

MODEL AD TOHATSU / NISSAN SERIES
ASSEMBLY INSTRUCTIONS
70-140 HP, 1988 TO PRESENT

1. Place the engine on the transom of your boat so that it is mounted vertically, in the normal fashion. Disconnect the gearshift rod inside the motor compartment. Remove the 7 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, upper gasket, pump housing, 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 lockwashers. Use grease on the threads.
4. Install the water pump assembly on top of 1-1/2 inch thick aluminum adapter using gaskets over and under the stainless pump plate. Be sure to install the water pump impeller drive key. Lock in place with 4 – M8 x 100MM bolts, using the 4 flat washers from the gearbox. Grease the threads.
5. The large 7/8 inch adapter plate is attached to the exhaust housing to hold the jet drive. Use the 4 – M8 x 34MM and 3 – M10 x 40MM bolts from the gearbox with lockwashers. Grease the threads.
6. Next, attach the jet drive to the motor. Four 3/8-16 bolts and lockwashers from below and one 3/8-16 x 1-1/2 bolt from above rear, are used. Select the lower bolt lengths to suit the different counter bore depths so that all bolts enter the exhaust housing the same depth.

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

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 8 shim washers and nut retainer on the shaft, up against the impeller, and bring the nut up snug by hand. Be careful that the retainer does not fall into the thread groove and jam the nut.

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 inch between the impeller edge and the water intake casing wall, 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.

8. Place the intake casing in position with the lower end at the rear and tighten the six nuts. No lockwashers are used. Grease the threads.
9. Attach the shift cable and cable anchor bracket to the jet drive.

Using a light finger pressure on the gate, move the gate toward reverse until the cam roller is nested in the neutral notch of the cam.

Adjust the shift cable end and the cable anchor bracket on the jet drive such that the roller is in the neutral notch when the shift handle is in neutral. Tighten hardware.

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Shift 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, giving less importance to the roller position in neutral.

10. If the neutral position is too far out of adjustment, the tendency of the gate to move toward reverse, under water pressure, will put tension on the cable in neutral. In some remote control boxes, this makes it difficult to re-engage the shift mode with the motor running in the high speed idle, cold start setting. It is then necessary to stop the motor, operate the shift handle to engage the shifting pin and then restart the motor.

Proper cable adjustment will prevent this problem but it is most important that the forward locking condition be met if a compromise is to be made.

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.

The motor has three 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 three 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 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.

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.

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.

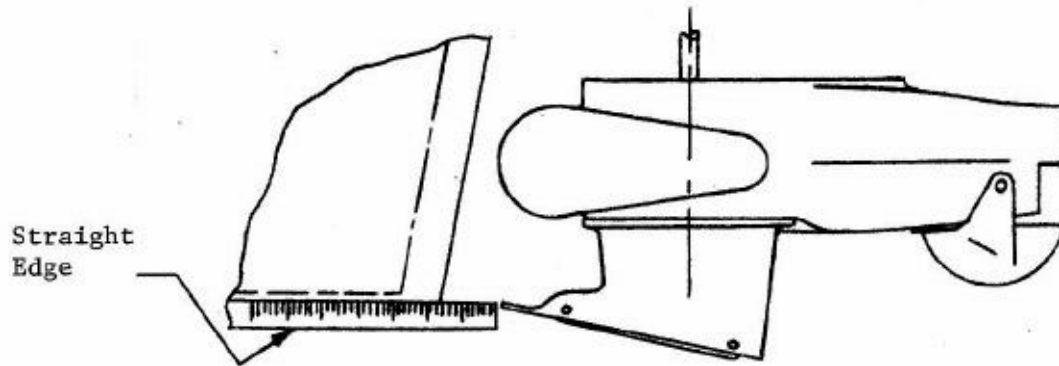
MAINTENANCE AND LUBRICATION

See separate sheet.

GOOD BOATING AND HAVE FUN!

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ASSEMBLY INSTRUCTIONS
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PROPER MOTOR HEIGHT



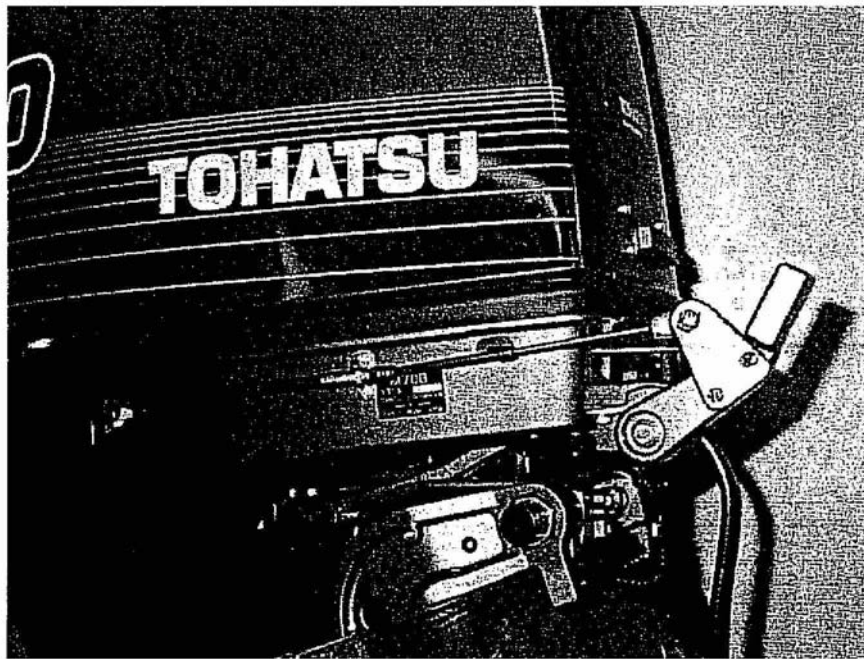
Specialty Manufacturing Company
Outboard Jets
2035 Edison Avenue
San Leandro, CA 94577

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MODEL AD70

Shift Cable and Handle Assembly Instructions- Kit #1342

1. Place the pressed steel shift cable end bracket on the motor shift handle over a piece of masking tape.
2. Position as shown in the photograph and mark the hole positions with a pencil. Using a 3/16 inch drill, drill through the shift handle for the #10-32 x 1 screws. Remove the tape and install the screws and fiber lock nuts.
3. Attach the rear shift cable end and cable anchor bracket to the jet drive. Attach the forward shift cable end to the shift handle. When threading the rod ends onto the cable and positioning the cable anchor onto the jet drive, position such that final adjustment can be made in either direction.
4. Place the reverse gate in forward with the roller at the end of the cam slot and shift the handle to forward.
5. Position the forward cable anchor on the motor, as shown in the photograph, over a piece of masking tape and mark the hole positions. Drill through using a 3/16 drill and attach the “U” clamp and shim using the #10-24 x 5/8 screws and fiber lock nuts.
6. Shift from forward 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. Tighten all adjustments.



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.

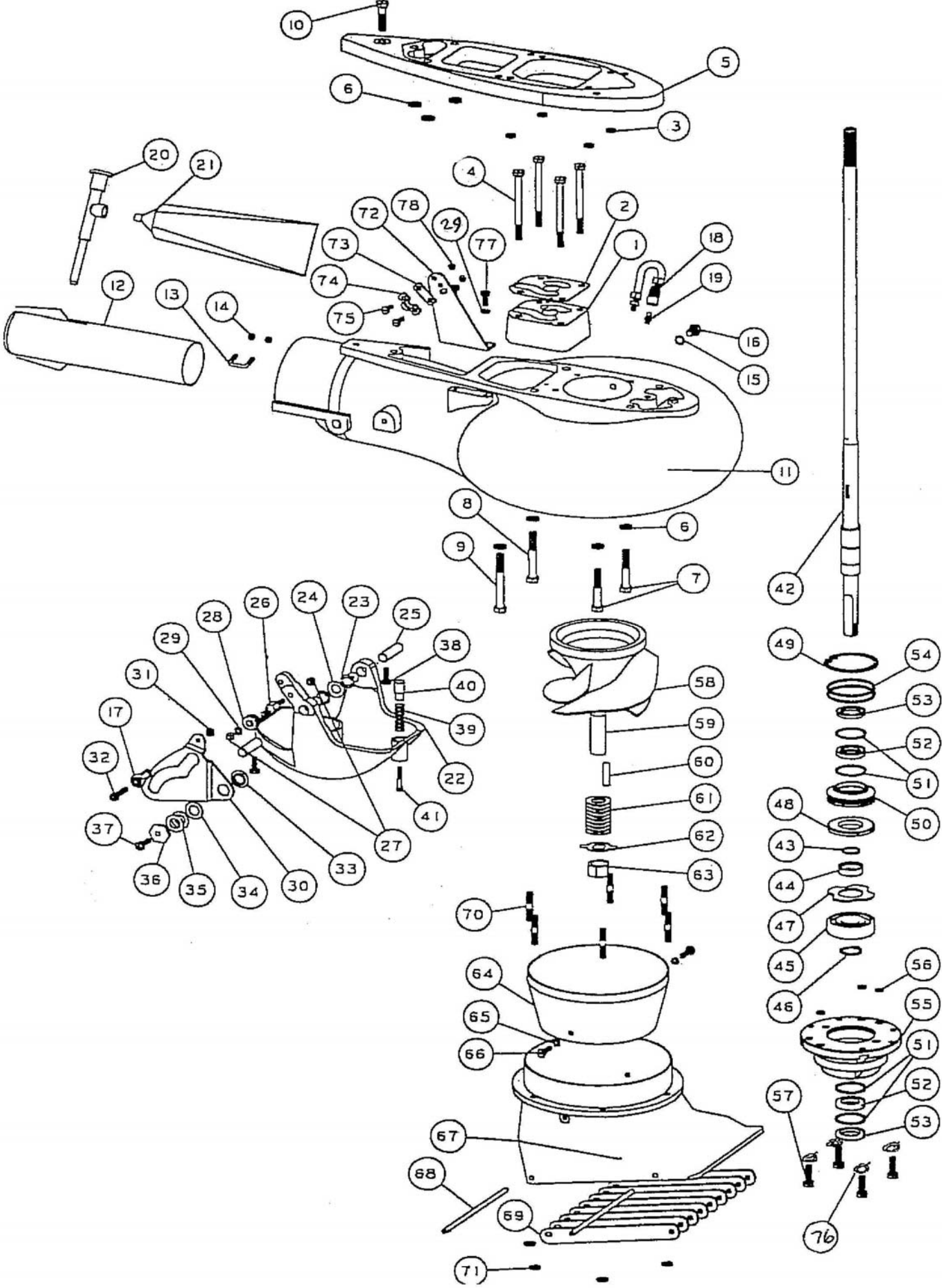
SALT WATER USE

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

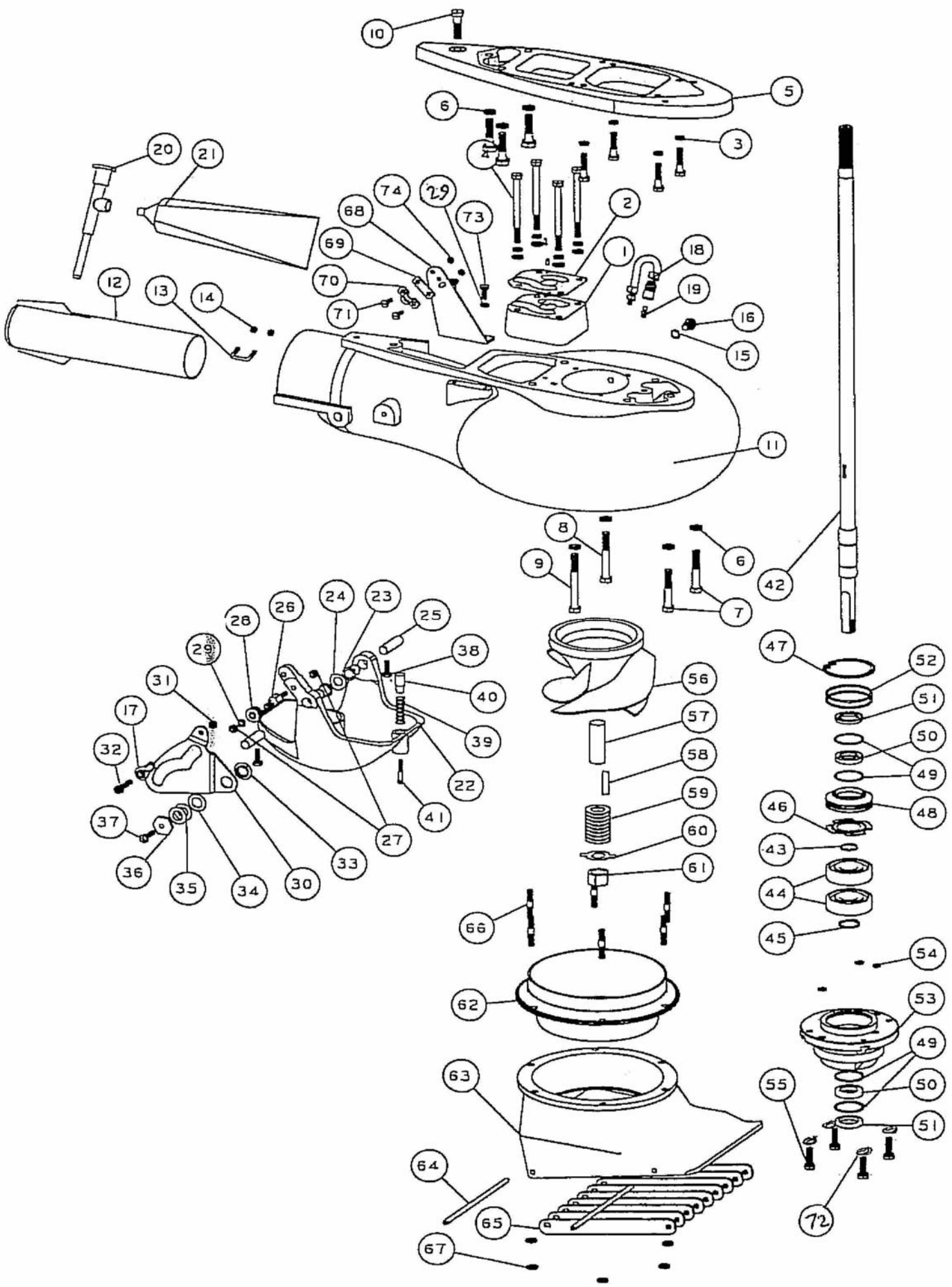


MODEL AD70 TOHATSU / NISSAN

REF	QTY	PART NO.	DESCRIPTION	REF	QTY	PART NO.	DESCRIPTION
1	1	1126	PUMP ADAPTER AD	54	2	527	O RING 568-141
2	1	1127	GASKET WATER PUMP AD	55	1	108.5	BRG CARR SEALS LARGE - 5/16
3	4	640	WASHER SPRING LOCK 5/16	56	3	521	O RING 568-011 1/16X5/16X7/16
4	4	593	BOLT HEX HD M8-1.25 X 100MM	57	4	602.1	BOLT HEX HD 5/16-18 X 1 PATCH
5	1	1129	ADAPTER PLATE AD	58	1	106.24	IMPELLER 7 3/16 136, 1706(2)
6	7	636	WASHER SPRING LOCK M10	59	1	136	SHAFT SLEEVE PLASTIC LARGE
7	2	608	BOLT HEX HD 3/8-16 X 2 1/4	60	1	434	KEY, TEE IMPELLER LARGE 3/16
8	1	609	BOLT HEX HD 3/8-16 X 2 3/4	61	9	121	SHIM WASHER LARGE
9	1	611	BOLT HEX HD 3/8-16 X 3 1/4	62	1	781	NUT KEEPER FOLDED LARGE
10	1	607	BOLT HEX HD 3/8-16 X 1 1/2	63	1	122.1	SHAFT NUT 3/4-16 BRASS
		11350	RECOUP GATE AD			141.3	INTAKE ASSY 7 3/16
11	1	1136	RECOUP TUBE AD	64	1	137	LINER 7 3/16 W/HARDWARE
12	1	128	EXHAUST TUBE ASSY LARGE 2 1/2	65	2	638	WASHER SPRING LOCK 1/4
13	1	847	CLIP EXHAUST TUBE 3/4	66	2	575	BOLT HEX HD 1/4-20 X 7/8
14	2	621	NYLOC 10-32	67	1	104	INTAKE PAINTED LARGE
15	1	1023	WASHER FIBER 3/8	68	2	14	GRILL ROD
16	1	1022	BOLT HEX HD 3/8-16 X 1/2	69	9	117	GRILL BAR LARGE
17	1	553.2	BALL END 1/4X10-32 CABLE	70	6	1319	STUD - INTAKE LARGE
18	1	975	LUBE HOSE ASSY	71	6	625	NYLOC 5/16-18
19	1	539	1/4-28 THREAD HYDRAULIC ZIRC			171	BRACKET ASSY MORSE
20	1	550	GREASE GUN 30195	72	1	156	BRACKET CABLE SUPT OMC, MORSE
21	1	552	GREASE 10 OZ TUBE NO.630-AA	73	1	542	SHIM MORSE A035777
22	1	1172	GATE PAINTED LARGE 1/2 CAM	74	1	543	CLAMP CHRYS 154317
23	2	536	NYLINER 4217A 1/2ID X .82	75	2	561	FIL HD SLOTTED 10-24 X 5/8
24	1	1178	SPRING GATE PIVOT 1/2	76	4	640	WASHER SPRING LOCK 5/16
25	2	823	PIN GATE PIVOT 1/2 LARGE	77	2	572	LINER 6 5/8 W/HARDWARE 50HP
26	1	1043	SHAFT ROLLER	78	2	619	NYLOC 10-24
27	2	624	NYLOC 1/4-28				
28	1	1042	ROLLER ASSY				
29	3	635	1/4 WASHER AN960C416				
30	1	1034	SHIFT CAM LARGE				
31	1	623	NYLOC 1/4-20				
32	1	573	BOLT HEX HD 1/4-20 X 3/4				
33	1	1037	BUSHING CAM				
34	1	1038	WASHER CAM				
35	2	1039	SHIM - CAM				
36	1	1036	CAM ECCENTRIC DRILLED				
37	1	574.1	BOLT HEX HD 1/4-20 X 1 PATCH				
38	2	574	BOLT HEX HD 1/4-20 X 3/4 PATCH				
39	1	1170	SPRING GATE BUMPER				
40	1	1497	GATE BUMPER - LONG				
41	1	559.2	FIL HD SLOT 10-32X 1 1/4 PATCH				
		1340.1	SHAFT ASSY COMPLETE, AD70, 15T 5/16				
42	1	1339	SHAFT ONLY, AD70, 15T 30 7/8 LG				
43	1	41	SHAFT BEARING THRUST RING				
44	1	467	COLLAR BACKFIT 7305				
45	1	502	BEARING 7305B-UA				
46	1	511	TRUARC 5100-98SPP				
47	1	830	THRUST WASHER LARGE				
48	1	831	SPACER 7305 MILLED				
49	1	513	TRUARC N5002-250ZDL				
50	1	432	SEAL RING ASSY LARGE				
51	4	517	SPIROLOX RR-150S				
52	2	506	SEAL INNER 0857				
53	2	507	SEAL OUTER 1317 REV B				

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

TILLER STEERING
 SHIFT CABLE ASSY 1263, 1264 SEE PAGE 21
 BEARING, SEAL, SNAP & "O" RING KIT
 2 BRG 462.2



MODEL AD90/140 TOHATSU / NISSAN

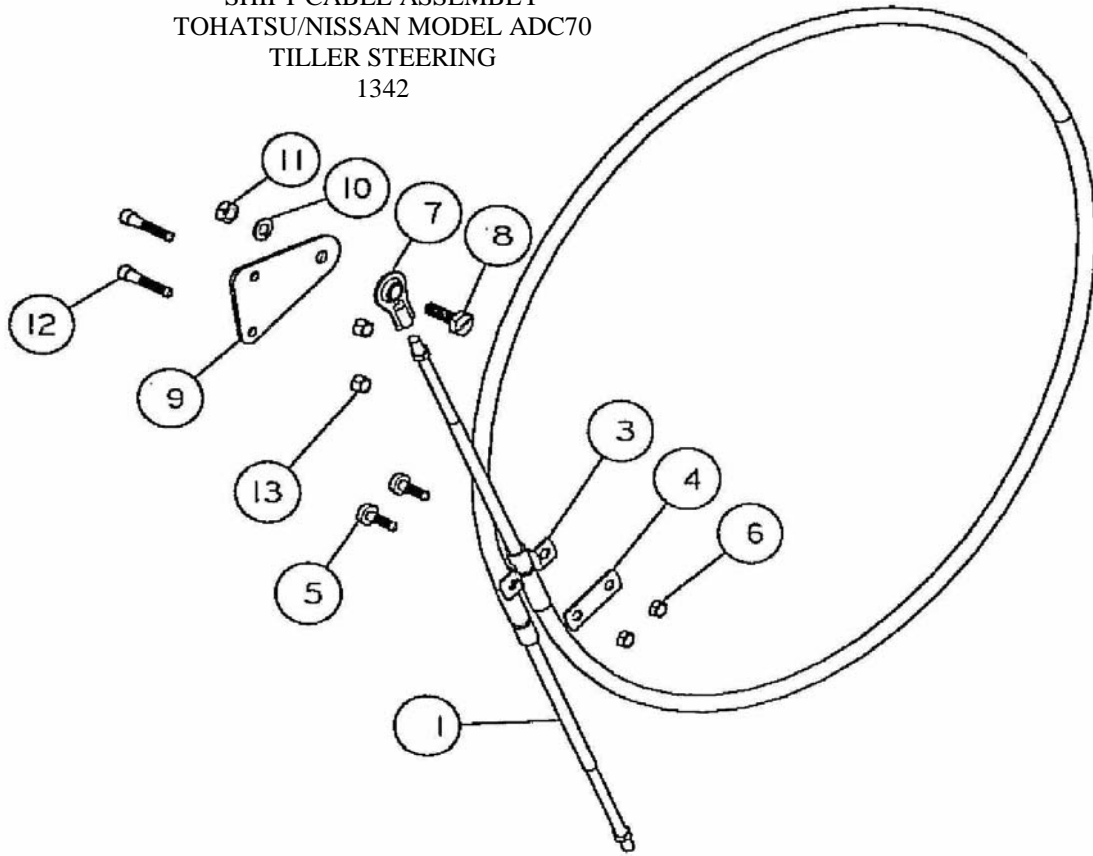
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3	4	640	WASHER SPRING LOCK 5/16	56	1	1756	IMPELLER 7 3/8 W/136 SLEEVE 90HP
4	4	593	BOLT HEX HD M8-1.25 X 100MM	56	1	1919	IMPELLER 7 3/80 W/136 SLEEVE 115-140
5	1	1129	ADAPTER PLATE AD	57	1	136	SHAFT SLEEVE PLASTIC LARGE
6	7	636	WASHER SPRING LOCK M10	58	1	434	IMPELLER TEE KEY
7	2	608	BOLT HEX HD 3/8-16 X 2 1/4	59	9	121	SHIM WASHER LARGE
8	1	609	BOLT HEX HD 3/8-16 X 2 3/4	60	1	781	NUT KEEPER LARGE/PKG 2 PER BAG
9	1	611	BOLT HEX HD 3/8-16 X 3 1/4	61	1	122.1	SHAFT NUT 3/4-16 BRASS
10	1	607	BOLT HEX HD 3/8-16 X 1 1/2			1333	INTAKE ASSY FLANGED WITH GRILL & LINER
		11350	VOLUTE WITH GATE AD	62	1	1431	LINER 7 3/8 FLANGED
11	1	1136	VOLUTE WITH EXHAUST TUBE AD	63	1	1332	INTAKE PAINTED ONLY
12	1	128	EXHAUST TUBE ASSY LARGE 2 1/2	64	2	14	GRILL ROD
13	1	847	CLIP EXHAUST TUBE 3/4	65	9	117	GRILL BAR LARGE
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17	1	553.2	BALL END 1/4X10-32 CABLE	68	1	156	BRACKET CABLE SUPPORT
18	1	975	LUBE HOSE ASSY	69	1	542	SHIM MORSE A035777
19	1	539	ZIRC FITTING 1/4-28	70	1	543	CLAMP CHRYS 154317
20	1	550	GREASE GUN 30195	71	2	561	FIL HD SLOTTED 10-24 X 5/8
21	1	552	GREASE 10 OZ TUBE NO.630-AA	72	4	640	WASHER SPRING LOCK 5/16
22	1	1172	REVERSE GATE LARGE	73	2	572	BOLT HEX HD 1/4-20 X 5/8
23	2	536	NYLINER 1/2 10 X 13/16	74	2	619	NYLOC 10-24
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47	1	513	TRUARC N5002-250ZDL				
48	1	432	UPPER SEAL CARRIER W/SEALS & O RINGS				
49	4	517	SPIROLOX RR-150S				
50	2	506	SEAL INNER 0857				
51	2	507	SEAL OUTER 1317 REV B				
52	2	527	O RING 558-141 3/32X2 5/16X2 1/2				
53	1	393.5	BEARING CARRIER W/SEALS & O RINGS 5/16				

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 1263, 1264 SEE PAGE
 21

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

SHIFT CABLE ASSEMBLY
 TOHATSU/NISSAN MODEL ADC70
 TILLER STEERING
 1342



REF	QTY	PART NO.	DESCRIPTION
1	1	549	CABLE 3 1/2 FT MOR 33C SUPREME
2	2	621.1	HEX NUT 10-32 JAM
3	1	543	CLAMP CHRYS 154317
4	1	542	SHIM MORSE A035777
5	2	561	FIL HD SLOTTED 10-24 X 5/8
6	2	619	NYLOC 10-24
7	1	553.2	BALL END 1/4X10-32 CABLE
8	1	573	BOLT HEX HD 1/4-20 X 5/8
9	1	1341	SHIFT LEVER AD70
10	1	635	1/4 WASHER AN960C416
11	1	623	NYLOC 1/4-20
12	2	559	FIL HD SLOTTED 10-32 X 1
13	2	621	NYLOC 10-32