

MODEL BC FOR 40 HP YAMAHA SERIES

ASSEMBLY INSTRUCTIONS

YAMAHA MODEL 40XMH, 2 CYLINDER, 2 STROKE, 42.9 CU. IN.

1. Place the engine on the transom of your boat in the normal fashion. Disconnect the shift rod coupling. Remove the 5 bolts holding the gearbox to the exhaust housing and remove the gearbox assembly.
2. Remove the water pump assembly from the propeller drive, including the lower stainless steel plate and the dowel pins.
3. Install the jet driveshaft assembly into the spiral pump housing locking it in place with the four 1/4-20 x 3/4 bolts and lockwashers. Use grease on the threads. Tighten to 8 ft-lbs.
4. Insert the clear plastic 1/2 long x 3/8 dia. Sleeve in the 3/8 hole in the main housing, just ahead of the cooling water pump.

Install the water pump assembly on top of the stainless steel plate, using 4—M8 x 30MM bolts and the special steel washers under the bolt heads. Be sure also, to install the water pump impeller drive key and dowel pins. Grease the threads. Before tightening the bolts, press the 2 3/4 long x 1/2 dia. Plastic shift rod guide into the clear plastic sleeve, through the stainless steel plate, until it bottoms. Tighten the bolts.

Remove the nut and hex coupling from the gearbox and motor mid section shift rods. Thread the nut and coupling all the way onto the shift rod guide #1911, and tighten the nut against the coupling. Thread the coupling onto the motor shift rod and tighten it against the shift rod.

5. Remove the plastic water tube guide and rubber sleeve from the outlet of the cooling pump. Install the 5/8 dia. X 3/8 long plastic spacer in the outlet, followed by the rubber sleeve and the brass water tube extension. If there is a burr on the end of the motor cooling tube, file it smooth so the “O” ring inside the water tube extension will slide on.
6. The large 3/4” adapter plate is attached to the exhaust housing to hold the jet drive. Two 6 x 16mm dowels locate the plate, four M10 x 35MM bolts with lockwashers and one M8 x 30 MM bolt with lock washer secure it. Grease the bolt threads.
7. Next, attach the jet drive to the motor. Use two 5/16-18 x 2-1/2 bolts (front), two 5/16-18 x 2-3/4 bolts (rear) from below with lockwashers, one 3/8-16 x 1-1/2 bolt and lockwasher, above rear, inside the motor mid-section and two 3/16 x 1/2 dowel pins.

Grease the bolt threads, driveshaft spline generously, and rubber water tube pilot and guide the jet into place. Tighten the 5 bolts.

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 eight shim washers and nut retainer on the shaft, up against the impeller, and bring the nut up snug by hand.

Place the water intake in position and secure with 2 bolts. Observe the clearance between the impeller blade edge and the intake liner. Then remove the intake.

When, after use in sand and gravel, the blade clearance becomes more than about 1/32 inch between the impeller edge and the water intake liner, one or more of the stainless 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.

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When the impeller clearance is satisfactory, 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.

9. Place the intake casing in position with the lower end at the rear and tighten the six ¼-20 fiber lock nuts. No lockwashers are used. Grease the threads.
10. If your jet drive was ordered for use with a steering tiller handle, see attached page 4, "Shift Cable and Handle Assembly Instructions attached, #1914
11. If your motor uses remote controls, attach the shift cable and cable anchor bracket to the jet drive. Slide the bracket all the way forward and lock the bolts. With the shift handle in forward and the reverse gate in forward, and 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 on page 3, 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. 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 overspeeds 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.

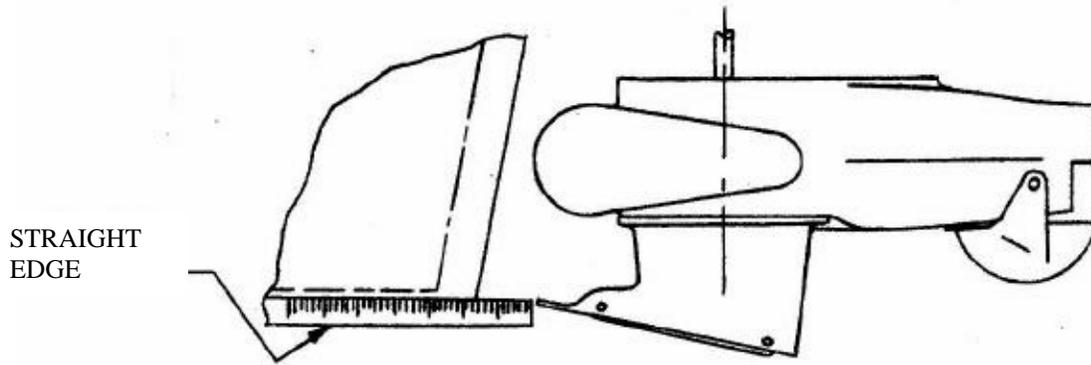
The motor has four sets of upper mounting holes. You will use one set to begin with. Mark pencil lines on the boat transom through the other sets. Then if you wish to go up or down 5/16 inch, you can drill one alternate set of holes 5/16 inch up or down from the pencil marks. By alternating between these 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. The transom height should be about 21 inches measured vertically from the boat bottom for short shaft motors and 26 inches for long shaft.

CAUTION

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

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SETTING MOTOR HEIGHT



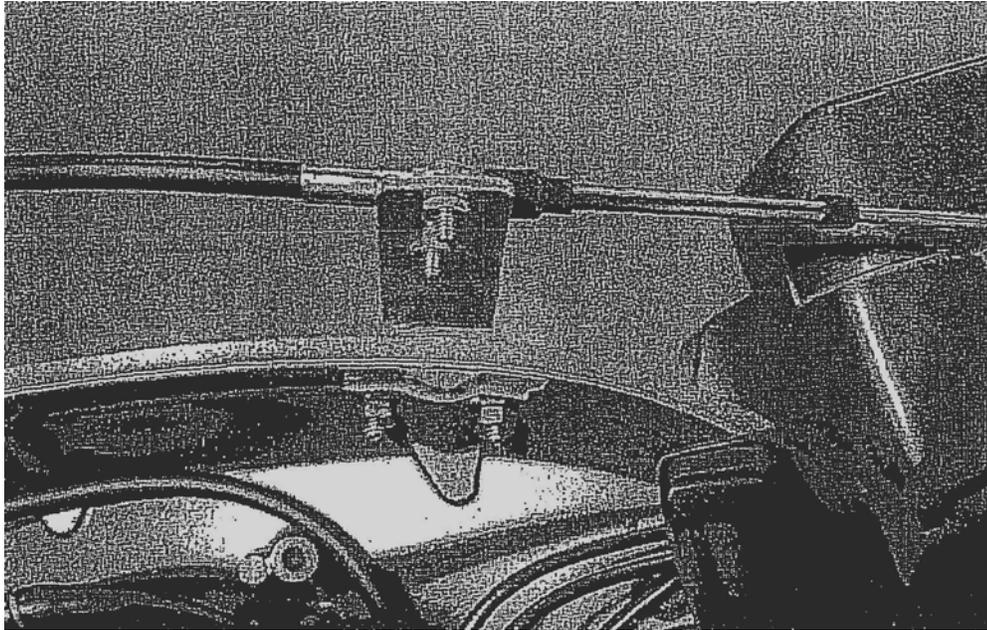
CAUTION

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 power head. This is to check your assembly of the cooling water pump and its connections.

MAINTENANCE AND LUBRICATION

See last page

TILLER SHIFT CABLE ASSY
YAMAHA MODEL BC 40 HP
1914



1. Cut out the paper template for the shift handle and attach it to the shift handle with masking tape. Drill through using a ¼ inch drill. After drilling through the first side, align the drill carefully to come out square and centered on the second side.
2. Install the four inch bolt with washer through the handle followed by the black handle #1906, washer and nut. Tighten the nut.
3. Clamp the cable anchor on the engine pan up against the rim. Center it with the raised rib inside the pan so that the mounting bolts will straddle the rib. Drill through the pan using a ¼ inch drill. Install two ¼-20 x 5/8 hex head bolts and fiber lock nuts.
4. Attach the shift cable to the bracket with the shim between the cable and bracket, using two 10-24 x 5/8 screws and lock nuts.
5. Thread the rod end on the cable, threaded on about 3/8 inch. Slide the rod end on the shift handle bolt and install the outer lock nut, flush with the end of the bolt. Be sure this leaves about 1/16 inch slide play for the rod end between the nuts.
6. Direct the other end of the cable through the gap between the motor mount and motor mid section to the starboard side. Attach the cable anchor bracket to the jet drive, centered over the slots. Attach the cable to the anchor bracket and the reverse gate cam rod end.
7. The cable anchor brackets have the lower holes slotted so that the cable can be lined up for free cable travel. Make this adjustment at both ends of the cable and tighten the screws.
8. Place the shift handle in forward, solidly in the detent. The reverse gate cam roller must be at the end of the slot in the cam. If these conditions are not met, slide the cable anchor bracket on the jet drive and/or adjust the threaded rod end on the cable.
9. Shift to reverse and back to forward. Do not be concerned if the gate does not reach reverse. There is clearance at this position and water pressure will close the gate.
10. In forward, with the roller at the end of the cam slot, the gate cannot be forcibly rotated toward reverse. Pull on the gate by hand to verify this.
11. Lock the nuts on the cable against the rod ends to complete the adjustment.

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

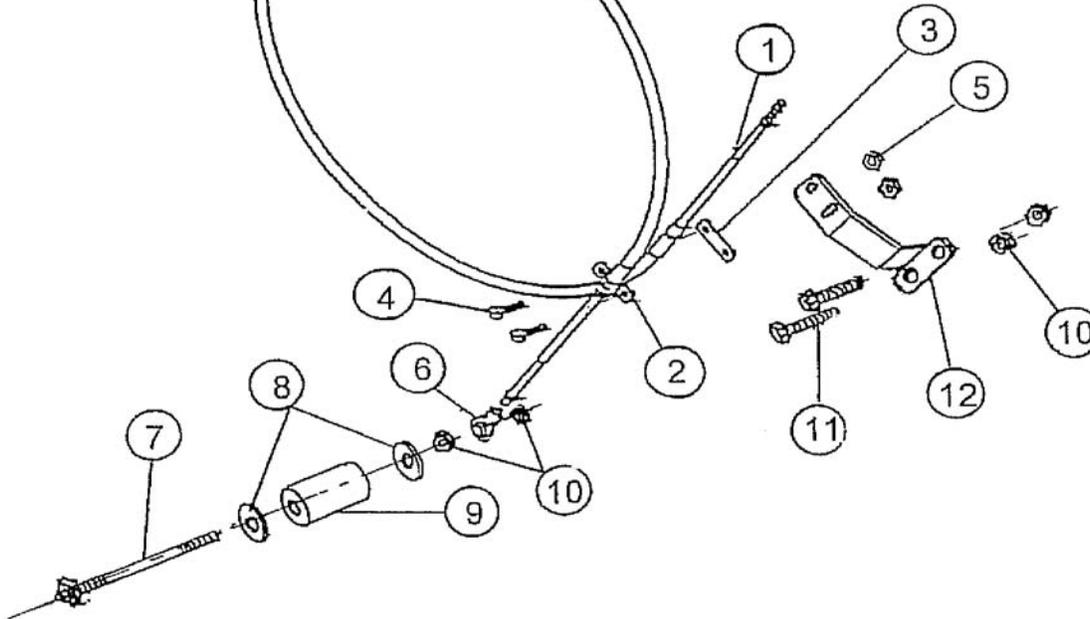
Aluminum and stainless steel have been used in the construction of your jet drive. These materials have either been treated or are inherently resistant to corrosion. It is recommended, however, that when not in use the motor be tipped up so that the jet unit is out of the water. When used in salt water 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

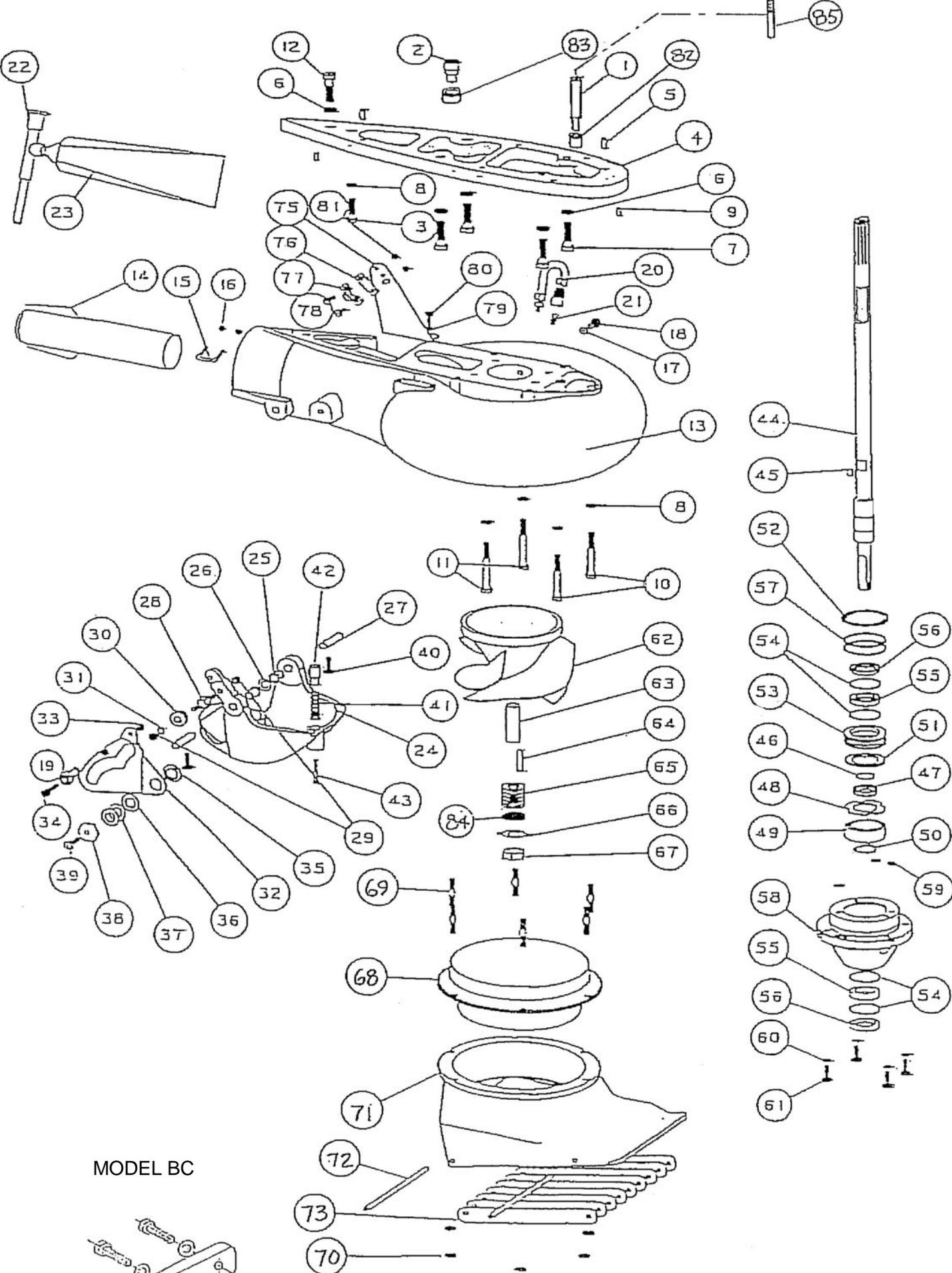
Due to inflexible government regulation, we do not have a written warranty. We have, however, a good reputation for fairness with our customers which we intend to maintain. If you think you have a warranty situation, regarding material, workmanship, call us before making repairs.

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

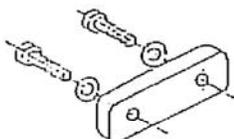
SHIFT CABLE ASSEMBLY
YAMAHA MODEL BC
TILLER STEERING
1914



REF	QTY	PART NO.	DESCRIPTION
1	1	547	CABLE 4 FT MOR 33C SUPREME
2	1	543	CLAMP CHRYS 154317
3	1	542	SHIM MORSE A035777
4	2	561	FIL HD SLOTTED 10-24 X 5/8
5	2	619	NYLOC 10-24
6	1	553.2	BALL END 1/4X10-32 CABLE
7	1	1913	SHIFT HANDLE SHAFT ASSY BC
8	2	633	WASHER 1/4 X 1
9	1	1906	SHIFT HANDLE BC YAM
10	4	623	NYLOC 1/4-20
11	2	572	BOLT HEX HD 1/4-20 X 5/8
12	1	1905.1	CABLE ANCHOR BC FORMED



MODEL BC



ANODE KIT 1693

MODEL BC YAMAHA 40XMH 2 STROKE 2 CYL 40HP, 42.9 CU. IN.

REF	QTY	PART NO.	DESCRIPTION	REF	QTY	PART NO.	DESCRIPTION
1	1	1910	SHIFT ROD TUBE BC	48	1	1536	THRUST WASHER
2	1	1377	WATER TUBE EXTENSION - AJ	49	1	504	BEARING 7205B-UA
3	1	591	BOLT HEX HD M8-1.25 X 30MM	50	1	511	TRUARC 5100-98
4	1	1366	ADAPTER PLATE AJ	51	1	1535	SPACER
5	2	616	DOWEL PIN 6 X 16 MM	52	1	512	TRUARC N5002-212ZD
6	5	636	WASHER SPRING LOCK M10	53	1	433	UPPER SEAL CARRIER W/ SEALS & O RINGS
7	4	592	BOLT HEX HD M10-1.25 X 35MM	54	4	517	SPIROLOX RR-150S
8	5	640	WASHER SPRING LOCK 5/16	55	2	506	SEAL INNER
9	2	631	DOWEL PIN 3/16 X 1/2	56	2	507	SEAL OUTER 6324-S
10	2	603	BOLT HEX HD 5/16-18 X 2 1/2	57	2	526	O RING 568-135 3/32X1 15/16X2 1/8
11	2	599	BOLT HEX HD 5/16-18 X 2 3/4	58	1	1932	BEARING CARRIER W/SEALS & O RINGS BC
12	1	607	BOLT HEX HD 3/8-16 X 1 1/2	59	3	521	O RING 568-011 1/16X5/16X7/16
		1918	VOLUTE WITH GATE BC	60	4	638	WASHER SPRING LOCK 1/4
13	1	1917	VOLUTE WITH EXHAUST TUBE BC	61	4	573	BOLT HEX HD 1/4-20 X 3/4
14	1	80	EXHAUST TUBE ASSY MEDIUM 2	62	1	8.23	IMPELLER 6 1/8 W/36 SLEEVE
15	1	846	CLIP EXHAUST TUBE 1	62	1	1737	IMPELLER 6 1/8 W/36 SLEEVE, STAINLESS
16	2	621	NYLOC 10-32	63	1	36.1	SHAFT SLEEVE PLASTIC MEDIUM
17	1	1025	WASHER FIBER M8	64	1	1705	IMPELLER TEE KEY - 1/2 ROUND
18	1	1024	BOLT HEX HD M8-1.25 X 12	65	8	21	SHIM WASHER MEDIUM
19	1	553.2	BALL END 1/4X10-32 CABLE	66	1	805	NUTKEEPER MED/PKG 2 PER BAG
20	1	975	LUBE HOSE ASSY	67	1	22.1	SHAFT NUT 5/8-18 BRASS
21	1	539	ZIRC FITTING 1/4-28			1447	INTAKE ASSY 6 1/8 FLANGED W/ GRILL & LINER
22	1	550	GREASE GUN	68	1	1521	LINER 6 1/8 FLANGED
23	1	552	GREASE 10 OZ TUBE 630-AA	69	6	1300	STUD - INTAKE MEDIUM
24	1	1175	REVERSE GATE, MEDIUM	70	6	623	NYLOC 1/4-20
25	2	535	NYLINER 3/8 1D X 11/16	71	1	1326	INTAKE PAINTED ONLY MED FLANGED
26	1	1177	SPRING GATE PIVOT 3/8	72	2	14	GRILL ROD
27	2	822	PIN GATE PIVOT 3/8 MEDIUM	73	9	16	GRILL BAR MEDIUM
28	1	1043	SHAFT ROLLER			171	BRACKET ASSY MORSE W/CLAMP & HARDWARE
29	2	624	NYLOC 1/4-28	75	1	156	BRACKET CABLE SUPPORT
30	1	1042	ROLLER ASSY	76	1	542	SHIM MORSE A035777
31	1	635	1/4 WASHER AN960C416	77	1	543	CLAMP CHRYS 154317
32	1	1035	SHIFT CAM MEDIUM	78	2	561	FL HD SLOTTED 10-24 X 5/8
33	1	623	NYLOC 1/4-20	79	2	635	1/4 WASHER AN960C416
34	1	573	BOLT HEX HD 1/4-20 X 3/4	80	2	572	BOLT HEX HD 1/4-20 X 5/8
35	1	1037	BUSHING CAM	81	2	619	NYLOC 10-24
36	1	1038	WASHER CAM	82	1	1650	CUSHION-SHIFT ROD GUIDE
37	2	1039	SHIM-CAM	83	1	1912	SPACER-WATER TUBE
38	1	1036	CAM ECCENTRIC DRILLED	84	1	1718	TORSIONAL DAMPER 5/8
39	1	574.1	BOLT HEX HD 1/4-20 X 1 PATCH	85	1	1911	SHIFT ROD GUIDE
40	2	574	BOLT HEX HD 1/4-20 X 3/4 PATCH				
41	1	1170	SPRING GATE BUMPER				
42	1	1169	GATE BUMPER				
43	1	559.2	FIL HD SLOTTED 10-32 X 1 1/4 PATCH				
44	1	1908	SHAFT ONLY, BC, 14T 26 3/8 LG				
		1909	SHAFT ASSY COMPLETE, BC, 14T W/1275 KEY				
45	1	1275	KEY, TEE WATER PUMP				
46	1	41	SHAFT BEARING THRUST RING				
47	1	477	COLLAR BACKFIT 7205				

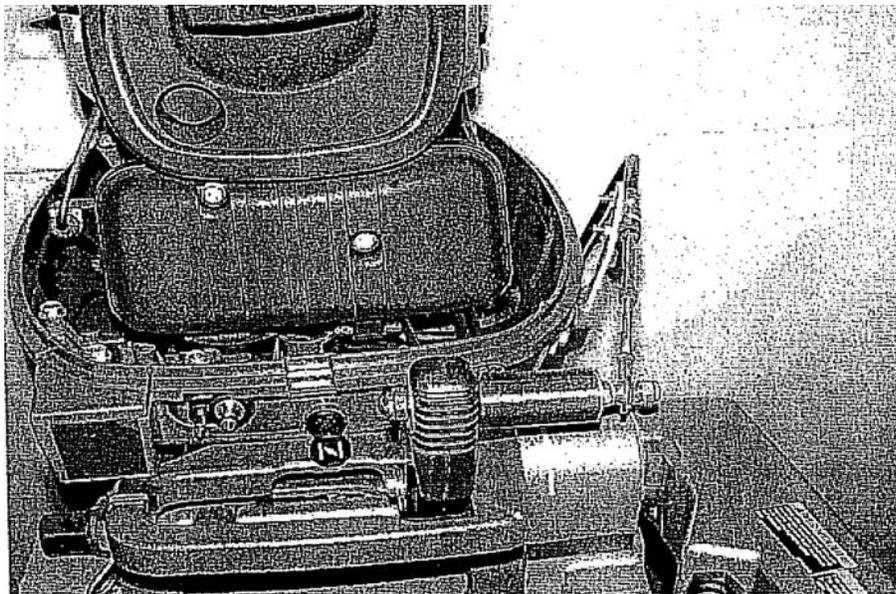
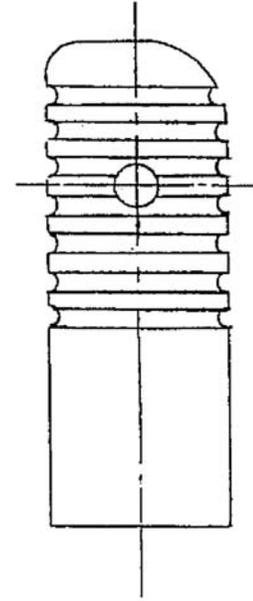
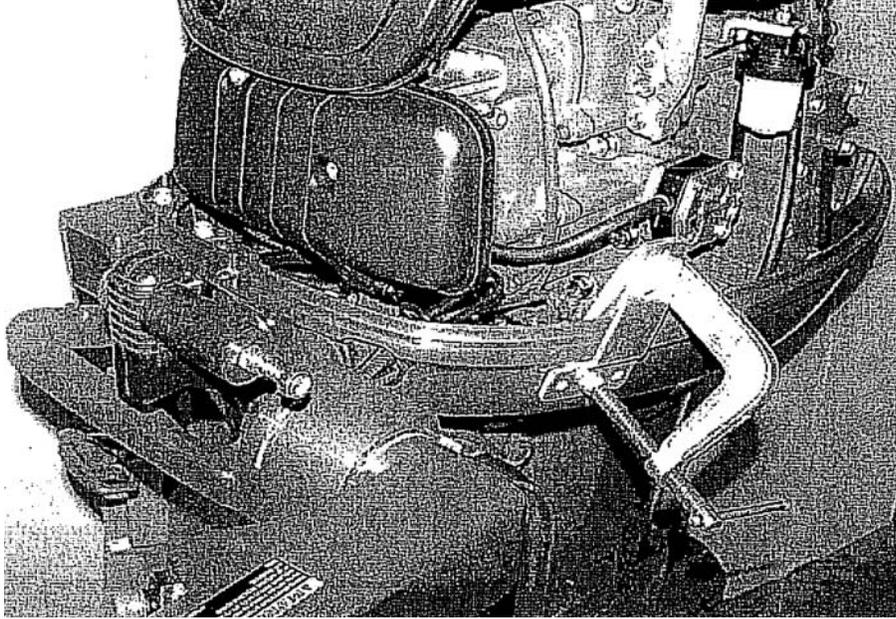
SIZE	TORQUE
1/4-20 (M6)	8-9 FT-LBS
5/16-18 (M8)	12 FT-LBS
3/8-16 (M10)	22 FT-LBS

TILLER STEERING

SHIFT CABLE ASSY 1914

BEARING, SEAL, SNAP & "O" RING KIT 803.1

MODEL BC



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