Commander Controls

Section 4A - Commander Panel Mount Controls

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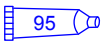
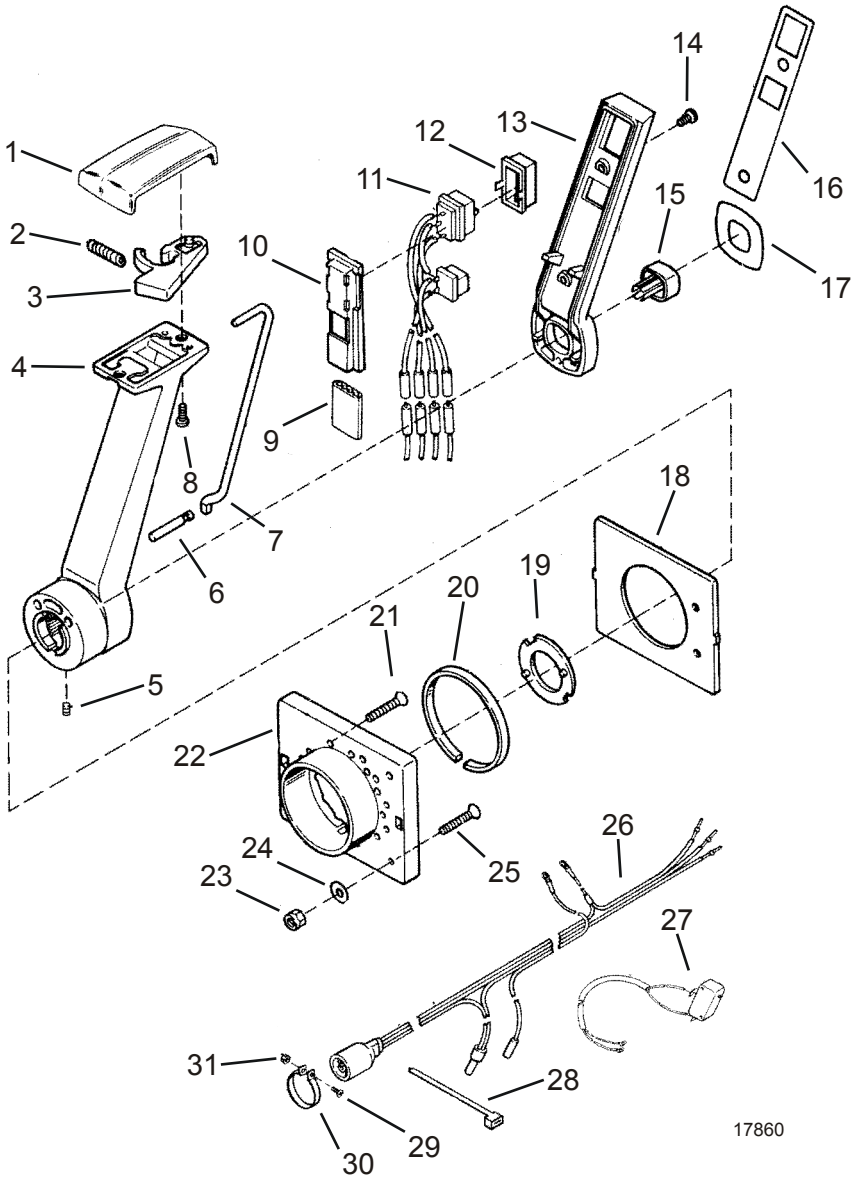
4A

Lubricant, Sealant, Adhesives

Tube Ref No.	Description	Where Used	Part No.
	2-4-C with Teflon	Stepped washer, throttle-only shaft, and barrel	92-802859A 1
		Throttle-only shaft pin, shift gear ball	
		Shift gear pin, shift gear, shift pinion gear, and bushing	
		Recess of control module housing; control shaft bushing	
		Areas of the control module housing outlined in light gray	
		Control module housing, shift gear ball/nylon plug and spring	
		Throttle link assembly	
		Control module assembly back cover	
		Throttle and shift cable ends	
		Neutral lock ring	

Notes:

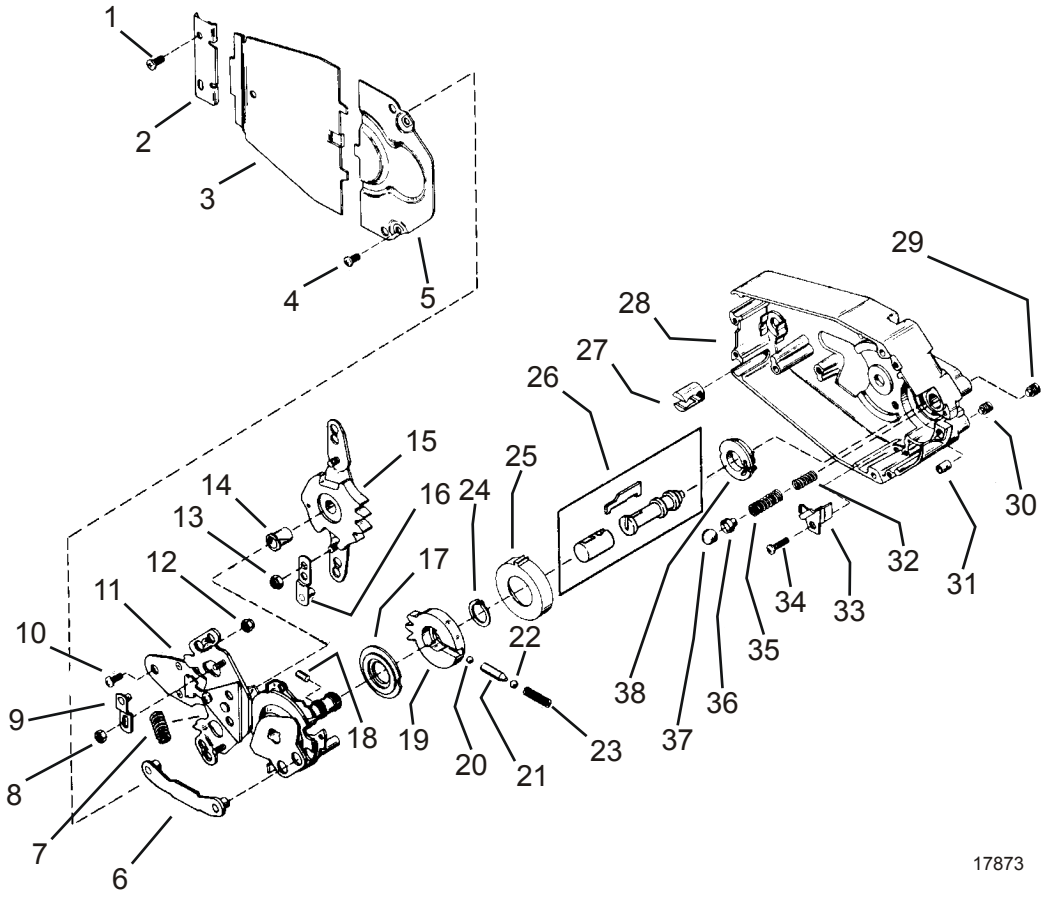
Commander Classic Panel Mount Control Bezel and Handle Components



Commander Classic Panel Mount Control Bezel and Handle Components

Ref. No.	Qty.	Description	Torque		
			Nm	lb. In.	lb. ft.
1	1	Control handle cap			
2	1	Control handle tension spring			
3	1	Trigger			
4	1	Control handle			
5	1	Control handle set screw	8	71	
6	1	Lock pin			
7	1	Lock rod			
8	2	Control handle cap screw			
9	1	Wire harness retainer			
10	1	Switch assembly retainer			
11	1	Trim switch assembly			
12	1	Trim button retainer			
13	1	Control handle cover			
14	2	Control handle cover screw	3.4	30	
15	1	Throttle-only button			
16	1	Upper control handle decal			
17	1	Lower control handle decal			
18	1	Bezel cover			
19	1	Neutral lock ring			
20	1	Bezel bushing			
21	4	Bezel screw	7	60	
22	1	Panel mount bezel			
23	4	Nut			
24	4	Washer			
25	4	Screw	7	60	
26	1	Trim control wire harness			
27	1	Neutral start switch assembly			
28	1	Cable tie			
29	1	Trim control wire harness clip screw			
30	1	Trim control wire harness clip			
31	1	Trim control wire harness clip nut			

Control Housing Module Components



Control Housing Module Components

Ref. No.	Qty.	Description	Torque		
			Nm	lb. In.	lb. ft.
1	2	Retainer attaching screw	7	60	
2	1	Cable retainer			
3	1	Access cover			
4	2	Back cover attaching screw	7	60	
5	1	Back cover			
6	1	Throttle link assembly			
7	1	Throttle lever compression spring			
8	1	Throttle cable fastener nut			
9	1	Throttle cable fastener			
10	3	Bearing plate assembly screw			
11	1	Bearing plate assembly			
12	2	Neutral start switch nut			
13	1	Shift cable fastener nut			
14	1	Shift pinion bearing			
15	1	Shift lever assembly			
16	1	Shift cable fastener			
17	1	Shift gear stepped washer			
18	1	Throttle-only shaft pin			
19	1	Shift gear			
20	1	Inner shift gear ball			
21	1	Shift gear pin			
22	1	Outer shift gear ball			
23	1	Shift gear spring			
24	1	Bearing plate retainer			
25	1	Trim wire harness retainer			
26	1	Throttle-only shaft assembly			
27	2	Control housing grommet			
28	1	Control housing			
29	1	Throttle friction screw			
30	1	Shift detent friction screw			
31	1	Friction pad			
32	1	Outer detent compression spring			
33	1	Trim wire harness retainer			
34	1	Trim wire harness retainer screw			
35	1	Spring			
36	1	Throttle-only plug			
37	1	Throttle-only ball (early models)			
38	1	Control shaft bushing			

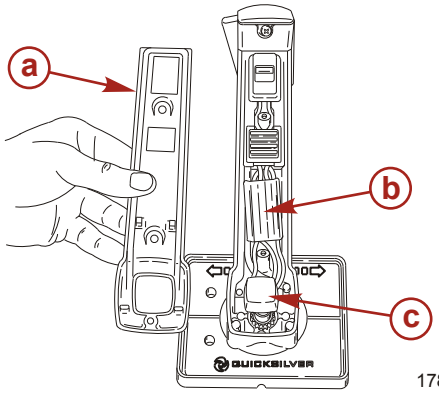
Commander Classic Panel Mount Control

Panel Mount Control Handle and Bezel Removal

⚠ WARNING

Performing service or maintenance without first disconnecting the battery can cause product damage, personal injury, or death due to fire, explosion, electrical shock, or unexpected engine starting. Always disconnect the battery cables from the battery before maintaining, servicing, installing, or removing engine or drive components.

1. Disconnect the remote control power trim wire harness from the trim pump harness.
2. Disconnect the remote control neutral start switch leads.
3. Ensure the control handle is in the neutral detent position.
4. Remove the two screws securing the control handle cover, and trim buttons to the control handle.
5. Lift the control handle cover off the control handle.
6. Unsnap, and remove the trim wire harness retainer.
7. Unplug the trim wires from the trim switches in the control handle. Remove the trim switches.
8. Pull the throttle-only button off the throttle-only shaft.



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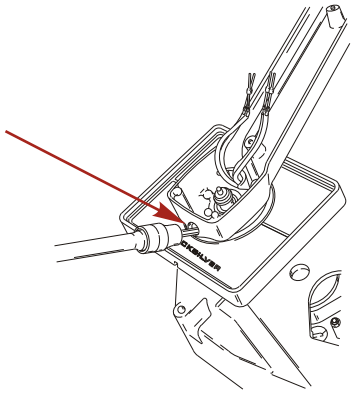
a - Control handle cover
b - Trim wire harness retainer
c - Throttle-only button

9. Loosen the control handle set screw several turns to allow removal of the control handle. Remove the control handle from the control shaft.



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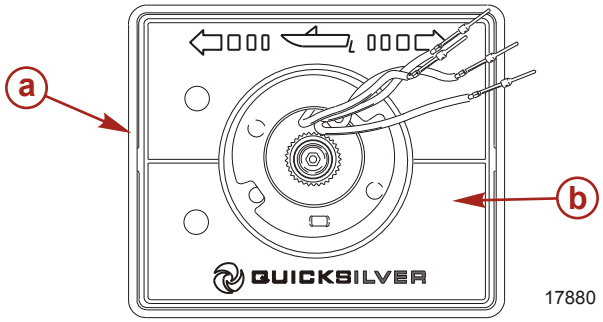
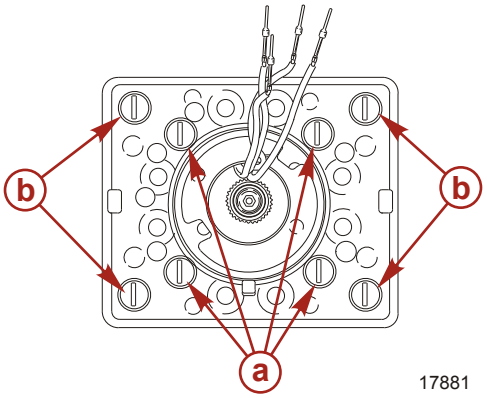
10. Straighten the trim wires so they protrude straight-out from the control handle hub.

11. Unsnap the bezel cover from the panel mount bezel.



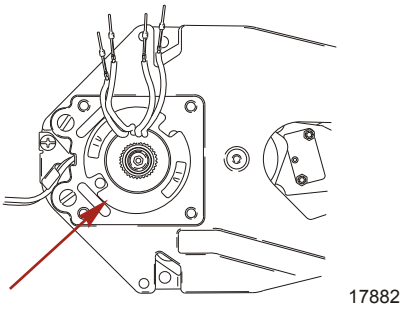
a - Panel mount bezel **b -** Bezel cover

12. Remove the four screws securing the panel mount bezel to the control module housing assembly.



a - Screws securing the panel mount bezel to the control module housing assembly
b - Screws securing the panel mount bezel to the panel

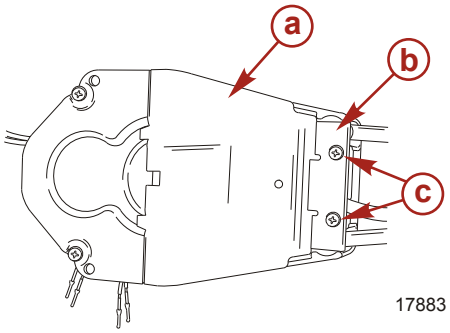
13. Remove the neutral lock ring from the module.



Commander Control Module Disassembly

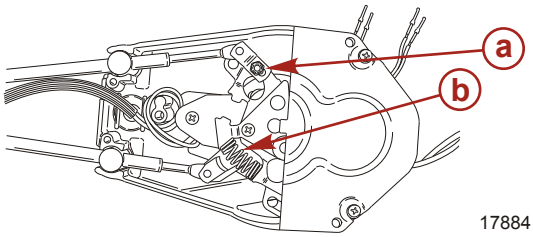
1. Remove the two screws securing the cable retainer to the control housing. Retain the two screws for reassembly.

2. Remove the cable retainer, and the access cover from the housing.



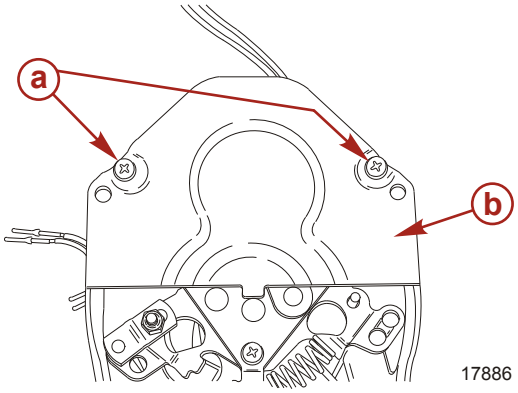
a - Access cover
b - Cable retainer
c - Cable retainer screws

3. Loosen the nuts securing the shift and throttle cables to the remote control housing.



a - Nut securing the throttle cable
b - Nut securing the shift cable (hidden under the spring)

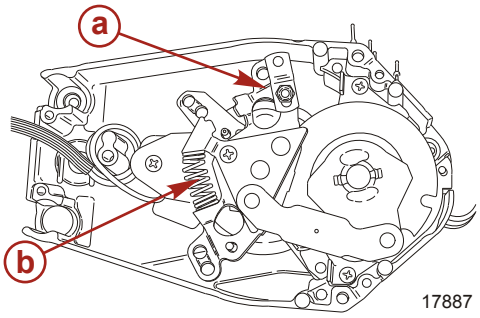
4. Remove the two screws securing the back cover to the control module assembly. Remove the back cover from the control module assembly.



a - Screws securing the back cover (2)
b - Back cover

5. Temporarily install the control handle onto the splined control shaft.
6. Position the control handle into full forward. Remove the control handle.

7. Remove the throttle lever compression spring from the throttle lever.



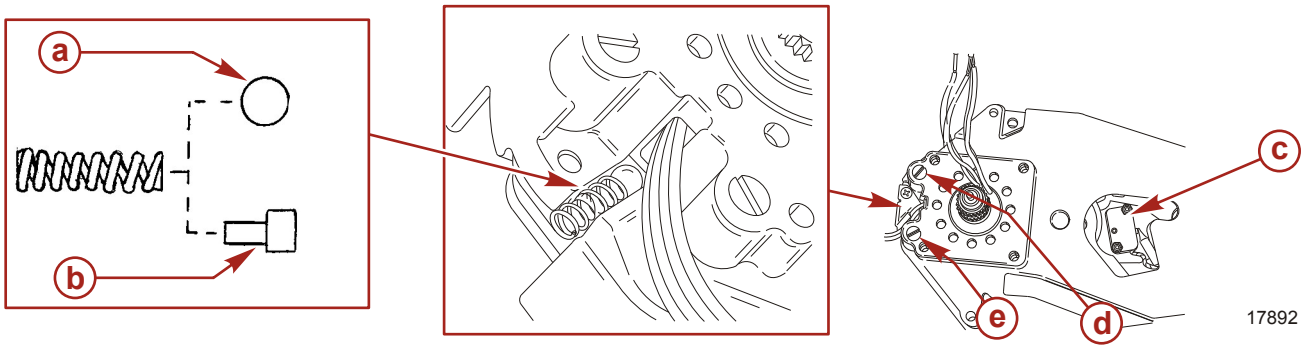
a - Throttle lever **b -** Throttle lever compression spring

8. Thread the shift detent adjustment screw and the control handle friction screw out until they are flush with the control module casting.

NOTE: *It is not necessary to remove the shift detent adjustment screw or the control handle friction screw, unless replacement of the screws is required.*

9. Remove the two locknuts securing the neutral start safety switch to the bearing plate assembly. Pull the neutral start safety switch away from the bearing plate assembly.
10. Remove the screw securing the retaining clip to the control module. Remove the retaining clip, gear shift spring, and throttle-only plug from the control module.

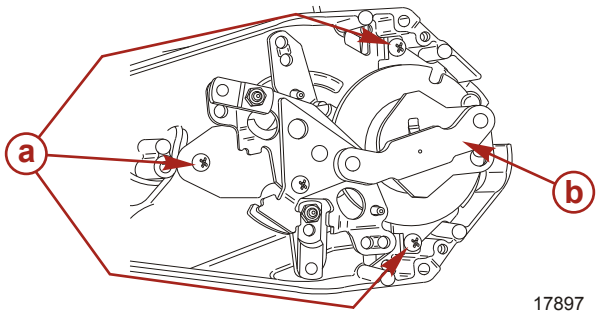
NOTE: *Early models will have a throttle-only ball bearing instead of a throttle-only plug.*



a - Throttle-only ball bearing (early models)
b - Throttle-only plug
c - Neutral start safety switch
d - Detent adjustment screw
e - Control handle friction adjustment screw

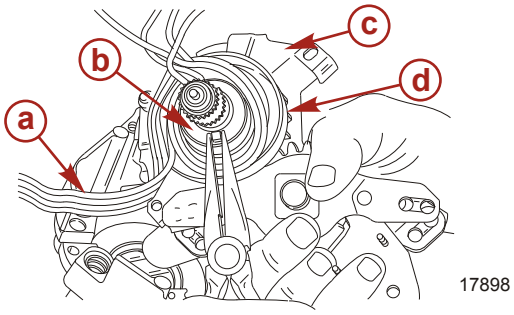
11. Temporarily install the control handle onto the splined control shaft.
12. Ensure the control module housing assembly is in the neutral detent position. Remove the control handle.
13. Pull the throttle link off the module.

14. Remove the three screws securing the bearing plate assembly to the control module housing.



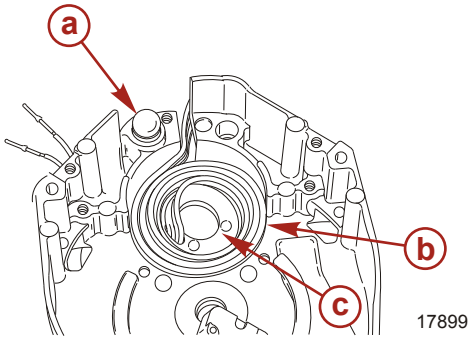
a - Screws securing the bearing plate assembly (3)
b - Throttle link

15. Lift the bearing plate assembly out of the control module housing.
16. Remove the trim wires, trim wire retainer, and the control shaft bushing from the bearing plate assembly.



a - Trim wires
b - Control shaft bushing
c - Bearing plate assembly
d - Trim wire retainer

17. If the trim wires, trim wire retainer, and the control shaft bushing remained in the control module housing, remove the trim wires, trim wire retainer, and the control shaft bushing from the control module housing.
18. Remove the detent ball, detent ball follower, and two compression springs located beneath the detent ball follower.



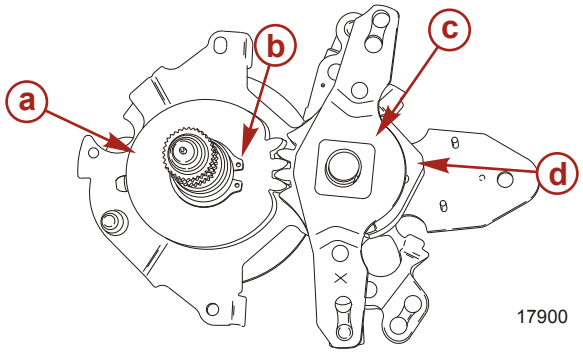
a - Detent ball, detent ball follower, and two compression springs
b - Trim wire retainer
c - Control shaft bushing

19. Lift the shift pinion gear with the attached shift lever from the bearing plate.

NOTE: *The shift lever is pressed onto the shift pinion gear. If the shift lever or shift pinion gear is damaged, replace as an assembly.*

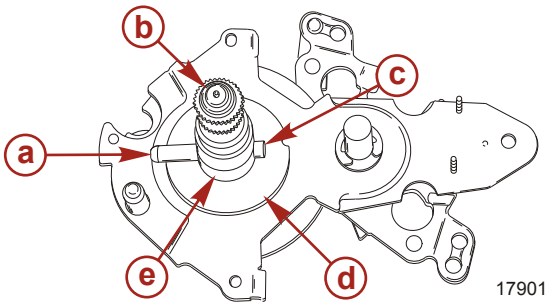
20. Remove the bearing plate retainer securing the shift gear to the control shaft. Remove the shift gear from control shaft.

21. Remove the shift lever from the bearing plate assembly.



a - Shift gear
b - Bearing plate retainer
c - Shift lever
d - Shift pinion gear

22. Remove the shift gear pin, inner shift gear ball, throttle-only shaft pin, and the throttle-only shaft from the control shaft.

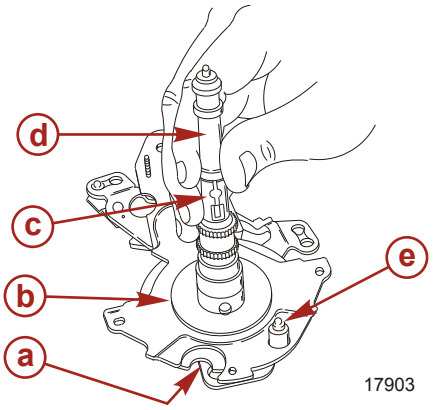


a - Shift gear pin
b - Throttle-only shaft
c - Throttle-only shaft pin
d - Stepped washer
e - Inner shift gear ball (hidden)

Commander Control Module Assembly

1. Apply 2-4-C with Teflon onto the stepped washer, and install the stepped washer over the control shaft. The steps of the washer should be against the bearing plate.
2. Rotate the control shaft until the neutral detent notch is at the position shown.
3. Apply 2-4-C with Teflon onto the throttle-only shaft and barrel. Install the throttle-only shaft onto the barrel.

4. Install the throttle-only shaft and barrel assembly into the control shaft. The wide slot in the barrel must be on the same side as the neutral detent notch and control handle friction pad.



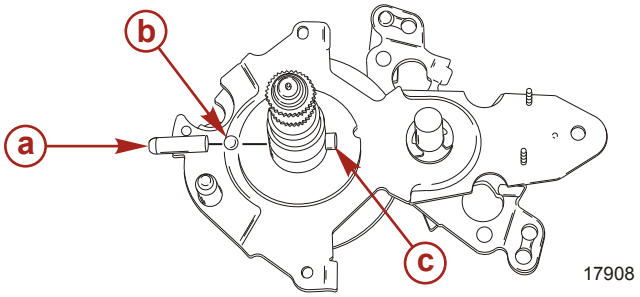
a - Neutral detent notch
b - Stepped washer
c - Wide slot on barrel
d - Throttle-only shaft
e - Control handle friction pad

Tube Ref No.	Description	Where Used	Part No.
95	2-4-C with Teflon	Stepped washer, throttle-only shaft, and barrel	92-802859A 1

5. Apply 2-4-C with Teflon onto the throttle-only shaft. Insert the throttle-only shaft pin into the control shaft and the hole in the barrel.

NOTE: *The throttle-only shaft pin is properly installed when the throttle-only shaft cannot be removed.*

6. Apply 2-4-C with Teflon onto the smallest of the three balls removed during the disassembly process.
7. Insert the shift gear ball into the control shaft and the hole in the barrel.
8. Apply 2-4-C with Teflon onto the shift gear pin and insert the shift gear pin into the control shaft. The rounded end of the shift gear pin should be facing away from the control shaft.

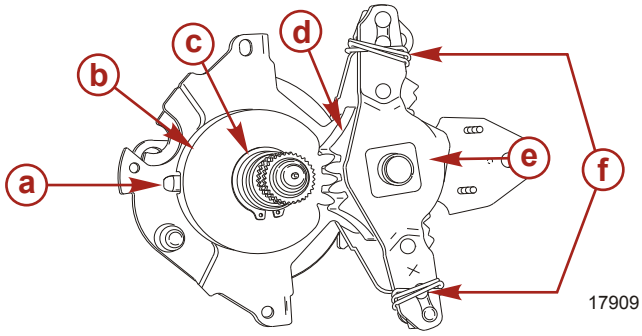


a - Shift gear pin
b - Shift gear ball
c - Throttle-only shaft pin

Tube Ref No.	Description	Where Used	Part No.
95	2-4-C with Teflon	Throttle-only shaft pin, shift gear ball	92-802859A 1

9. Apply 2-4-C with Teflon onto the entire shift gear.

10. Install the shift gear onto the control shaft and secure in place with the bearing plate retainer.
11. Apply 2-4-C with Teflon onto the entire shift pinion gear and bushing.
12. Install the bushing into the gear, and the gear onto the bearing plate.
13. Use two rubber bands to hold the shift pinion gear in place on the bearing plate.

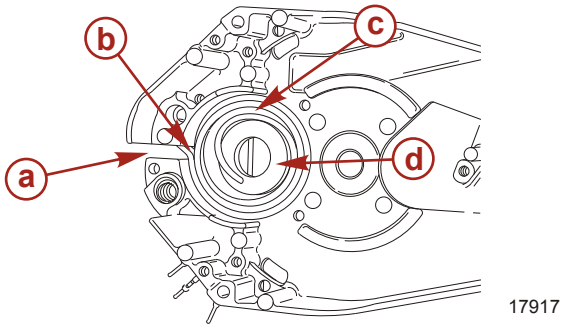


a - Shift gear pin
b - Shift gear
c - Bearing plate retainer
d - Shift pinion gear and bushing
e - Shift lever
f - Rubber bands

Tube Ref No.	Description	Where Used	Part No.
95	2-4-C with Teflon	Shift gear pin, shift gear, shift pinion gear, and bushing	92-802859A 1

14. Apply 2-4-C with Teflon into the recess of the control module housing where the trim harness will be positioned.
15. Insert the end of the trim harness through the control shaft bushing.
16. Apply 2-4-C with Teflon onto the entire control shaft bushing. Install the control shaft bushing into the control module housing.
17. Coil the trim harness inside of the control module housing in a clockwise direction.

IMPORTANT: The black line that is across the trim harness must be positioned at the control module housing slot.

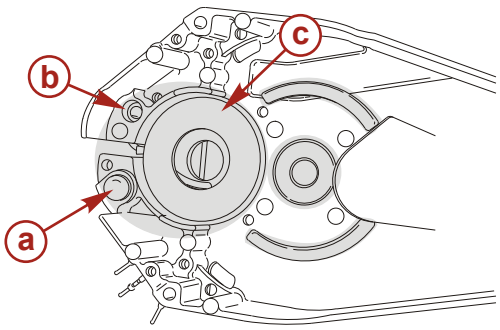


a - Control module housing slot
b - Black line across the trim harness
c - Trim harness
d - Control shaft bushing

Tube Ref No.	Description	Where Used	Part No.
95	2-4-C with Teflon	Recess of control module housing; control shaft bushing	92-802859A 1

18. Install the two detent springs, follower, and detent ball into the control module housing.

19. Install the trim harness retainer over the trim harness.
20. Apply 2-4-C with Teflon onto the areas of the control module housing outlined in light gray.

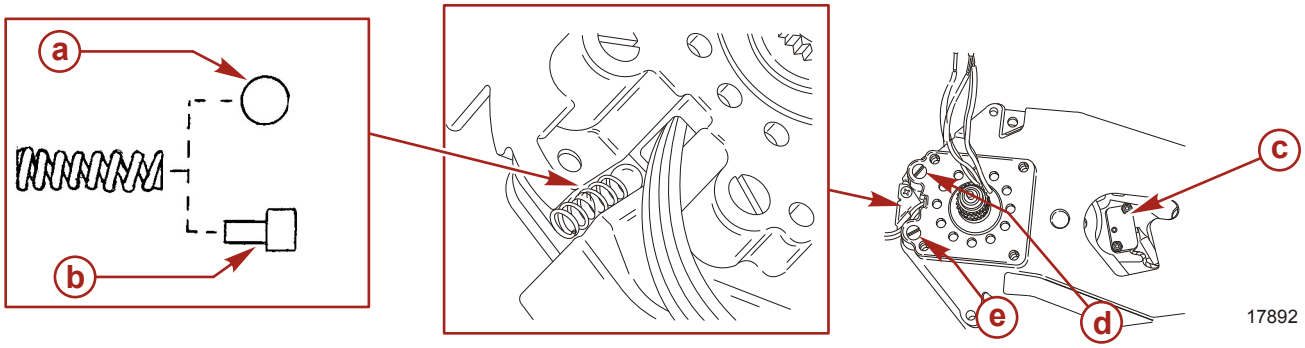


Gray area to be lubricated

a - Detent ball, follower, and springs
b - Control handle friction pad
c - Trim harness retainer

Tube Ref No.	Description	Where Used	Part No.
95	2-4-C with Teflon	Areas of the control module housing outlined in light gray	92-802859A 1

21. Install the bearing plate assembly into the control module housing and secure with three screws. Remove the rubber bands.
22. Apply 2-4-C with Teflon onto the shift gear ball/nylon plug and spring.
23. Turn the control module over and position the shift gear ball/nylon plug and spring into the control module.
24. Secure the shift gear ball, spring, and trim wire harness to the control module with a retaining clip. Secure the retaining clip with a screw. Tighten the screw securely.
25. Install the neutral start safety switch onto the bearing plate assembly with two self-locking nuts. Do not overtighten the self-locking nuts.

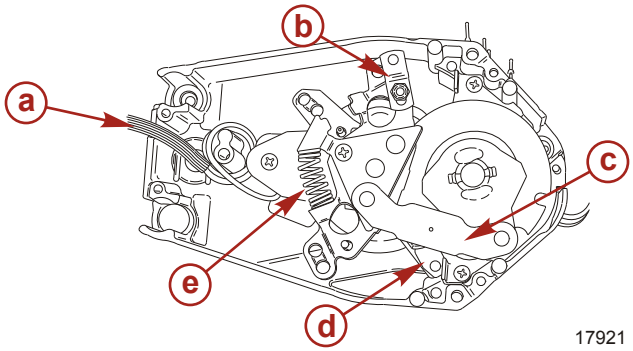


a - Throttle-only ball bearing (early models)
b - Throttle-only plug
c - Neutral start safety switch
d - Detent adjustment screw
e - Control handle friction adjustment screw

Tube Ref No.	Description	Where Used	Part No.
95	2-4-C with Teflon	Control module housing, shift gear ball/nylon plug and spring	92-802859A 1

26. Temporarily install the control handle onto the control shaft.

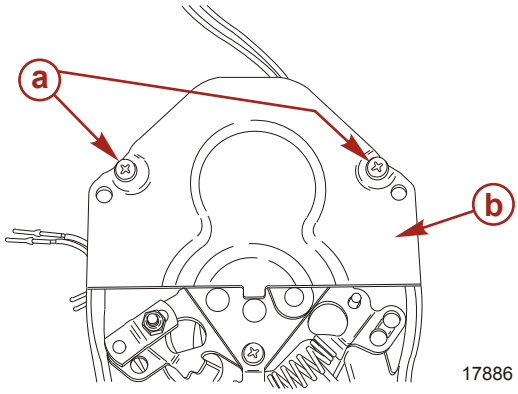
27. Move the handle to ensure the control module assembly is in the forward detent position. Remove the control handle.
28. Apply 2-4-C with Teflon onto the throttle link assembly and install the throttle link assembly into the control module.
29. Install the compression spring into the control module assembly.



a - Neutral start safety switch wire harness
b - Throttle lever
c - Throttle link assembly
d - Shift lever
e - Compression spring

Tube Ref No.	Description	Where Used	Part No.
95	2-4-C with Teflon	Throttle link assembly	92-802859A 1

30. Temporarily install the control handle onto the control shaft.
31. Move the handle to ensure the control module assembly is in the neutral detent position. Remove the handle.
32. Apply 2-4-C with Teflon onto the inside half of the control module assembly back cover.
33. Install the back cover onto the control module, and secure with two screws. Tighten the screws to the specified torque.

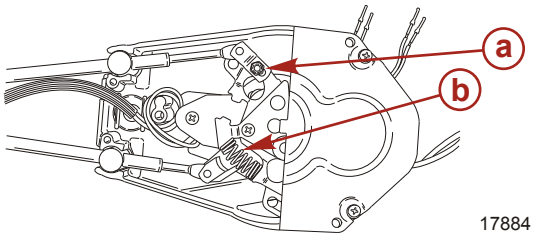


a - Screws securing back cover **b -** Back cover

Tube Ref No.	Description	Where Used	Part No.
95	2-4-C with Teflon	Control module assembly back cover	92-802859A 1

Description	Nm	lb. in.	lb. ft.
Screw (2)	7	60	

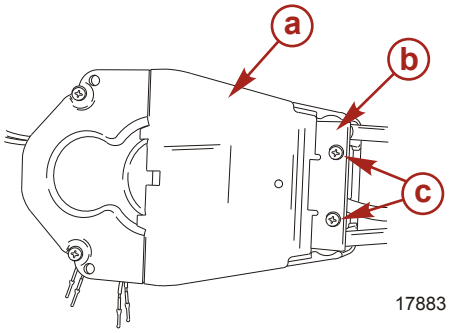
34. Lubricate the throttle and shift cable ends with 2-4-C with Teflon.
35. Install the throttle and shift cables. Secure cable ends to the control module assembly with a nut. Tighten the nuts securely.



a - Nut securing throttle cable
b - Nut securing shift cable (hidden under the spring)

Tube Ref No.	Description	Where Used	Part No.
95	2-4-C with Teflon	Throttle and shift cable ends	92-802859A 1

36. Install the cable retainer. Secure with two screws. Tighten the screws to the specified torque.

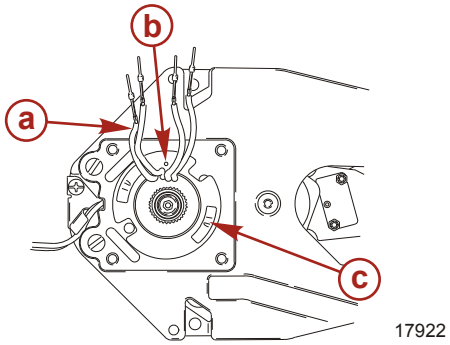


a - Bottom cover
b - Cable retainer
c - Cable retainer screw (2)

Description	Nm	lb. in.	lb. ft.
Cable retainer screw	7	60	

Panel Mount Control Handle and Bezel Installation

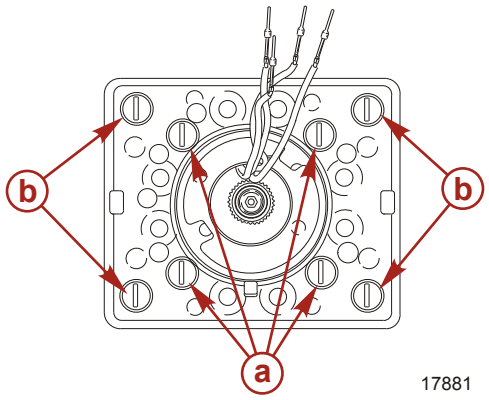
1. For a standard positioning of the control handle straight up when in neutral, install the neutral lock ring so the dot is facing up.
2. Apply 2-4-C with Teflon onto the entire neutral lock ring.



a - Trim harness wires
b - Dot on lock ring
c - Neutral lock ring

Tube Ref No.	Description	Where Used	Part No.
95	2-4-C with Teflon	Neutral lock ring	92-802859A 1

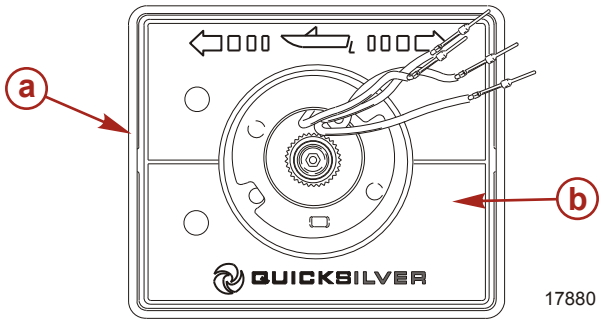
3. Secure the control module housing assembly to the mounting panel with the bezel.
4. Secure the control module housing assembly to the bezel with four screws. Tighten the screws to the specified torque.



a - Screws securing the panel mount bezel to the control module housing assembly
b - Screws securing the panel mount bezel to the panel

Description	Nm	lb. in.	lb. ft.
Screws securing control module housing assembly (4)	7	60	

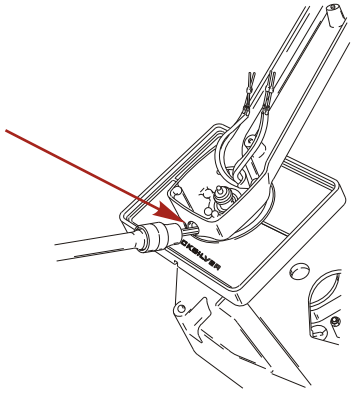
5. Snap the bezel cover into the bezel.



a - Panel mount bezel **b -** Bezel cover

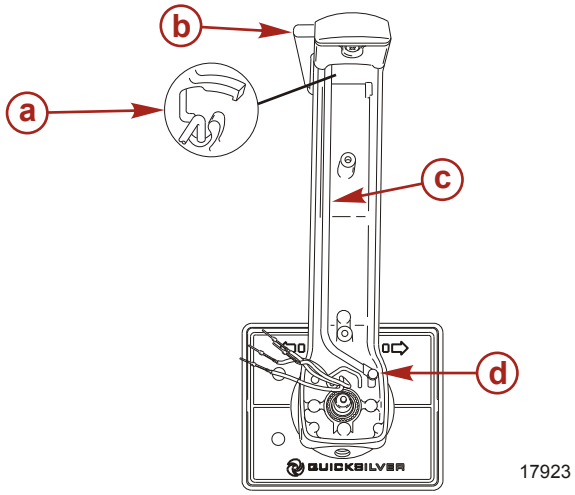
6. Ensure the control module housing assembly is in the neutral detent position.
7. Route the trim wires through the control handle.
8. Install the control handle onto the splined shaft. Ensure the control handle neutral lock pin hole is in alignment with the notch in the neutral lock ring.

9. Push down on the hub of control handle. Tighten the set screw to the specified torque.



Description	Nm	lb. in.	lb. ft.
Control handle set screw	8	71	

10. Install the neutral lock rod, and the neutral lock pin into the control handle.



a - Neutral lock rod hooked on the neutral lock release

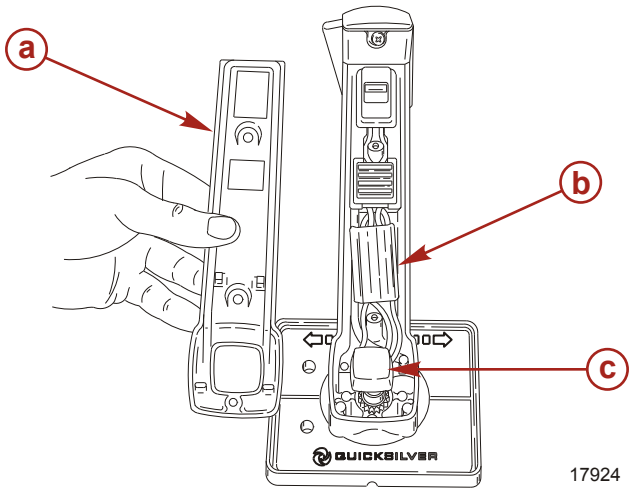
b - Trigger

c - Neutral lock rod

d - Neutral lock pin

11. Connect the trim button wires to the trim harness wires.
12. Secure the trim wire harness connection with the wire retainer.
13. Install the trim button assembly into the handle.
14. Install the throttle-only button onto the throttle-only shaft.

15. Install the control handle cover to the control handle. Secure with two screws. Tighten the screws to the specified torque.



a - Control handle cover
b - Wire retainer
c - Throttle-only button

Description	Nm	lb. in.	lb. ft.
Throttle handle cover screw	3.4	30	

Notes: