

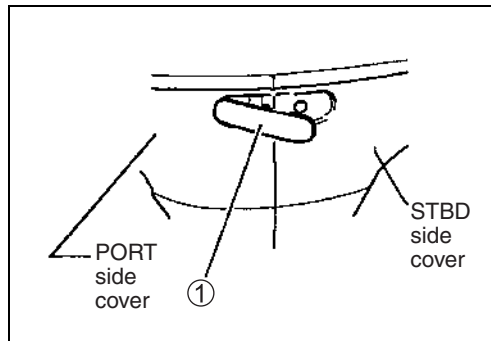
MID UNIT

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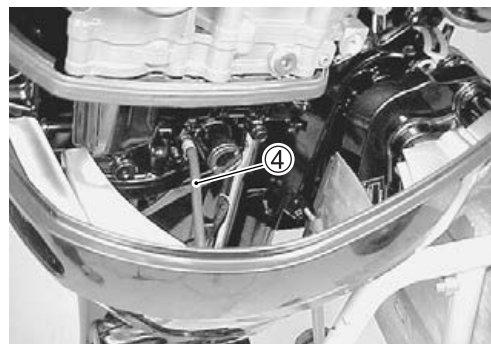
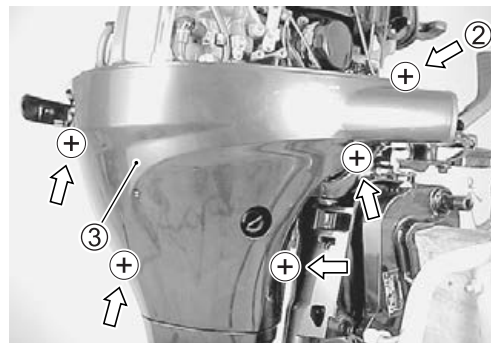
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ENGINE SIDE COVER REMOVAL

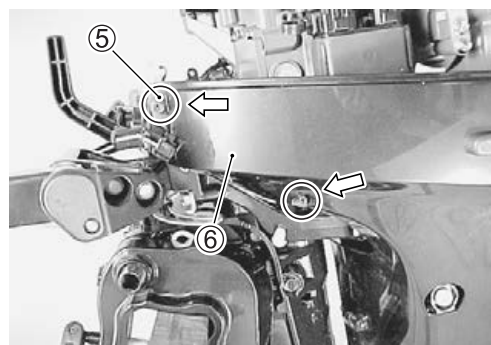
Pull the hook lever ① out and remain the lever at this position.



Remove five (5) screws ② and STBD side cover ③.
Disconnect water hose ④.

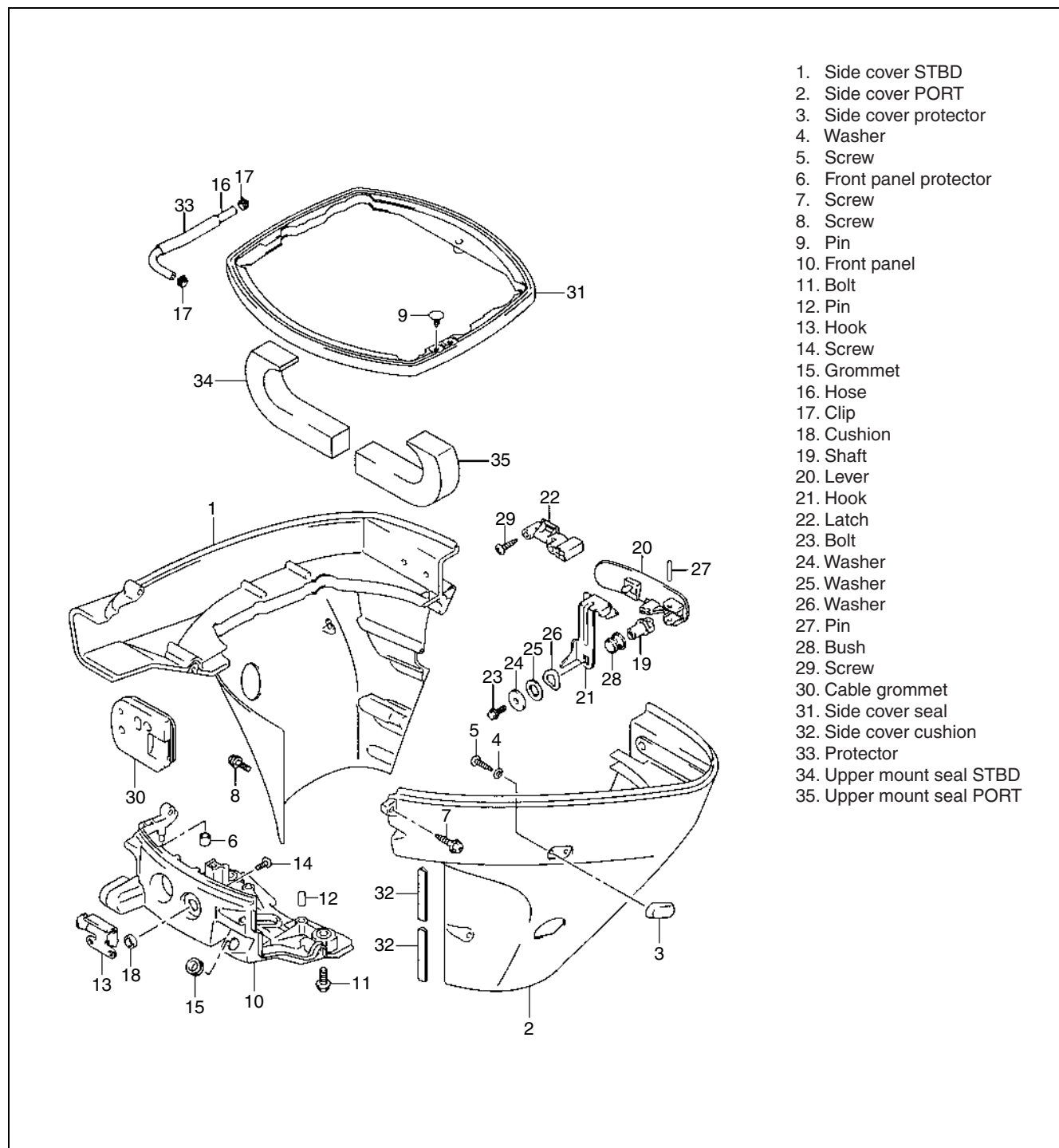


Remove two (2) screws ⑤ and PORT side cover ⑥.



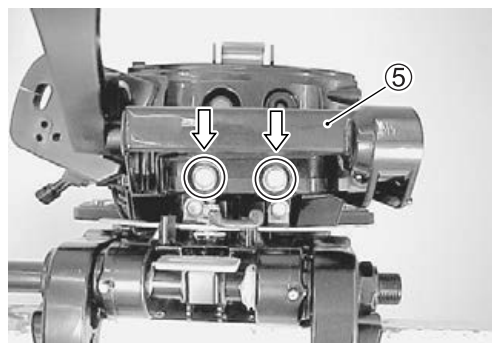
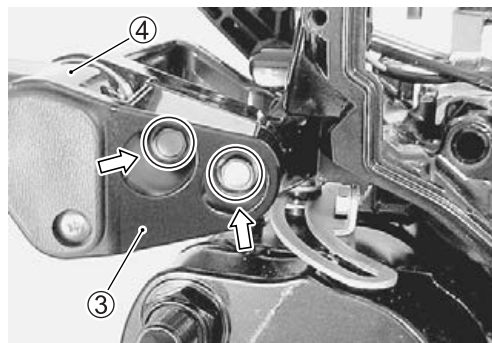
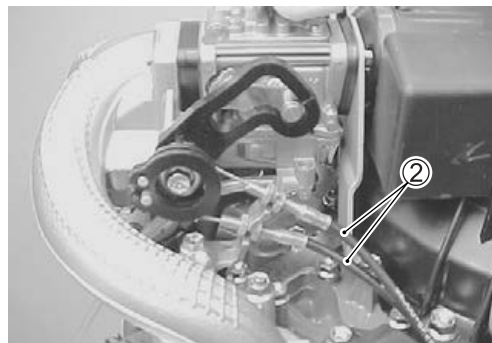
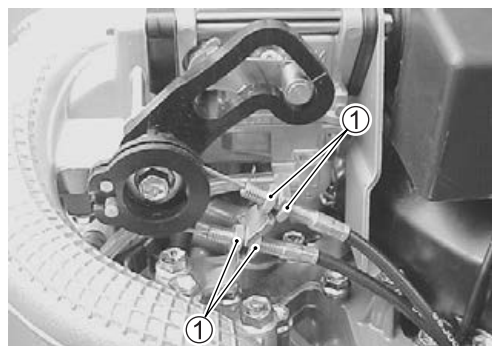
INSTALLATION

Installation is reverse order of removal.



TILLER HANDLE/HANDLE BRACKET REMOVAL

1. Remove the STBD side cover.
2. Loosen the throttle cable lock nut ①.
3. Remove the throttle cables ② from throttle drum and cable bracket.
4. Disconnect emergency stop switch lead wire.
5. Remove two (2) bolts and tiller handle cover ③.
Remove tiller handle ④ and throttle cable assembly.
6. Remove two bolts and handle bracket ⑤.



INSTALLATION

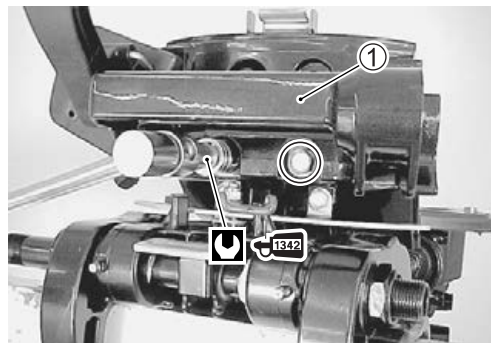
Installation is reverse order of removal with special attention to the following.

• Handle bracket

- Install the handle bracket ①.
- Tighten handle bracket bolt, pre-coated with thread lock, to the specified torque.

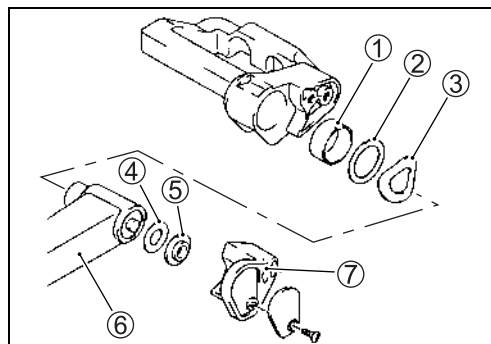
 **99000-32050: THREAD LOCK “1342”**

 **Tiller handle bracket: 50 N·m (5.0 kg-m, 36.0 lb-ft)**



• Tiller handle

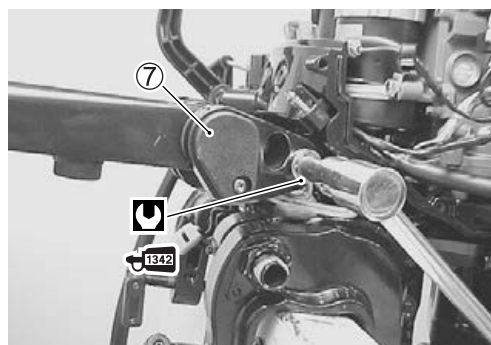
- Install bush ①.
- Place washer ②, wave washer ③, shim ④ and spacer ⑤ on tiller handle ⑥.
- Install tiller handle and handle cover ⑦.



- Tighten handle cover bolts, pre-coated with thread lock, to the specified torque.

 **99000-32050: THREAD LOCK “1342”**

 **Tiller handle bolt: 23 N·m (2.3 kg-m, 16.5 lb-ft)**

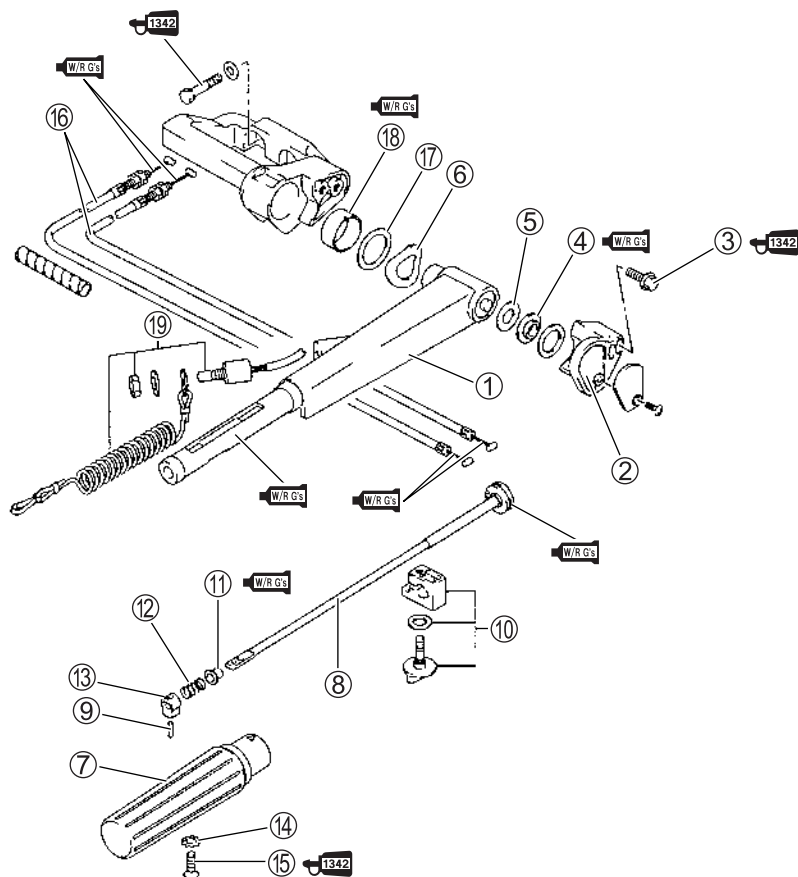


- Installation of throttle cable. (See page 5-17.)
- Check wire and cable routing. (See page 10-5 to 10-8.)

DISASSEMBLY/ASSEMBLY

When disassembling or reassembling tiller handle, refer to the construction diagram below.

Construction diagram



- ① Tiller handle
- ② Tiller handle cover
- ③ Bolt
- ④ Spacer
- ⑤ Shim
- ⑥ Wave washer
- ⑦ Handle grip
- ⑧ Handle rod
- ⑨ Pin
- ⑩ Adjuster
- ⑪ Bush
- ⑫ Spring
- ⑬ Stopper
- ⑭ Washer
- ⑮ Screw
- ⑯ Throttle cable
- ⑰ Washer
- ⑱ Bush
- ⑲ Emergency & engine stop switch

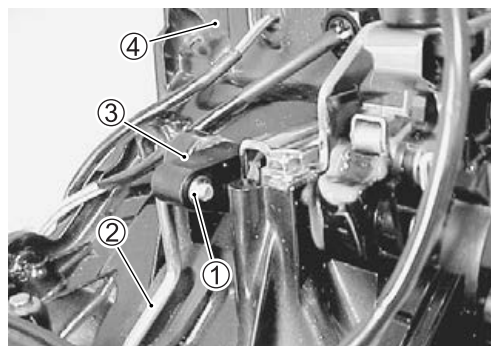
DRIVESHAFT HOUSING AND OIL PAN REMOVAL

Remove power unit. (See pages 7-5 to 7-9.)

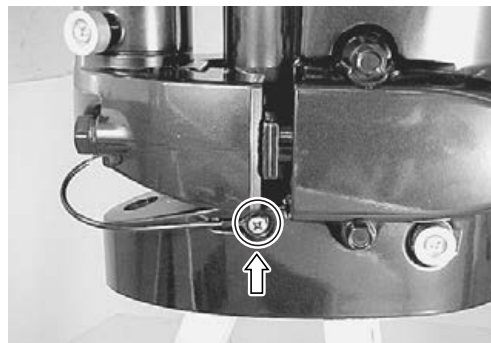
Remove lower unit. (See page 9-2.)

Remove E-clip ①, then pull clutch rod ② out from clutch arm ③.

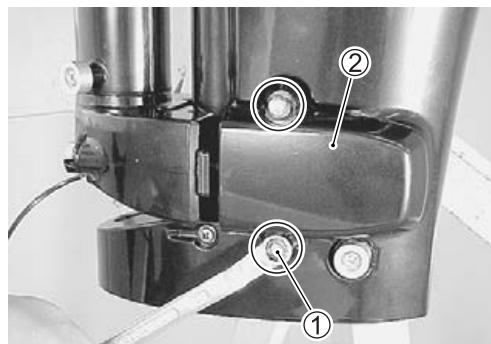
Remove the clutch rod, then slide front panel ④ away from oil pan.



Remove screw and bonding wire from driveshaft housing.

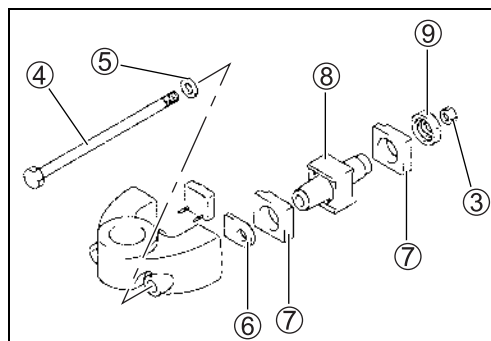


Unscrew the lower mount cover bolts ① and remove PORT/STBD lower mount covers ②.



Remove STBD/PORT lower mount nuts ③ and lower mount bolts ④.

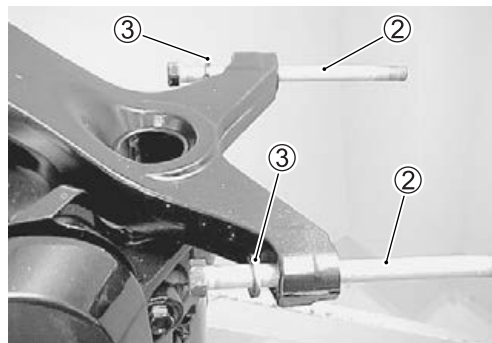
Account for washer ⑤, lower side cushion ⑥, lower side mounts ⑦, lower mount ⑧ and lower thrust mount ⑨.



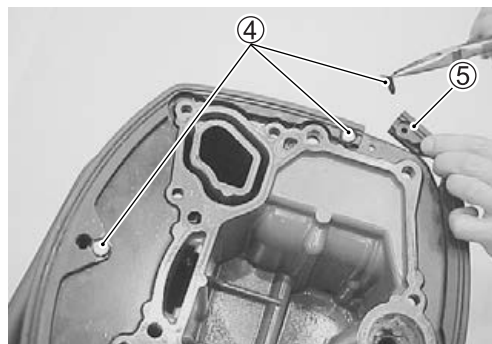
Remove STBD/PORT upper mount nuts ①.



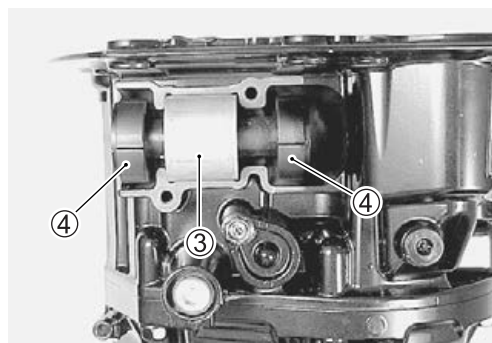
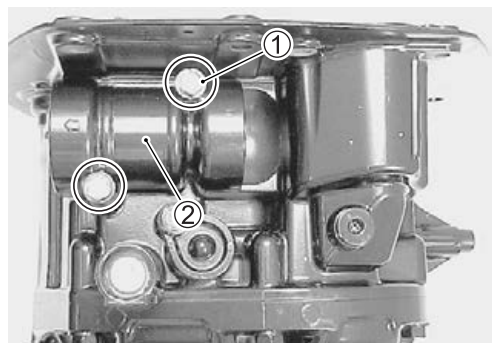
Remove driveshaft housing with oil pan.
Remove upper mount bolts ② and washers ③.



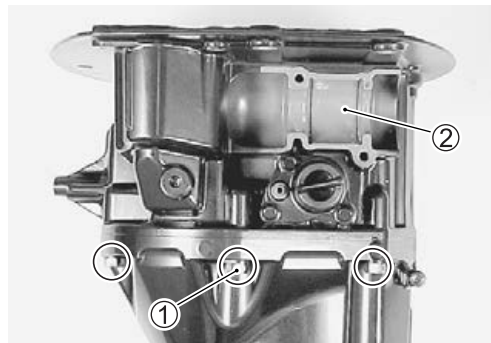
Remove the three (3) pins ④ and the side cover seal ⑤.



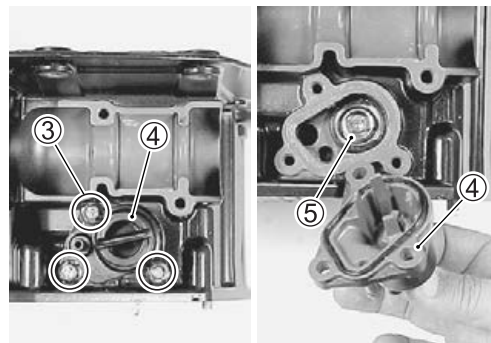
Remove the upper mount cover bolts ① and STBD/PORT mount covers ②.
Remove the upper mounts ③ and upper thrust mounts ④.



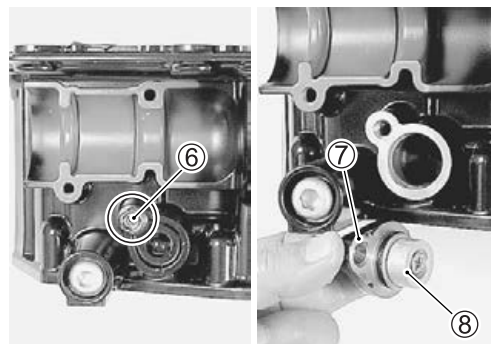
Remove the six (6) bolts ① and oil pan ②.



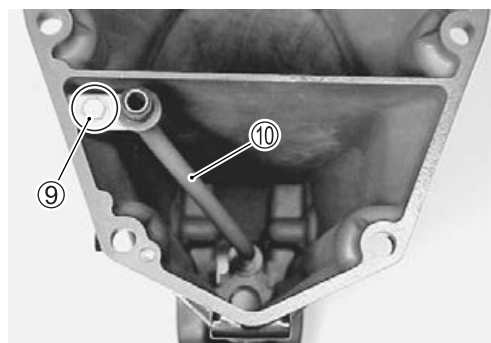
Remove the bolts ③, water pressure valve cover ④ and valve ⑤.



Remove the bolt ⑥ and anode cover ⑦ with anode ⑧.



Remove the bolt ⑨ and water tube ⑩.



INSPECTION

NOTE:

If any component is found to be excessively worn, cracked, defective or damaged in any way, it must be replaced.

Mid unit component

Check oil pan, driveshaft housing and mount covers.
If cracks, defects or other damage is found, replace it.



Mount

Check upper and lower mount.
If excessive wear, corrosion, or other damage is found, replace mount.

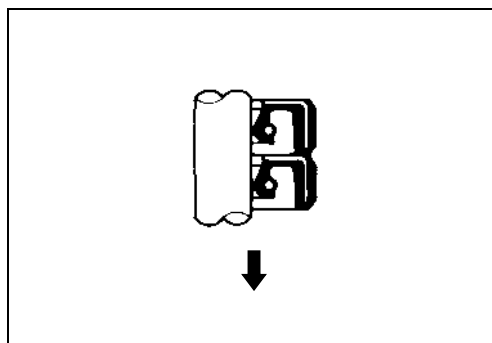


Oil seal

Check driveshaft upper oil seals for leakage or damage.
If cracks, cuts or other damage is found, replace seal.

NOTE:

Install oil seal with lip (spring side) facing downward.



Water tube

Check water tube.

If a clog or obstruction is found, clean water tube.

If cracks, corrosion or other damage is found, replace water tube.

Check water tube grommet.

If excessive wear or other damage is found, replace grommet.

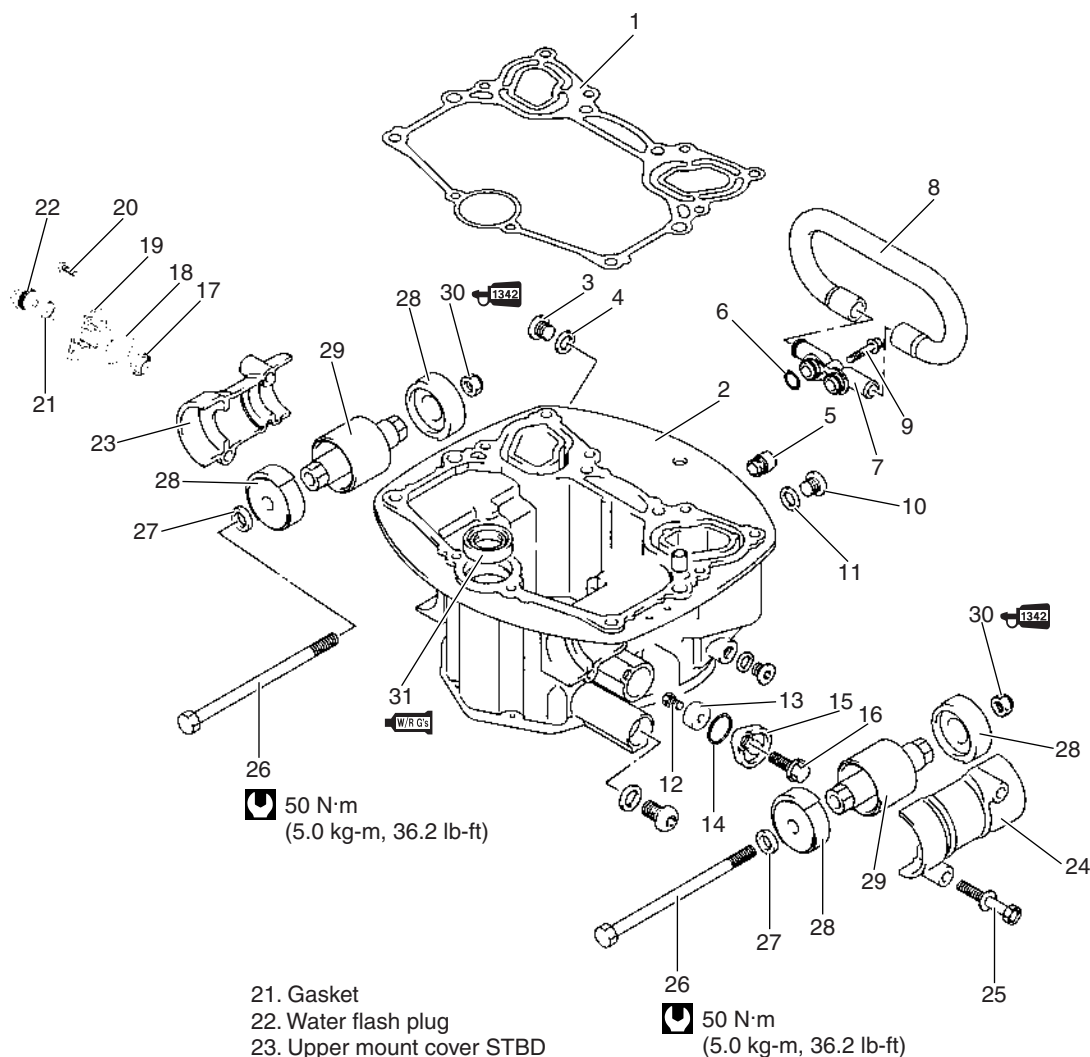
**Water pressure valve**

If salt deposits, corrosion, wear, or other damage is found, clean or replace.

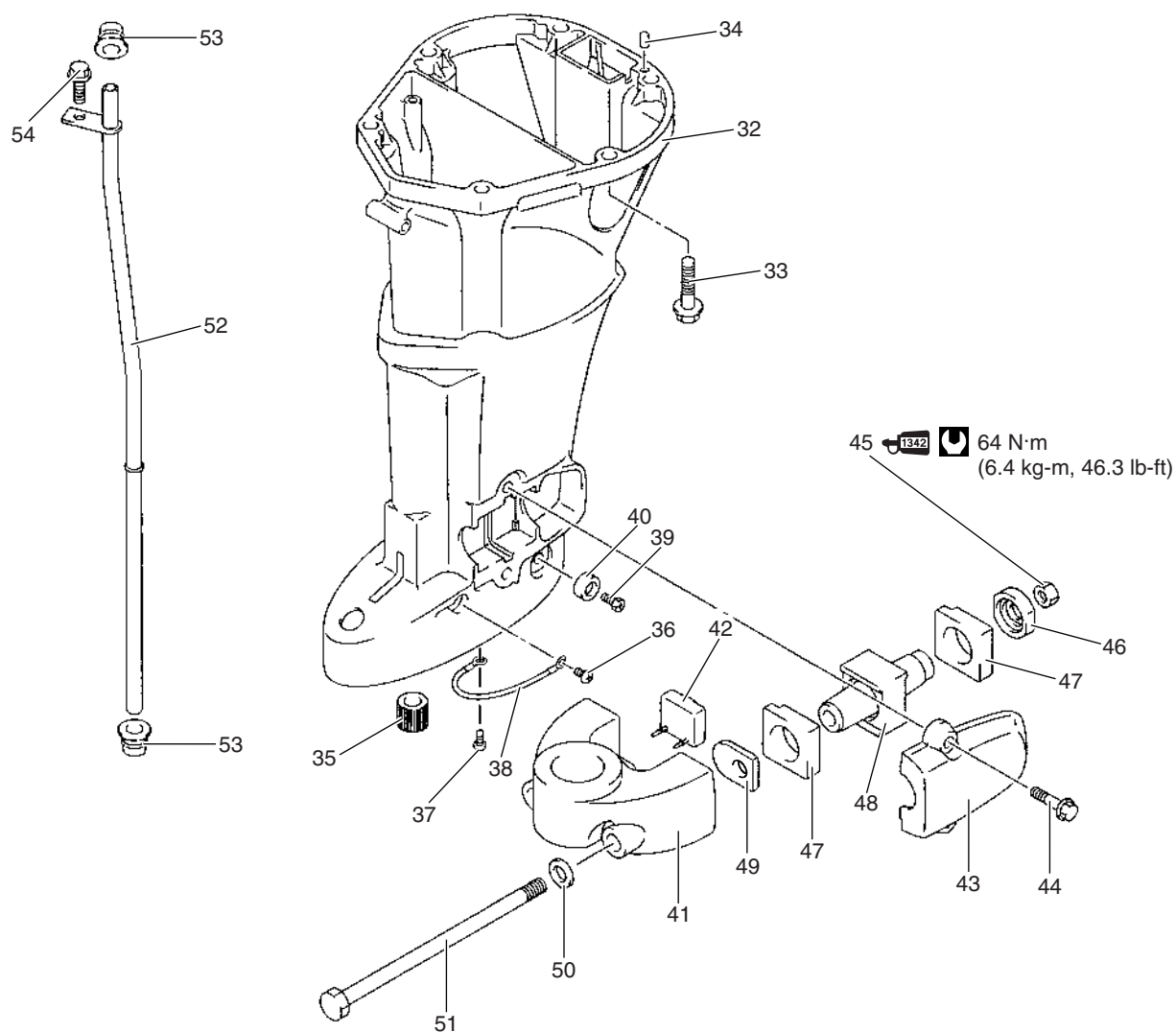


ASSEMBLY

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



- | | |
|--------------------------------|----------------------------|
| 1. Gasket | 21. Gasket |
| 2. Oil pan | 22. Water flash plug |
| 3. Plug | 23. Upper mount cover STBD |
| 4. Gasket | 24. Upper mount cover PORT |
| 5. Exhaust pipe | 25. Bolt |
| 6. O-ring | 26. Upper mount bolt |
| 7. Exhaust pipe | 27. Washer |
| 8. Exhaust hose | 28. Upper thrust mount |
| 9. Bolt | 29. Upper mount |
| 10. Plug | 30. Nut |
| 11. Gasket | 31. Oil seal |
| 12. Bolt | |
| 13. Anode | |
| 14. O-ring | |
| 15. Anode cover | |
| 16. Bolt | |
| 17. Water pressure valve | |
| 18. Seal ring | |
| 19. Water pressure valve cover | |
| 20. Bolt | |

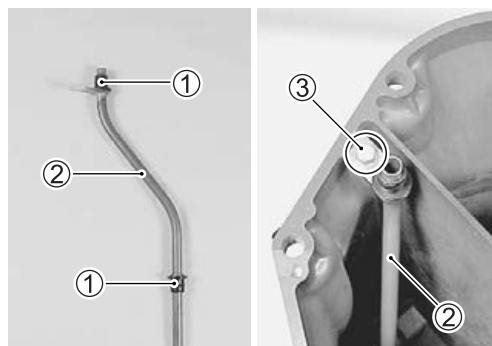


- 32. Driveshaft housing
- 33. Bolt
- 34. Dowel pin
- 35. Bush
- 36. Screw
- 37. Screw
- 38. Bonding wire
- 39. Bolt
- 40. Anode
- 41. Lower mount bracket
- 42. Lower thrust mount
- 43. Lower mount cover

- 44. Bolt
- 45. Nut
- 46. Lower reverse thrust mount
- 47. Lower side mount
- 48. Lower mount
- 49. Lower side cushion
- 50. Washer
- 51. Lower mount bolt
- 52. Water tube
- 53. Grommet
- 54. Bolt

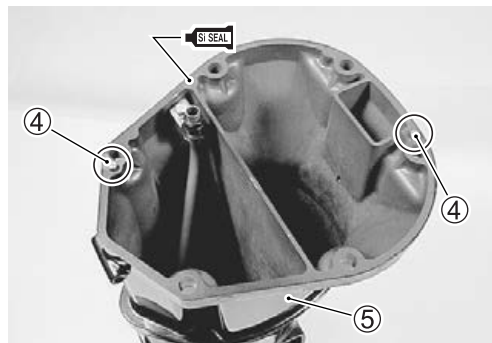
OIL PAN TO DRIVESHAFT HOUSING

Install water tube grommet ①, water tube ②, then tighten bolt ③ securely.



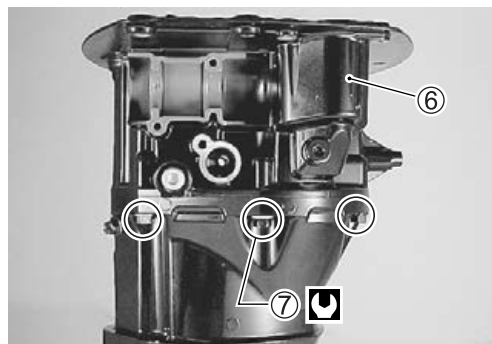
Install two dowel pins ④ to driveshaft housing ⑤.
Apply sealant to mating surfaces of driveshaft housing and oil pan.

 **99000-31120: SUZUKI SILICONE SEAL**

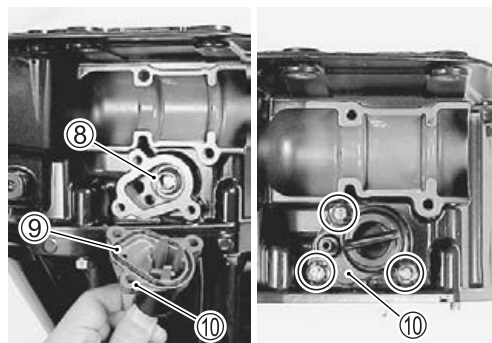


Install oil pan ⑥ to driveshaft housing, then tighten six (6) bolts ⑦ securely.

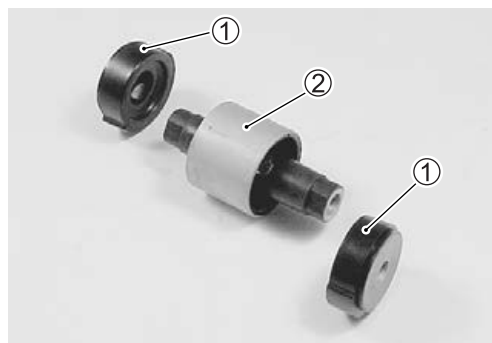
 **Oil pan bolt: 50 N·m (5.0 kg-m, 36.2 lb-ft)**



Install water pressure valve ⑧, seal ring ⑨ and pressure valve cover ⑩, then securely tighten the three (3) valve cover bolts.

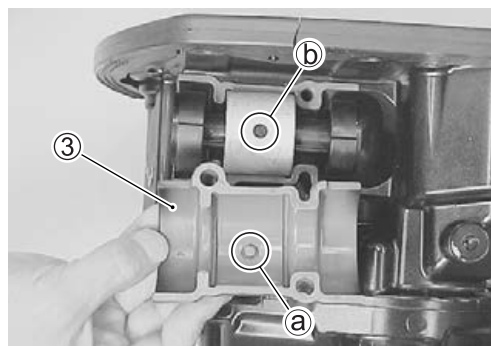
**UPPER MOUNT**

- Assemble two upper thrust mounts ① to each upper mount ②.



PORT side mount:

- Install the upper mount assembly into oil pan.
 - Install mount cover ③.
- Be sure retaining pin ① on mount cover properly fits into the retaining pin hole ② on the mount.

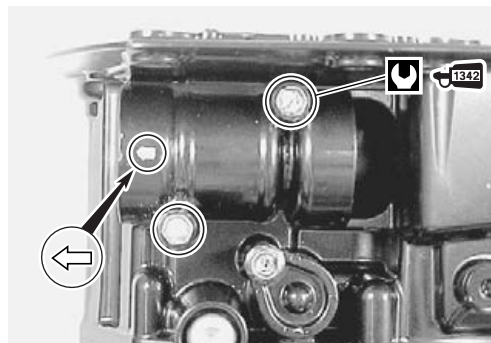
**NOTE:**

Install the upper mount cover to oil pan with arrow (→) mark facing forward.

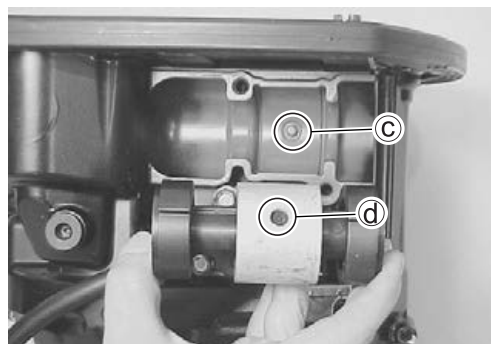
- Tighten mount cover bolts, pre-coated with thread lock, to specified torque.

 99000-32050: THREAD LOCK “1342”

 Upper mount cover bolt: 23 N·m (2.3 kg-m, 16.6 lb-ft)

**STBD side mount:**

- Install the upper mount assembly into oil pan.
- Be sure retaining pin ③ on oil pan properly fits into the retaining pin hole ④ on the mount.



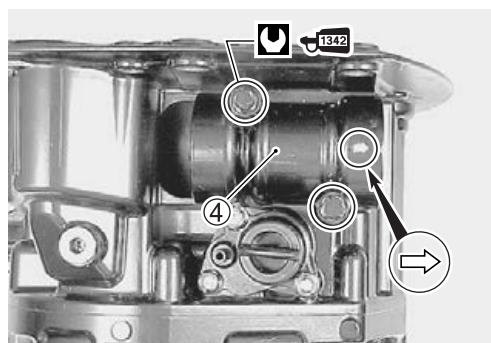
- Install the upper mount cover ④, then tighten mount cover bolts, pre-coated with thread lock, to specified torque.

NOTE:

Install the upper mount cover to oil pan with arrow (→) mark facing forward.

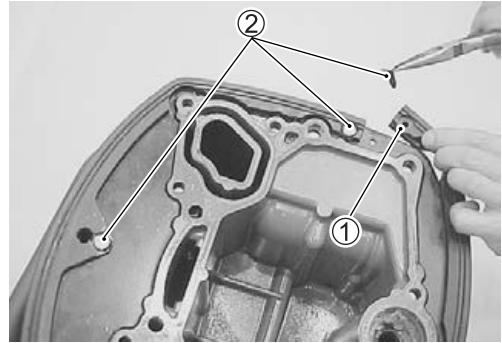
 99000-32050: THREAD LOCK “1342”

 Upper mount cover bolt: 23 N·m (2.3 kg-m, 16.6 lb-ft)

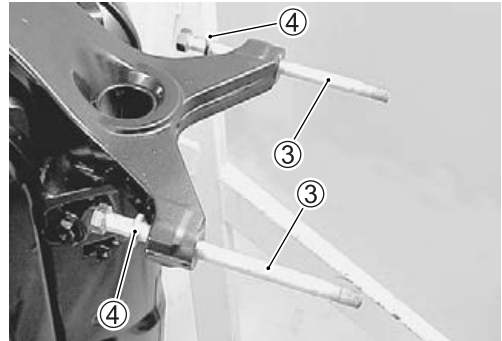


DRIVESHAFT HOUSING/OIL PAN

Install the side cover seal ①, then secure it with three (3) pins ②.



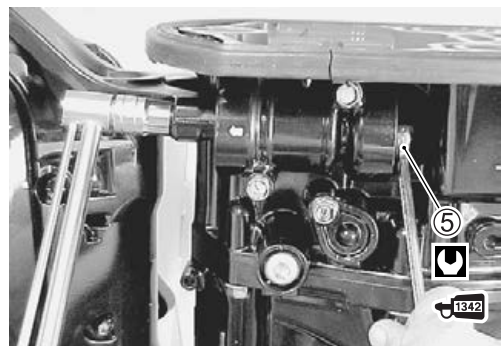
Install upper mount bolts ③ and washers ④ to steering bracket.



Install driveshaft housing/oil pan to steering bracket.
Install upper mount nut ⑤, then tighten nut, pre-coated with thread lock, to specified torque.

 99000-32050: THREAD LOCK “1342”

 Upper mount nut: 50 N·m (5.0 kg·m, 36.2 lb·ft)

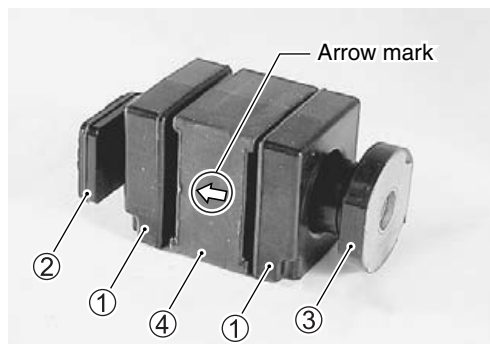


LOWER MOUNT/BOLT/NUT

Assemble the lower side mounts ①, lower side cushion ② and lower thrust mount ③ to lower mount ④ as shown figure.


NOTE:

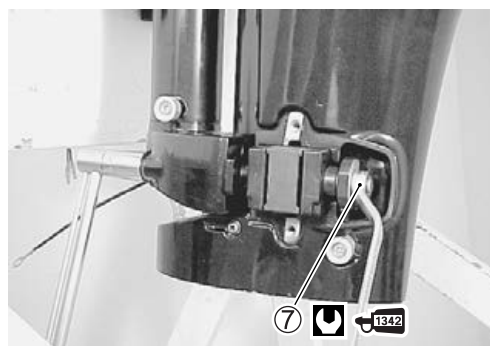
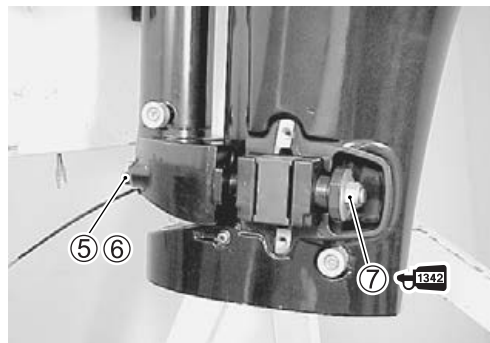
Install the Lower mount to driveshaft housing with arrow (→) mark facing forward.



Place lower mount assembly into driveshaft housing. Install lower mount bolt ⑤, washer ⑥ and nut ⑦, then tighten nut, pre-coated with thread lock, to specified torque.

 **99000-32050: THREAD LOCK “1342”**

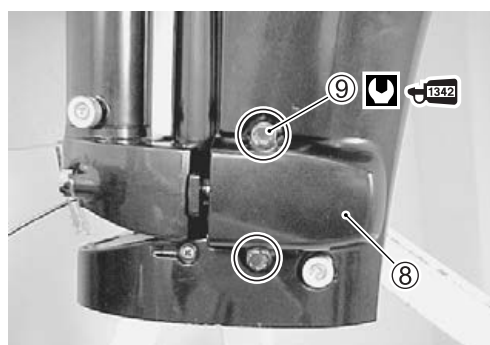
 **Lower mount bolt/nut: 64 N·m (6.4 kg-m, 46.3 lb-ft)**



Install lower mount cover ⑧ and cover bolts ⑨, then tighten bolts, pre-coated with thread lock, to specified torque.

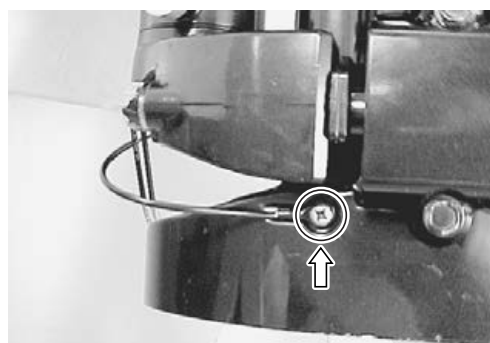
 **99000-32050: THREAD LOCK “1342”**

 **Lower mount cover bolt: 23 N·m (2.3 kg-m, 16.6 lb-ft)**



BONDING WIRE

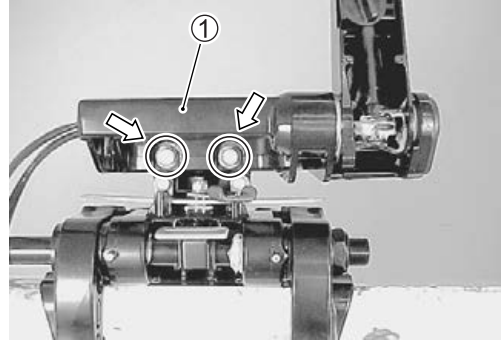
Reattach bonding wire to driveshaft housing, then tighten screw securely.



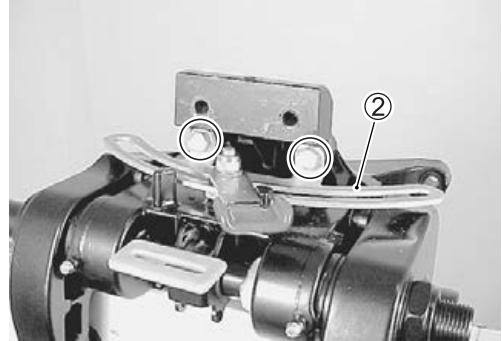
SWIVEL BRACKET, STEERING BRACKET AND CLAMP BRACKET REMOVAL/DISASSEMBLY

Remove driveshaft housing/oil pan. (See page 8-7.)

Remove the two (2) bolts and tiller handle bracket ① with tiller handle.



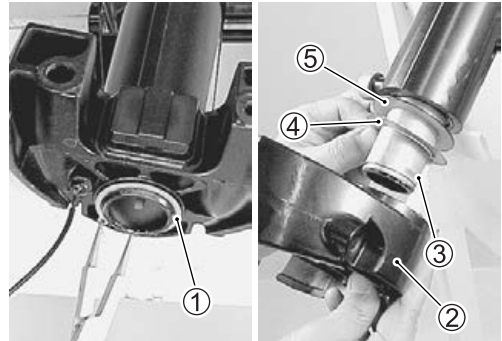
Remove the two (2) bolts securing steering friction adjuster plate ② to the steering bracket. (Tiller handle model)



Remove circlip ①.

Remove lower mount bracket ② from the steering shaft.

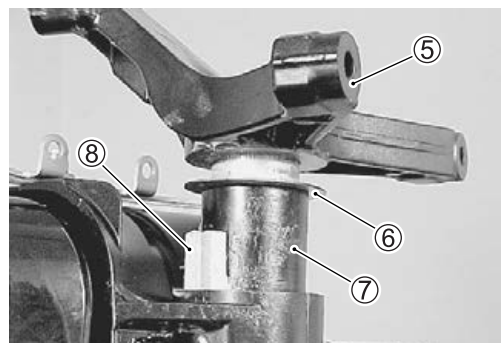
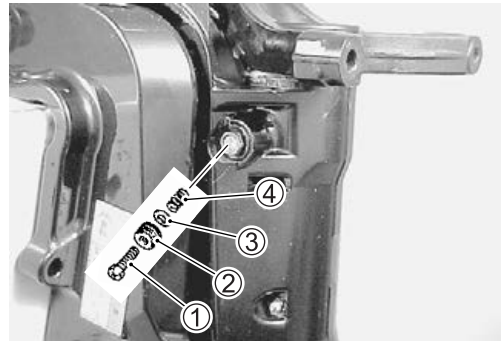
Account for key ③, shim ④ and washer ⑤.



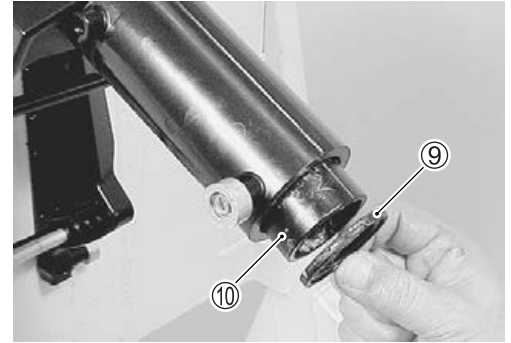
Remove steering adjuster bolt ①, cover ②, washer ③ and spring ④.

Lift steering bracket ⑤ upward to remove from swivel bracket.

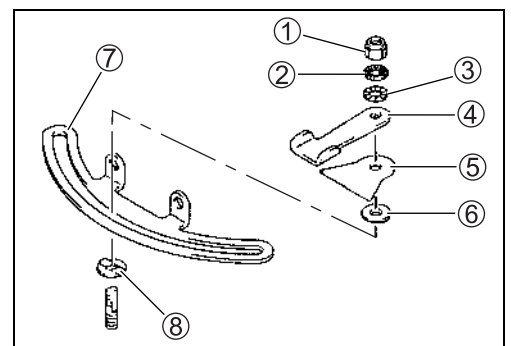
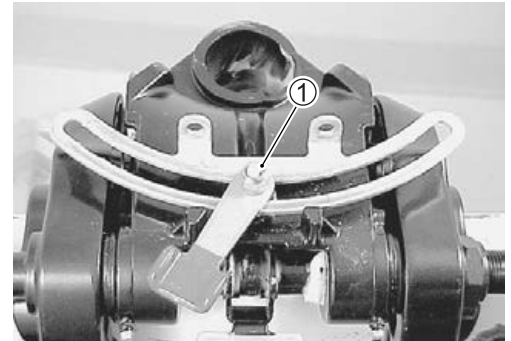
Remove washer ⑥, upper bush ⑦ and steering adjuster plate ⑧ from swivel bracket.



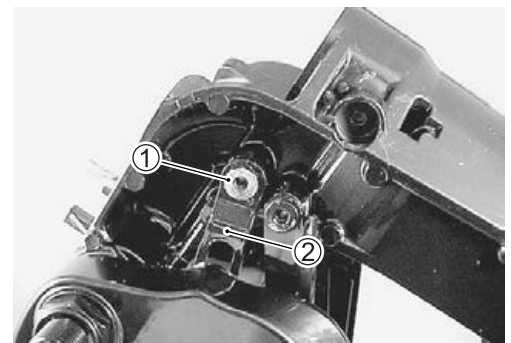
Remove swivel bracket seal ⑨ and lower bush ⑩.



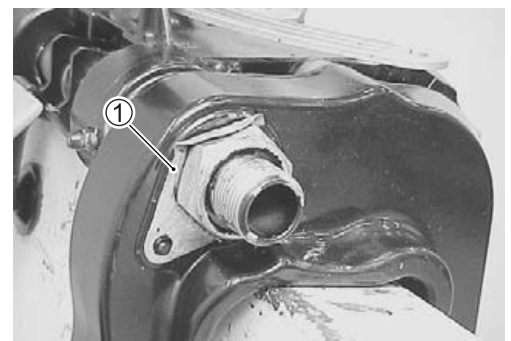
Remove the nut ①, washer ②, washer ③, steering friction adjuster lever ④, plate ⑤, friction plate washer ⑥, friction adjuster plate ⑦ and friction plate washer ⑧. (Tiller handle model)



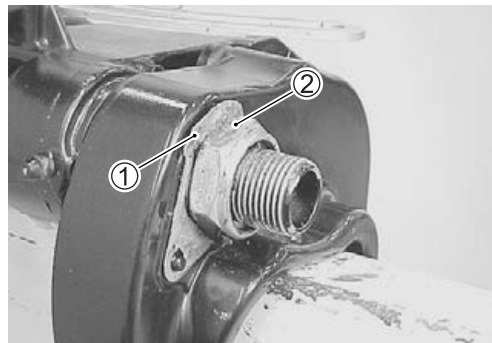
Remove bolts ① securing tilt stopper arms ② to swivel bracket.



Using flat screw-driver, drive locking edge of lock washer ① to clamp bracket side.

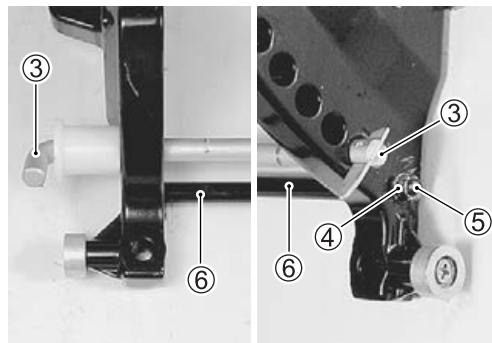


Remove nut ② and washer ① from clamp bracket shaft.

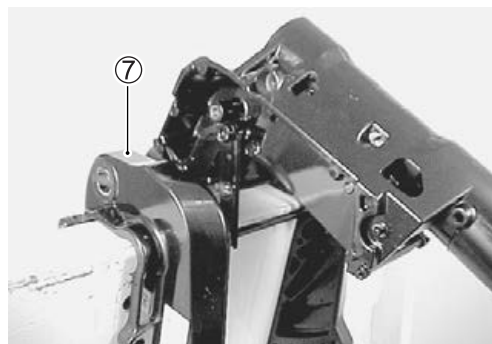


Remove tilt lock pin ③.

Remove the nut ④, bolt ⑤ and spacer ⑥.

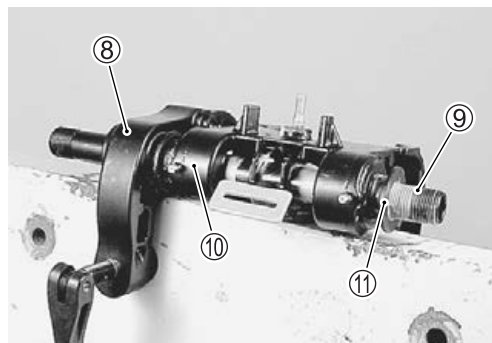


Slide PORT clamp bracket ⑦ off clamp bracket shaft.

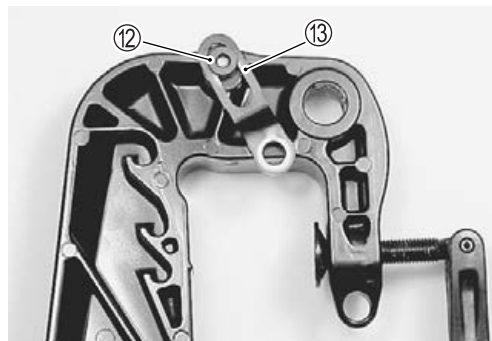


Pull STBD clamp bracket ⑧ outward to remove clamp bracket and bracket shaft ⑨ from swivel bracket ⑩.

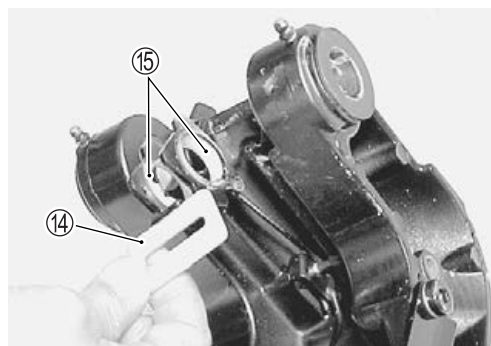
Remove bushings ⑪ from each side of swivel bracket.



Remove the bolt(s) ⑫ securing tilt stopper arm ⑬ to STBD and PORT clamp brackets.

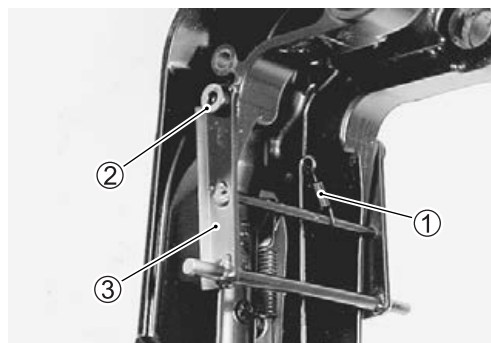


Remove release lever ⑭ and bushings ⑮.

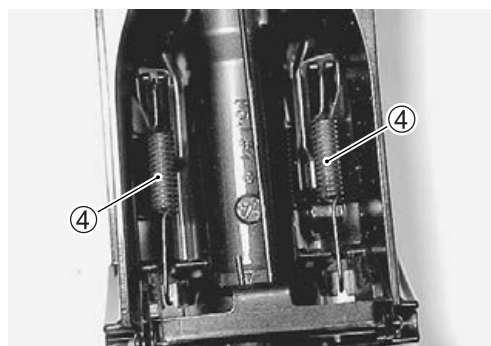


Remove the spring ①.

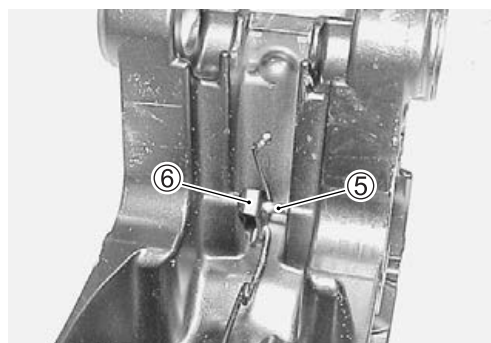
Remove two (2) bolts ② and shallow drive arm ③.



Remove two springs ④ from reverse lock arm and swivel bracket.

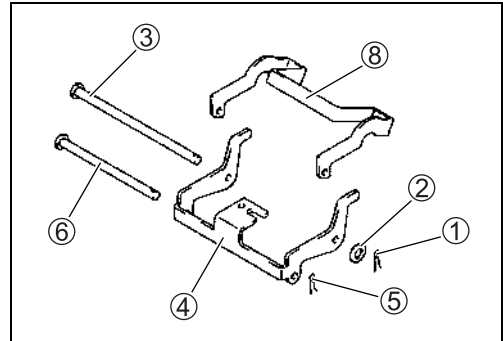
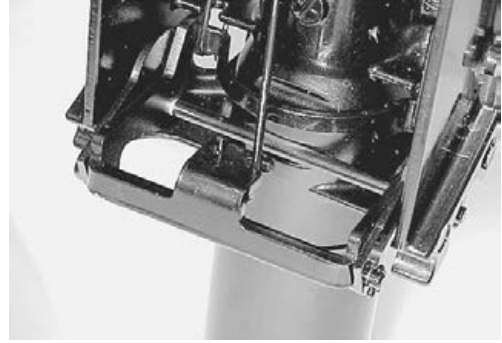


Remove the release arm pin ⑤ and release link ⑥.



Remove the cotter pin ①, washer ②, pin ③ and reverse lock arm link ④.

Remove the cotter pin ⑤, pin ⑥ and reverse lock arm ⑧.



INSPECTION

NOTE:

If any component is found to be excessively worn, cracked, defective or damaged in any way, it must be replaced.

BUSHINGS

Check all bushings.

If excessive wear or other damage is found, replace bushing.

If bushing fit is loose when installing, replace bushing.



OIL SEAL

Check swivel bracket seal.

If excessive wear or other damage is found, replace seal.



CLAMP BRACKET SHAFT

Check clamp bracket shaft.

If clamp bracket shaft is bend or twisted, replace shaft.



BRACKET

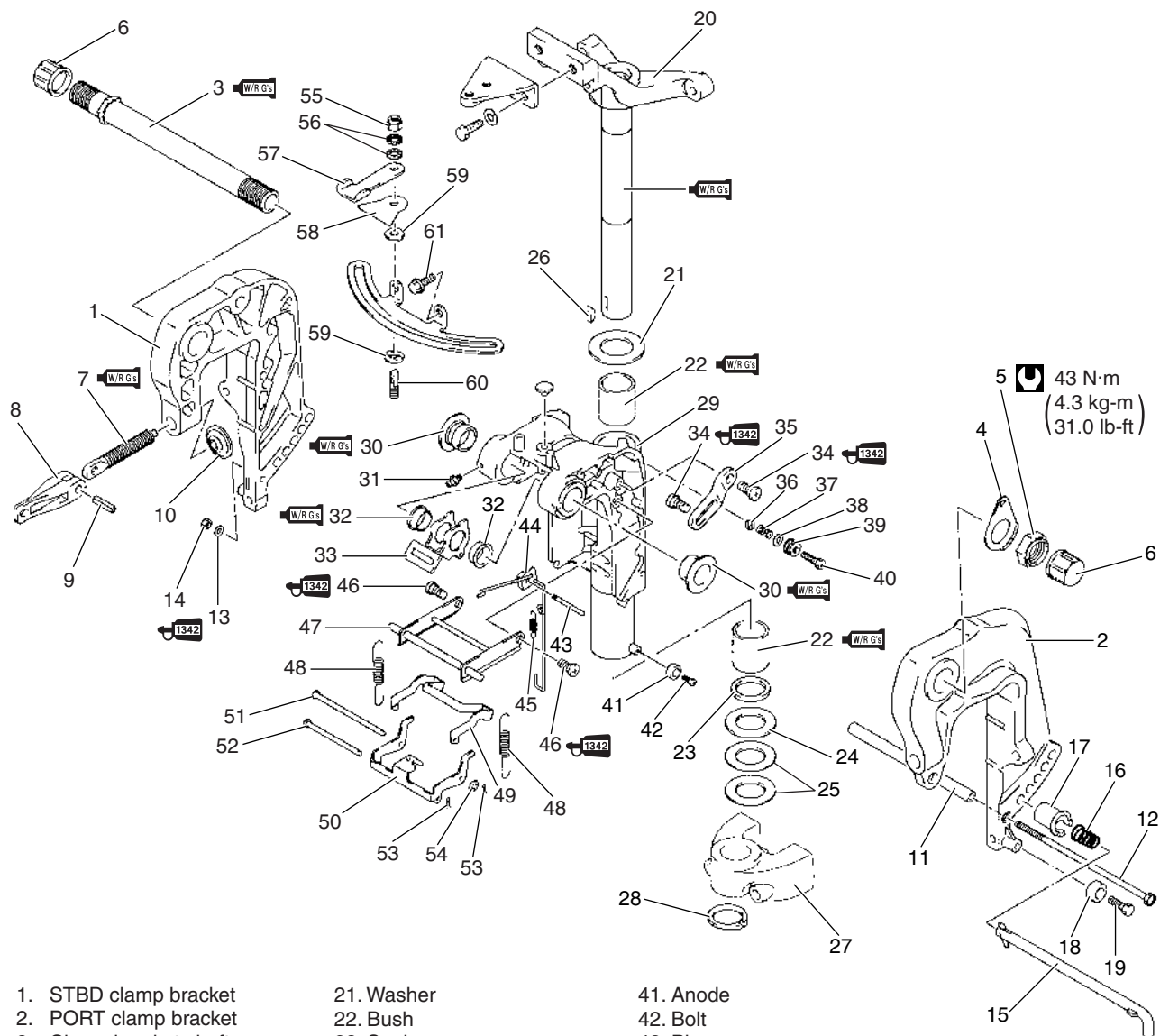
Check clamp brackets, steering bracket and swivel bracket.

If cracks or other damage is found, replace bracket(s).



REASSEMBLY

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



1. STBD clamp bracket
2. PORT clamp bracket
3. Clamp bracket shaft
4. Washer
5. Nut
6. Cap
7. Clamp screw
8. Handle
9. Pin
10. Clamp plate
11. Lower spacer
12. Bolt
13. Washer
14. Nut
15. Tilt lock pin
16. Spring
17. Stopper
18. Anode
19. Bolt
20. Steering bracket

21. Washer
22. Bush
23. Seal
24. Washer
25. Shim
26. Key
27. Lower mount bracket
28. Circlip
29. Swivel bracket
30. Bush
31. Nipple
32. Bush
33. Release lever
34. Bolt
35. Tilt stopper arm
36. Steering adjuster
37. Spring
38. Washer
39. Cover
40. Bolt

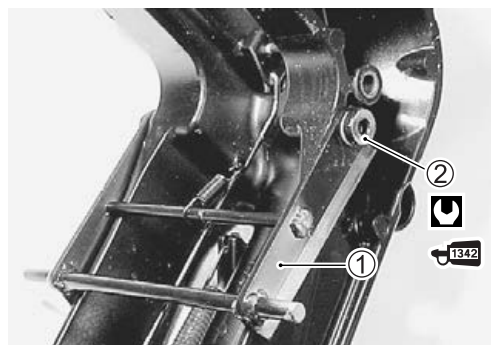
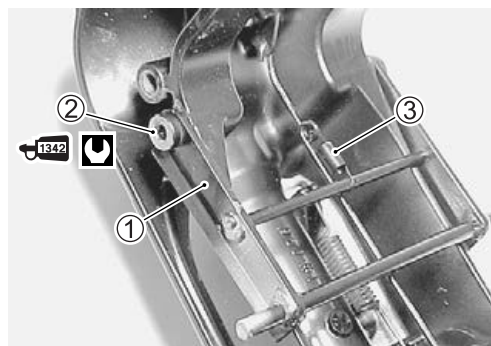
41. Anode
42. Bolt
43. Pin
44. Release link
45. Spring
46. Bolt
47. Shallow water drive arm
48. Spring
49. Reverse lock arm
50. Reverse lock arm link
51. Pin
52. Pin
53. Cotter pin
54. Washer
55. Nut
56. Washer
57. Lever
58. Plate
59. Washer
60. Shaft
61. Bolt

SHALLOW DRIVE ARM

- Install shallow drive arm ①.
- Tighten shallow drive arm bolts ②, pre-coated with thread lock, to specified torque.
- Install arm spring ③ as shown.

 99000-32050: THREAD LOCK “1342”

 Shallow drive arm bolt: 18 N·m (1.8 kg-m, 13.0 lb-ft)

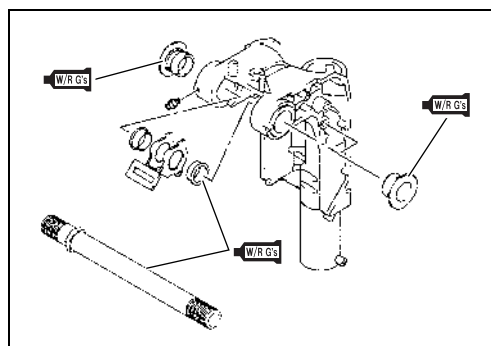


CLAMP BRACKET AND SWIVEL BRACKET

NOTE:

Before installing clamp bracket to swivel bracket, apply grease to clamp bracket shaft and bushings.

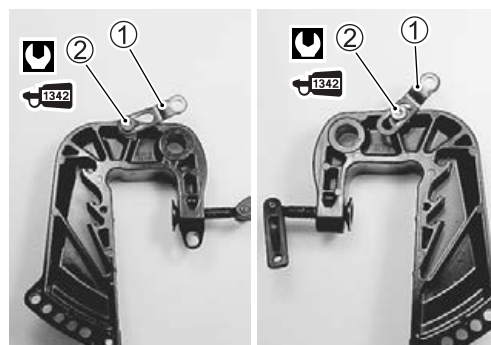
 99000-25160: SUZUKI WATER RESISTANT GREASE



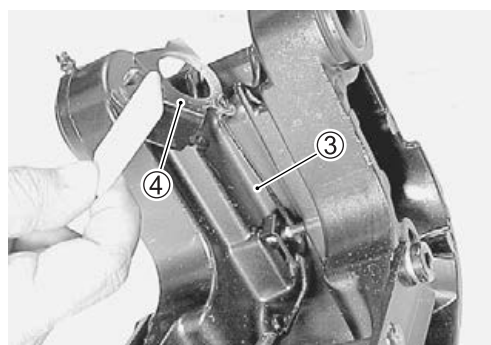
1. Install the tilt stopper arms ①, then tighten tilt stopper arm bolts ②, pre-coated with thread lock, to specified torque.

 99000-32050: THREAD LOCK “1342”

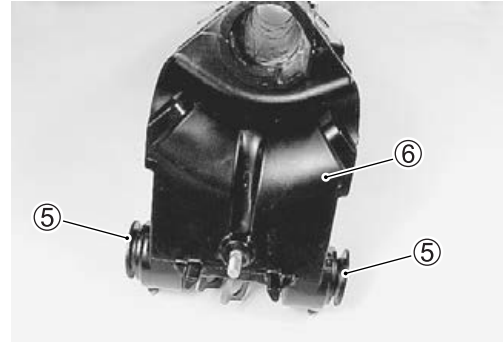
 Tilt stopper arm bolt: 18 N·m (1.8 kg-m, 13.0 lb-ft)



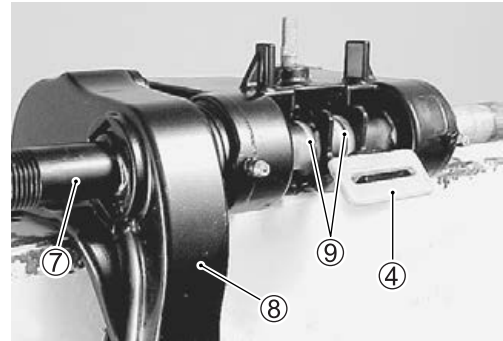
2. Connect the release link ③ to release lever ④.



3. Insert PORT and STBD bushings ⑤ into the swivel bracket ⑥.

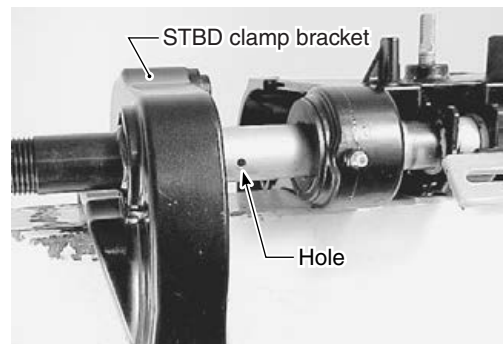


4. Assemble the clamp bracket shaft ⑦, STBD clamp bracket ⑧, release lever ④, bush ⑨ and swivel bracket.

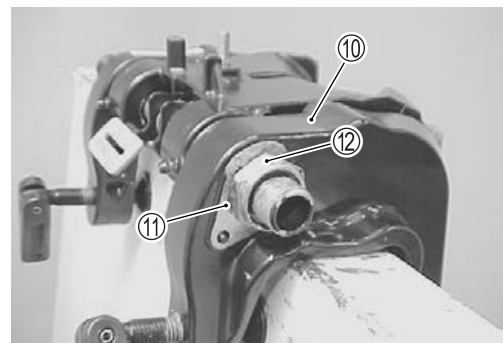


NOTE:

Install the clamp bracket shaft into the STBD clamp bracket so that hole on the shaft is positioned as shown in the illustration.



5. Install PORT clamp bracket ⑩, washer ⑪ and clamp bracket shaft nut ⑫.

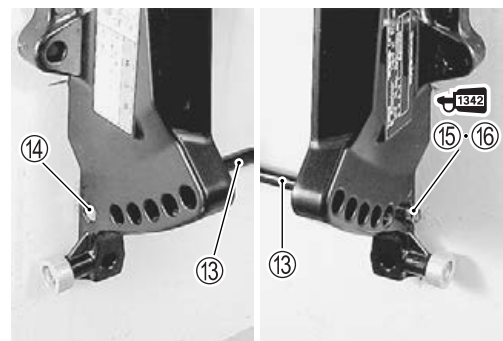


6. Install spacer ⑬, clamp bracket lower bolt ⑭, washer ⑮ and nut ⑯.

Tighten nut ⑯, pre-coated with thread lock, to specified torque.

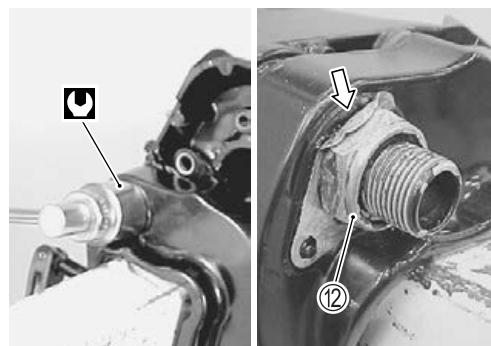
 99000-32050: THREAD LOCK "1342"

 Clamp bracket lower nut: 10 N·m (1.0 kg·m, 7.2 lb·ft)



7. Tighten clamp bracket shaft nut ⑫ to specified torque.
After tightening clamp bracket shaft nut to specified torque, bend lock washer edge toward nut to secure nut.


 **Clamp bracket shaft nut: 43 N·m (4.3 kg-m, 31.0 lb-ft)**

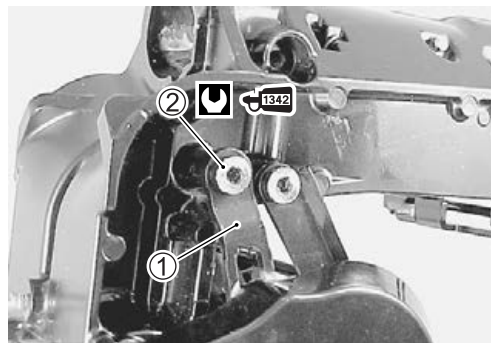


TILT STOPPER ARM

- Install tilt stopper arm ① to swivel bracket.
- Tighten tilt stopper arm bolts ②, pre-coated with thread lock, to specified torque.

 **99000-32050: THREAD LOCK “1342”**

 **Tilt stopper arm bolt: 18 N·m (1.8 kg-m, 13.0 lb-ft)**



STEERING FRICTION ADJUSTER SET (Tiller handle model)

- Assemble the steering friction adjuster set in the following sequence:

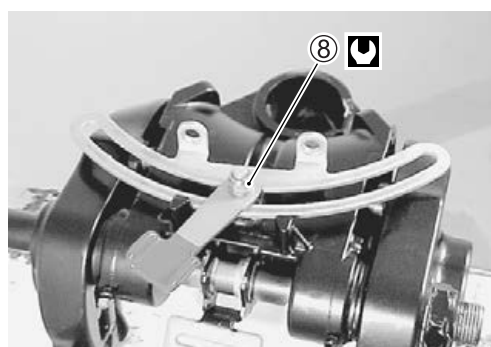
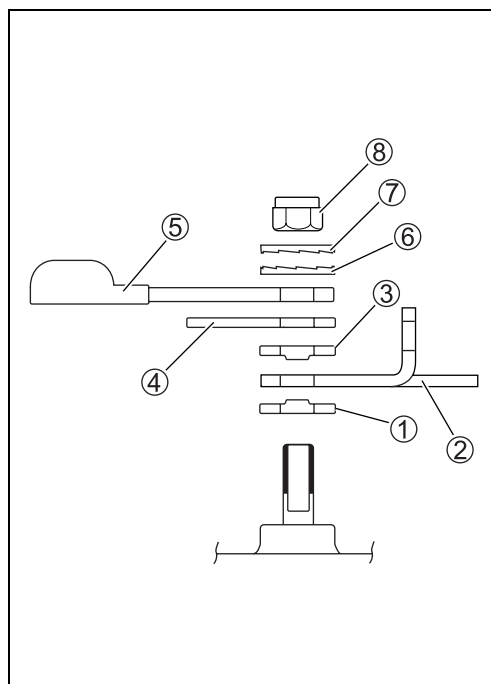
Friction plate washer ①, friction adjuster plate ②, friction plate washer ③, plate ④, friction adjuster lever ⑤, washer ⑥, washer ⑦ and nut ⑧.

NOTE:

When install the washer ⑥ and ⑦, put rough face of each washer together.

- Tighten steering friction adjuster nut ⑧ to specified torque.

 **Steering friction adjuster nut: 3 N·m (0.3 kg-m, 2.2 lb-ft)**



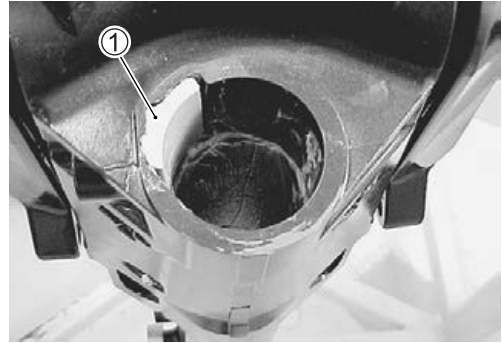
STEERING BRACKET

1. Install the steering adjuster plate ① to swivel bracket.

NOTE:

Apply grease to bushings, oil seal lip and pilot shaft portion of steering bracket.

W/R G's 99000-25160: SUZUKI WATER RESISTANT GREASE



2. Install upper bushing ②, and washer ③ to swivel bracket.

NOTE:

- Be certain that steering adjuster plate ① is placed between upper bushing ② and swivel bracket casing.
- The bushing outside face is tapered.
Install the bushing into the swivel bracket with the smaller diameter side being inserted first.



3. Install lower bushing ④ and swivel bracket seal ⑤ to swivel bracket.

NOTE:

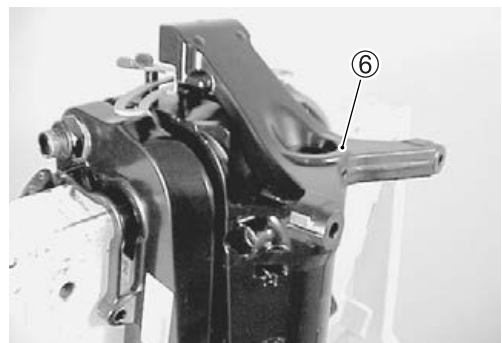
- Install swivel bracket seal ⑤ with lip (spring side) facing downward.
- The bushing outside face is tapered.
Install the bushing into the swivel bracket with the smaller diameter side being inserted first.



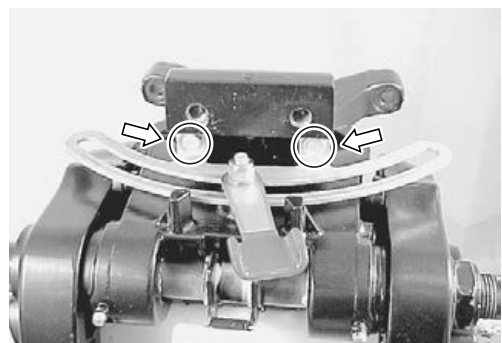
4. Apply Water Resistant Grease to steering bracket shaft.

W/R G's 99000-25160: SUZUKI WATER RESISTANT GREASE

Install steering bracket ⑥ to swivel bracket.



5. Install steering friction adjuster plate to steering bracket, then securely tighten it with bolts. (Tiller handle model)

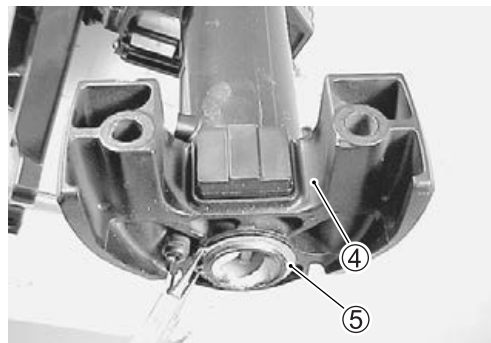
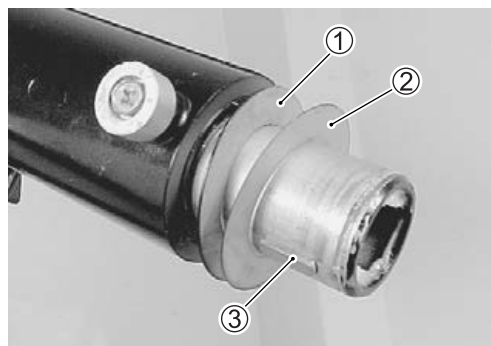


LOWER MOUNT BRACKET

Install washer ① and shim ②, then insert key ③ into groove on steering bracket shaft.

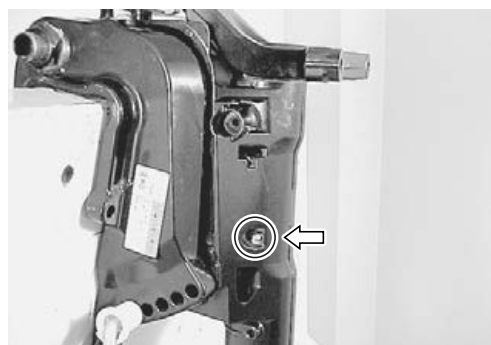
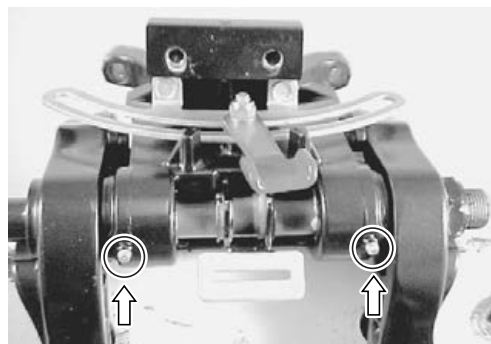
Align key with channel in lower mount bracket ④ and install lower mount bracket.

Install circlip ⑤ to retain bracket.

**LUBRICATION**

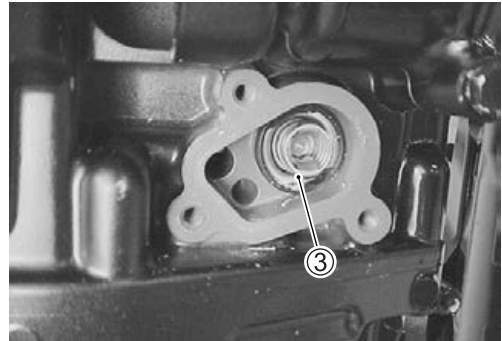
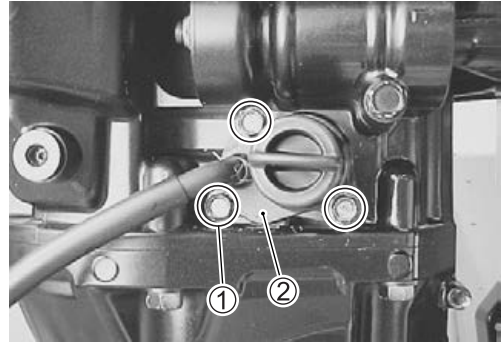
After completing reassembly of the mid unit, apply grease through each grease nipple.

 **99000-25160: SUZUKI WATER RESISTANT GREASE**



WATER PRESSURE VALVE REMOVAL

- Remove STBD side cover. (See page 8-2.)
- Remove three bolts ①, pressure valve cover ② and water pressure valve ③.



INSPECTION

- If salt deposits, corrosion, wear or other damage is found, clean or replace.



INSTALLATION

- Install seal ring ② to pressure valve cover ①.
- Install pressure valve ③ and pressure valve cover ① to oil pan and secure with bolts ④.

