

MODEL BF SERIES  
ASSEMBLY INSTRUCTIONS  
FOR MERCURY 50HP 2 STROKE, 3 CYLINDER, 58.9 C.I. MOTORS

1. Place the engine on the transom of your boat so that it is mounted vertically, in the normal fashion. Remove the trim tab to reach and remove the rear stud nut. Disconnect the shift rod at the hex threaded coupling. Remove the four bolts and lower the gear box. **Leave the hex threaded coupling and jam nut attached to the propeller drive. Leave the rear stud in the motor.**
2. Remove the water pump assembly from the propeller drive, including the lower stainless steel plate, and impeller drive key.
3. Install the jet driveshaft assembly into the spiral pump housing locking it in place with the four 5/16-18 x 1 bolts with lock washers. Use grease on the threads. Tighten to 12 Ft-Lbs.
4. Install the water pump assembly on top of the stainless steel plate with gaskets on both sides. Use the four M6 Mercury bolts with flat washers and **be sure also to install the water pump impeller drive key removed from the propeller drive.** Use grease on the threads.
5. Attach the 3/4" adapter plate to the motor using two M10 x 1.5 x 45mm bolts and one M10 lock nut (from the propeller drive) with lock washers. Use grease on the threads and tighten to 22 Ft-Lbs.
6. Thread the plastic shift rod guide onto the shift rod. **Install the copper water tube extension on the water tube** and the plastic Mercury water tube connector onto the water pump. Lightly grease the socket and water tube extension.
7. Next, attach the jet drive to the motor using two 3/8 x 7/8 dowel pins. From below with lock washers, use two M10 x 1.5 x 90mm bolts in front, and one each 3/8-16 x 2 3/4 and 3/8-16 x 3 1/4 bolts in the rear. From above rear, use one 3/8-16 x 1 1/4 bolt and lock washer. Grease the bolt threads and driveshaft spline generously, and guide the jet into place. Tighten to 22 Ft-Lbs.
8. Next, install the impeller. Grease the shaft threads, key and impeller bore. Place the plastic sleeve inside the impeller, hold the key in the nose of the impeller with your forefinger and slide onto the driveshaft. Install the seven shim washers, rubber washer and cup, and nut retainer on the shaft, and bring the nut up snug by hand.

Then bump the nut up snug with a wrench. If the ears of the retainer do not line up with the flats on the nut, spin the nut off, turn the retainer over and tighten the nut again. In one of these two positions you will have alignment and can fold the ears up against the nut to retain it. The flat in the retainer is angled to the ears to allow this.

When, after use in sand and gravel, the blade clearance becomes more than about 1/32" between the impeller edge and the water intake liner, one or more of the shim washers can be transferred from the bottom stack to the top of the impeller, which moves the impeller down into the tapered casing to reduce the clearance.

**Shims should not be used above the impeller on new installations where no wear has occurred unless the blade clearance exceeds 1/32 inch. Insufficient blade clearance will do more harm than good from any performance gains it might provide.**

9. Place the intake casing in position with the lower end at the rear and tighten the six nuts. No lock washers are used. Grease the threads.

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10. If your Jet Drive was ordered for use with a steering tiller handle, see separate pages 4-5, "Shift Cable and Handle Assembly Instructions, for shift cable #2010.
11. For remote controls: Attach the shift cable and the cable anchor bracket to the jet drive. With the shift handle in forward and the reverse gate in forward, with the cam roller at the end of the slot, adjust the cable and/or cable anchor position to this condition. Shift to reverse and back to forward. The roller should be at the end of the cam slot such that the gate cannot be forcibly rotated toward reverse. Pull on the gate by hand to verify this.

If this forward lock condition is not met, readjust the cable positions.

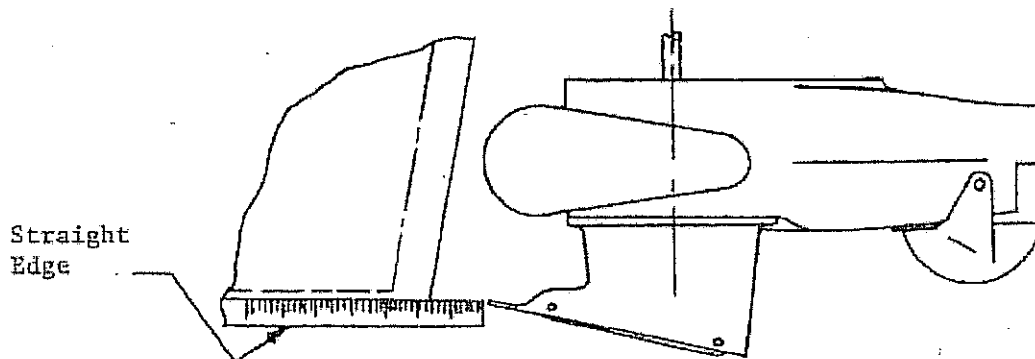
12. When converting to jet drive, your motor will have to be raised to height shown in diagram below, using a straight edge under the boat. Test run the boat and then raise or lower the motor 5/16 inch at a time to obtain the best results.

The motor has four sets of upper mounting holes. You will use one set to begin with. Mark pencil lines on the boat transom through the other sets. Then if you wish to go up or down 5/16 inch, you can drill one alternate set of holes 5/16 inch up or down from the pencil marks. By alternating between these two sets of transom holes and the four sets of motor holes, the motor can be moved in 5/16 inch increments over almost one inch.

If you raise it too much it will suck air and cavitate, either on start up or when banking on turns. When cavitating, the motor over speeds in spurts and shakes considerably in the motor mount. This is not a normal condition and should be avoided by proper adjustment of motor height on each individual boat. If you lower it too much you will have excessive drag, therefore mount the motor as high as possible without allowing cavitation.

The cooling system can be flushed by removing the hex bolt next to the grease fitting. A hose coupling, 24789A1, is available from a Mercury dealer. Turn on the water gently, and start the motor set to idle. Watch for cooling water at the tell tale. Adjust the water pressure if needed. Be sure to replace the bolt after flushing.

### SETTING MOTOR HEIGHT



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**CAUTION**

**When starting the engine for the first time, watch to see that the cooling water comes out of the small hole at the rear side of the engine just below the powerhead.** This is to check your assembly of the cooling water pump and its connections.

**MAINTENANCE AND LUBRICATION**

See last page.

**CAUTION**

It is important on high HP installations to mount the motor at the correct height and to use the power tilt properly.

Power tilt is convenient for drifting and when operating at low throttle in very shallow areas. When under power however, the engine should not be tilted out in an effort to gain speed as is done with propellers.

The engine driveshaft should be vertical when planing or tilted toward the boat in order to provide a scooping angle on the water intake grill. **Tilting the motor out beyond a vertical position reduces the scoop angle and can cause impeller slippage and cavitation burns on the impeller blades.**

When running in a bay, lake or wide river in windy conditions, particularly when running with the wind, the jet can suck in air when jumping across the wave crests. This will result in over speeding and causes severe strain on the driveshaft when the engine is suddenly brought back to normal speed as the impeller once again grabs solid water.

If your boat is used frequently under these conditions, the engine height should be set lower than normal to minimize over speeding. Running at reduced throttle will help when winds are strong. You can also experiment with a plate extending from the hull bottom to the top of the leading edge of the water intake as shown in paragraph 7 of the owners manual. This tends to reduce air intake as well as to reduce spray.

**A water intake fin kit, part #1186 is now available.** The purpose of these fins is to ram more water into the intake and to shield the forward sides of the intake from the entrance of air. There is a noticeable reduction of engine over speeding when running with the wind on a heavy chop. To a lesser degree, the fins provide some rudder effect when operating at a low speeds. This is not a cure all for cavitation and it is still necessary to set the engine height and angle properly and to minimize obstructions or imperfections in the hull ahead of the intake.

GOOD BOATING AND HAVE FUN!

Specialty Manufacturing Company  
Outboard Jets  
2035 Edison Avenue  
San Leandro, CA 94577

TILLER SHIFT CABLE ASSY  
MODEL BFC MERCURY  
2010

1. Cut out the drilling template including the rectangular opening. Place the template on the motor pan, carefully aligning the upper edge parallel to the pan offset edge and the rectangular opening over the tilt switch. Hold in place with masking tape. Center punch the three hole locations and drill through using a 7/32 drill. Remove the template.
2. Attach the lower end of the cable to the Jet Drive with the terminal end threaded on the cable 3/8 of an inch and the cable anchor bracket centered in the slots and locked. Use the two 1/4-20 x 5/8 hex head bolts with flat washers to hold the bracket and one 1/4-20 x 3/4 bolt and lock nut through the terminal end.
3. Attach the upper cable anchor to the motor pan using the U clip, shim, two #10-32 x 3/4 screws and two #10-32 lock nuts on top, and one #10-32 x 1/2 screw through the bottom of the U clip, into a captured nut in the bracket.
4. Screw the ball terminal end on the upper cable end 3/8 of an inch and attach to the shift handle steel bracket using a 1/4-20 x 3/4 bolt and lock nut.
5. Place the reverse gate in forward with the cam roller at the end of the slot in the cam. Place the shift handle in forward, locked in the detent. Center the shift handle bracket on the plastic shift handle, clamp in place and drill the two mounting holes using a 3/16 drill. Remove the clamp. Install and tighten two #10-32 screws with lock nuts. Use the 1 1/4 long screw in the thick section of the handle.
6. Shift to reverse and back to forward. The cam roller should be at the end of the slot in the cam such that the gate cannot be forcibly rotated toward reverse. Pull on the gate by hand to verify this. Make adjustments if necessary to satisfy this condition. Lock the cable jam nuts. Do not be concerned about the neutral and reverse positions of the gate. Water pressure will take care of these.

**CAUTION**

**YOU MUST RETURN THE THROTTLE  
TO IDLE BEFORE SHIFTING.**

# MAINTENANCE AND LUBRICATION OUTBOARD JET DRIVE

## BEARING LUBRICATION

A grease gun and tube of grease is supplied with your jet drive. We recommend greasing the bearing every 10 hours. Make greasing a part of your cleanup after the days use. Pump in just enough grease to fill the lube hose. Then reconnect the lube hose coupling to the zerk grease fitting.

Every 30-40 hours, pump in extra grease so as to purge any moisture. The texture of the grease coming out gives an indication of conditions inside the bearing housing. A gradual increase in moisture content indicates seal wear. If the grease begins to turn dark, dirty gray, the bearing and seals should be inspected and replaced if necessary. Some discoloration of the grease is normal during the break in period on new sets of seals.

We have selected a water resistant grease of the proper consistency for this application. If you use a substitute grease, be sure it is water resistant and of the same consistency.

## IMPELLER

Your jet drive is equipped with a key to protect the unit in the event of a rock jam. This can be reached by removing the water intake, and then the driveshaft nut, similar to a propeller drive. After replacing the key, pull the shaft nut up tight to remove any play between the impeller and shaft. Note the position of the impeller shim washers, and replace them in the same order.

## REVERSE GATE MECHANISM

Occasionally check adjustment of the gate shifting linkage. In "forward" the gate should be firmly locked in position. Pull on the gate by hand to verify this. This will prevent wave action from accidentally shifting the gate into reverse as the boat is violently maneuvered

## GENERAL

Check all mounting bolts, intake screws, linkage connections, etc., occasionally to be sure they are tight.

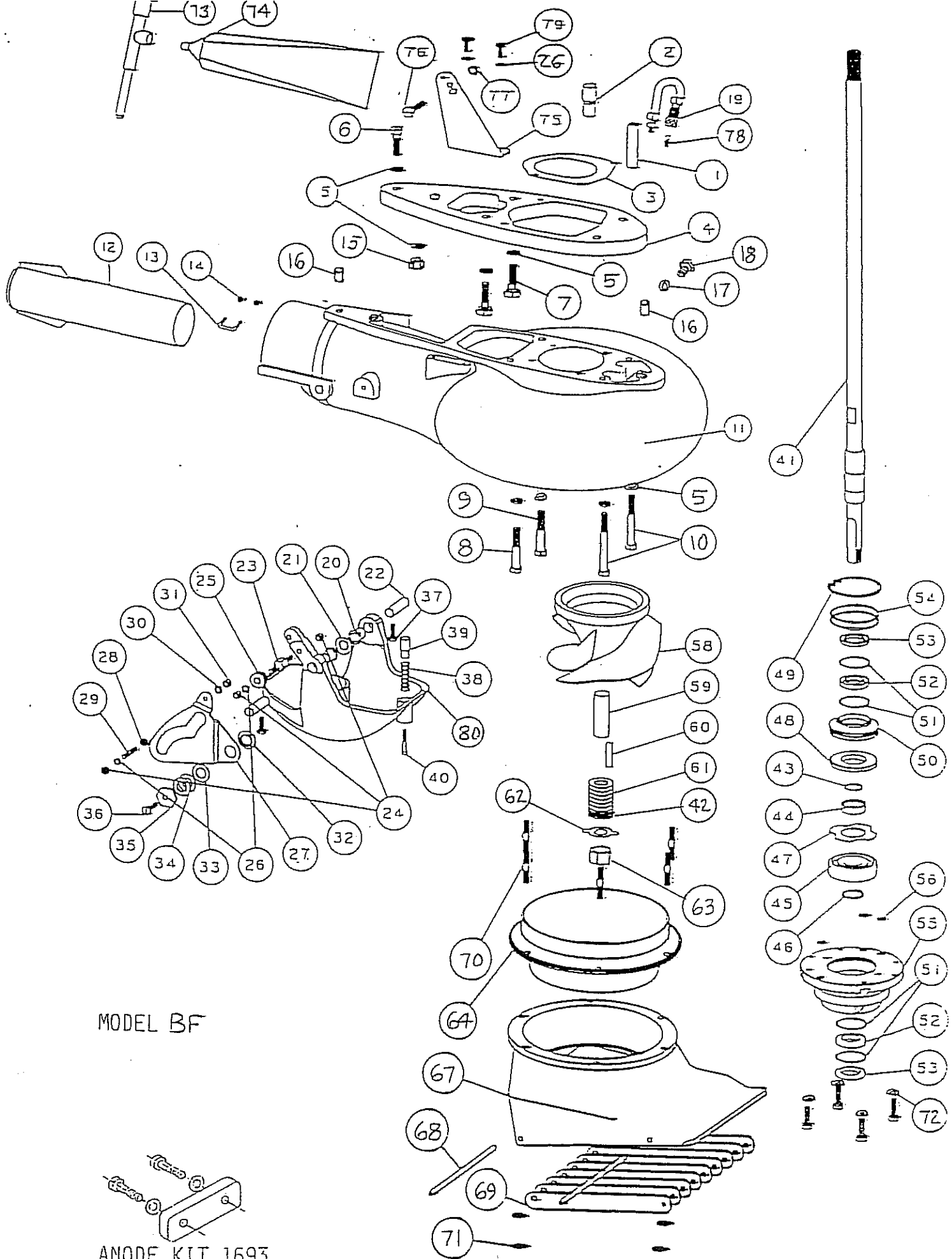
## SALT WATER USE

Aluminum and stainless steel have been used in the construction of your jet drive. These materials have either been treated or are inherently resistant to corrosion. It is recommended, however, that when not in use the motor be tipped up so that the jet unit is out of the water. When used in salt water more than in fresh water, remove mounting hardware, grease, and reassemble once a year. Failure to do this may result in hardware that is difficult if not impossible to remove at a later date.

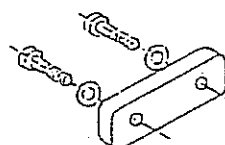
## GUARANTEE

Due to inflexible government regulation, we do not have a written warranty. We have, however, a good reputation for fairness with our customers which we intend to maintain. If you think you have a warranty situation, regarding material, workmanship, call us before making repairs.

Specialty Manufacturing Company  
Outboard Jets  
2035 Edison Avenue  
San Leandro, CA 94577



MODEL BF

  
 ANODE KIT 1693

**MODEL BF MERCURY**  
**2 STROKE, 3 CYL., 58.9 C. I.**  
**2007**

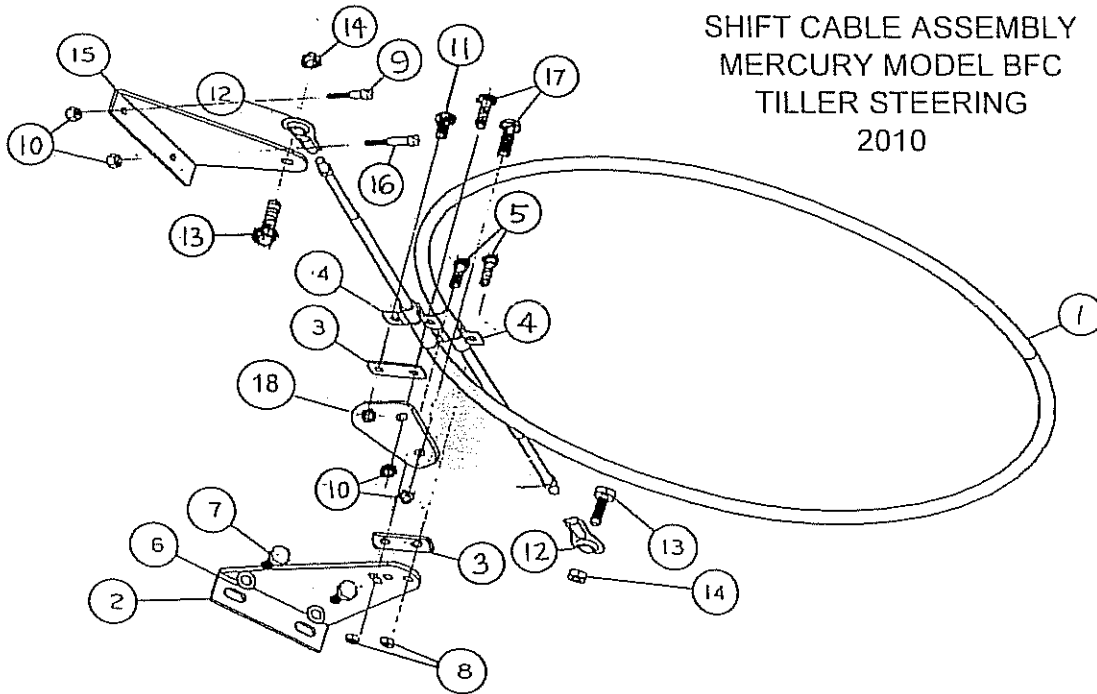
REF	QTY	PART NO.	DESCRIPTION	REF	QTY	PART NO.	DESCRIPTION
1	1	1391	SHIFT ROD GUIDE AK, BF	51	4	517	SPIROLOX RR-150S
2	1	1392	WATER TUBE EXT. AK, BF	52	2	506	SEAL INNER
3	1	1496	GASKET WATER PUMP AK, BF	53	2	507	SEAL OUTER 6324-S
4	1	2002	ADAPTER PLATE BF	54	2	527	O RING 568-141 3/32X2 5/16X2 1/2
5	8	636	WASHER SPRING LOCK M10	55	1	2009	BEARING CARRIER W/SEALS & O RINGS BF 5/16
6	1	606	BOLT HEX HD 3/8-16 X 1 1/4	56	3	521	O RING 568-011 1/16X5/16X7/16
7	2		MERCURY GEAR BOX BOLT M10 X 1.5 X 45MM	57	4	602.1	BOLT HEX HD 5/16-18 X 1 PATCH
8	1	609	BOLT HEX HD 3/8-16 X 2 3/4	58	1	106.23	IMPELLER 6 7/8 60HP
9	1	611	BOLT HEX HD 3/8-16 X 3 1/4	59	1	136	SHAFT SLEEVE PLASTIC LARGE
10	2	590	BOLT HEX HD M10-1.5 X 90MM	60	1	1706	IMPELLER TEE KEY - 1/2 ROUND
		2001	VOLUTE WITH GATE BF	61	8	121	SHIM WASHER LARGE
11	1	2000	VOLUTE WITH EXHAUST TUBE BF	62	1	781	NUTKEEPER LARGE/PKG 2 PER BAG
12	1	128	EXHAUST TUBE ASSY LARGE 2 1/2	63	1	122.1	SHAFT NUT 3/14-16 BRASS
13	1	847	CLIP EXHAUST TUBE 3/4			1855.04	INTAKE ASSY 6 7/8 FLANGED W/GRILL & LINER
14	2	621	NYLOC 10-32	64	1	1833	LINER 6 7/8 FLANGED
15	1		MERCURY GEAR BOX NYLOC M10 X 1.5	67	1	1332.04	INTAKE PAINTED ONLY EX-LARGE
16	2	630	DOWEL PIN 3/8 X 7/8	68	2	14	GRILL ROD
17	1	1023	WASHER FIBER 3/8	69	9	117	GRILL BAR LARGE
18	1	1022	BOLT HEX HD 3/8-16 X 1/2	70	6	1319	STUD - INTAKE LARGE
19	1	975	LUBE HOSE ASSY	71	7	625	NYLOC 5/16-18
20	2	536	NYLINER 1/2 1D X 13/16	72	4	640	WASHER SPRING LOCK 5/16
21	1	1178	SPRING GATE PIVOT 1/2	73	1	550	GREASE GUN
22	2	823	PIN GATE PIVOT 1/2 LARGE	74	1	552	GREASE 10 OZ. TUBE NO. 630-AA
23	1	1043	SHAFT ROLLER			334	BRACKET ASSY MERCURY W/HARDWARE
24	3	624	NYLOC 1/4-28	75	1	153	BRACKET CABLE SUPPORT MERCURY
25	1	1042	ROLLER ASSY	76	1	597	BOLT HEX HD 5/16-18 X 1 1/4
26	4	635	1/4 WASHER AN960C416	77	1	625	NYLOC 5/16-18
27	1	1034	SHIFT CAM LARGE	78	1	539	ZIRC FITTING 1/4-28
28	1	62	NUT HEX JAM 1/4-28	79	2	572	BOLT HEX HD 1/4-20 X 5/8
29	1	1199	PIVOT - CABLE END	80	1	1172	REVERSE GATE, LARGE
30	1	638	WASHER SPRING LOCK 1/4				
31	1	622	NUT HEX 1/4-28				
32	1	1037	BUSHING CAM				
33	1	1038	WASHER CAM				
34	2	1039	SHIM - CAM				
35	1	1036	CAM ECCENTRIC DRILLED				
36	1	574.1	BOLT HEX HD 1/4-20 X 1 PATCH				
37	2	574	BOLT HEX HD 1/4-20 X 3/4 PATCH				
38	1	1170	SPRING GATE BUMPER				
39	1	1497	GATE BUMPER				
40	1	559.2	FIL HD SLOTTED 10-32 X 1 1/4 PATCH				
41	1	2004	SHAFT ONLY, BF, 14T 30 7/8 LG				
		2005.1	SHAFT ASSY COMPLETE, BF, 14T-5/16				
42	1	1719	TORSIONAL DAMPER 3/4				
43	1	41	SHAFT BEARING THRUST RING				
44	1	467	COLLAR BACKFIT 7305				
45	1	502	BEARING 7305B-UA				
46	1	511	TRUARC 5100-98				
47	1	404	THRUST WASHER				
48	1	1534	SPACER				
49	1	513	TRUARC N5002-250ZD				
50	1	432	UPPER SEAL CARRIER W/SEALS & O RINGS				

SIZE	TORQUE
1/4-20 (M6)	8-9 FT-LBS
5/16-18 (M8)	12 FT-LBS
3/8-16 (M10)	22 FT-LBS

TILLER STEERING  
 SHIFT CABLE ASSY 2010, SEE PAGE 25.4

BEARING, SEAL, SNAP & "O" RING KIT  
 1 BRG 462.1

SHIFT CABLE ASSEMBLY  
 MERCURY MODEL BFC  
 TILLER STEERING  
 2010



REF	QTY	PART NO.	DESCRIPTION
1	1	549	CABLE 3 1/2 FT MOR 33C SUPREME
2	1	156	BRACKET CABLE SUPT OMC, MORSE
3	2	542	SHIM MORSE A035777
4	2	543	CLAMP CHRYS 154317
5	2	561	FIL HD SLOTTED 10-24 X 5/8
6	2	635	1/4 WASHER AN960C416
7	2	572	BOLT HEX HD 1/4-20 X 5/8
8	2	619	NYLOC 10-24
9	1	559	FIL HD SLOTTED 10-32 X 1
10	4	621	NYLOC 10-32
11	1	562	PAN HD PHILLIPS 10-32 X 1/2
12	2	553.2	BALL END 1/4X10-32 CABLE
13	2	573	BOLT HEX HD 1/4-20 X 3/4
14	2	623	NYLOC 1/4-20
15	1	1405	SHIFT LEVER AK
16	1	558	FIL HD SLOTTED 10-32 X 1 1/4
17	2	558.4	FIL HD SLOTTED 10-32 X 1 1/4
18	1	2011	CABLE ANCHOR BFC



MODEL BFC MERCURY

