tilt rod
3. PTT motor	9. “Down” pressure main check valve	15. Upper cylinder chamber
4. Check valve “A”	10. “Up” pressure main check valve	16. Piston
5. Check valve “B”	11. “Up” relief valve	17. Free piston
6. Gear pump	12. Manual release valve	18. Lower cylinder chamber

Principles of Power Trim and Tilt Operation Description

CENFL3122201002

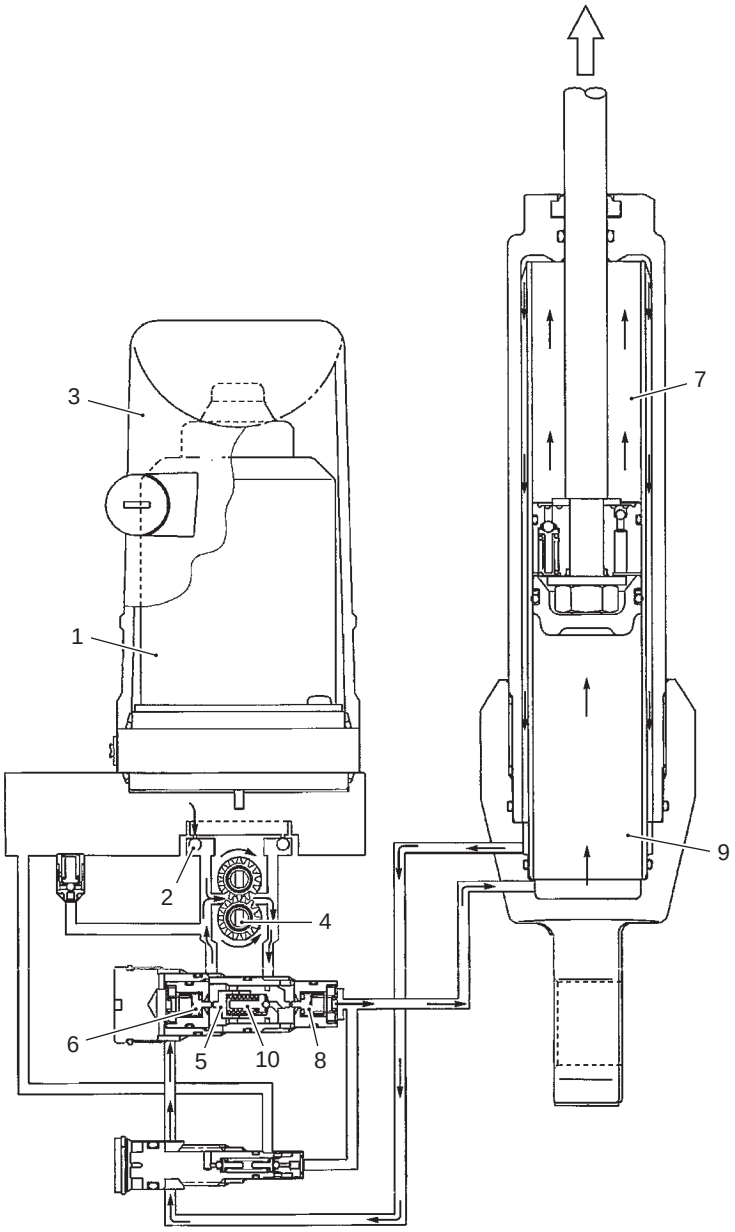
By motor operation, the geared pump will be driven, and by turning the motor to the right or to the left, oil flow will change its direction. This causes “UP” and “DOWN” movements of the piston rod of the tilt cylinder.

Trim / Tilt Up Circuit

The electric motor (1) is operating in a clockwise direction. Check valve (2) will open, allowing oil to flow from the reservoir (3) to the pump (4). Oil flow from the pump enters the spool valve (5), moving it to the left, opening the “down” pressure main check valve (6) and returning oil from the upper cylinder chamber (7) (plus oil from the reservoir) to the pump. Pressure built up by the pump will then open the “up” pressure main check valve (8) and oil will enter the lower cylinder chamber (9).

When PTT motor stops, both the “DOWN” pressure main check valve (6) and the “up” pressure main check valve (8) will close to retain tilt/trim position.

When full trim/tilt “up” position is attained, sustained operation of the “up” relay will have no effect, as pump oil flow will be returned to the reservoir through the “up” relief valve (10).



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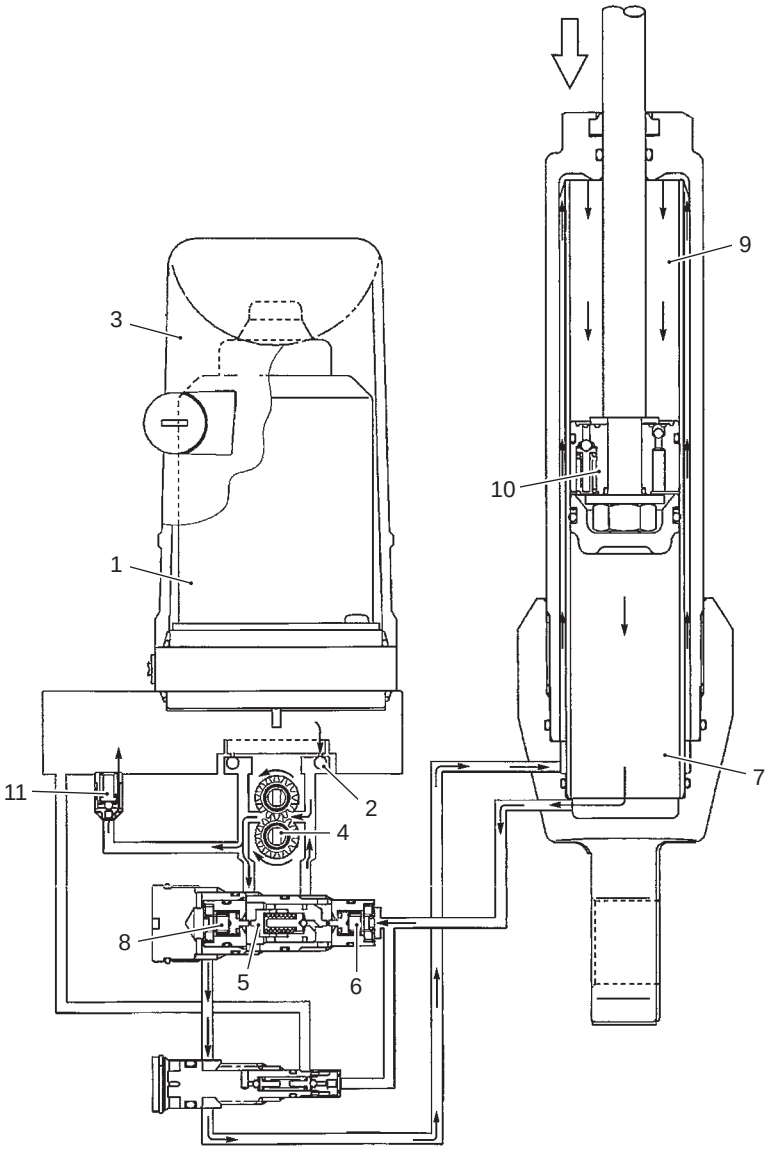
Tilt / Trim Down Circuit

The electric motor (1) is operating in a counterclockwise direction. Check valve (2) will open, allowing oil to flow from the reservoir (3) to the pump (4). Oil flow from the pump enters the spool valve (5), moving it to the right, thereby opening the “up” pressure main check valve (6). Oil from the lower cylinder chamber (7) will go through the “up” pressure main check valve (6) to the pump.

Pressure built up by the pump will open the “down” pressure main check valve (8) and oil will enter the upper cylinder chamber (9). The piston (10) will retract (move inward), which will tilt the outboard down. Oil in the lower cylinder chamber (7) is returned to the pump through the “up” pressure main check valve (6).

When full “down” position is reached, continued operation of the “down” relay will have no effect, as pump oil flow will be returned to the reservoir through the “down” relief valve (11).



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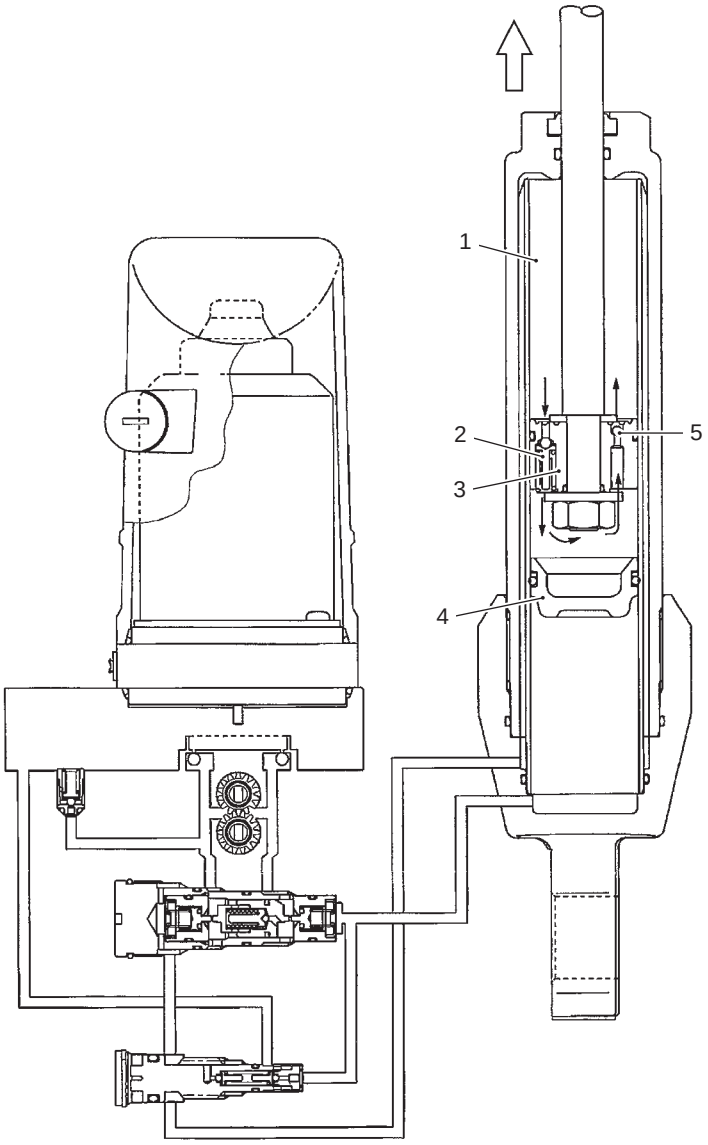
Shock Absorber Circuit

Shock valve

Should the lower unit strike an underwater object while in motion, the piston will rise abruptly, creating a sudden high impact pressure in the upper cylinder chamber (1). The shock valve (2) will then open, allowing oil to flow into the area between the tilt ram piston (3) and the free piston (4), thereby dampening (absorbing) the impact.

Return valve

When the point of impact has passed, propeller thrust and motor weight will force the tilt ram piston back downward. The oil from between the ram piston (3) and the free piston (4) is then expelled through the return valve (5) before flowing into the upper cylinder chamber (1).



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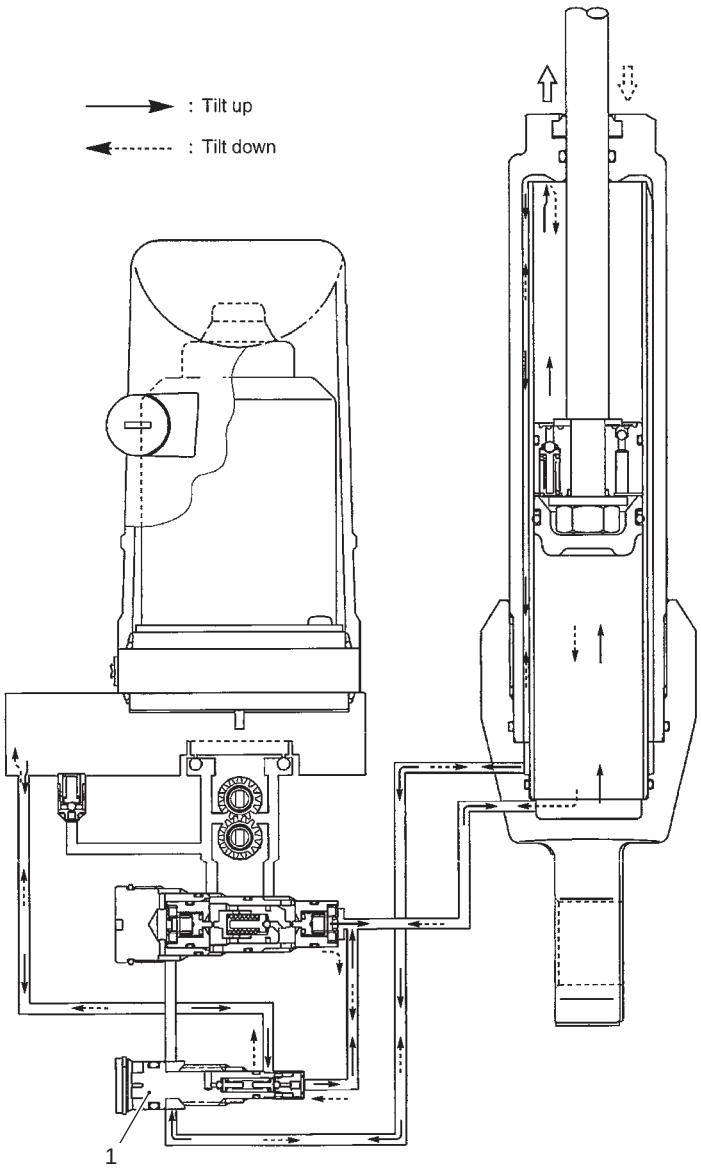
Manual Release Circuit (Manual Valve)

Turn the manual valve (1) a maximum of three full turns counterclockwise.

When the manual release valve (1) is loosened, oil will flow unimpeded (without resistance) through the internal pump tubes, thereby facilitating manual tilting or lowering of the outboard. To hold the engine in a selected position, the manual valve (1) must be closed again.



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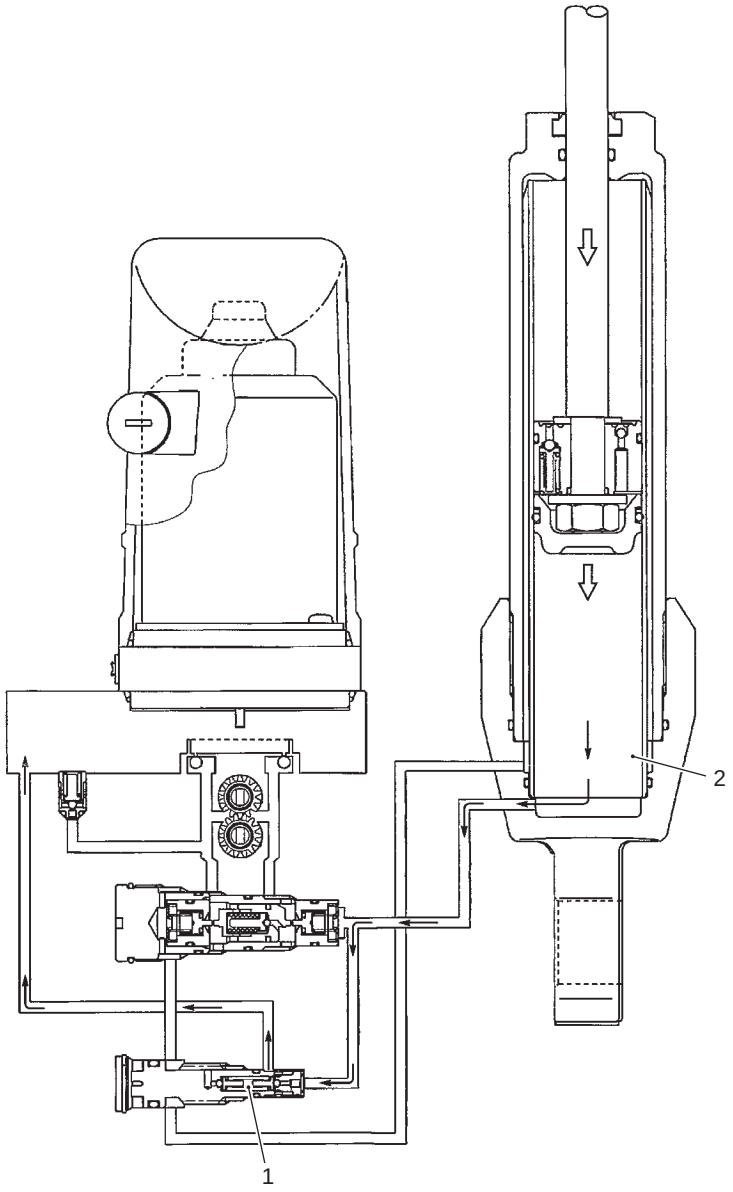
Thermal Valve

The PTT system incorporates a thermal valve (1) for protection of the internal components, should excessive downward force be exerted on the lower unit with the motor in a tilted position, or (in the case of an impact in reverse gear), the outboard clamp/swivel brackets and the boat transom.

Should the propeller strike an underwater object whilst in reverse gear, a build up of pressure will be induced in the lower cylinder chamber (2), whereby the outboard mounting bracket and/or the boat transom may sustain damage. To prevent this, the thermal valve will open to relieve the oil pressure, thereby softening the impact.

Internal PTT circuits are protected, as the thermal valve will open to reduce oil pressure (caused by either hot climate or abnormally heavy usage).



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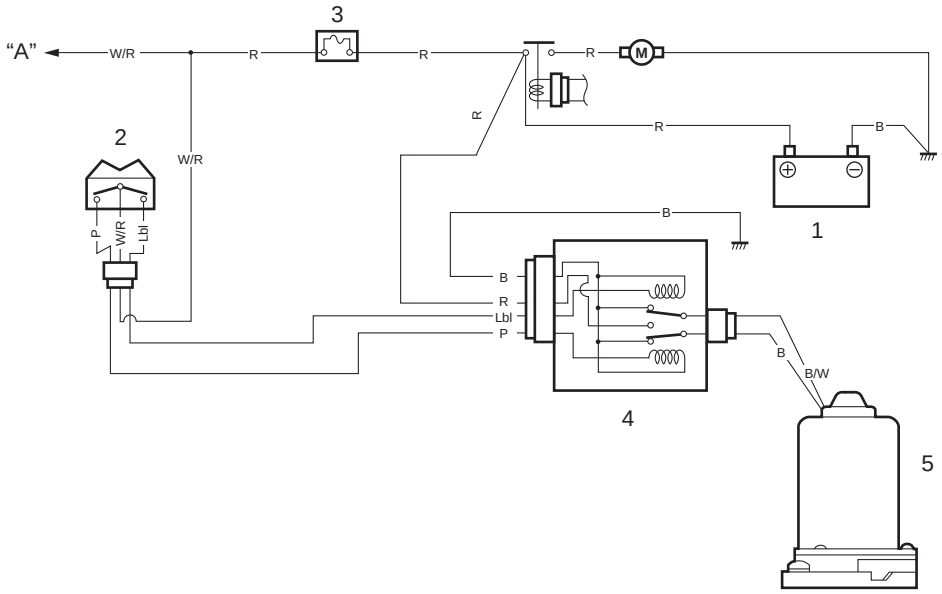
Schematic and Routing Diagram

Power Trim and Tilt System Diagram

CENFL3122202001

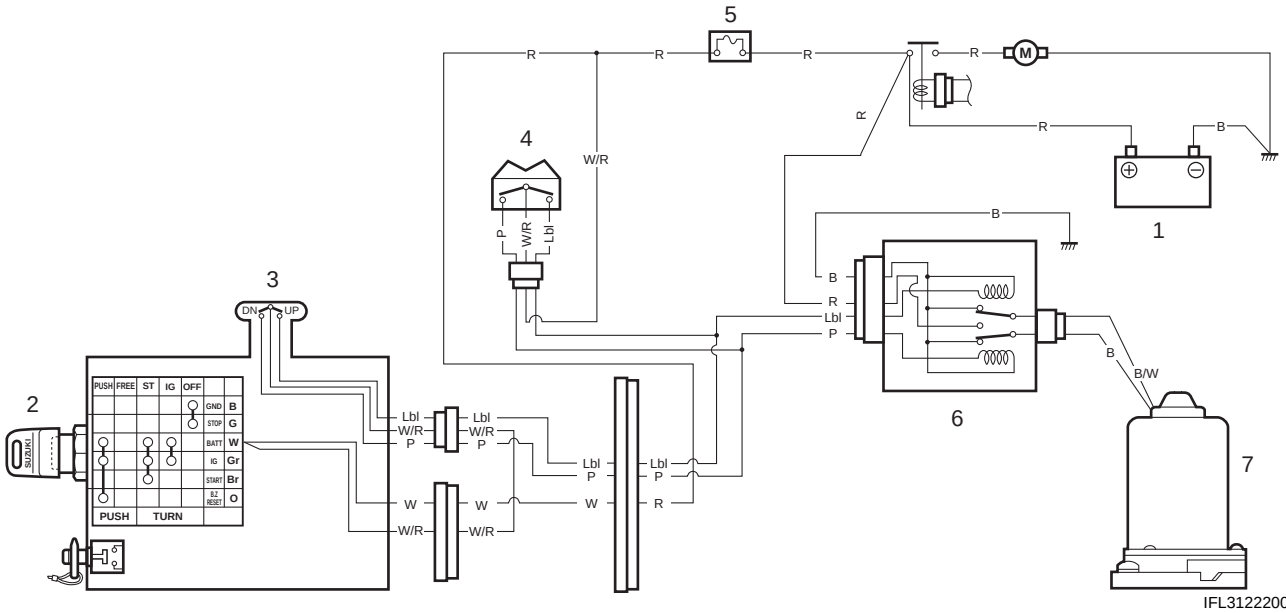
DF25ATH/30ATH



IFL312220001-01

1. Battery	3. Fuse (30 A)	5. PTT motor
2. PTT switch	4. PTT relay	"A": To starter switch

DF25AT/30AT



IFL312220002-02

1. Battery	5. Fuse (30 A)
2. Ignition switch	6. PTT relay
3. PTT switch (Remote control box)	7. PTT motor
4. PTT switch (Lower side cover)	

Diagnostic Information and Procedures

Diagnose PTT System Malfunction

CENFL3122204001

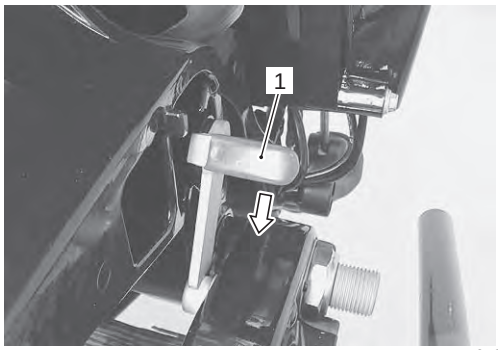
Condition	Possible cause	Correction / Reference Item
Motor will not trim / tilt at all (no up, no down).	Blown fuse for PTT system.	*Inspection and replace.*
	Defective PTT switch.	*Replace.*
	Defective PTT relay.	*Replace.*
	Defective PTT system circuit.	*Inspection of system circuit.*
	Loose or corroded battery cable connection.	*Repair or retighten.*
	Open circuit between main fuse and starter motor relay.	*Repair.*
	Defective PTT motor armature.	*Replace.*
	Defective PTT motor armature brushes.	*Replace.*
	Defective PTT pump.	*Replace.*
	Manual release valve leaking.	• *Ensure that valve is fully closed.* • *Inspect manual release valve.*
Motor will not trim / tilt up.	Defective PTT switch.	*Replace.*
	Defective PTT relay.	*Replace.*
	Open light blue lead wire circuit.	*Repair or replace.*
Motor will not trim / tilt down.	Defective PTT switch.	*Replace.*
	Defective PTT relay.	*Replace.*
	Open pink lead wire circuit.	*Repair or replace.*
PTT motor operates, but no motor trim / tilt movement.	Low PTT fluid level.	*Added PTT fluid.*
	Manual release valve leaking.	• *Ensure that valve is fully closed.* • *Inspect manual release valve.*
	Debris in system.	*Inspect for debris.*
	Broken drive joint in PTT pump.	*Replace.*
	Broken PTT pump.	*Replace.*
	Tilt piston leaking.	*Replace PTT unit assembly.*
Motor will not retain selected trim and tilt setting, creeps downward.	Manual release valve leaking.	• *Ensure that valve is fully closed.* • *Inspect manual release valve.*
	Tilt piston leaking.	*Replace PTT unit assembly.*
	Debris in system.	*Inspect for debris.*
PTT motor operates at higher than normal speed, or with high pitched “squealing” sound. No trim / tilt action.	Low PTT fluid level.	*Added PTT fluid.*
	Manual release valve leaking.	• *Ensure that valve is fully closed.* • *Inspect manual release valve.*
	Broken drive joint in PTT pump.	*Replace.*

Service Instructions

Checking PTT Fluid Level

CENFL3122206001

1) Raise the engine to a full-tilt up position.
2) Lower the manual tilt lock lever (1).



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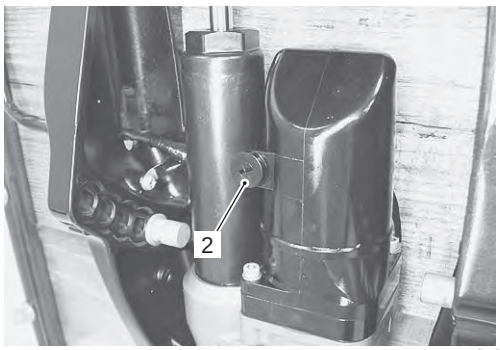
3) Remove the oil filler plug (2).



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4) If oil can be seen at filler plug level, the reservoir is full.
If fluid level is low, refill with the recommended PTT fluid.

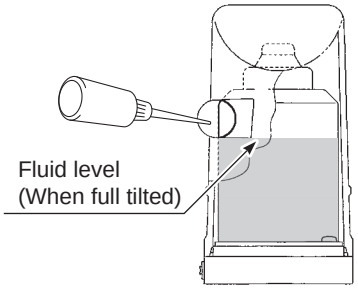
NOTICE

Mixing of different fluids may cause chemical reaction and deterioration.

To ensure consistent pump operation, never mix different types of PTT fluid.

Recommended PTT fluid

- **99000-22810 (PTT Fluid (1 Liter))**
- **Dexron III automatic transmission fluid or equivalent**



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5) Reinstall oil filler plug (2).

Air Bleeding from PTT Unit

CENFL3122206002

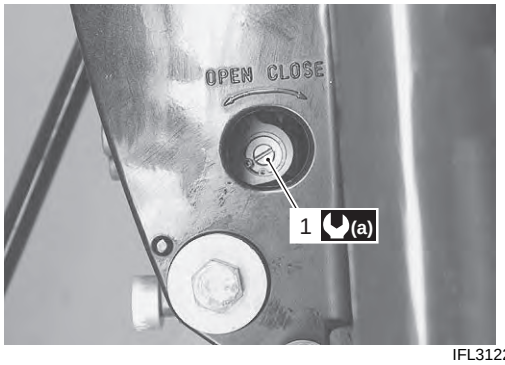
1) Check that the manual release valve (1) is tightened to the specified torque.

NOTE

Do not over tighten manual release valve.

Tightening torque
Manual release valve (a): 1.7 N·m (0.17 kgf-m, 1.2 lbf-ft)

Direction of rotation
Counterclockwise: Open
Clockwise: Close



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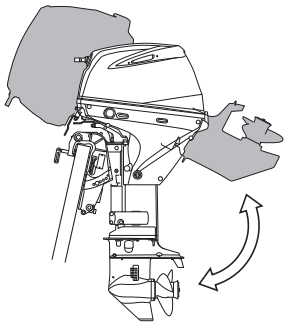
2) Operate the PTT switch, raising and lowering the motor up and down (full tilt position to full trim down position) 4 to 5 times.



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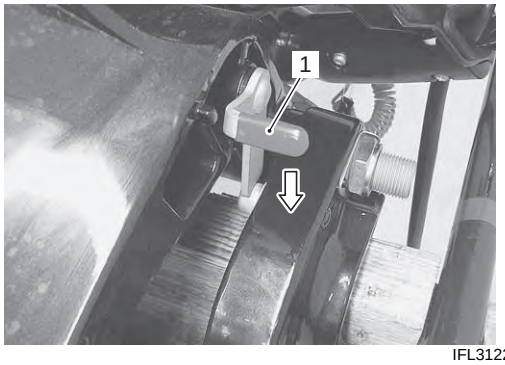
3) Check PTT fluid level, topping off if necessary.
4) Reinstall oil filler plug.

Power Trim and Tilt Unit Removal and Installation

CENFL3122206005

Removal

1) Remove the lower side covers.
   Refer to “Lower Side Cover Removal and Installation” in Section 2A (Page 2A-3).
2) Raise the engine to the full tilt up position and lower the manual tilt lock lever (1).



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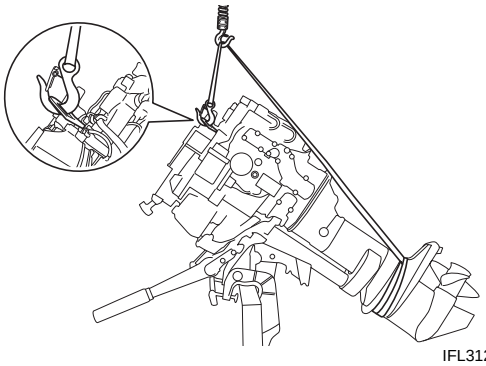
⚠ WARNING

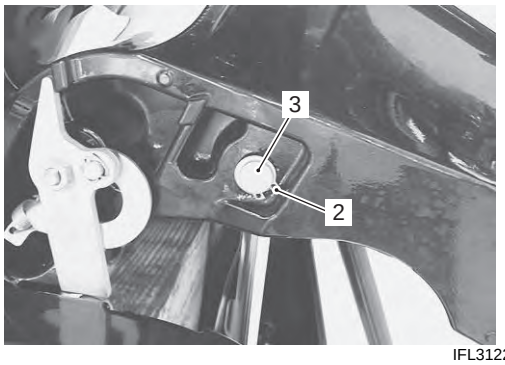
Failure to take proper precaution when servicing a PTT unit can cause severe personal injury.

During the removal or installation of PTT unit, the engine must be firmly secured and its weight fully supported by the hoist. (See below)



IFL312220007-03

3) Remove the tilt rod snap ring (2) and push the tilt rod upper shaft pin (3) out until it is extracted from the tilt rod upper eye.



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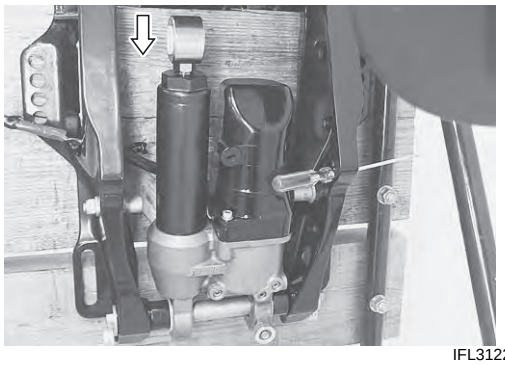
4) Lower the tilt rod to the full down position and disconnect the battery cable.



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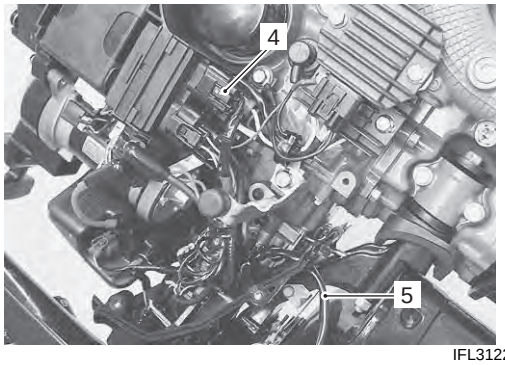
5) Disconnect the PTT motor cable lead wire connector (4) from PTT relay.
   Remove the PTT motor cable (5) from engine lower cover.



IFL312220010-01

6) Remove the PTT cylinder lower shaft bolt (6).

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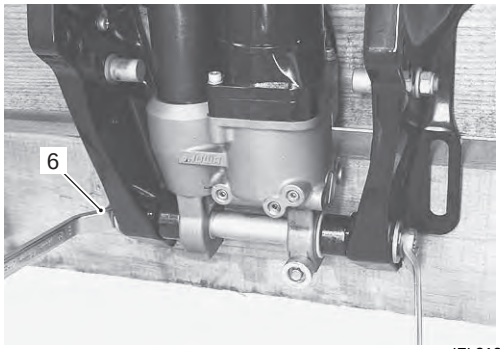

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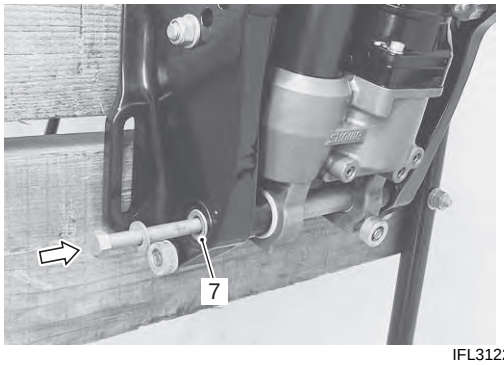
7) Push out the PTT cylinder lower shaft (7).

NOTE

Screw a 10 mm bolt into the lower shaft and gently tap the bolt using a soft head hammer to slide the lower shaft out.



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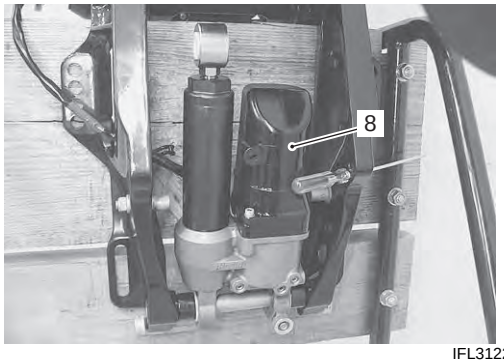
8) Remove the PTT unit (8) from between the clamp brackets.



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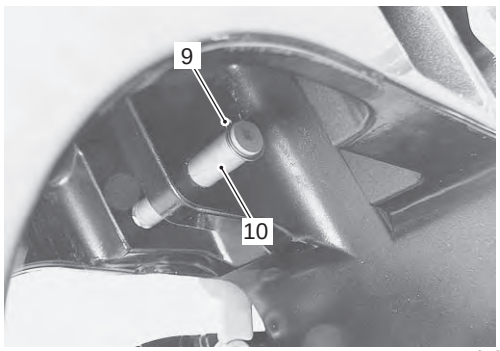
9) Remove the tilt rod snap ring (9) and tilt rod upper shaft pin (10).



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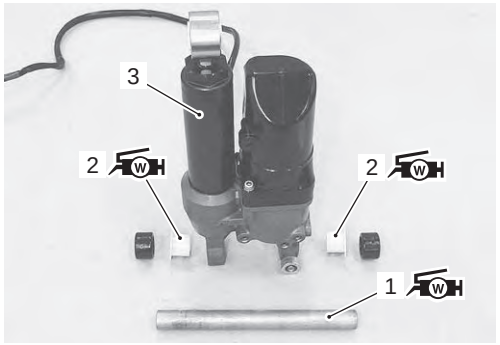
Installation

Installation is reverse order of removal with special attention to the following steps.

- Lower tilt rod to full down position.
- Apply water resistant grease to the tilt cylinder lower shaft (1) and lower shaft bushings (2).
  Install the bushings (2) to PTT unit (3).

: Grease 99000–25350 (SUZUKI Water Resistant Grease EP2 (250 g))



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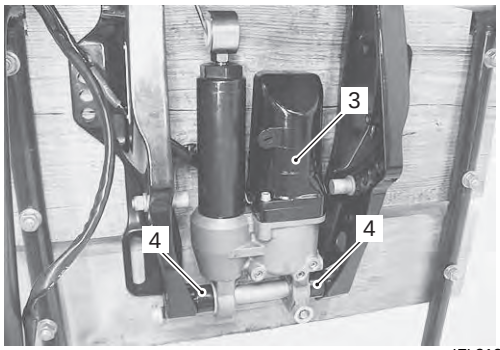
- Place the PTT unit (3) and collars (4) in position between clamp brackets.



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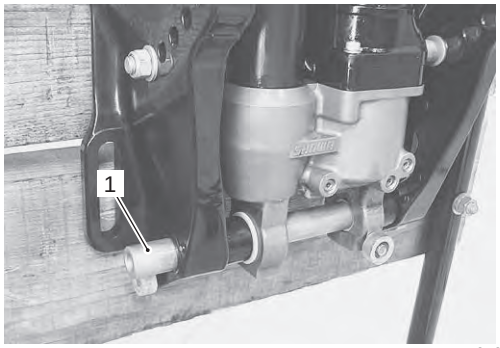
- Install the tilt cylinder lower shaft (1).



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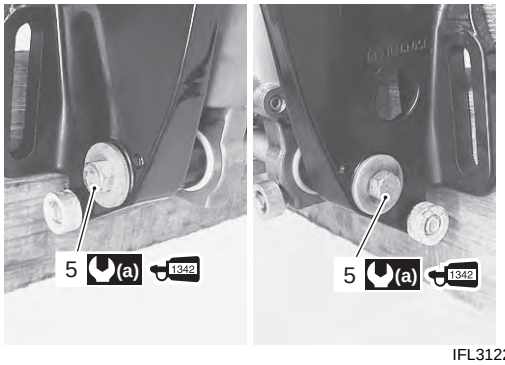
- Tighten two lower shaft bolts (5), pre-coated with thread lock, to specified torque.

1342 : Thread lock cement 99000–32050 (SUZUKI Thread Lock 1342 (50 g))

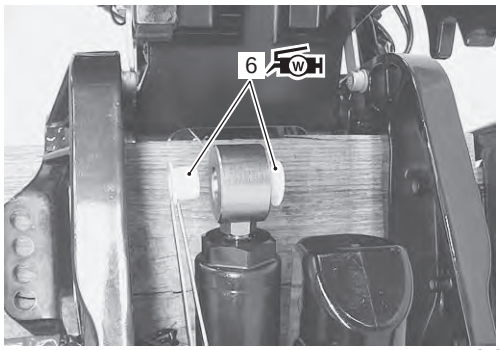
Tightening torque
PTT cylinder lower shaft bolt (a): 50 N·m (5.0 kgf-m, 36.0 lbf-ft)



IFL312220018-01

- Apply water resistant grease to tilt rod upper bushings (6), then install bushings in tilt rod.
Operate the PTT motor to extend the PTT rod upward. Align the tilt rod with the hole in the swivel bracket as the tilt rod extends.

W : Grease 99000–25350 (SUZUKI Water Resistant Grease EP2 (250 g))



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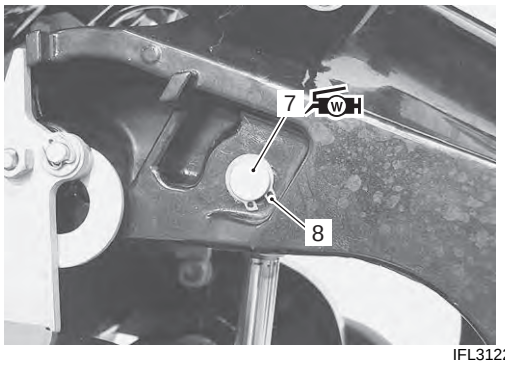
- Apply water resistant grease to the tilt rod upper shaft pin (7), then insert the shaft pin through the swivel bracket and tilt rod.
Secure the upper shaft with the snap rings (8). Make sure that the snap rings are appropriately installed in both ends of the shaft pin.

W : Grease 99000–25350 (SUZUKI Water Resistant Grease EP2 (250 g))



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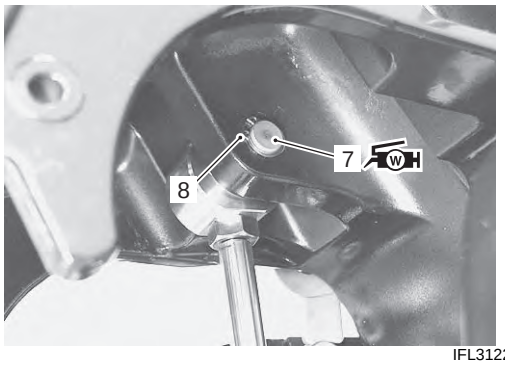

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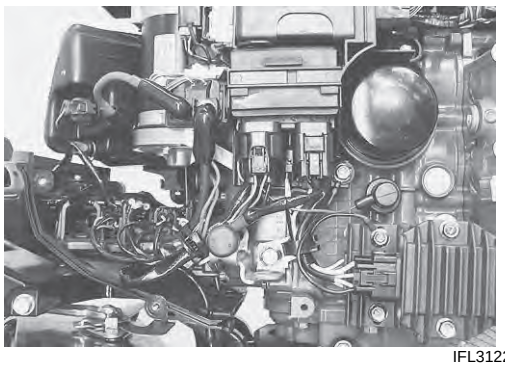
- Route the PTT motor cable properly through the lower cover and connect the PTT cable connector to PTT relay.
Refer to “Wiring Harness Routing Diagram” in Section 4A (Page 4A-7).



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Power Trim and Tilt Unit Components

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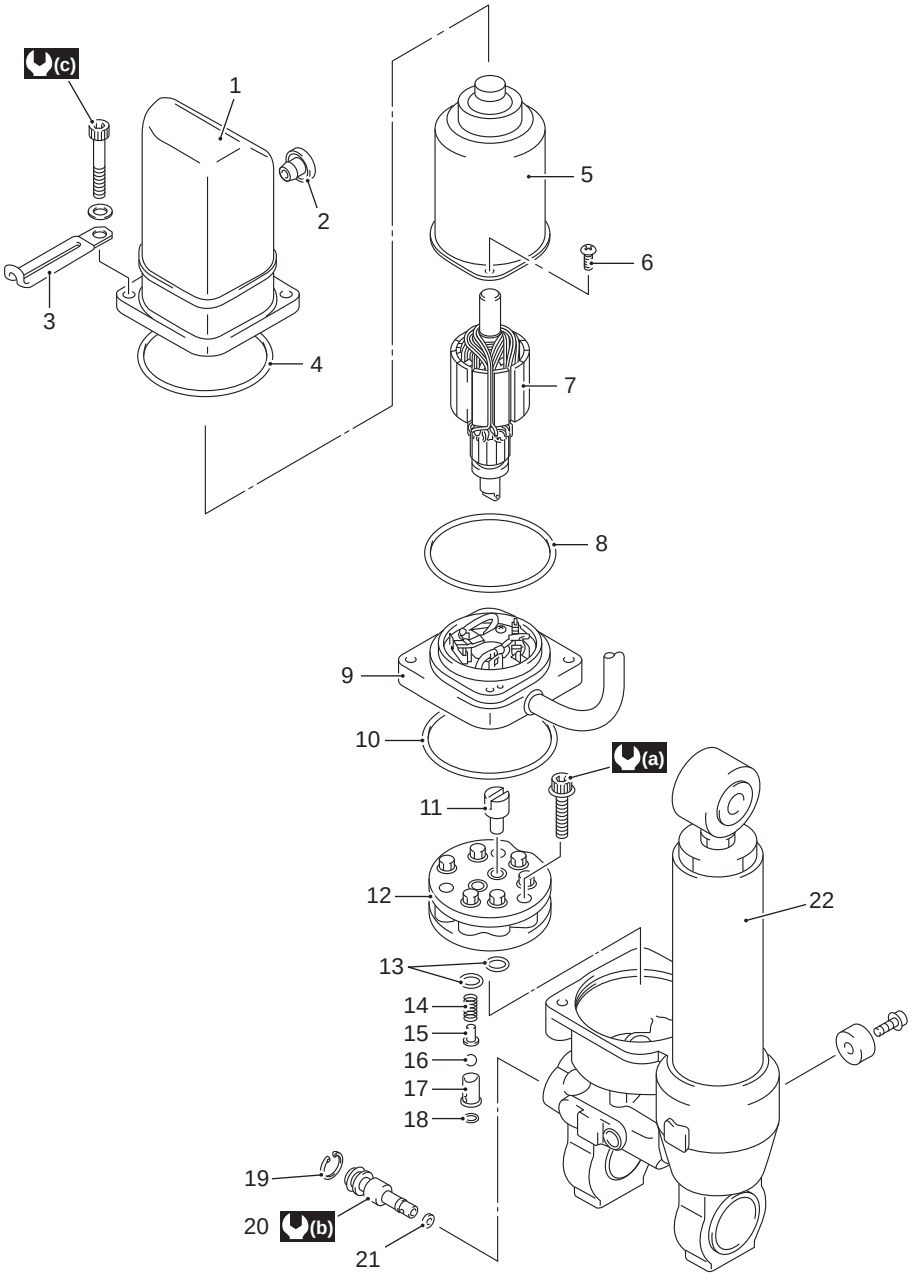


IFL312220066-02

1. Reservoir	10. O-ring	19. Circlip
2. Plug	11. Drive joint	20. Manual valve
3. Clamp	12. Pump assembly	21. Seal washer
4. O-ring	13. O-ring	22. Manifold assembly
5. Field case	14. Spring	(a) : 5 N·m (0.5 kgf-m, 3.6 lbf-ft)
6. Screw	15. Pressure valve	(b) : 1.7 N·m (0.17 kgf-m, 1.2 lbf-ft)
7. Armature	16. Ball	(c) : 4.5 N·m (0.45 kgf-m, 3.3 lbf-ft)
8. O-ring	17. Valve sheet	
9. Brush holder	18. O-ring	

Power Trim and Tilt Unit Disassembly and Reassembly

CENFL3122206007

Disassembly

1) Remove Power Trim and Tilt unit.
   Refer to “Power Trim and Tilt Unit Removal and Installation” (Page 2B-11).

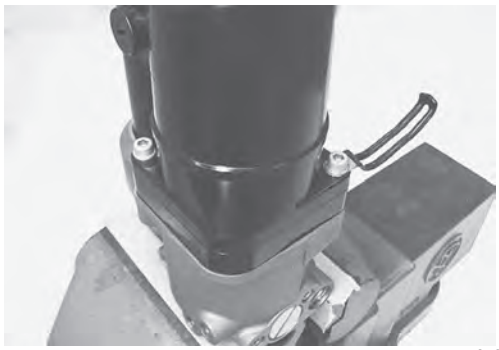
NOTE

Before disassembly, wash the PTT body with a stiff bristle brush and hot, soapy water to remove sand or dirt. Dry the PTT body with compressed air.

2) Place the lower section of the PTT unit in a vise. Tighten the vise only enough to secure the PTT unit, DO NOT OVER TIGHTEN.

NOTE

To prevent damage to the PTT cylinder use wood blocks, vise jaw protectors, etc., between the vise jaws and PTT components before tightening vise.

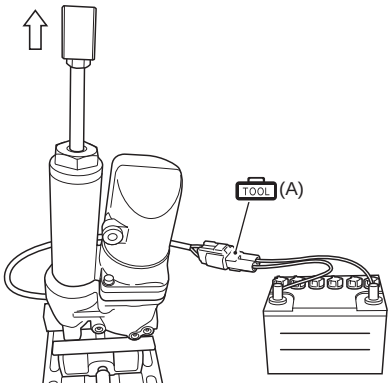


IFL312220023-02

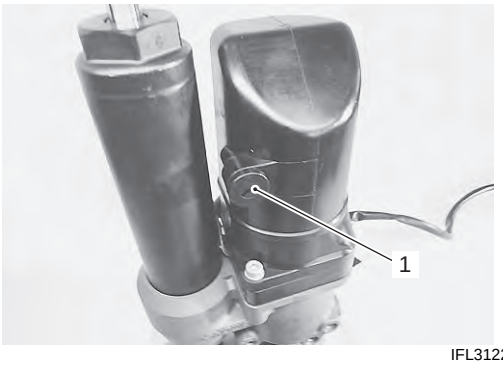
3) Connect the PTT cable extension to PTT motor cable connector.

Special tool
TOOL (A): 09945–79410 (PTT cable extension)

4) Connect the PTT cable extension leads (R, B) to battery and operate PTT motor until tilt rod is at maximum stroke (full-tilt up position). Unscrew the filler plug (1) and drain PTT oil into a suitable container.

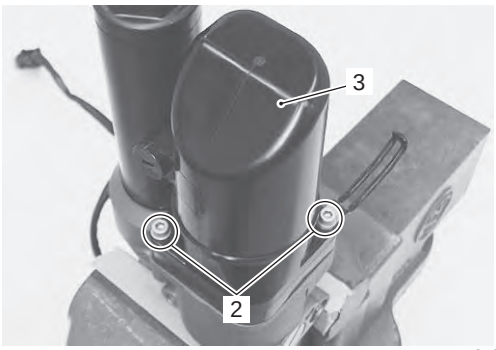


IFL312220024-01



IFL312220025-02

5) Remove two screws (2), then detach the reservoir (3).

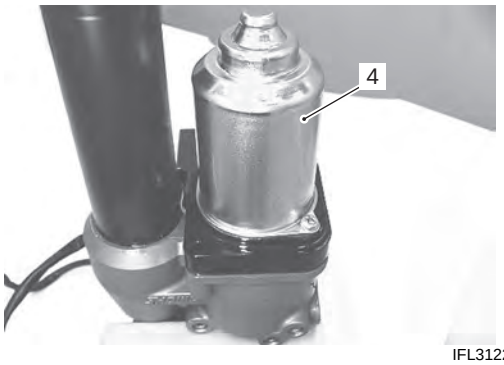


IFL312220026-02

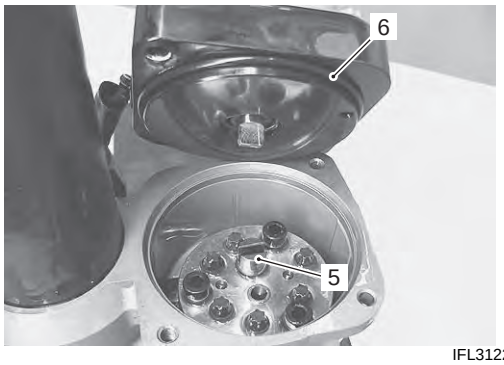
NOTE

Do not lay PTT components out on a rag, as dirt or lint may be transferred to these items which may cause possible system operating problems.
Arrange all components on a clean sheet of paper.

6) Detach the PTT motor (4) from the pump and manifold assembly.
Note the position of drive joint (5) and O-ring (6) and remove them.

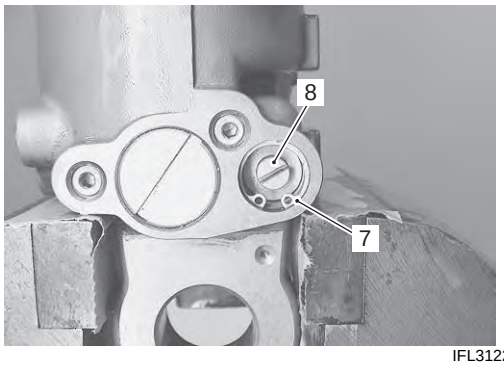


IFL312220027-02

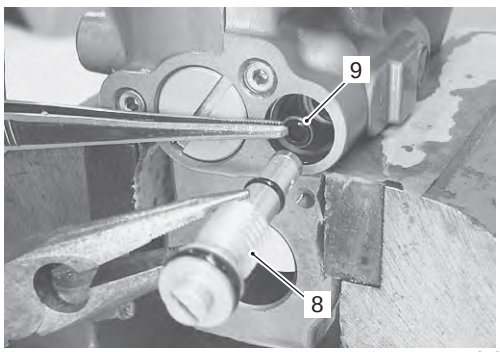


IFL312220028-01

7) Remove the manual release valve snap ring (7), then unscrew the manual release valve (8). Remove seal washer (9).

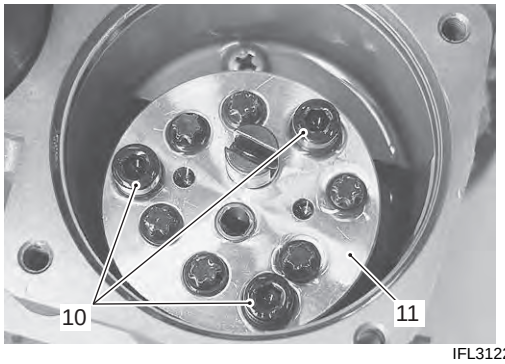


IFL312220029-01



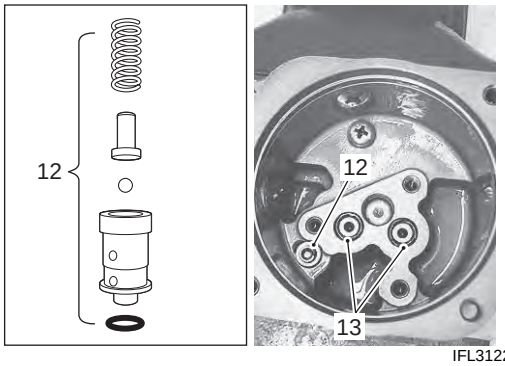
IFL312220030-02

8) Remove the three screws (10) and pump assembly (11).



IFL312220031-02

9) Remove the pressure valve (12) and O-rings (13).



IFL312220032-03

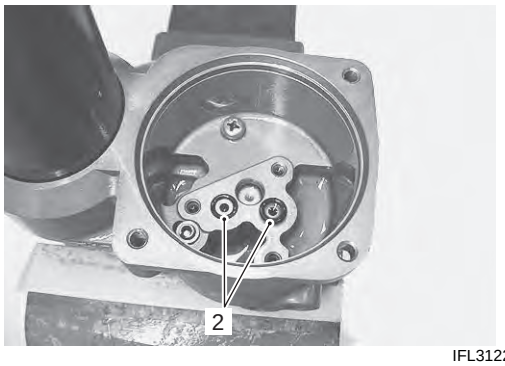
Reassembly
Assembly is reverse order of disassembly with special attention to following steps.

NOTE

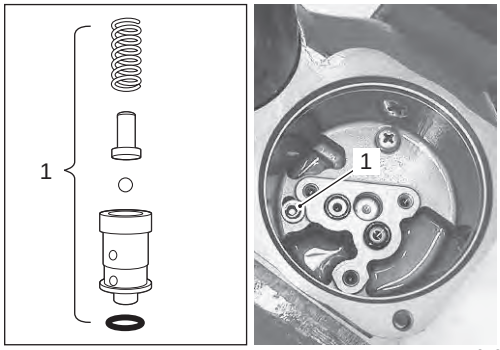
- **Do not reuse O-rings and seals once removed.**
  Always use new parts.
- **Lubricate all components and O-rings with PTT fluid before assembly.**
- **Do not reuse PTT fluid, always refill with new fluid.**

PTT pump assembly

- Install the pressure valve (1) and O-rings (2).



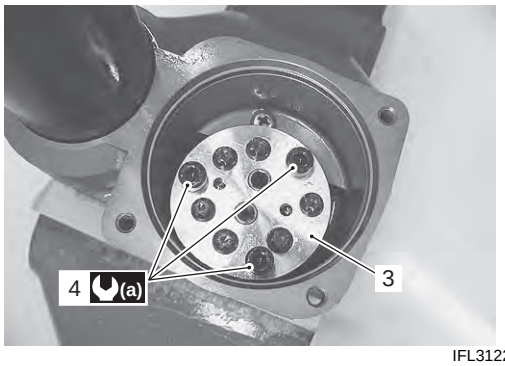
IFL312220033-03



IFL312220034-02

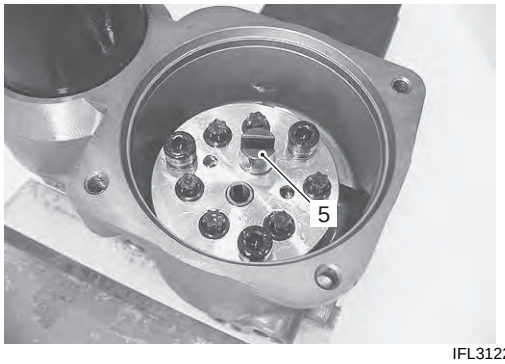
- Install the pump assembly (3), then tighten three screws (4) to specified torque.

  Tightening torque
  Pump securing screw (a): 5 N·m (0.5 kgf-m, 3.6 lbf-ft)



IFL312220035-01

- Install the drive joint (5).

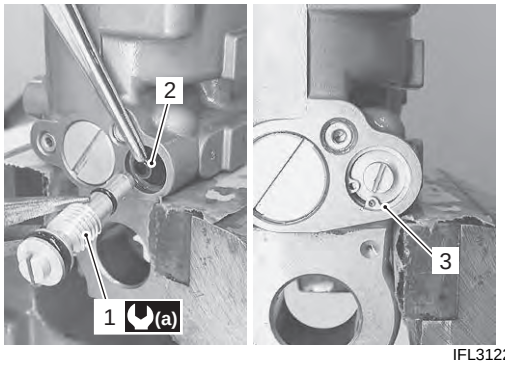


IFL312220036-01

Manual release valve

- Oil and install the manual release valve (1) and seal washer (2).
  Tighten the valve to specified torque.
- Install snap ring (3).

  Tightening torque
  Manual release valve (a): 1.7 N·m (0.17 kgf-m, 1.2 lbf-ft)



IFL312220037-03

PTT motor and reservoir

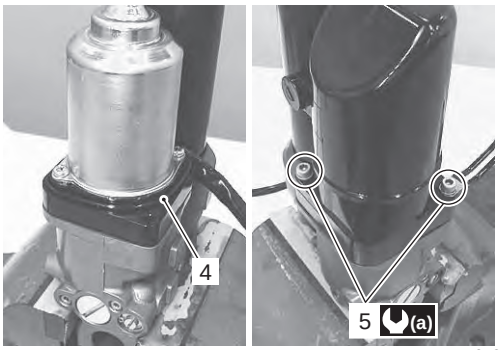
- Ensure that the drive joint (1) is aligned and firmly inserted into the gear pump assembly.
- Fit O-ring (2) to PTT motor.

IFL312220038-02

- Check the level of PTT fluid contained in the pump and manifold assembly.
  If level is low, add recommended PTT fluid until level with mating surface of PTT motor.
- Ensure that the faces of the PTT motor and pump and manifold assembly are free of dirt or debris.
  When attaching the PTT motor to the pump and manifold assembly, ensure that the tip of armature shaft (3) fits firmly into the drive joint (1).

- Install the seal (4) and reservoir.
- Tighten the screws (5) to specified torque.

Tightening torque
PTT motor screw (a): 4.5 N·m (0.45 kgf-m, 3.3 lbf-ft)



IFL312220039-02

PTT fluid

- Pour recommended PTT fluid into reservoir to specified level.
  Refer to “Checking PTT Fluid Level” (Page 2B-10).

Air Bleeding

Before installing the PTT unit on the outboard motor, use the following procedure to bleed air from the system.

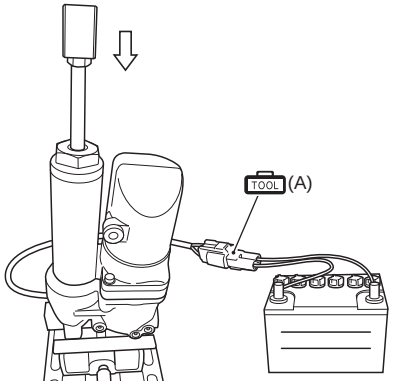
1) Support the PTT unit in an upright position in a vise.
2) Fill the reservoir with PTT fluid to the specified level, then install oil filler plug.


IFL312220040-01

3) Tighten the manual release valve to the specified torque.
4) Connect the PTT cable extension to the PTT motor cable connector.

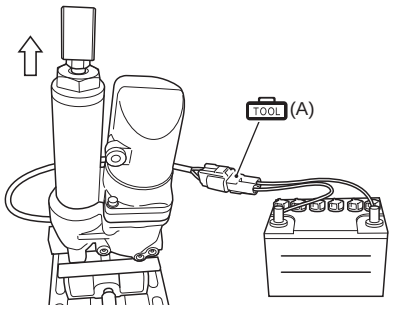
Special tool
TOOL (A): 09945–79410 (PTT cable extension)

5) Connect the two extension cable lead wires (B to positive / R to negative) to the battery as shown in the illustration.
   Operate the PTT motor until the PTT rod is in the fully trimmed down position (completely retracted).
   If the rod does not come down completely, push it in by hand while operating the motor.



IFL312220042-02

6) Reverse the two extension cable lead wires (R to positive / B to negative).
   Operate the PTT motor until the PTT rod is in the full tilt up position (fully extended).
   If the rod does not come up completely, pull it up by hand while operating the motor.



IFL312220041-02

7) Remove the reservoir oil filler plug and fill with PTT fluid to the specified level.
8) Repeat procedures 5 – 7 until the fluid level in the PTT unit stabilizes at the specified level.

NOTE

Repeat the air bleeding procedure after the PTT unit has been installed on the outboard motor.
Refer to “Air Bleeding from PTT Unit” (Page 2B-10).

Power Trim and Tilt Unit Components Cleaning and Inspecting

CENFL3122206009

Arrange all components on a clean sheet of paper.

NOTE

- **Do not lay PTT components out on a rag, as dirt or lint may be transferred to these items which may cause possible system operating problems.**
- **If excessive wear, cracks, defective or other damage is found on any component, replace component.**

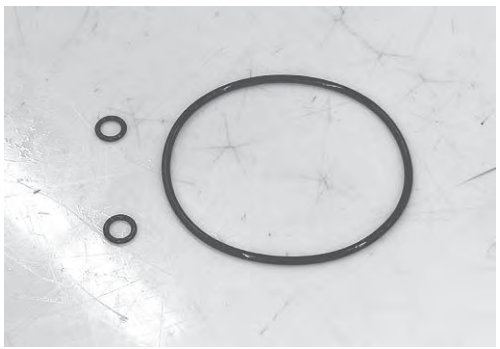
- Inspect PTT pump assembly for cracks, nicks, and any other imperfections.
  Replace if necessary.

IFL312220043-01

- Inspect reservoir for cracks, nicks or damage.
  Replace if necessary.

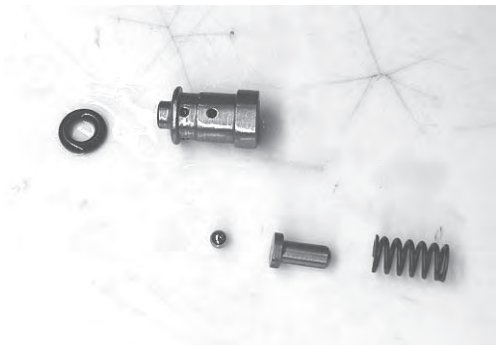
IFL312220044-01

- Inspect all O-rings for cuts, nicks or tears.



IFL312220045-01

- Inspect the pressure valve, and O-rings.
  Replace if cut, nicks, excessive wear or other damages are found.

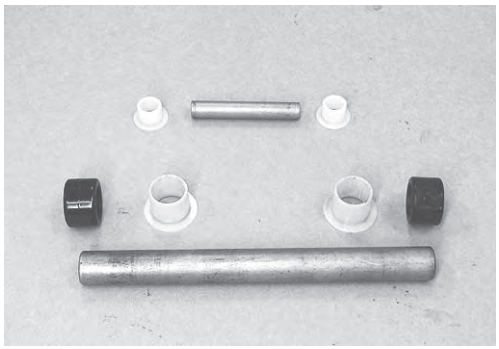


IFL312220046-01

- Inspect manual release valve for damage. Replace if necessary.
- Inspect O-rings for cuts, nicks or tears.

IFL312220047-01

- Inspect lower shaft and upper shaft for bends, twists or other damage. Replace if necessary.
- Inspect all bushings for excessive wear or other damage. Replace if necessary.
  If bushing fit is loose when installing, replace bushing.



IFL312220048-01

Power Trim and Tilt Motor Disassembly and Assembly

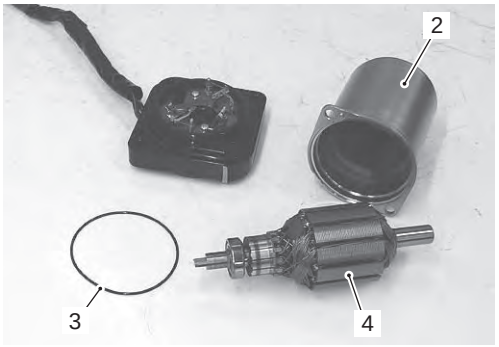
CENFL3122206011

Disassembly

1) For correct assembly, scribe an alignment mark on the field case and brush holder.
2) Remove the two screws (1) securing the field case to the brush holder.

IFL312220049-01

3) Using a soft face hammer, gently tap the field case (2) from side to side to unseat it from the brush holder.
   Slide the field case (2) upward and away from the brush holder.
   Note the position of the O-ring (3) encircling the brush holder.
   Slide the armature (4) free of the brushes.

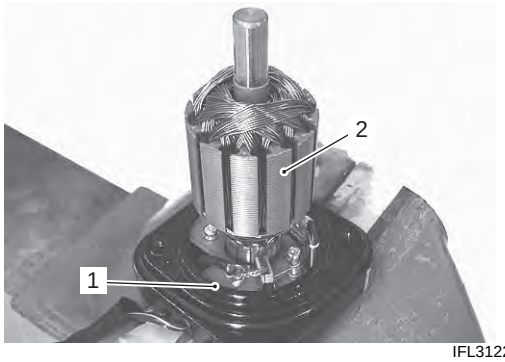


IFL312220050-01

Assembly

Assembly is reverse of disassembly with special attention to following steps.

- Install O-ring (1).
- Install armature (2) to brush holder first. When installing the armature, use care to avoid breaking the brushes.



IFL312220051-02

- Install the field case.
  Match up previously scribed alignment marks.
- Tighten screws securely.

IFL312220052-01

PTT Motor Related Items Inspection

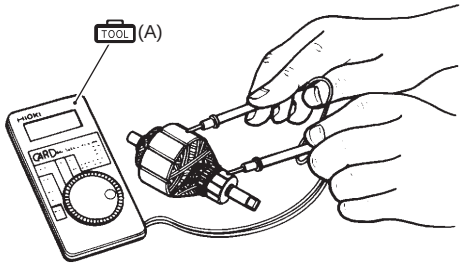
CENFL3122206012

Armature and Commutator

- Check for continuity between the commutator and the armature core / shaft.
  Replace armature if continuity is indicated.

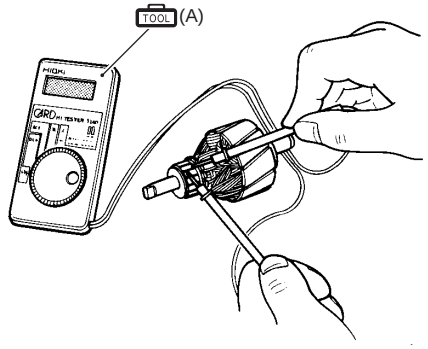
Special tool
TOOL (A): 09900–25008 (Multi circuit tester set)

Tester knob indication
Continuity (•)))



I9J011220040-01

- Check continuity between adjacent commutator segments.
  Replace armature if no continuity is indicated.

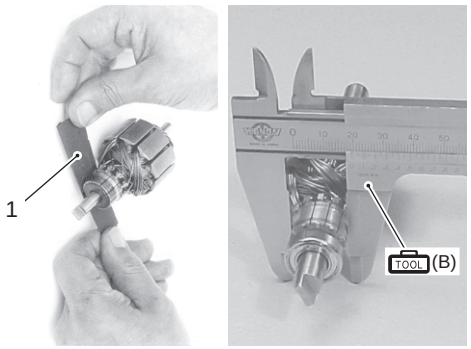


I9J011220041-01

- Inspect the commutator surface.
  If surface is gummy or dirty, clean with 400 grit emery paper (1).
- Measure commutator outside diameter.
  If measurement exceeds service limit, replace armature.

Special tool
TOOL (B): 09900–20101 (Vernier calipers (150 mm))

Commutator outside diameter
Standard: 19.5 mm (0.77 in)
Service limit: 18.5 mm (0.73 in)



I9J011220042-01

- Ensure that the mica (insulator) between commutator segments are undercut “a” to specified depth.
  If undercut is less than service limit, cut to specified depth.

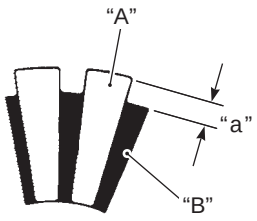
⚠ WARNING

Failure to following proper precautions during use of the compressed air may cause severe personal injury.
Wear safety glasses when using compressed air.

NOTE

Remove all particles of mica and metal using compressed air.

Commutator undercut
Standard: 1.3 – 1.6 mm (0.05 – 0.06 in.)
Service limit: 0.5mm (0.02 in.)



I9J011220043-01

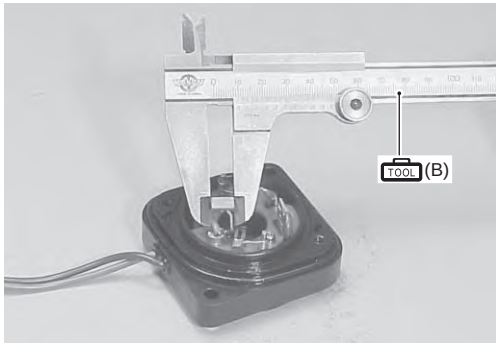
“A”: Segment	“B”: Mica

Brushes

- Check the length of each brush.
  If brushes are worn down to the service limit, they must be replaced.

Special tool
TOOL (B): 09900–20101 (Vernier calipers (150 mm))

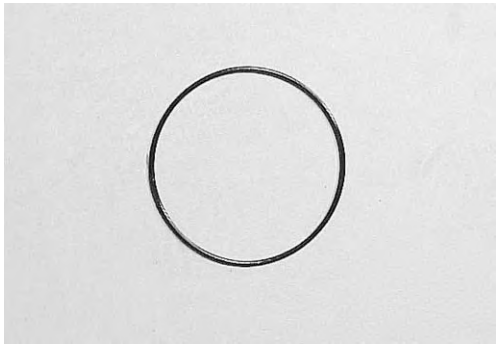
Brush length
Standard: 9.8 mm (0.39 in.)
Service limit: 4.8 mm (0.19 in.)



IFL312220054-03

O-ring

- Inspect the O-ring between the brush holder and field case.
  Replace if cuts, nicks or tears are found.

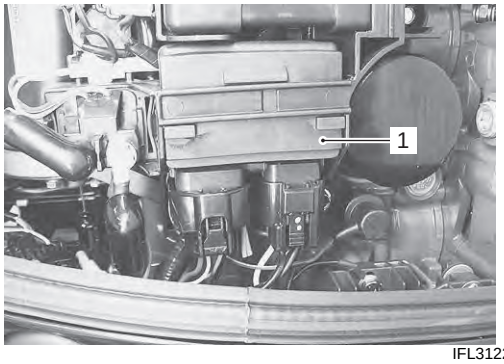


I9J011220045-01

PTT Motor Relay Inspection

CENFL3122206013

1) Disconnect all lead wire connectors from PTT motor relay (1).
Remove the PTT motor relay from the electric parts holder.



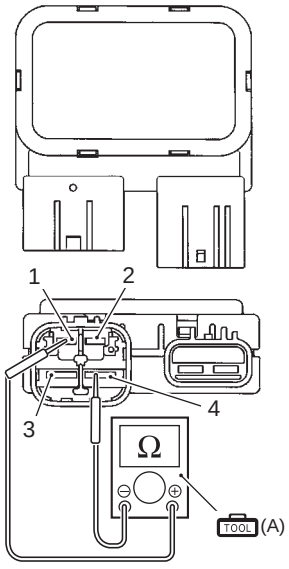
IFL312220053-02

2) Check the resistance between each two terminals.

Special tool
TOOL (A): 09900–25008 (Multi circuit tester set)

Tester knob indication
Resistance (Ω)

PTT relay coil resistance
Between “terminal (1)” and “terminal (4)”: 16 – 24 Ω
Between “terminal (2)” and “terminal (4)”: 16 – 24 Ω



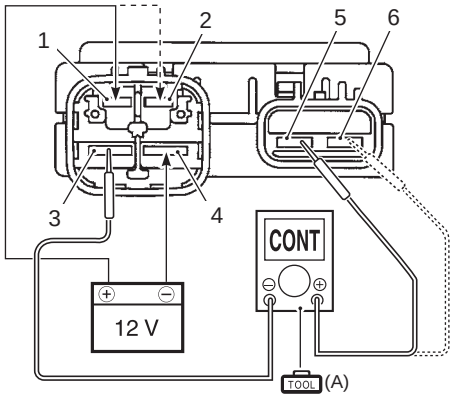
IDG211220027-03

NOTICE

If the 12 V power supply wire is connected to wrong terminal or touched to each other, the power supply wire, tester may be damaged.

Be careful not to touch 12 V power supply wires to each other or with other terminals.

3) Check continuity between terminal (3) and (5) each time 12 V power supply is applied to terminal (1) and (4).
Connect the positive (+) lead to terminal (1), and negative (–) lead to terminal (4).
4) Check continuity between terminal (3) and (6) each time 12 V power supply is applied to terminal (2) and (4).
Connect the positive (+) lead to terminal (2), and negative (–) lead to terminal (4).



IFL312220065-01

1. Terminal 1 (UP coil)	4. Terminal 4 (GND)
2. Terminal 2 (DN coil)	5. Terminal 5 (For UP)
3. Terminal 3 (Power)	6. Terminal 6 (For DN)

Special tool
TOOL (A): 09900–25008 (Multi circuit tester set)

Tester knob indication
Continuity (•))))

PTT relay function

	Continuity
12 V power applied	Yes
12 V power not applied	No

5) If inspection in step 2 and/or step 3, 4 fails, replace PTT motor relay.
6) Install the PTT motor relay to the electric parts holder.

PTT Switch Inspection

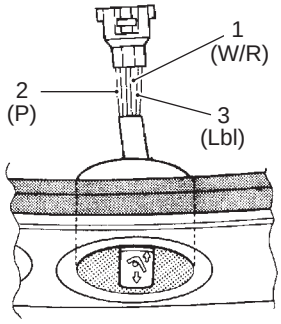
CENFL3122206014

Test continuity between the switch lead wires at each of the three switch positions.
If out of specification, replace PTT switch.

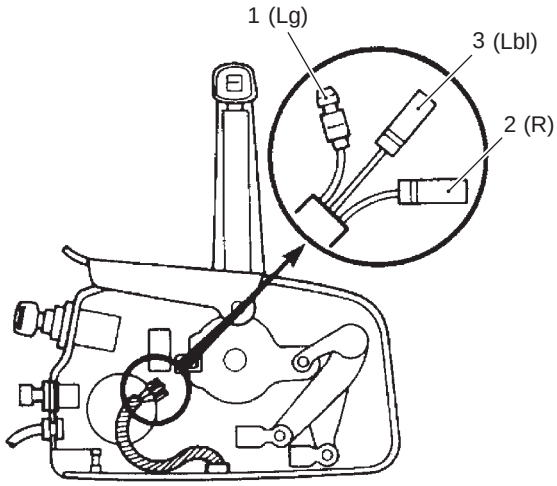
Special tool
(TOOL) : 09900–25008 (Multi circuit tester set)

Tester knob indication
Continuity (•)))

	Tester probe connection		Tester indicates
	Red (+)	Black (–)	
DN side depressed	Terminal (2)	Terminal (1)	Continuity
UP side depressed	Terminal (3)	Terminal (1)	Continuity
Not depressed	Terminal (2)	Terminal (1)	Infinity
	Terminal (3)		



I9J011220048-02



I9J011220049-03