

MODEL BH SUZUKI SERIES 2009
ASSEMBLY INSTRUCTIONS
70-90 HP 4 STROKE 4 CYLINDER

1. Place the engine on the transom of your boat so that it is mounted vertically, in the normal fashion. Remove the bolts holding the gearbox to the exhaust housing. As you lower the gearbox, cut the tie holding the speedometer water pickup rubber tube and slip the tube off of the gearbox fitting. Remove the gearbox assembly.
2. Remove the water pump assembly from the propeller drive, including the lower stainless steel plate, dowel pins, 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 3/4" thick aluminum water pump adapter on the main housing using two 3/16 x 1/2 dowel pins. **Remove the gasket from the underside of the stainless steel water pump plate and substitute gasket #2038.** Using the two 6mm dowel pins, install the water pump assembly on top of the 3/4" thick aluminum adapter and stainless steel plate. Be sure also, to install the water pump impeller drive key removed from the propeller drive. Lock in place using four 5/16-18 x 1 3/4 bolts to 10 ft-lbs. Grease the threads.
5. The large 3/4" adapter plate is attached to the midsection to hold the jet drive. Install the shift rod guide #2037 at the front of the plate. Two 8 x 12mm dowels locate the plate, five M10 x 35mm bolts with lock washers secure it, 22 ft-lbs. Grease the threads.
6. Next, attach the jet drive to the motor. Two 3/16 x 1/2 dowel pins center the jet drive on the adapter plate. Four 3/8-16 bolts from below and one 3/8-16 x 1 1/2 bolt from above rear with lock washers are used. Select the lower bolt lengths to suit the different counter bore depths so that all bolts enter the adapter plate the same depth.

Grease the bolt threads, driveshaft spline generously, and rubber water tube pilot and guide the jet into place. Tighten the five bolts to 22 ft-lbs.

7. 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, torsion damper and nut retainer on the shaft, up against the impeller, 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.

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8. Place the intake casing in position with the lower end at the rear and tighten the six nuts to 12 ft-lbs. No lock washers are used. Grease the threads.
9. The shift cable from the remote control box and a 6 ft cable, which goes to the neutral switch inside motor cowl, both attach to the reverse gate cam. The shift cable is on the outside of the cable anchor bracket and the 6 ft cable is on the inside. See page 3. Mount both cables to the anchor bracket and then attach the bracket to the main housing. Slide the bracket all the way forward and lock the bolts. Screw the ball rod ends on the cables as far as they will go and attach them to straddle the reverse gate cam. Lock the 1/4-20 x 1 1/4 bolt and lock nut. Screw the Suzuki cable end onto the 6 ft cable, all the way, and route the cable to the port side of the motor, around the front and connect to the shift linkage.
10. 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.

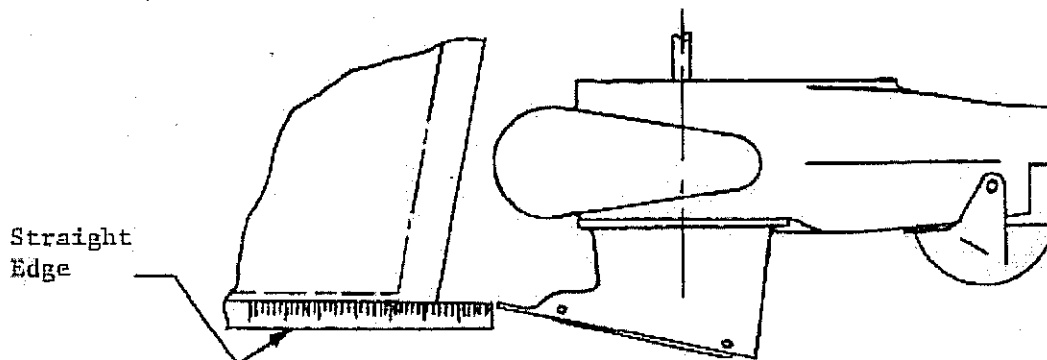
Shift to neutral and adjust the cable end in the motor housing so that the neutral start switch is activated. Check adjustment coming from both forward and reverse to compensate free play in cable linkage.

11. When converting to jet drive, your motor will have to be raised to height shown in diagram on page 2, 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. The transom height should be about 26 inches measured vertically from the boat bottom.

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 cavitations.

SETTING MOTOR HEIGHT



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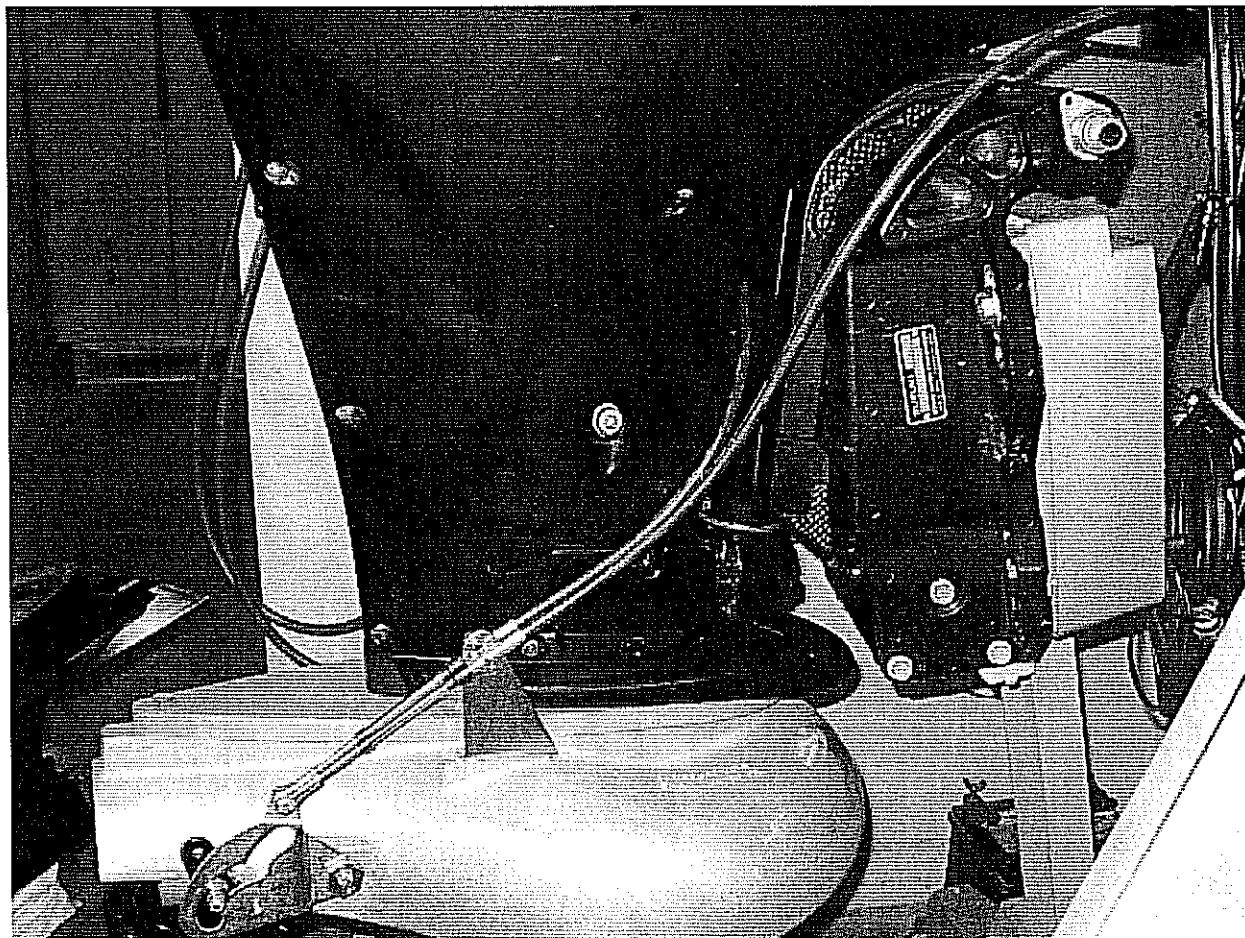
CAUTION

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

The cooling system can be flushed by removing the slotted screw next to the grease fitting. A hose coupling No. 24789A1 is available from a Mercury dealer. Turn on the water gently, start the motor, set to idle and watch for cooling water at the tell tale. Adjust water pressure if needed. Replace the screw after flushing.

MAINTENANCE AND LUBRICATION

See last page.



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.

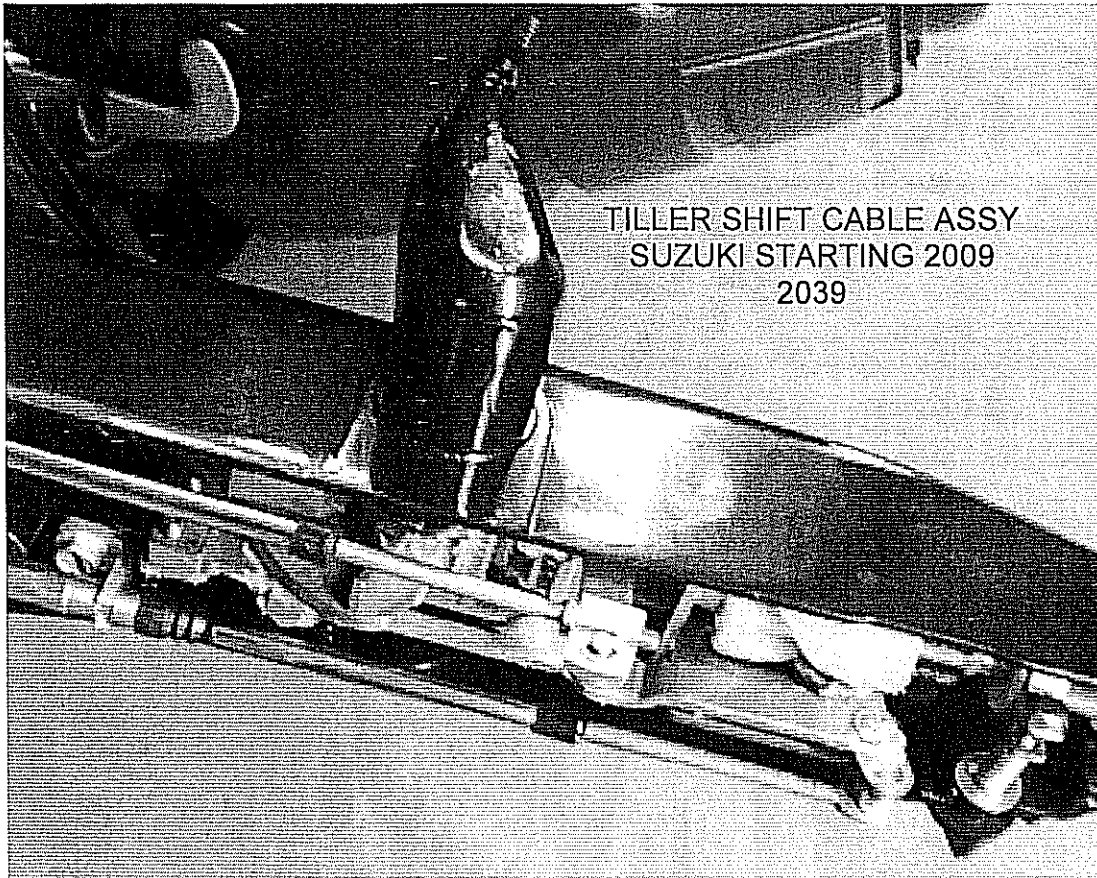
SALT WATER USE

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.

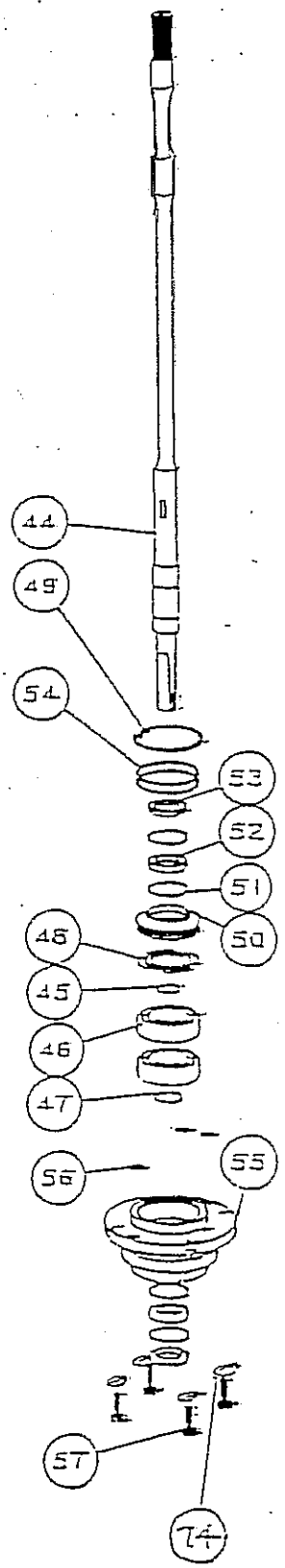
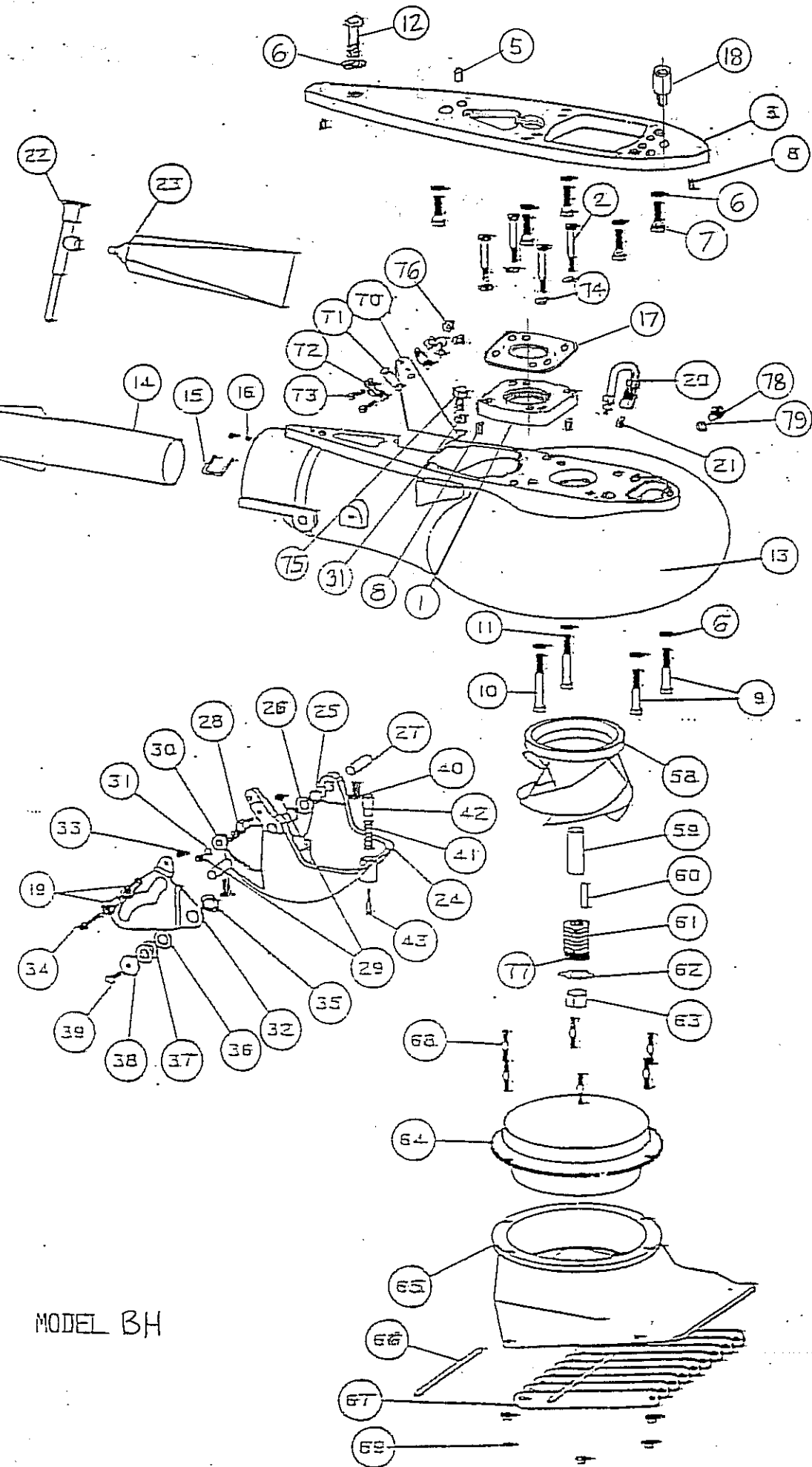
Specialty Manufacturing Company
Outboard Jets
2035 Edison Avenue
San Leandro, CA 94577



1. Remove the lower plastic cover from the steering handle.
2. Remove the shift cable.
3. Install the 4 1/2 ft. standard 33C cable, using the cable end 2036.
4. Attach the lower end of the cable to the jet drive with the ball rod end threaded on the cable as far as it will go and the cable anchor bracket centered and locked. Twist the cable in the U-clamp so that the cable rests against the motor cowling and tighten the clamp screws. The clamp base is slotted to allow alignment for minimum cable bending.
5. 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.
6. 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.
7. 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.
8. Lock the nuts on the cable against the rod ends to complete the adjustment and reassemble the lower cover of the steering arm.

CAUTION

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



MODEL BH

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4 STROKE 4 CYL. 91.7 CU. IN. 70-90 HP

REF NO.	QTY	PART NO.	DESCRIPTION	REF NO.	QTY	PART NO.	DESCRIPTION
1	1	1542	PUMP ADAPTER AP	51	4	517	SPIROLOX RR-160S
2	4	597.1	BOLT HEX HD 5/16-18 X 1 3/4	52	2	506	SEAL INNER
3	1	2035	ADAPTER PLATE BH	53	2	507	SEAL OUTER 6324-S
4	1	1754	NEUTRAL CABLE ASSY SUZUKI	54	2	527	O RING 568-141 3/32X2 5/16X2 1/2
5	2	615	DOWEL PIN	55	1	393.5	BEARING CARRIER W/SEALS & O RINGS 5/16
6	9	636	WASHER SPRING LOCK M10	56	3	521	O RING 568-011 1/16X5/16X7/16
7	5	692	BOLT HEX HD M10-1.25 X 35MM	57	4	602.1	BOLT HEX HD 5/16-18 X 1 PATCH
8	2	631	DOWEL PIN 3/16 X 1/2	58	1	1738	IMPELLER 7 3/8 STAINLESS V6
9	2	608	BOLT HEX HD 3/8-16 X 2 1/4	59	1	136	SHAFT SLEEVE PLASTIC LARGE
10	1	609	BOLT HEX HD 3/8-16 X 2 3/4	60	1	1706	IMPELLER TEE KEY - 1/2 ROUND
11	1	610	BOLT HEX HD 3/8-16 X 3	61	7	121	SHIM WASHERS
12	1	607	BOLT HEX HD 3/8-16 X 1 1/2	62	1	1781	NUT KEEPER LARGE 2 PER BAG
		2034.02	VOLUTE WITH GATE BH	63	1	122.1	SHAFT NUT 3/4-16 BRASS
13	1	2033.02	VOLUTE WITH EXHAUST TUBE BH			1333.02	INTAKE ASSY FLANGED WITH GRILL BAR & LINER
14	1	128	EXHAUST TUBE ASSY LARGE 2 1/2	64	1	1431	LINER FLANGED 7 3/8
15	1	845	CLIP EXHAUST TUBE 1 3/8	65	1	1332.02	INTAKE PAINTED ONLY 7 3/8
16	2	621	NYLOC 10-32	66	2	14	GRILL ROD
17	1	2038	GASKET WATER PUMP BH	67	9	117	GRILL BAR LARGE
18	1	2037	SHIFT ROD GUIDE BH	68	6	1319	STUD - INTAKE LARGE
19	2	553.2	BALL END 1/4X10-32 CABLE	69	6	625	NYLOC 5/16-18
20	1	975	LUBE HOSE ASSY	70	1	156	BRACKET CABLE SUPPORT
21	1	539	ZIRC FITTING 1/4-28	71	2	542	SHIM MORSE A035777
22	1	550	GREASE GUN	72	2	543	CLAMP CHRYS 154317
23	1	552	GREASE 10 OZ TUBE NO. 630-AA	73	2	561.1	FL HD SLOTTED 10-24 X 3/4
24	1	1172.02	REVERSE GATE LARGE	74	4	640	WASHER SPRING LOCK 5/16
25	2	536	NYLINER 1/2 ID X 13/16	75	2	572	BOLT HEX HD 1/4-20 X 5/8
26	1	1178	SPRING GATE PIVOT 1/2	76	2	619	NYLOC 10-24
27	2	823	PIN GATE PIVOT 1/2 LARGE	77	1	1719	TORSIONAL DAMPER 3/4
28	1	1043	SHAFT ROLLER	78	1	1022	BOLT HEX HD 3/8-16 X 1/2
29	2	624	NYLOC 1/4-28	79	1	1023	WASHER FIBER 3/8
30	1	1042	ROLLER ASSY				
31	3	635	1/4 WASHER AN960C416				
32	1	1034	SHIFT CAM LARGE				
33	1	623	NYLOC 1/4-20				
34	1	585	BOLT HEX HD 1/4-20 X 1 1/4				
35	1	1037	BUSHING CAM				
36	1	1038	WASHER CAM				
37	2	1039	SHIM - CAM				
38	1	1036	CAM ECCENTRIC DRILLED				
39	1	574.1	BOLT HEX HD 1/4-20 X 1 PATCH				
40	2	574	BOLT HEX HD 1/4-20 X 3/4 PATCH				
41	1	1170	SPRING GATE BUMPER				
42	1	1497	GATE BUMPER				
43	1	559.2	FIL HD SLOTTED 10-32 X 1 1/4 PATCH				
44	1	2029	SHAFT ONLY, BH 20T 28 7/8 LONG				
		2030.1	SHAFT ASSY COMPLETE, BH 20T 5/16				
45	1	41	SHAFT BEARING THRUST RING				
46	2	502	BEARING 7305B-UA				
47	1	511	TRUARC 5100-98				
48	1	404	BACKUP WASHER				
49	1	513	TRUARC N5002-250ZD				
50	1	432	UPPER SEAL CARRIER W/SEALS & O RINGS				

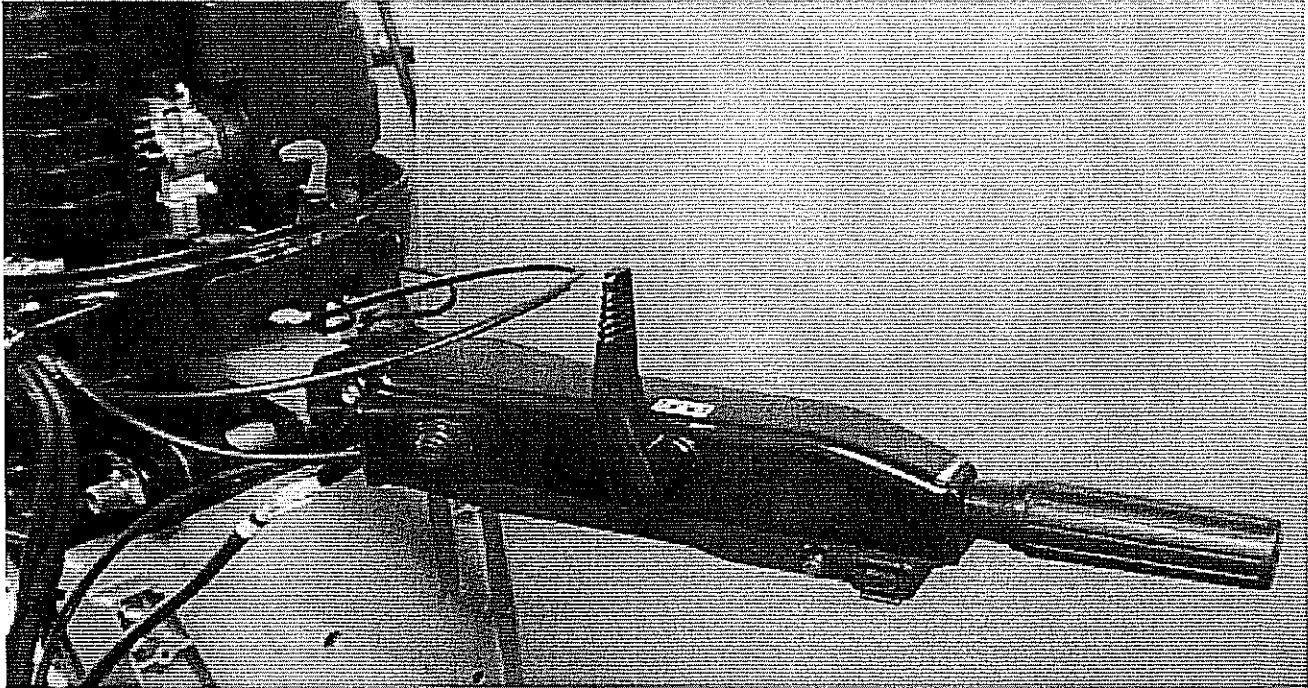
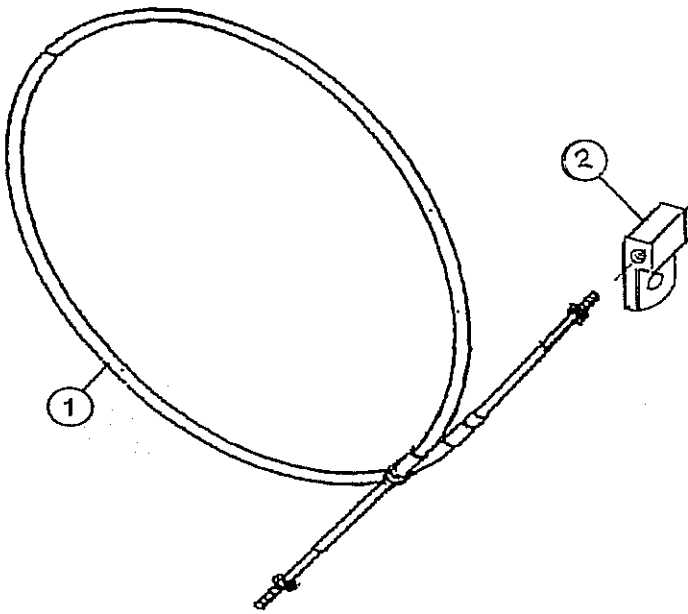
TILLER STEERING CABLE 2039 SEE PAGE 25.5

BEARING, SEAL, SNAP & "O" RING KIT
 2 BRG 462.2

NEUTRAL CABLE NEEDED FOR REMOTE CONTROL
 AND TILLER STEERING 1754 SEE PG. 26.4

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 SHIFT CABLE ASSY
 SUZUKI BH STARTING 2009
 2039



REF	QTY	PART NO.	DESCRIPTION
1	1	547.1	CABLE 4 1/2 FT MOR 33C SUPREME LONG
2	1	2036	CABLE END SUZUKI 2009 TILLER