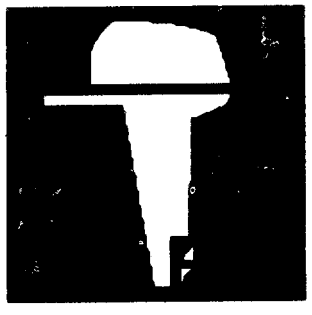


PARTS CATALOGUE

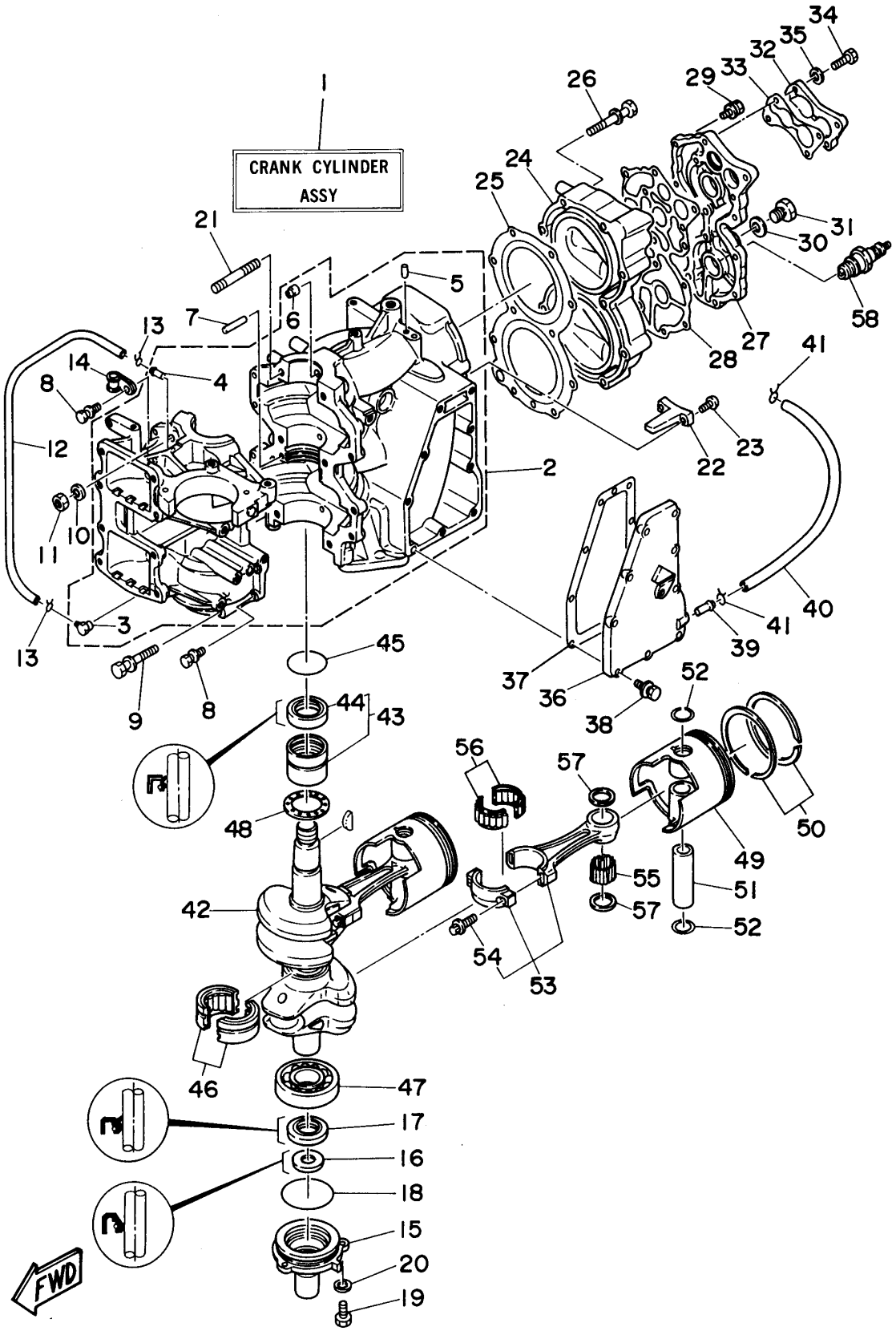
MODEL YEAR 1997

E48MHV (696)

Engine Serial No.	E48MLHV : 381379 and following

A1

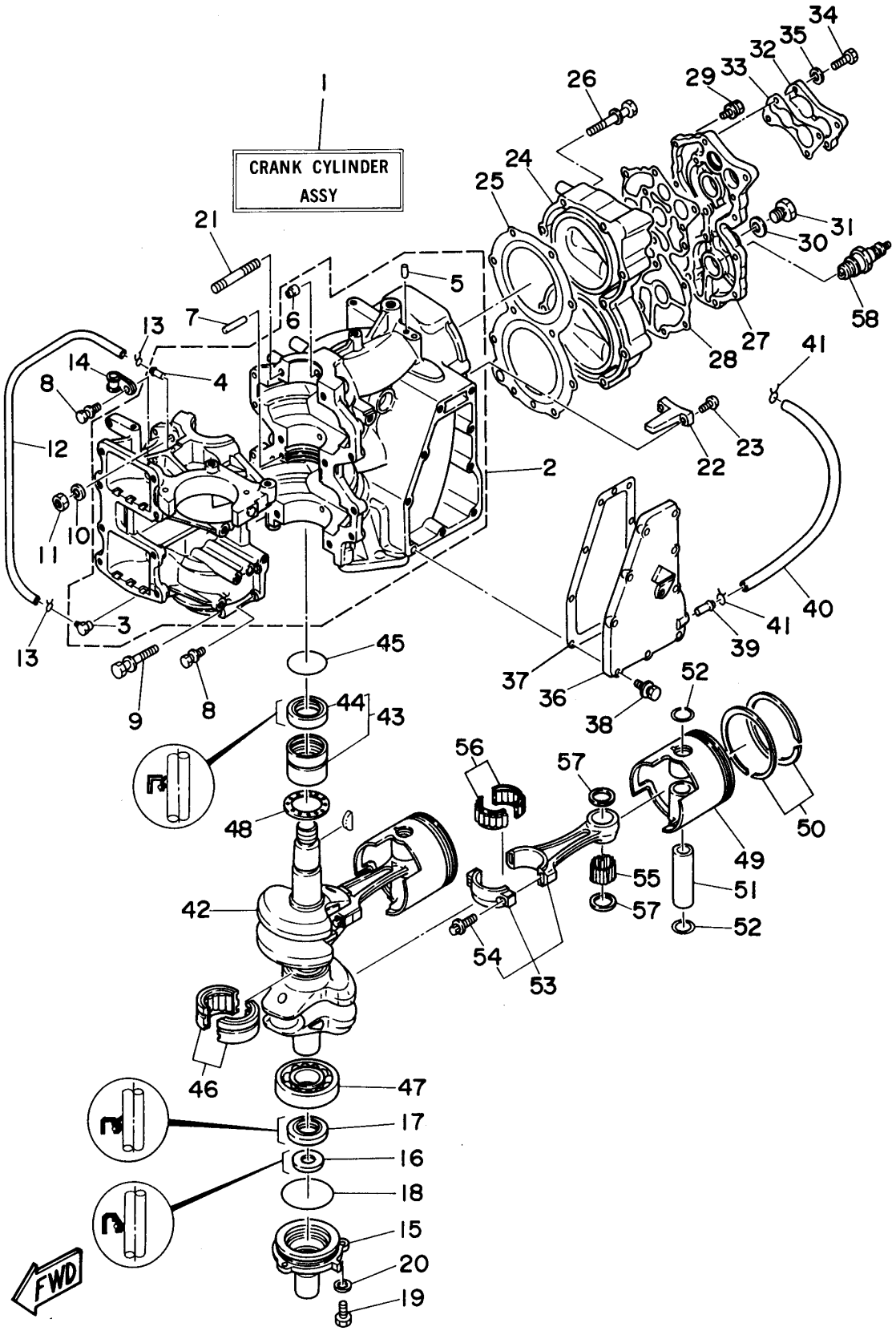
CYLINDER - CRANKCASE



Ref. No.	Part Number	Description	Qty	Remarks
1	696-W0090-65-4D	CRANK CYLINDER ASSEMBLY	1	
2	696-15100-01-94	CRANKCASE ASSEMBLY	1	
3	650-11370-00-00	. CHECK VALVE ASSEMBLY ..	1	
4	624-14485-00-00	. PIPE, JOINT	1	
5	93604-08062-00	. PIN, DOWEL	1	
6	663-11518-01-00	. LOCK, BEARING	2	
7	93608-12063-00	PIN, DOWEL	1	
8	90119-06M12-00	BOLT, WITH WASHER	8	
9	90119-10M07-00	BOLT, WITH WASHER	4	
10	90201-100F7-00	WASHER, PLATE	2	
11	95314-10600-00	NUT	2	
12	90445-07240-00	HOSE	1	
13	90467-06016-00	CLIP	2	
14	90461-04011-00	CLAMP	1	
15	663-15359-01-94	HOUSING, OIL SEAL	1	
16	93104-18049-00	OIL SEAL	1	
17	93102-28135-00	OIL SEAL	1	
18	93210-62269-00	O-RING	1	
19	97095-06016-00	BOLT	3	
20	92990-06600-00	WASHER, PLATE	3	
21	90116-10177-00	BOLT, STUD	2	
22	663-11325-00-00	ANODE	1	
23	98780-04015-00	SCREW, FLAT HEAD	2	
24	663-11111-02-94	HEAD, CYLINDER 1	1	
25	697-11181-A1-00	GASKET, CYLINDER HEAD 1 .	1	
26	90119-08M21-00	BOLT, WITH WASHER	10	
27	663-11191-00-9M	COVER, CYLINDER HEAD 1 ..	1	
28	663-11193-A0-00	GASKET, HEAD COVER 1	1	
29	97595-06520-00	BOLT, WITH WASHER	12	

CONTINUED ON NEXT FRAME ➤

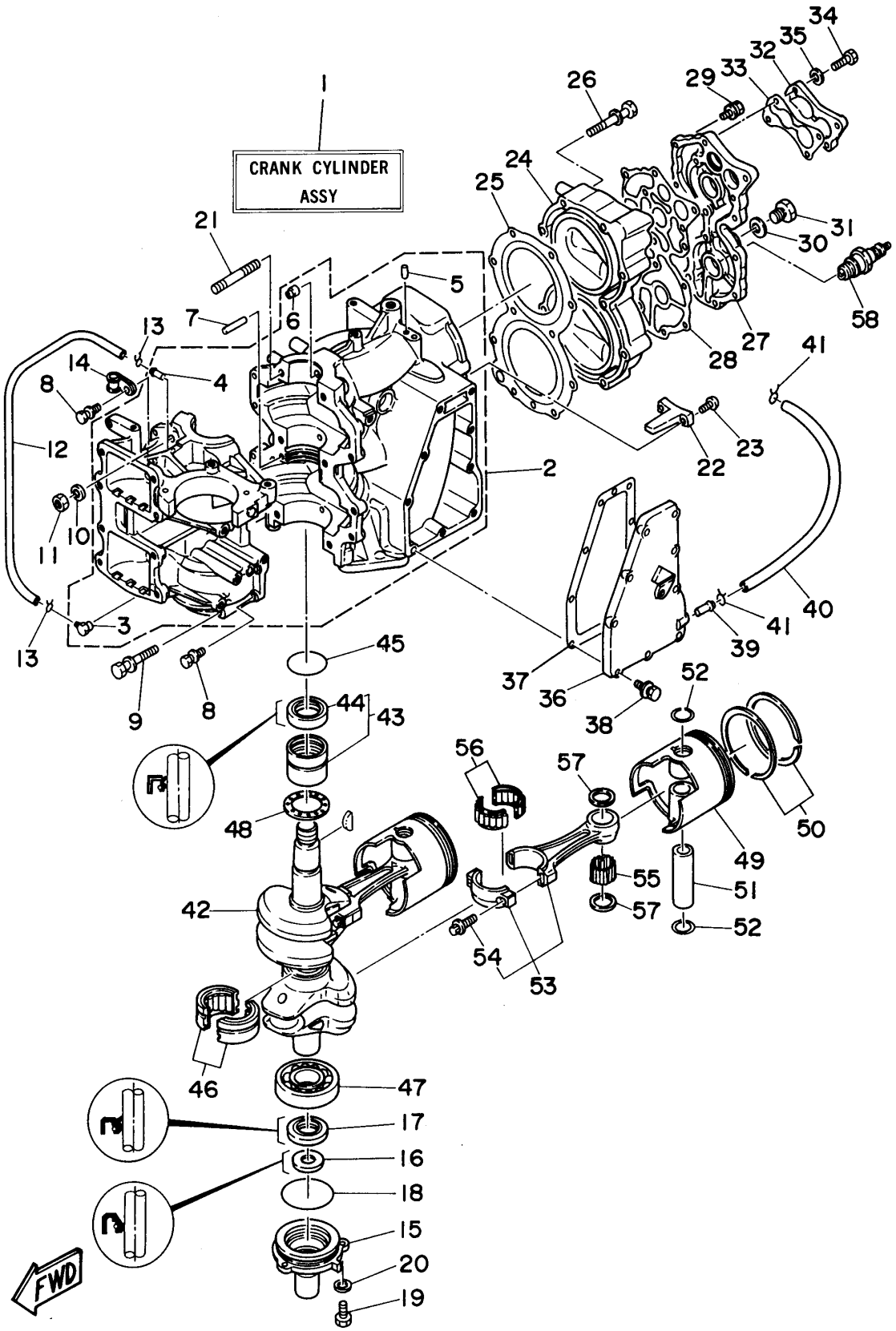
CYLINDER - CRANKCASE



Ref. No.	Part Number	Description	Qty	Remarks
30	90430-14115-00	GASKET	1	
31	90340-14036-00	PLUG, STRAIGHT SCRW	1	
32	663-12413-00-9M	COVER, THERMOSTAT	1	
33	663-12414-A0-00	GASKET, COVER	1	
34	97095-06030-00	BOLT	4	
35	92990-06600-00	WASHER, PLATE	4	
36	663-41113-00-9M	OUTER COVER, EXHAUST	1	
37	663-41114-A0-00	GASKET, EXHAUST OUTER COVER	1	
38	97595-06520-00	BOLT, WITH WASHER	9	
39	652-24461-00-00	PIPE, JOINT	1	
40	663-24312-01-00	PIPE 2	1	
41	90467-08004-00	CLIP	2	AP
42	663-11411-01-00	CRANKSHAFT	1	
43	93311-632U1-00	BEARING	1	
44	93102-32M07-00	. OIL SEAL	1	
45	93210-42159-00	O-RING	1	
46	93311-832U4-00	BEARING	1	
47	93306-206U7-00	BEARING (93306-206U4-00)	1	
48	663-11561-00-00	SHIM, CRANK 1	1	
49	688-11635-03-00	PISTON (0.25MM O/S)	2	AP
	6H1-11631-03-95	PISTON (STD)	2	
	6H1-11636-03-00	PISTON (0.50MM O/S)	2	AP
50	688-11603-A0-00	PISTON RING SET (STD)	2	
	688-11604-A0-00	PISTON RING SET (0.25MM O/S)	2	AP
	688-11605-A0-00	PISTON RING SET (0.50MM O/S)	2	AP
51	663-11633-00-00	PIN, PISTON	2	
52	688-11634-00-00	CLIP, PISTON PIN	4	

CONTINUED ON NEXT FRAME ➤

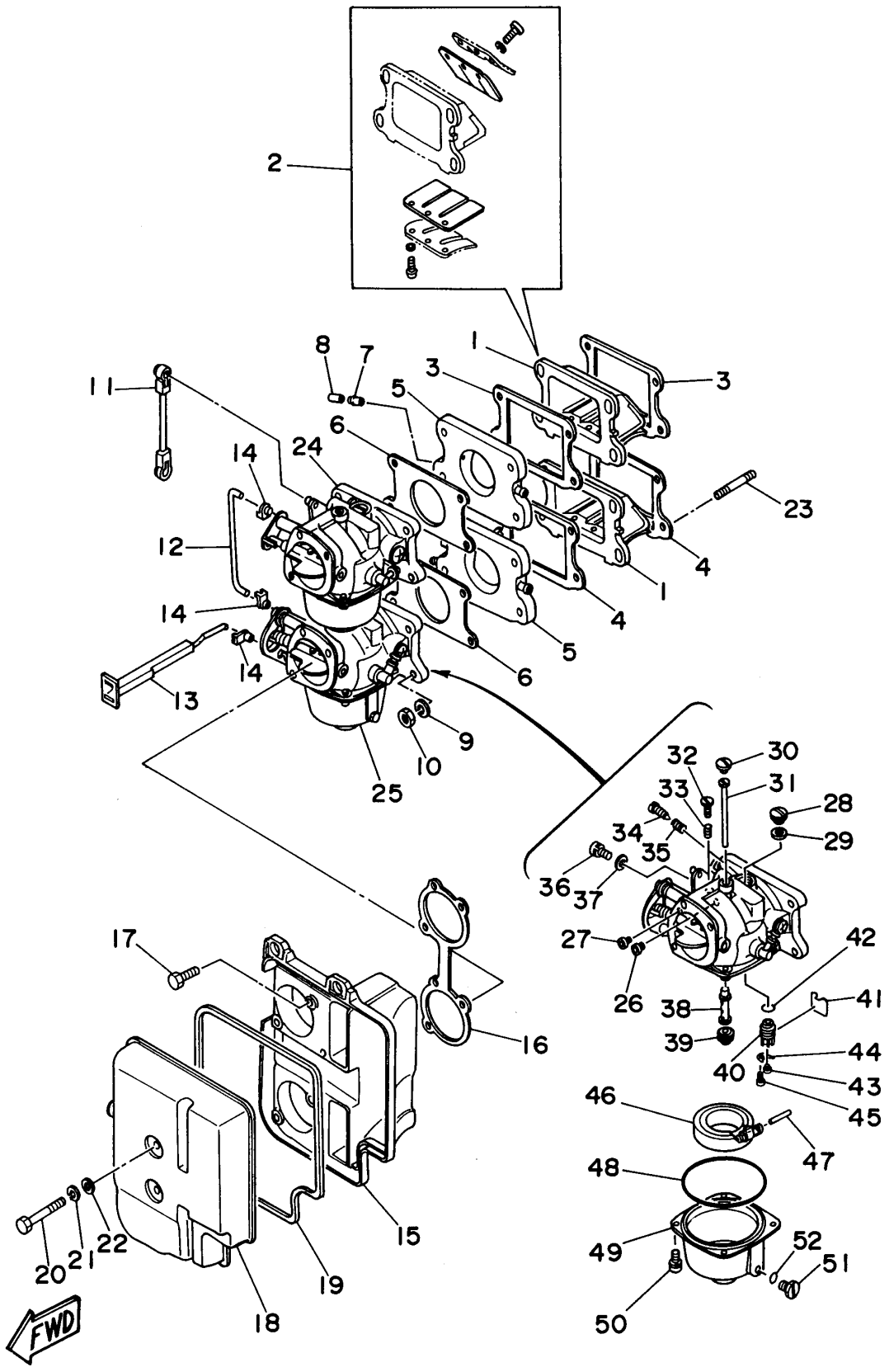
CYLINDER - CRANKCASE



Ref. No.	Part Number	Description	Qty	Remarks
53	688-11650-03-00	CONNECTING ROD ASSEMBLY	2	
54	90109-08M61-00	. BOLT	2	
55	93603-21111-00	PIN, DOWEL	56	
56	93310-730V8-00	BEARING, CYLINDRICAL	2	
57	90201-20417-00	WASHER, PLATE	4	
58	NGK-B7HS0-00-00	PLUG, SPARK (NGK B7HS)	2	

E48MHV

INTAKE



Ref. No.	Part Number	Description	Qty	Remarks
1	696-13610-00-00	REED VALVE ASSEMBLY	2	
2	692-W0004-00-00	. REED SET	1	
3	663-13621-A0-00	GASKET, VALVE SEAT	2	
4	663-13622-A0-00	GASKET, VALVE SEAT	2	
5	670-13641-01-94	MANIFOLD 1	2	
6	663-14198-A0-00	GASKET	2	
7	624-14485-00-00	PIPE, JOINT	2	
8	647-14395-60-00	CAP, OVERFLOW PIPE	2	
9	92995-06100-00	WASHER, SPRING	8	
10	95380-06600-00	NUT	8	
11	697-41217-01-00	ROD, ACCEL. LEVER	1	
12	663-41257-02-00	ROD, CHOKE 2	1	
13	663-41256-41-00	ROD, CHOKE 1	1	
14	661-41262-02-00	JOINT, CHOKE LEVER	3	
15	697-14417-00-94	COVER 1	1	
16	663-14483-A0-00	GASKET	1	
17	97095-06025-00	BOLT	4	
18	697-14418-00-94	COVER 2	1	
19	697-14416-00-00	GASKET, AIR CLEANER	1	
20	97095-06045-00	BOLT	2	
21	92995-06100-00	WASHER, SPRING	2	
22	92990-06600-00	WASHER, PLATE	2	
23	90116-06176-00	BOLT, STUD	8	
24	696-14501-04-00	CARBURETOR ASSEMBLY 1 .	1	UPPER
25	696-14502-04-00	CARBURETOR ASSEMBLY 2 .	1	LOWER
26	663-14950-29-00	. PILOT, AIR JET	2	
27	663-14945-34-00	. JET (#135)	2	
28	697-14991-00-00	. SCREW	2	
29	679-14557-00-00	. WASHER	2	

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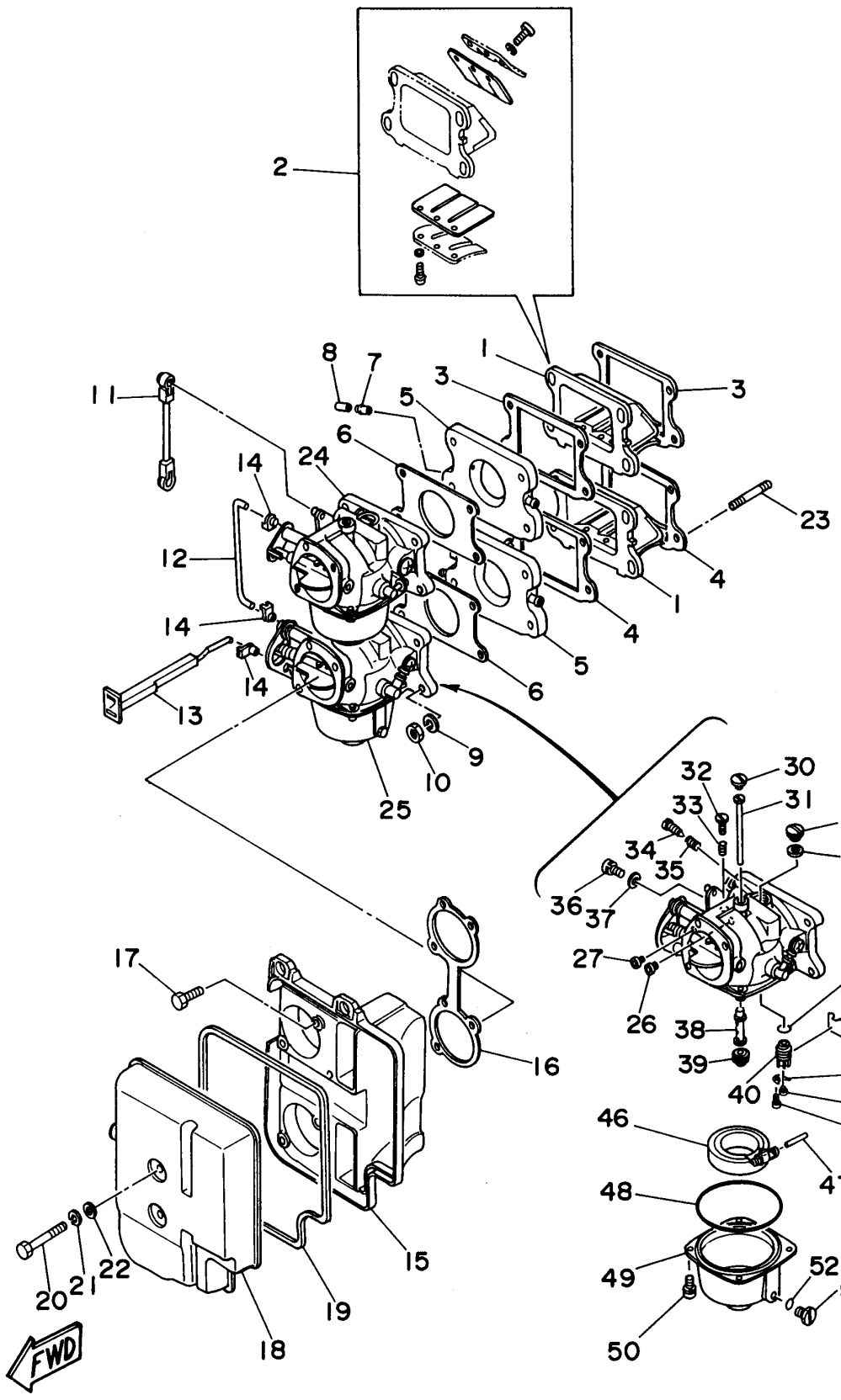
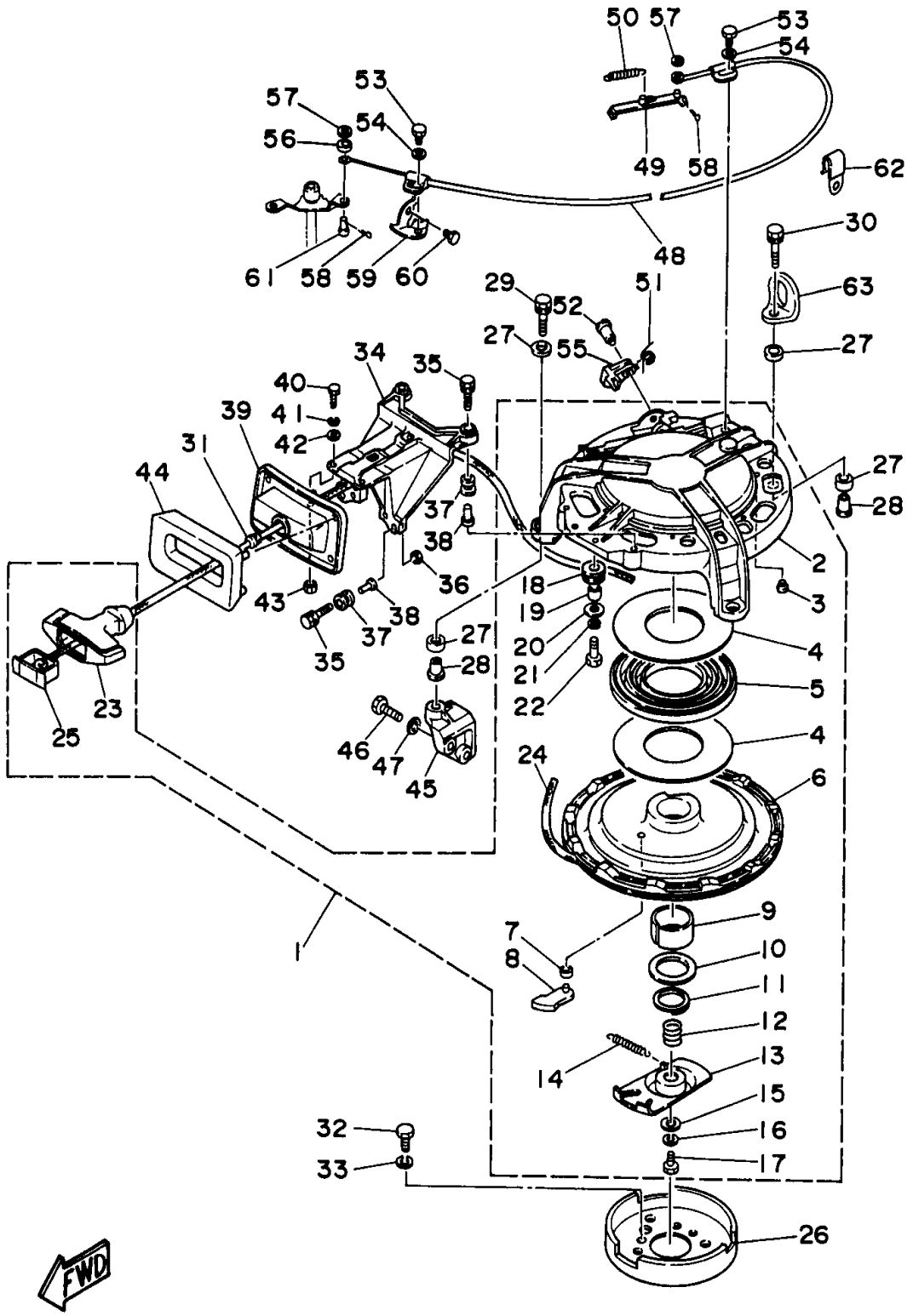
INTAKE



Ref. No.	Part Number	Description	Qty	Remarks
30	663-14567-01-00	. SCREW	2	
31	663-14942-22-00	. JET, PILOT	2	
32	63V-14523-00-00	. SCREW, STOP	1	LOWER
33	90501-10326-00	. SPRING, COMPRESSION	1	LOWER
34	663-14923-00-00	. SCREW, PILOT	2	
35	90501-08214-00	. SPRING, COMPRESSION	2	
36	6K5-14592-00-00	. SCREW	1	UPPER
37	90201-05652-00	. WASHER, PLATE	1	UPPER
38	663-14947-01-00	. JET, NEEDLE	2	
39	663-14943-40-00	. JET, MAIN (#165)	2	
40	696-14590-00-00	. NEEDLE VALVE ASSEMBLY	2	
41	663-14159-00-00	. CLIP	2	
42	93210-07229-00	. O-RING	2	
43	676-14186-00-00	. PIN, FLOAT	2	
44	371-14919-60-00	. CLIP	2	
45	98580-04006-00	. SCREW, PAN HEAD	2	
46	6F0-14985-00-00	. FLOAT	2	
47	663-14548-00-00	. PIN, FLOAT ARM	2	
48	93210-64272-00	. O-RING	2	
49	663-14980-00-00	. BODY, FLOAT CHAMBER	2	
50	97980-04112-00	. SCREW, WITH WASHER	8	
51	6H3-14992-00-00	. SCREW, DRAIN	2	
52	93210-04230-00	. O-RING	2	

STARTER



Ref. No.	Part Number	Description	Qty	Remarks
1	696-W1571-02-00	STARTER ASSEMBLY	1	
2	663-15711-02-00	. CASE, STARTER	1	
3	696-15773-00-00	. STAY 3	6	
4	663-15739-00-00	. WASHER, THRUST	2	
5	663-15713-00-00	. SPRING, STARTER	1	
6	663-15714-01-00	. DRUM, SHEAVE	1	
7	663-15764-00-00	. COLLAR 1	1	
8	663-15741-02-00	. PAWL, DRIVE	1	
9	663-15754-00-00	. BUSH 2	1	
10	663-15726-01-00	. WASHER, FLAT	1	
11	663-15744-00-00	. CIRCLIP	1	
12	663-15715-00-00	. SPRING, FRICTION	1	
13	696-15716-00-00	. PLATE, DRIVE	1	
14	696-15734-00-00	. SPRING, RETURN	1	
15	663-15719-00-00	. WASHER, THRUST	1	
16	92995-06100-00	. WASHER, SPRING	1	
17	97095-06016-00	. BOLT	1	
18	663-15752-00-00	. ROLLER, WIRE	1	
19	6F5-15753-00-00	. BUSH	1	
20	6F5-15791-00-00	. WASHER, LOCK	1	
21	92995-06100-00	. WASHER, SPRING	1	
22	97017-06025-00	. BOLT	1	
23	689-15755-01-00	. HANDLE, STARTER	1	
24	5V6-15751-00-XX	. WIRE, STARTER	1	
25	6F5-15779-02-00	. COVER	1	
26	6K5-15723-00-00	PULLEY, STARTER	1	
27	90385-12M04-00	BUSH	6	
28	90387-08M05-00	COLLAR	3	
29	90119-08M26-00	BOLT, WITH WASHER	2	

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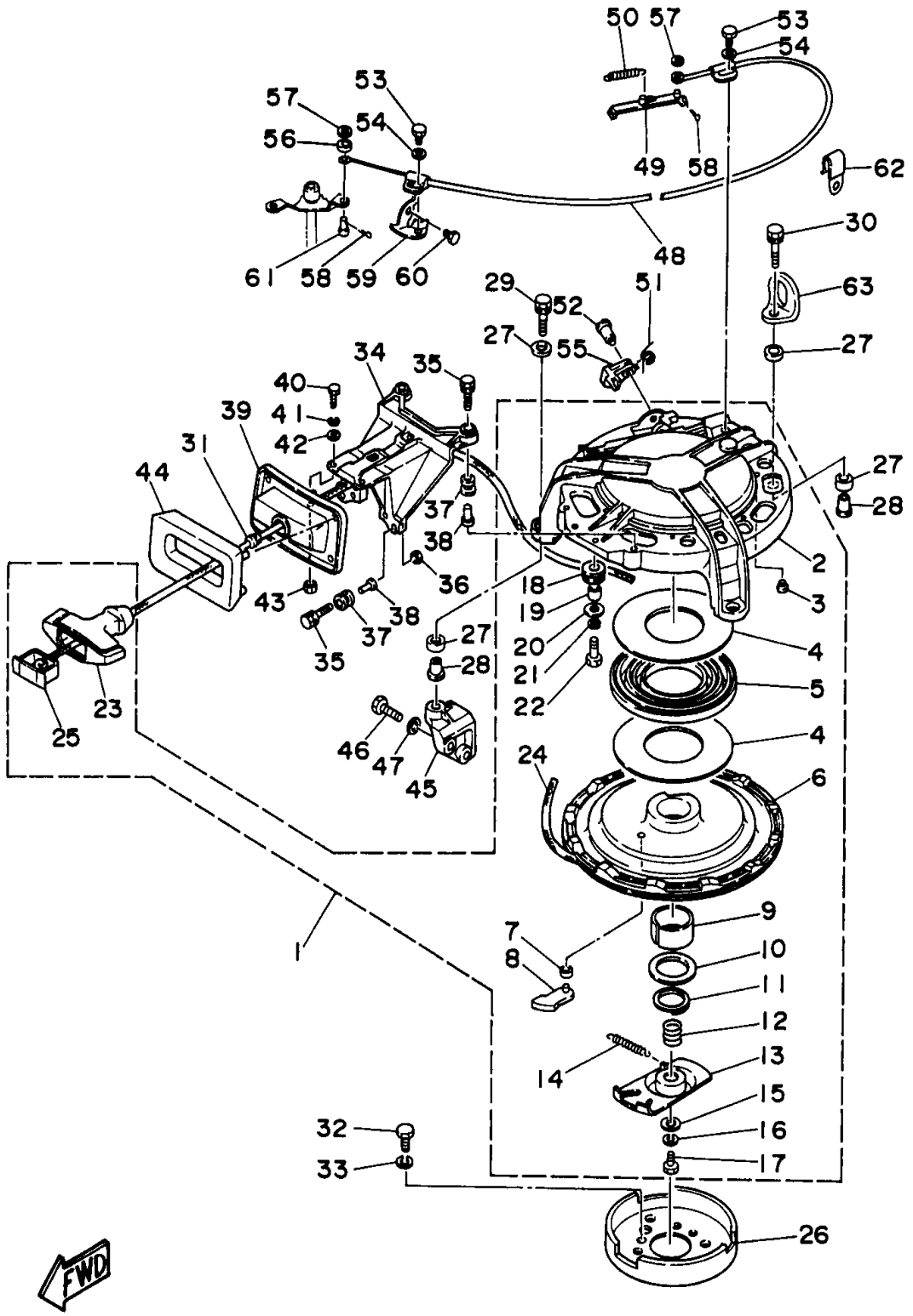

Ref. No.	Part Number	Description	Qty	Remarks
30	90119-08M27-00	BOLT, WITH WASHER	1	
31	697-15789-00-00	DAMPER	1	
32	97017-08016-00	BOLT	3	
33	92990-08100-00	WASHER	3	
34	697-15787-00-94	ADAPTOR	1	
35	90119-06M30-00	BOLT, WITH WASHER	4	
36	95380-06600-00	NUT	2	
37	6A0-82317-00-00	DAMPER, IGNITION COIL	4	
38	624-42542-00-00	PIPE	4	
39	697-15758-01-4D	GUIDE, ROPE	1	
40	97095-06020-00	BOLT	2	
41	92995-06100-00	WASHER, SPRING	2	
42	92990-06600-00	WASHER, PLATE	2	
43	95380-06600-00	NUT	2	
44	697-15762-00-00	SEAL, RUBBER 2	1	
45	663-15771-00-94	STAY 1	1	
46	97013-08030-00	BOLT	2	
47	92990-08100-00	WASHER	2	
48	697-15770-01-00	CABLE COMP., STARTER STOP	1	
49	663-15735-01-00	GUIDE, CAM	1	
50	90506-08M23-00	SPRING, TENSION	1	
51	90508-12015-00	SPRING, TORSION	1	
52	90149-05095-00	SCREW	1	
53	97095-06012-00	BOLT	2	
54	92990-06600-00	WASHER, PLATE	2	
55	663-15794-00-00	STOPPER	1	
56	663-15736-00-00	RING, RETAINING 1	1	
57	92990-06200-00	WASHER	2	

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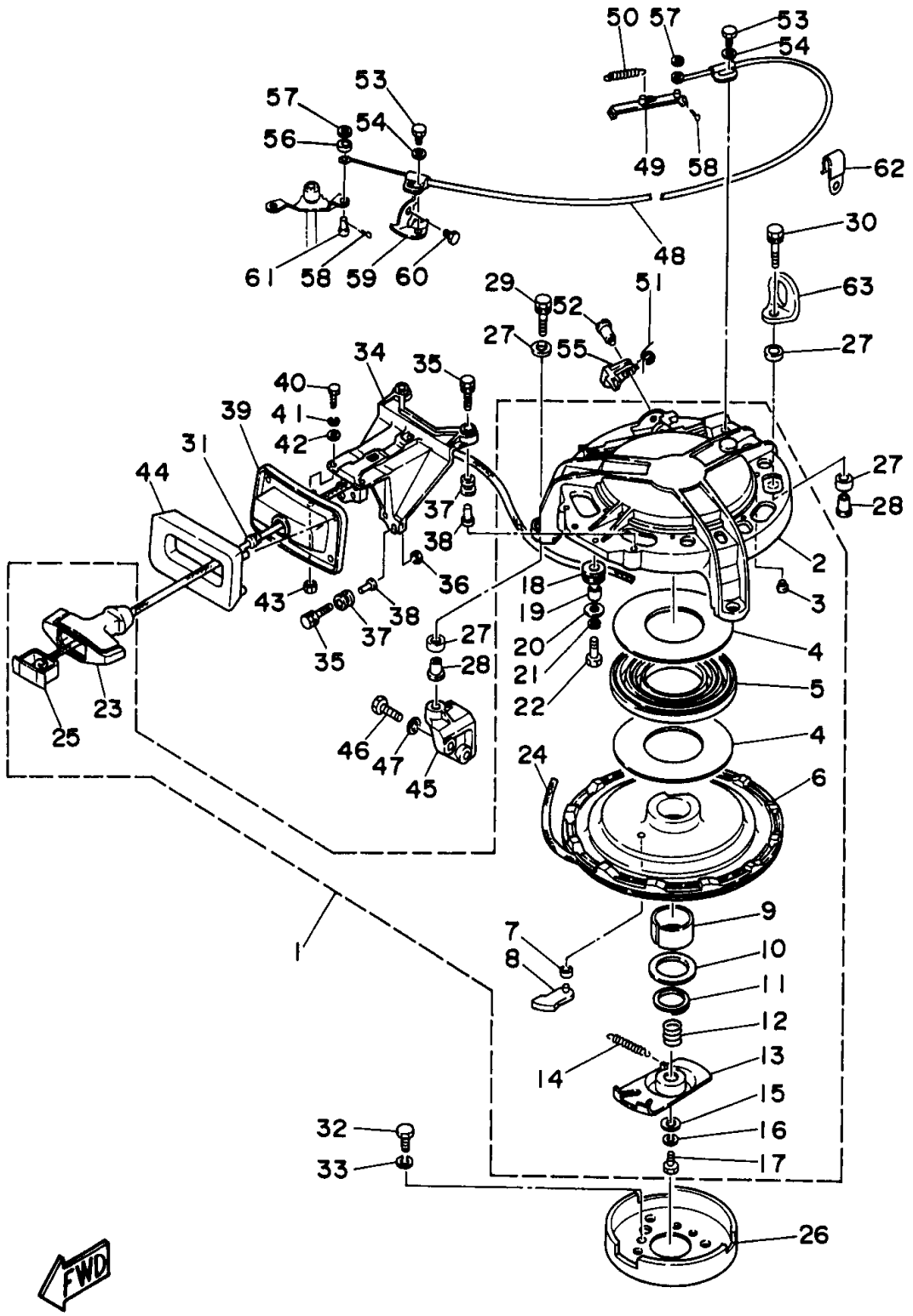
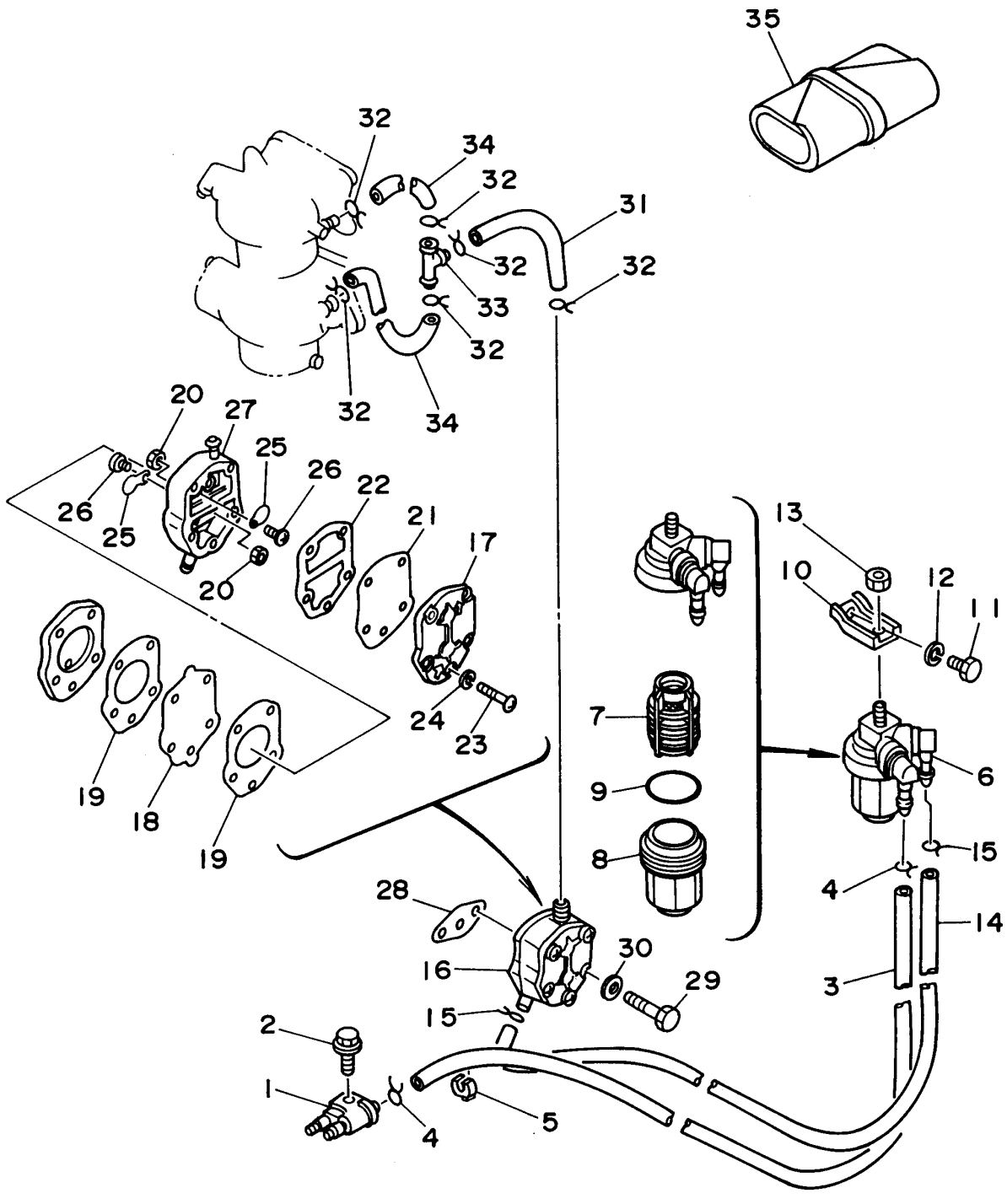


Ref. No.	Part Number	Description	Qty	Remarks
58	91490-16020-00	PIN, COTTER	2	
59	663-15772-01-00	STAY 2	1	
60	97313-08012-00	BOLT	1	
61	91702-06014-00	PIN	1	
62	90465-06M28-00	CLAMP	1	
63	697-11119-00-00	HANGER, ENGINE	1	

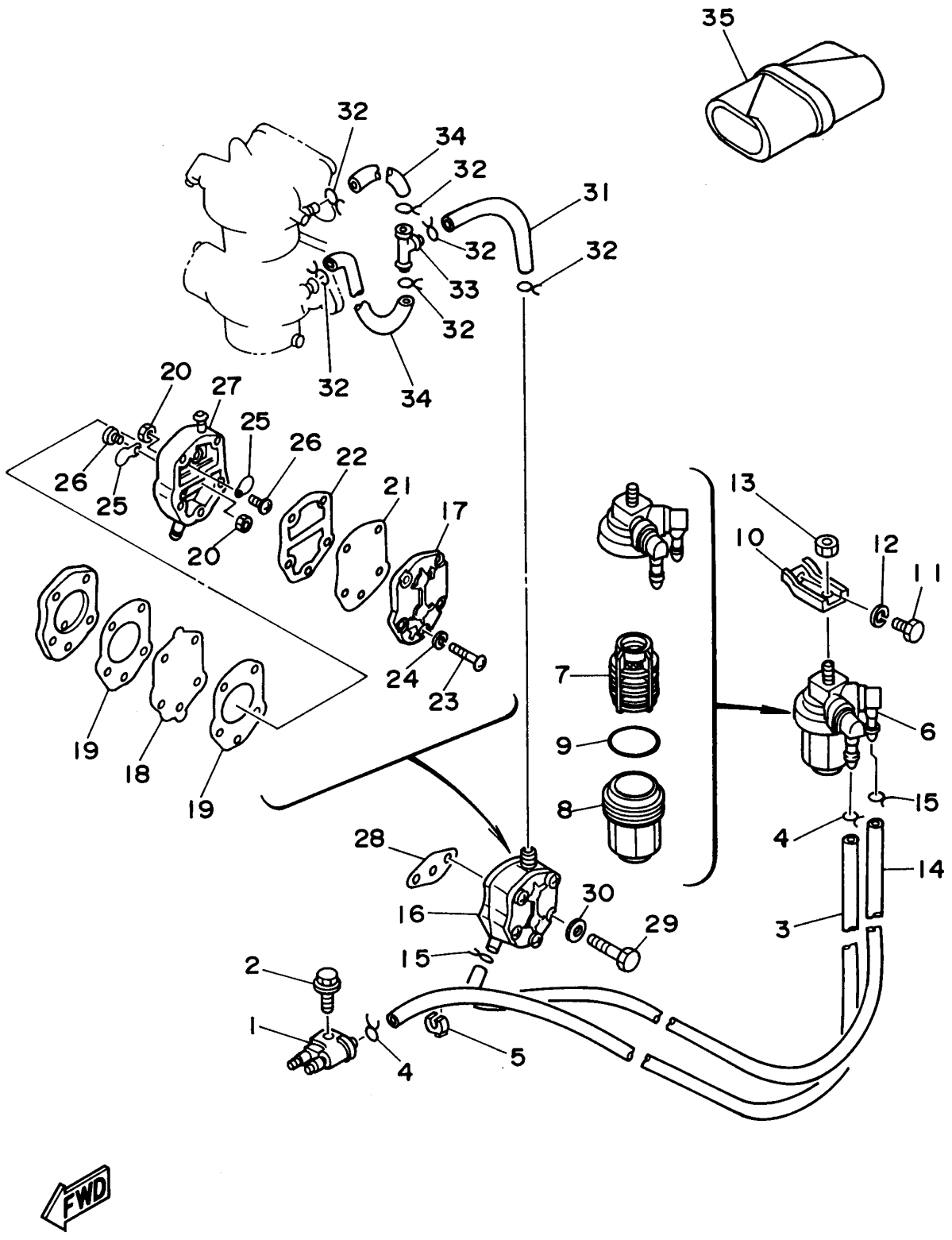
FUEL



Ref. No.	Part Number	Description	Qty	Remarks
1	6G1-24304-02-00	FUEL PIPE JOINT COMP. 1	1	
2	97595-06520-00	BOLT, WITH WASHER	1	
3	90445-09M25-00	HOSE	1	
4	90467-08004-00	CLIP	2	
5	90464-04011-00	CLAMP	1	
6	61N-24560-00-00	FILTER ASSEMBLY	1	
7	61N-24563-00-00	. ELEMENT, FILTER	1	
8	61N-24521-00-00	. CUP, FILTER	1	
9	93210-32738-00	. O-RING	1	
10	6E9-24566-70-00	BRACKET, FILTER	1	
11	97395-06014-00	BOLT	1	
12	92995-06100-00	WASHER, SPRING	1	
13	95380-08600-00	NUT	1	
14	90445-097F7-00	HOSE	1	
15	90467-08004-00	CLIP	2	
16	692-24410-00-00	FUEL PUMP ASSEMBLY	1	
17	648-24413-01-00	. BODY 2	1	
18	692-24411-00-00	. DIAPHRAGM	1	
19	648-24434-01-00	. GASKET, BODY	2	
20	95380-03600-00	. NUT	2	
21	663-24411-00-00	. DIAPHRAGM	1	
22	648-24435-02-00	. GASKET, BODY 2	1	
23	98580-05530-00	. SCREW, PAN HEAD	3	
24	92990-05100-00	. WASHER, SPRING	3	
25	6A0-24421-01-00	. VALVE, CHECK	2	
26	6A0-14325-00-00	. SCREW, PAN HEAD	2	
27	6A0-24412-02-00	. BODY 1	1	
28	650-24431-A0-00	GASKET, FUEL PUMP 1	1	
29	97095-06040-00	BOLT	2	

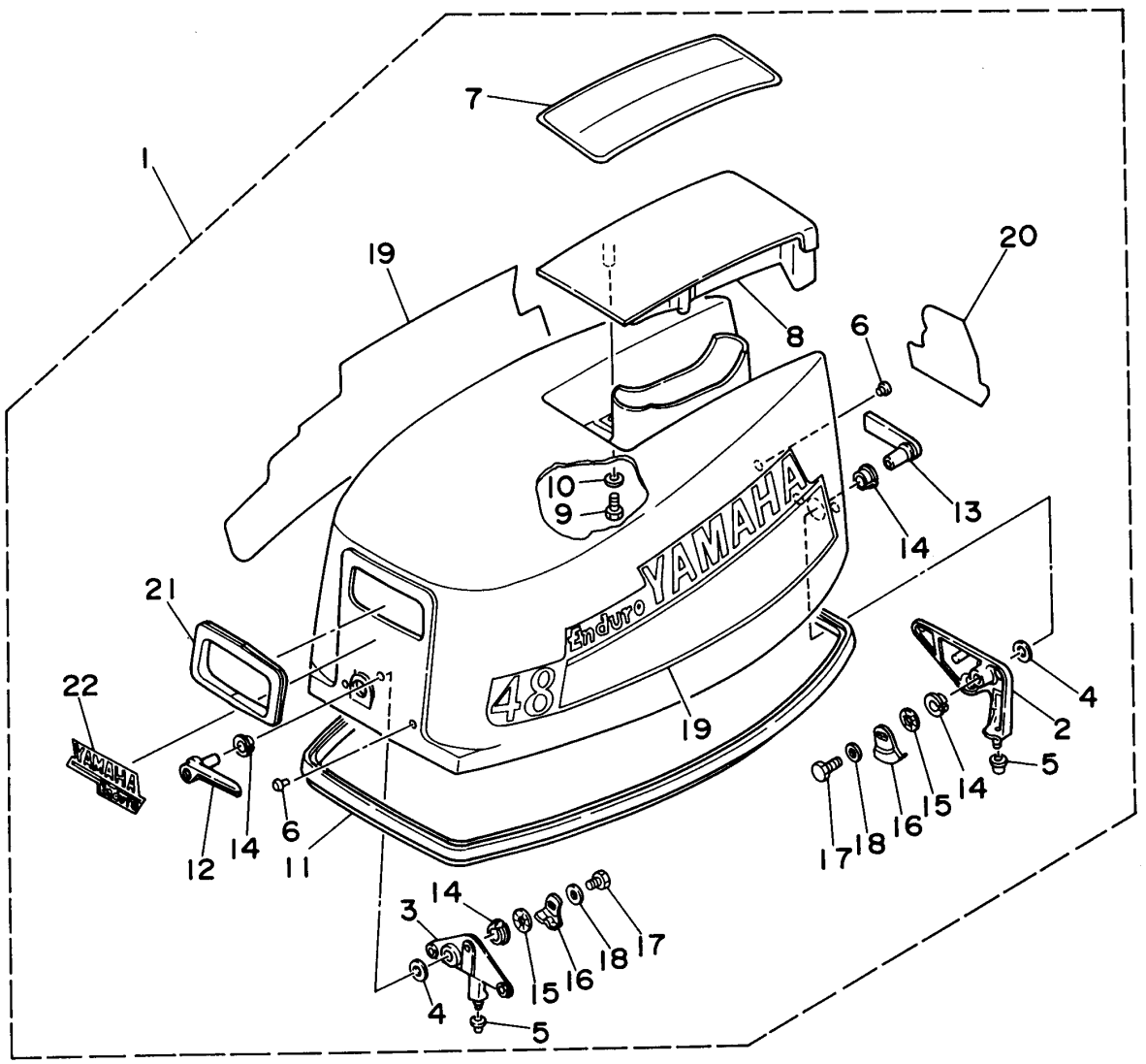
CONTINUED ON NEXT FRAME ➤

FUEL



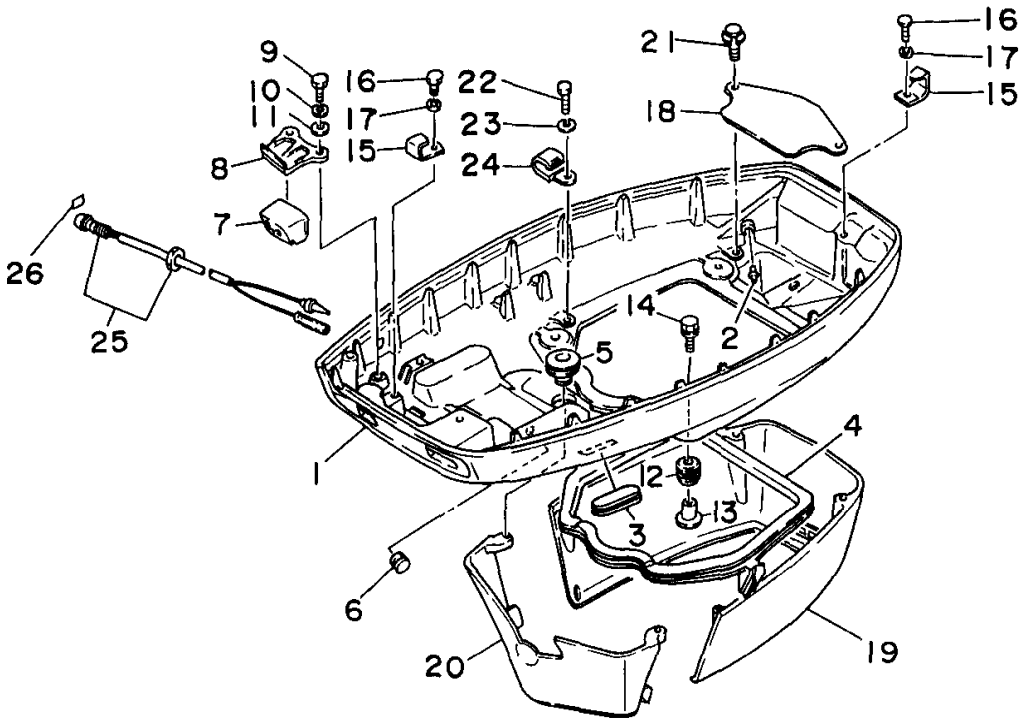
Ref. No.	Part Number	Description	Qty	Remarks
30	92990-06600-00	WASHER, PLATE	2	
31	90445-09078-00	HOSE	1	
32	90467-08004-00	CLIP	6	
33	688-24378-00-00	PIPE, JOINT 4	1	
34	90445-09061-00	HOSE	2	
35	656-W2810-02-00	TOOL KIT	1	

TOP COWLING



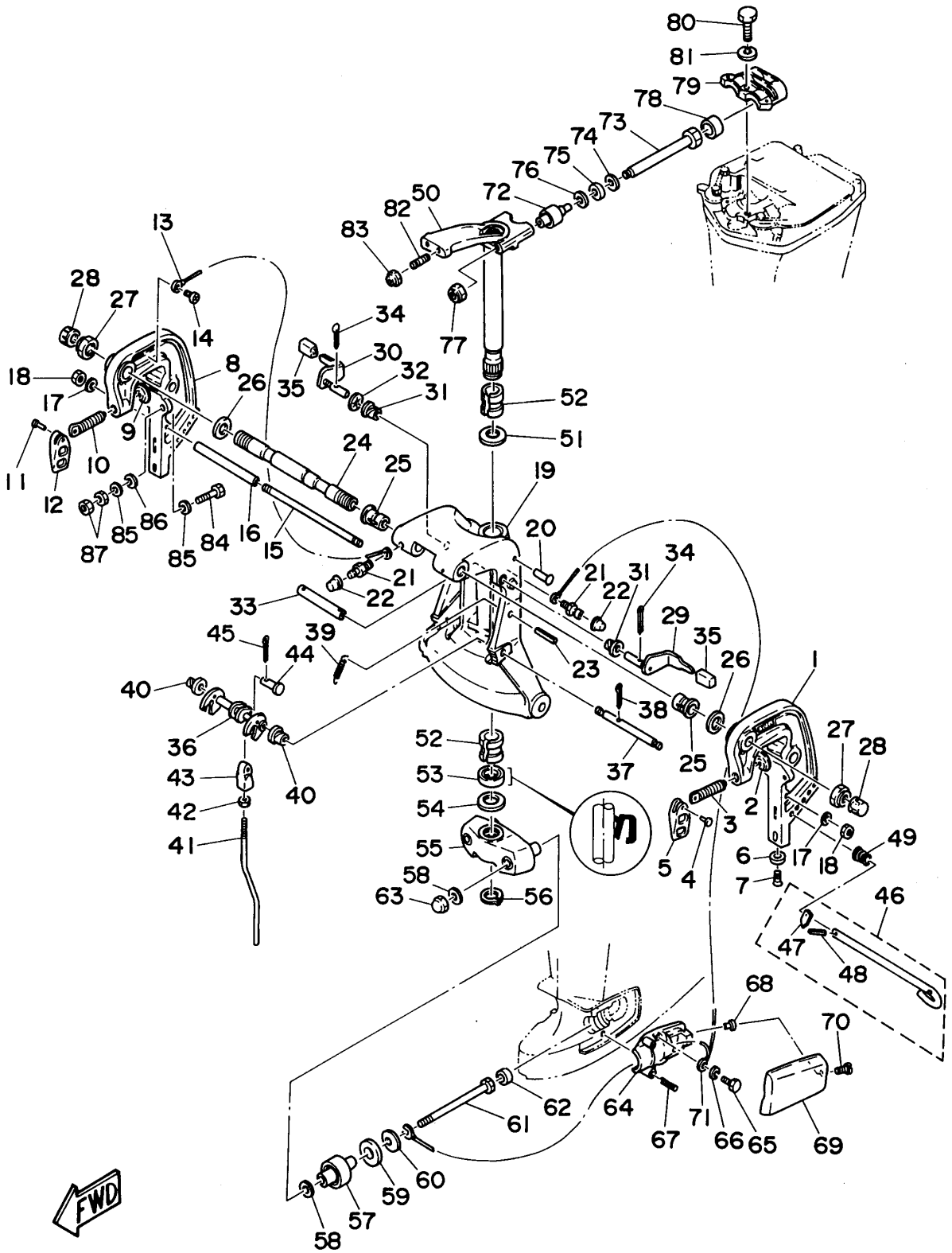
Ref. No.	Part Number	Description	Qty	Remarks
1	696-42610-H1-4D	TOP COWLING ASSEMBLY	1	
2	697-42647-00-94	. HOLDER, CLAMP BAND	1	
3	697-42649-00-94	. HOLDER, CLAMP BAND	1	
4	90202-19M10-00	. WASHER, PLATE	2	
5	663-42662-00-00	. DAMPER	2	
6	90266-06M02-00	. RIVET	6	
7	670-43691-00-00	. INDICATOR, TILT	1	
8	697-42613-11-4D	. MOLDING, AIR DUCT	1	
9	97095-06016-00	. BOLT	4	
10	92990-06600-00	. WASHER, PLATE	4	
11	663-42615-02-00	. SEAL	1	
12	697-42815-11-98	. LEVER, CLAMP	1	
13	697-42817-00-98	. LEVER, CLAMP	1	
14	90386-13M38-00	. BUSH	4	
15	90206-13019-00	. WASHER, WAVE	2	
16	663-42816-02-00	. LEVER, CLAMP	2	
17	97095-06012-00	. BOLT	2	
18	90201-06M02-00	. WASHER, PLATE	2	
19	696-W0070-H0-00	. GRAPHIC SET	1	
20	696-42678-H0-00	. GRAPHIC, REAR	1	
21	697-15761-01-00	. SEAL, RUBBER 1	1	
22	61N-42677-H0-00	. GRAPHIC, FRONT	1	

BOTTOM COWLING



Ref. No.	Part Number	Description	Qty	Remarks
1	696-42711-03-4D	COWLING, BOTTOM	1	
2	663-24376-00-00	PIPE, JOINT 1	1	
3	6H4-42726-00-00	GROMMET	1	
4	663-42716-01-00	RUBBER, SEAL 1	1	
5	663-42724-00-00	GROMMET	1	
6	90480-12004-00	GROMMET	1	
7	663-42725-11-00	GROMMET	1	
8	663-42738-03-94	PLATE, FITTING	1	
9	97095-06016-00	BOLT	2	
10	92995-06100-00	WASHER, SPRING	2	
11	92990-06600-00	WASHER, PLATE	2	
12	90480-09M12-00	GROMMET	4	
13	90387-06M03-00	COLLAR	4	
14	90119-06M08-00	BOLT, WITH WASHER	4	
15	663-42744-02-00	STAY	2	
16	97395-06014-00	BOLT	2	
17	92995-06100-00	WASHER, SPRING	2	
18	663-42723-01-94	COVER, BOTTOM	1	
19	663-42741-00-4D	APRON	1	
20	663-42771-02-4D	APRON	1	
21	97595-06420-00	BOLT, WITH WASHER	2	
22	97095-06025-00	BOLT	2	
23	92995-06100-00	WASHER, SPRING	2	
24	90465-08028-00	CLAMP	1	
25	6E9-85411-00-00	OVERHEAT WARNING LAMP	1	
26	692-85415-00-00	MARK, SIGNAL LAMP	1	

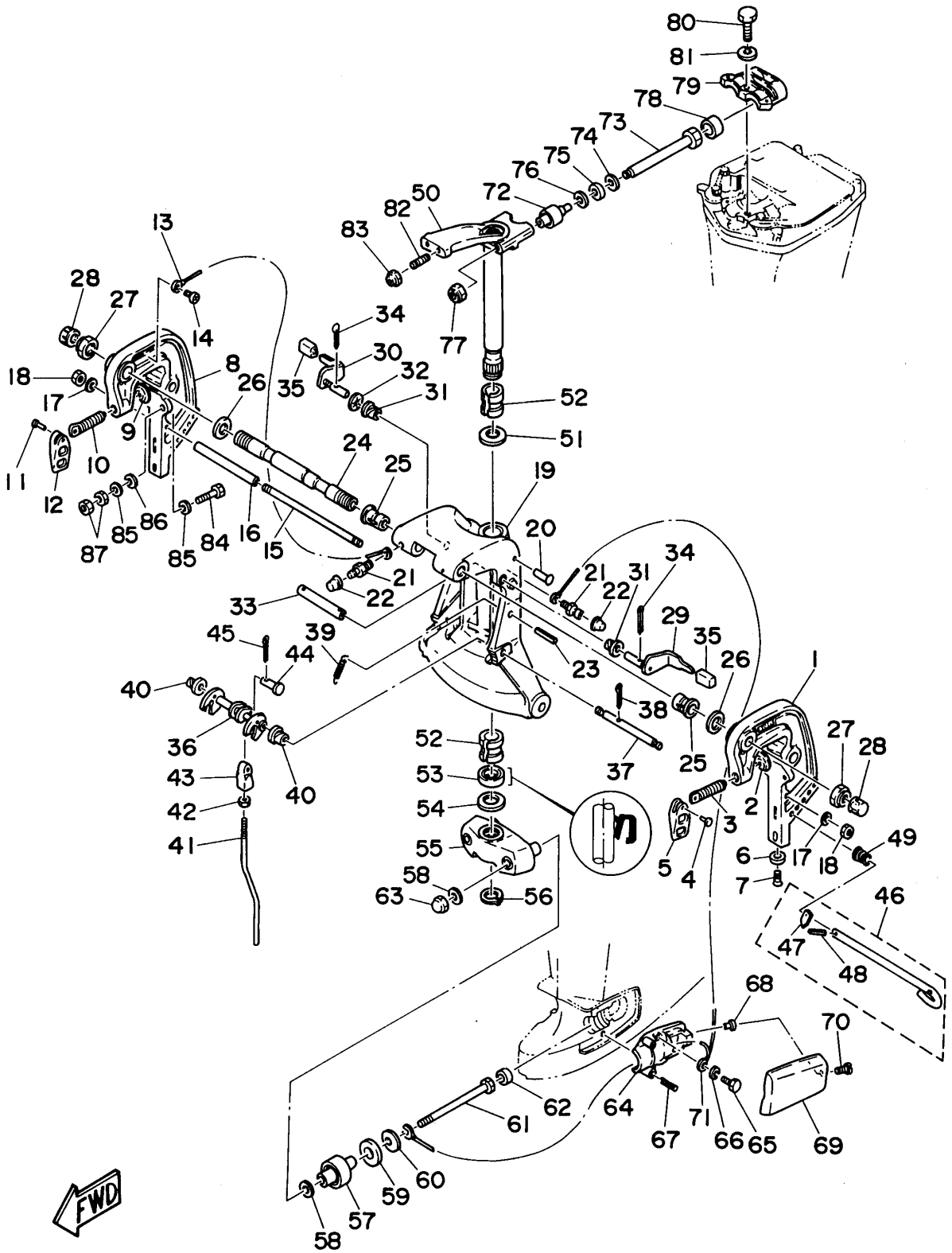
BRACKET 1



Ref. No.	Part Number	Description	Qty	Remarks
1	696-43111-01-4D	BRACKET, CLAMP	1	
2	648-43114-01-00	PAD, TRANSOM CLAMP	1	
3	663-43116-01-00	SCREW, TRANSOM CLAMP	1	
4	90243-04007-00	PIN	1	
5	663-43118-01-4D	HANDLE, TRANSOM CLAMP	1	
6	663-45251-00-00	ANODE	1	
7	92180-06025-00	SCREW, OVAL HEAD	1	
8	696-43112-00-4D	BRACKET, CLAMP	1	
9	648-43114-01-00	PAD, TRANSOM CLAMP	1	
10	663-43116-01-00	SCREW, TRANSOM CLAMP	1	
11	90243-04007-00	PIN	1	
12	663-43118-01-4D	HANDLE, TRANSOM CLAMP	1	
13	6E5-82148-00-00	WIRE, LEAD 4	1	
14	98580-06012-00	SCREW, PAN HEAD	1	
15	663-43123-00-00	BOLT, CLAMP BRACKET	1	
16	90387-10M03-00	COLLAR	1	
17	92990-10600-00	WASHER, PLATE	2	
18	95380-10600-00	NUT	2	
19	696-43311-10-4D	BRACKET, SWIVEL	1	
20	90269-03010-00	RIVET	1	
21	93700-06M03-00	NIPPLE, GREASE	3	
22	663-45119-00-00	CAP, GREASE NIPPLE	3	AP
23	91690-40040-00	PIN, SPRING	1	
24	696-43131-01-00	BOLT, CLAMP BRACKET	1	
25	90386-22M15-00	BUSH	2	
26	90201-22M03-00	WASHER, PLATE	2	
27	90185-22M11-00	NUT, SELF-LOCKING	2	
28	6G5-43145-00-00	CAP, CLAMP BRACKET	2	
29	697-43181-02-00	LEVER, TILT STOP	1	

CONTINUED ON NEXT FRAME ➤

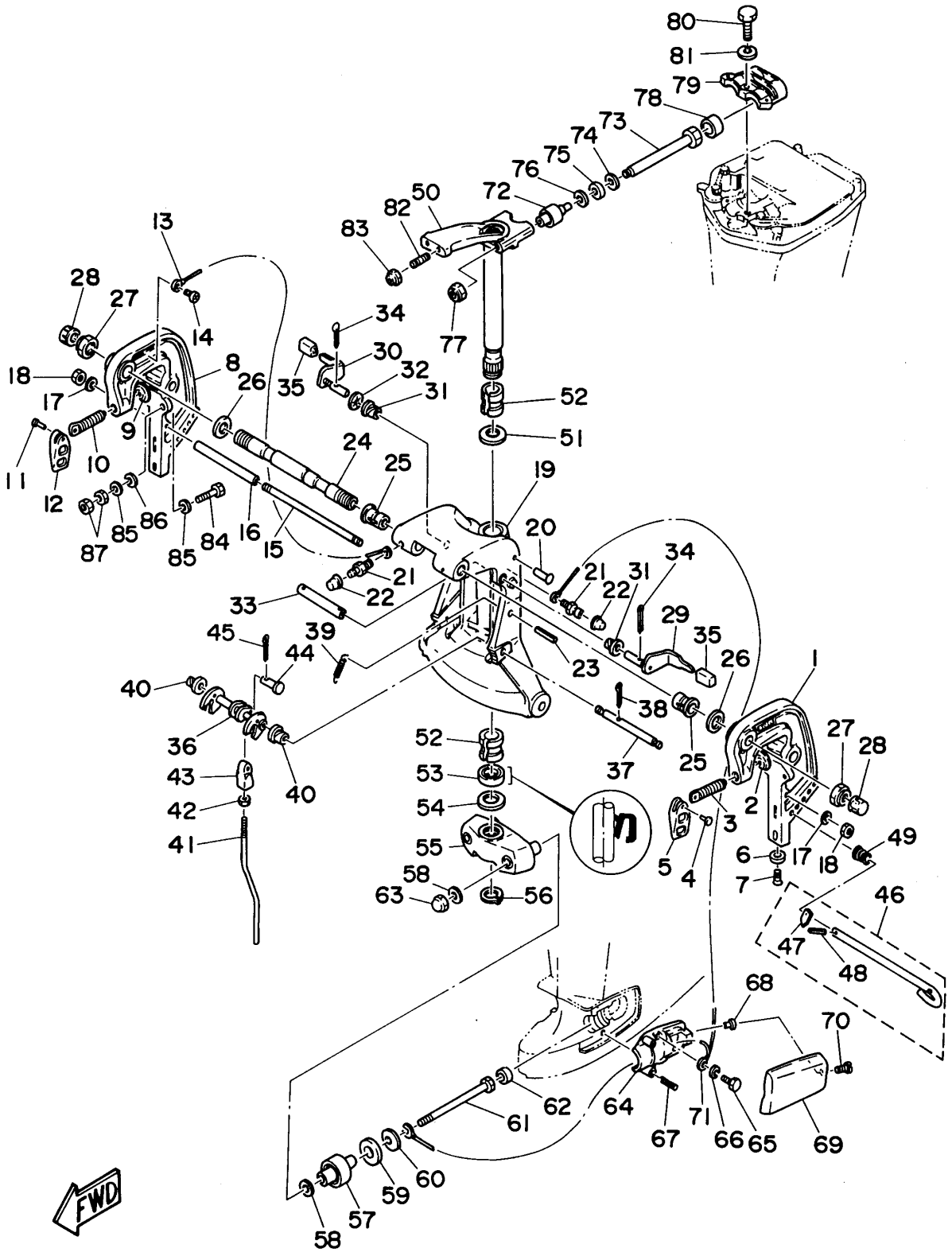
BRACKET 1



Ref. No.	Part Number	Description	Qty	Remarks
30	697-43185-02-00	LEVER, TILT STOP	1	
31	90386-10045-00	BUSH	2	
32	90206-10M08-00	WASHER, WAVE	1	
33	90387-10269-00	COLLAR	1	
34	91490-30030-00	PIN, COTTER	2	
35	663-43318-00-00	COVER	2	
36	696-43610-00-00	TILT LOCK ASSEMBLY	1	
37	696-43611-00-00	SHAFT, TILT LOCK	1	
38	91490-25030-00	PIN, COTTER	1	
39	90506-12078-00	SPRING, TENSION	1	
40	90386-10045-00	BUSH	2	
41	670-43616-11-00	ROD, TILT LOCK	1	
42	95380-08600-00	NUT	1	
43	663-43653-00-00	NUT, CONNECTION	1	
44	91590-08030-00	PIN, CLEVIS	1	
45	91490-20015-00	PIN, COTTER	1	
46	676-43160-02-00	TILT ROD ASSEMBLY	1	
47	676-43165-00-00	. PLATE, TILT LOCK	1	
48	91690-30012-00	. PIN, SPRING	1	
49	90502-10M04-00	SPRING, CONICAL	1	
50	663-42510-13-4D	STEERING BRACKET ASSEMBLY	1	
51	90201-30M00-00	WASHER, PLATE	1	
52	90386-30048-00	BUSH	2	
53	93109-30M03-00	OIL SEAL	1	
54	90201-31418-00	WASHER, PLATE	1	
55	663-44551-02-4D	HOUSING, LOWER MOUNT RUBBER	1	
56	93410-28M06-00	CIRCLIP	1	

CONTINUED ON NEXT FRAME ➤

BRACKET 1

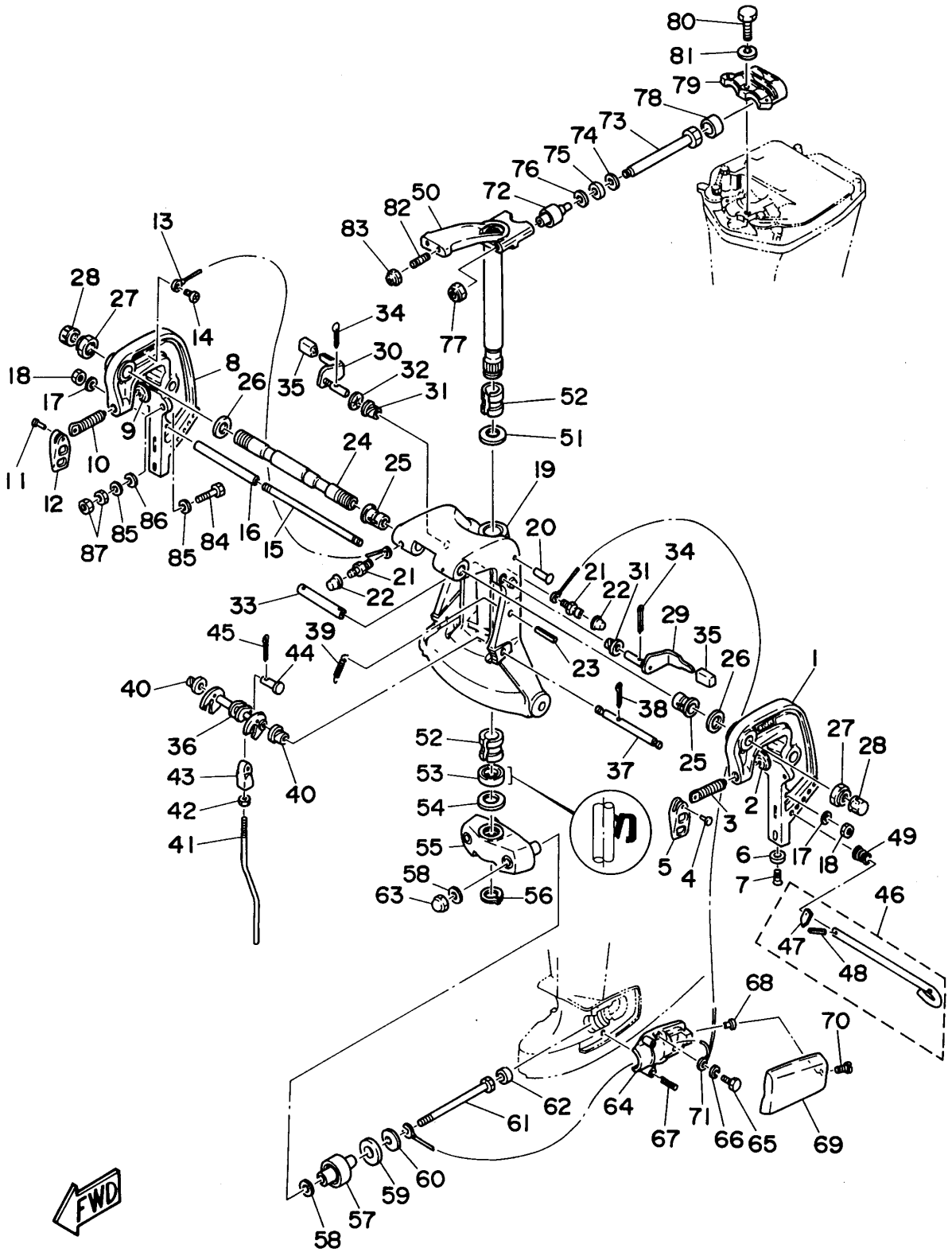


Ref. No.	Part Number	Description	Qty	Remarks
57	670-44555-00-94	MOUNT DAMPER, LOWER SIDE	2	
58	90201-12M16-00	WASHER, PLATE	4	
59	90202-21100-00	WASHER, PLATE	2	
60	90201-13M11-00	WASHER, PLATE	2	
61	90109-12261-00	BOLT	2	
62	670-44575-00-00	DAMPER, LOWER MOUNT RUBBER	2	
63	95380-12800-00	NUT, CROWN	2	
64	663-44552-01-94	HOUSING, LOWER MOUNT RUBBER	2	
65	97095-08025-00	BOLT	4	
66	92990-08100-00	WASHER	4	
67	90501-14M08-00	SPRING, COMPRESSION	4	
68	90179-06066-00	NUT	2	
69	663-44553-01-4D	COVER, LOWER MOUNT	2	
70	97885-06016-00	SCREW, PAN HEAD	2	
71	696-82127-10-00	WIRE, LEAD 2	1	
72	670-44514-00-94	MOUNT DAMPER, UPPER SIDE	2	
73	90109-08262-00	BOLT	2	
74	90201-15423-00	WASHER, PLATE	2	
75	90202-15095-00	WASHER, PLATE	2	
76	90201-09425-00	WASHER, PLATE	2	
77	90185-08045-00	NUT, SELF-LOCKING	2	
78	663-44533-00-00	DAMPER, UPPER MOUNT RUBBER	2	
79	663-44511-00-94	COVER, UPPER MOUNT	1	
80	97095-08035-00	BOLT	3	
81	92990-08100-00	WASHER	3	
82	90116-10175-00	BOLT, STUD	2	
83	90185-10051-00	NUT, SELF-LOCKING	2	

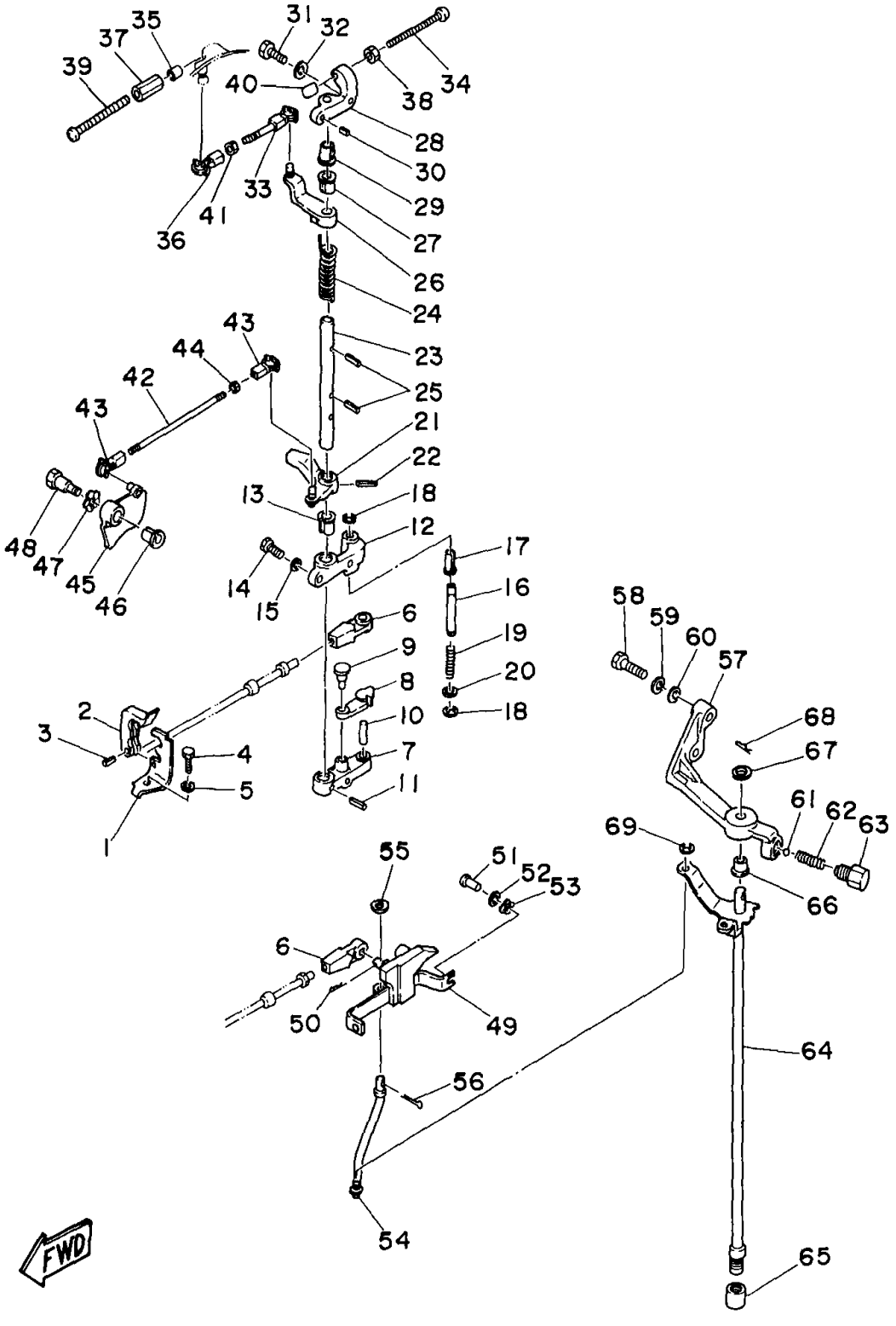
CONTINUED ON NEXT FRAME ➤

BRACKET 1

Ref. No.	Part Number	Description	Qty	Remarks
84	90101-10M58-00	BOLT	4	
85	92990-10600-00	WASHER, PLATE	8	
86	90201-12426-00	WASHER, PLATE	4	
87	95380-10600-00	NUT	8	



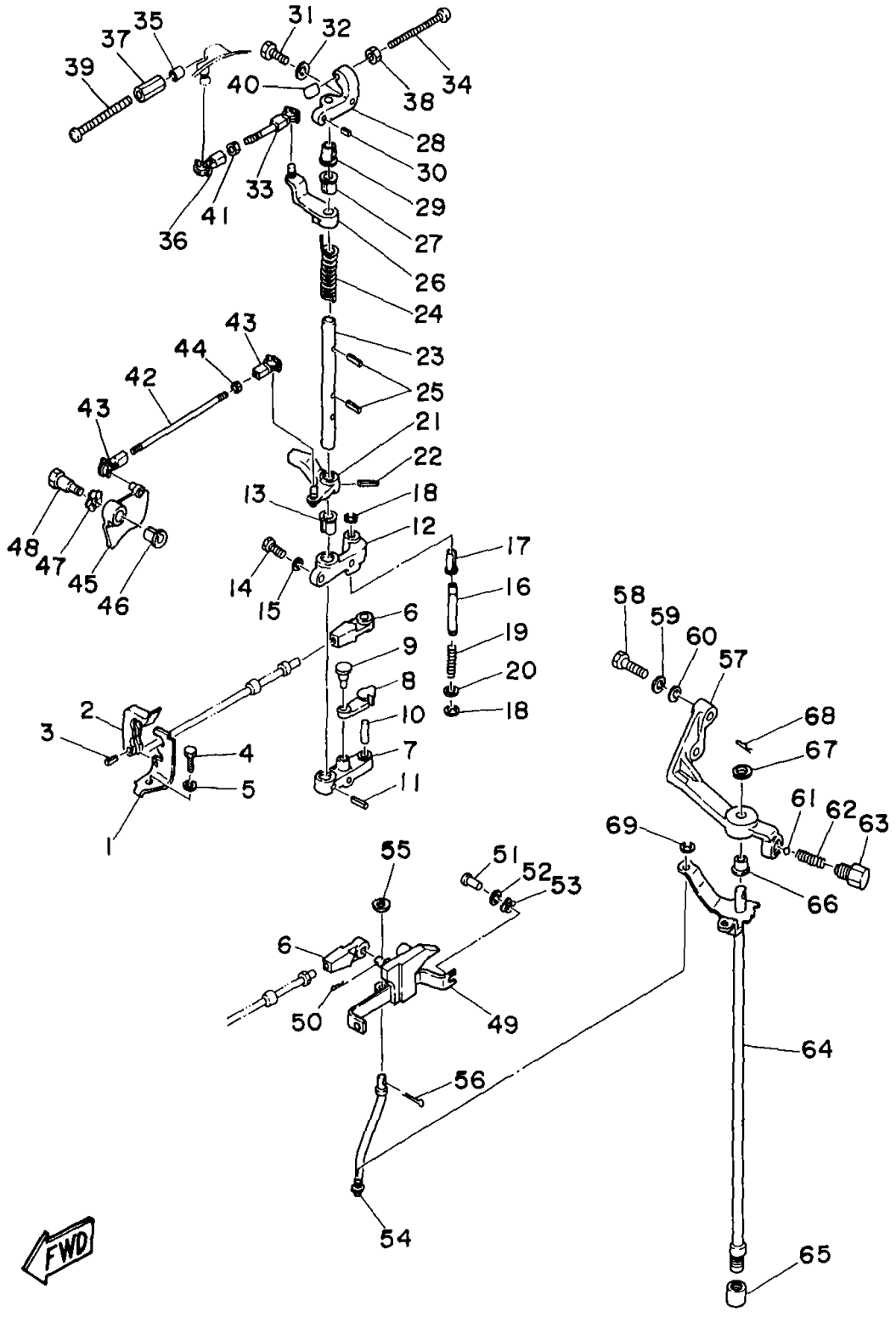
CONTROL



Ref. No.	Part Number	Description	Qty	Remarks
1	663-48531-00-00	BRACKET, REMOTE CONTROL 1	1	
2	663-48538-00-00	CLAMP, CABLE 1	1	
3	91690-30012-00	PIN, SPRING	1	
4	97095-08016-00	BOLT	1	
5	92990-08100-00	WASHER	1	
6	663-48344-00-00	CABLE END, REMOTE CONTROL	2	
7	663-41632-00-94	LEVER, MAGNETO CONTROL	1	
8	663-41282-00-00	STOPPER, FREE ACCEL. LINK	1	
9	90249-05125-00	PIN	1	
10	93607-23110-00	PIN, DOWEL	1	
11	91690-30018-00	PIN, SPRING	1	
12	663-41662-00-94	BRACKET	1	
13	90386-10009-00	BUSH	1	
14	97080-06018-00	BOLT	2	
15	92990-06600-00	WASHER, PLATE	2	
16	663-44114-00-00	STOPPER	1	
17	90386-06M39-00	BUSH	1	
18	99080-05600-00	CIRCLIP	2	
19	90501-08232-00	SPRING, COMPRESSION	1	
20	92990-06600-00	WASHER, PLATE	1	
21	663-41633-00-94	LEVER, MAGNETO CONTROL	1	
22	91690-30018-00	PIN, SPRING	1	
23	663-41635-00-00	SHAFT, LINK CONNECTING	1	
24	90508-20169-00	SPRING, TORSION	1	
25	91690-30018-00	PIN, SPRING	2	
26	663-41631-00-94	LEVER, MAGNETO CONTROL	1	
27	90386-10009-00	BUSH	1	

CONTINUED ON NEXT FRAME ➤

CONTROL



Ref. No.	Part Number	Description	Qty	Remarks
28	663-41661-00-94	BRACKET	1	
29	90386-10009-00	BUSH	1	
30	91690-40010-00	PIN, SPRING	1	
31	97080-06018-00	BOLT	1	
32	92990-06600-00	WASHER, PLATE	1	
33	688-41636-00-00	ROD, MAGNETO CONTROL	1	
34	90157-06M12-00	SCREW, PAN HEAD	1	
35	688-44194-00-00	CAP	1	
36	6H1-41237-00-00	JOINT, LINK	1	
37	90170-06249-00	NUT	1	
38	95380-06700-00	NUT	1	
39	90157-06M12-00	SCREW, PAN HEAD	1	
40	663-44194-00-00	CAP	1	
41	95380-05600-00	NUT	1	
42	663-41211-00-00	LINK, ACCEL.	1	
43	6H1-41237-00-00	JOINT, LINK	2	
44	95380-05600-00	NUT	1	
45	663-41213-01-94	CAM, ACCEL.	1	
46	90386-10009-00	BUSH	1	
47	90206-10M04-00	WASHER, WAVE	1	
48	90109-06260-00	BOLT	1	
49	663-44117-01-00	BRACKET	1	
50	90468-18008-00	CLIP	1	
51	90241-06M00-00	PIN	1	
52	92990-06600-00	WASHER, PLATE	1	
53	90206-06040-00	WASHER, WAVE	1	
54	663-44121-01-00	LEVER, SHIFT ROD	1	
55	92990-06600-00	WASHER, PLATE	1	
56	91490-16020-00	PIN, COTTER	1	

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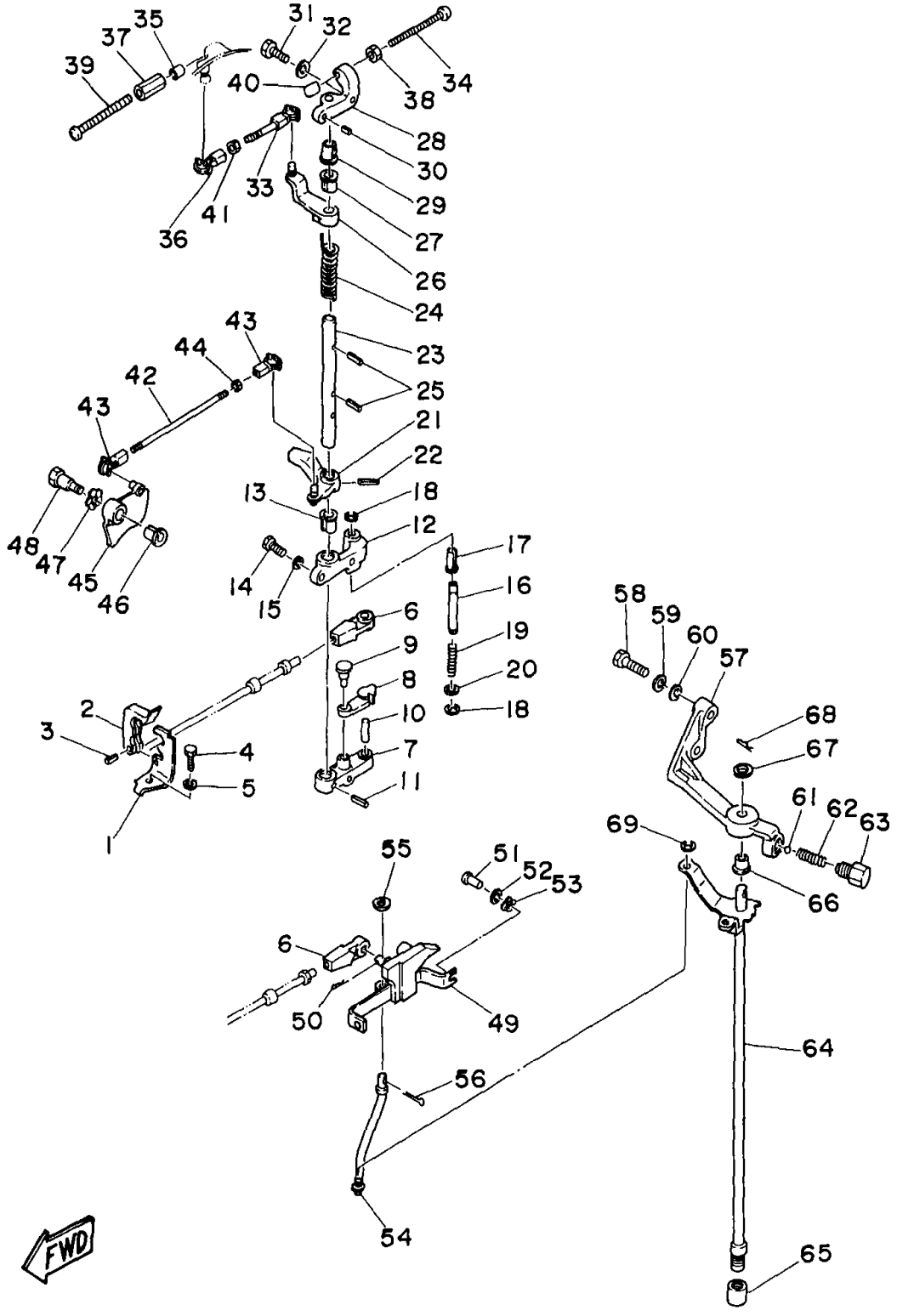
CONTROL



Ref. No.	Part Number	Description	Qty	Remarks
57	688-44118-00-94	BRACKET	1	
58	97013-08030-00	BOLT	2	
59	92990-08100-00	WASHER	2	
60	92990-08600-00	WASHER, PLATE	2	
61	93501-04M02-00	BALL	1	
62	90501-12082-00	SPRING, COMPRESSION	1	
63	648-42715-00-00	BUSHING	1	
64	696-44120-12-00	HANDLE GEAR SHIFT ASSEMBLY	1	
65	696-44147-00-00	BOOT, SHIFT ROD	1	
66	90386-08006-00	BUSH	1	
67	92990-08200-00	WASHER, PLAIN	1	
68	90468-18008-00	CLIP	1	
69	99080-05600-00	CIRCLIP	1	

STEERING

Ref. No.	Part Number	Description	Qty	Remarks
1	697-W0084-00-4D	HANDLE STEERING ASSEMBLY	1	
2	663-42111-02-4D	HANDLE, STEERING	1	
3	664-42119-00-00	GRIP, STEERING HANDLE	1	
4	6G1-42177-00-00	RUBBER, HANDLE	1	
5	697-42137-10-00	INDICATOR, THROTTLE	1	
6	90269-02M09-00	RIVET	1	
7	90149-05M13-00	SCREW	1	
8	92990-10600-00	WASHER, PLATE	1	
9	90501-23215-00	SPRING, COMPRESSION	1	
10	90386-08032-00	BUSH	1	
11	663-42115-00-00	SHAFT, STEERING HANDLE	1	
12	663-42138-00-00	LEVER, THROTTLE	1	
13	91690-30216-00	PIN, SPRING	1	
14	663-42135-01-00	HOUSING, THROTTLE LEVER	1	
15	663-42133-01-00	GASKET	1	
16	663-42134-03-94	COVER, THROTTLE LEVER	1	
17	93700-06M03-00	NIPPLE, GREASE	1	
18	97885-06008-00	SCREW, PAN HEAD	1	
19	97885-05012-00	SCREW, PAN HEAD	4	
20	692-26301-03-00	THROTTLE CABLE ASSEMBLY	1	
21	697-42121-00-4D	BRACKET	1	
22	90101-12M06-00	BOLT	1	
23	92990-12200-00	WASHER, PLAIN	1	
24	90386-12089-00	BUSH	1	
25	90202-12092-00	WASHER, PLATE	2	
26	90201-12537-00	WASHER, PLATE	2	
27	90206-12054-00	WASHER, WAVE	1	
28	90185-12058-00	NUT, SELF-LOCKING	1	

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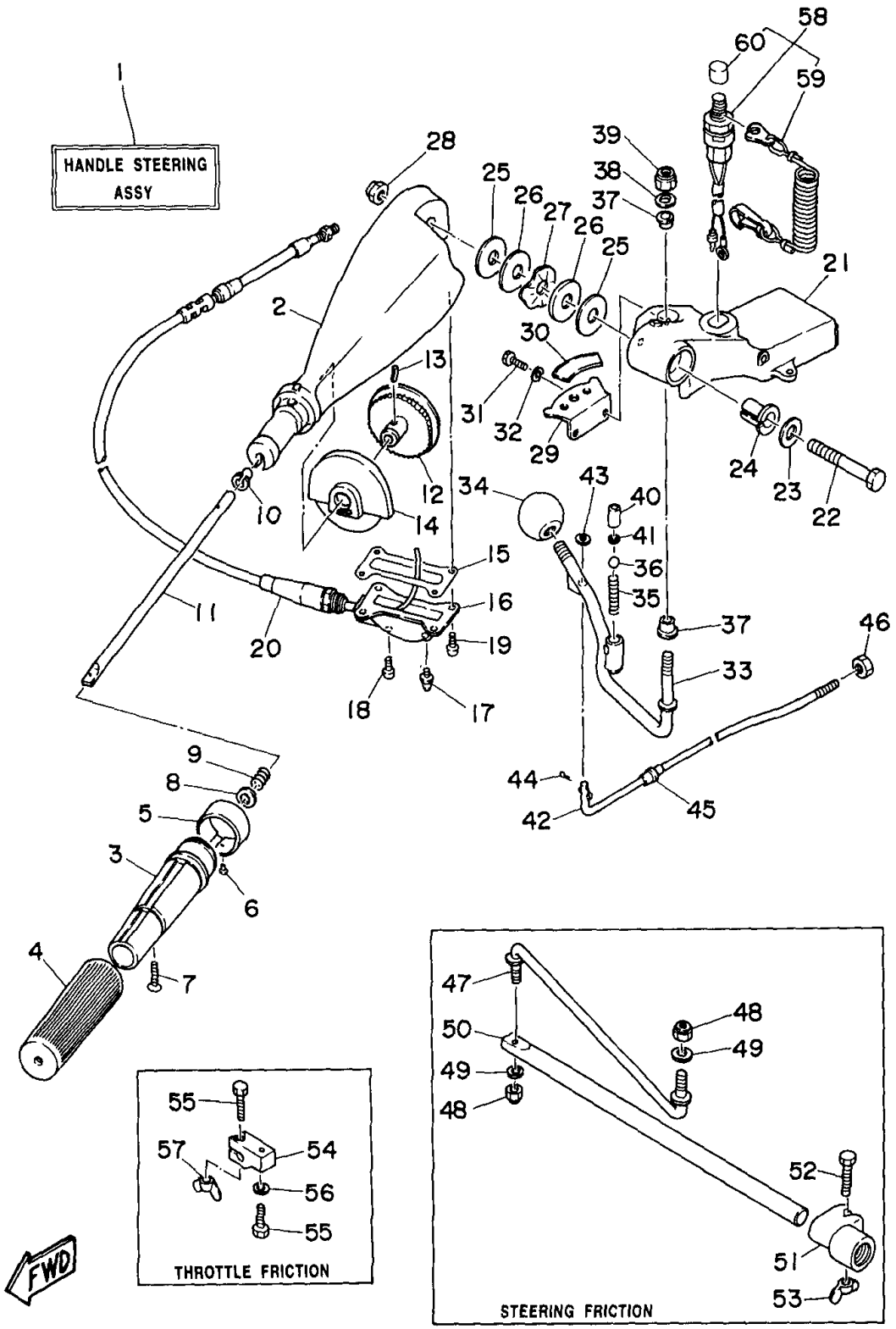
STEERING

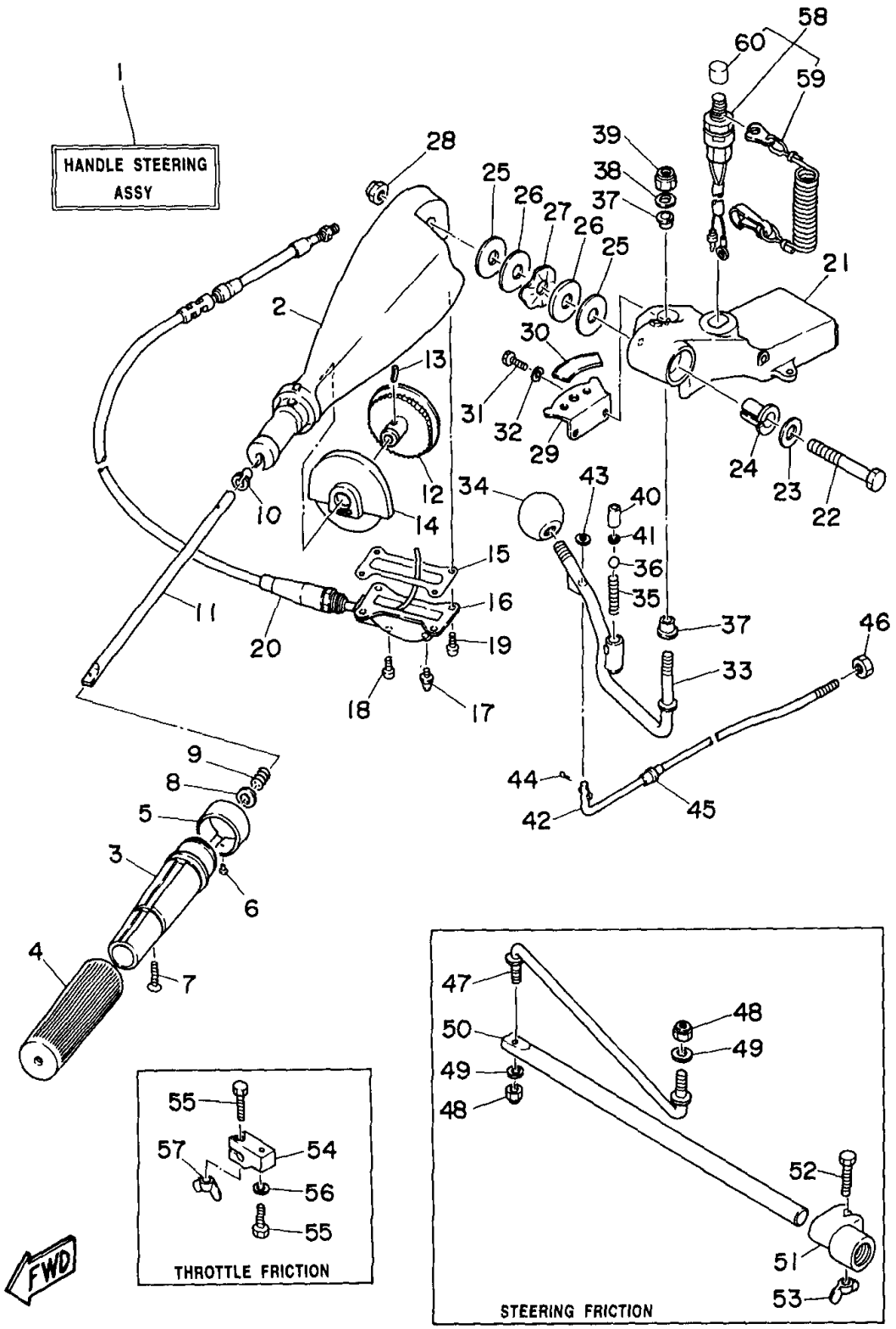


Ref. No.	Part Number	Description	Qty	Remarks
29	697-44113-00-00	CAM PLATE, HANDLE	1	
30	6K5-44191-00-00	INDICATOR, SHIFT	1	
31	97095-06016-00	BOLT	2	
32	92995-06100-00	WASHER, SPRING	2	
33	697-44159-00-00	HANDLE, GEAR SHIFT	1	
34	663-44173-00-00	LEVER, SHIFT CONTROL	1	
35	90501-16M17-00	SPRING, COMPRESSION	1	
36	93515-32M01-00	BALL	1	
37	90386-10009-00	BUSH	2	
38	90201-10120-00	WASHER, PLATE	1	
39	90185-10051-00	NUT, SELF-LOCKING	1	
40	90387-12M30-00	COLLAR	1	
41	90201-12M34-00	WASHER, PLATE	1	
42	663-42164-00-00	ROD, MANUAL SHIFT	1	
43	92990-06600-00	WASHER, PLATE	1	
44	91490-25020-00	PIN, COTTER	1	
45	90386-06088-00	BUSH	1	
46	700-48339-00-00	NUT, CABLE END	1	
47	697-42515-00-00	ROD, STEERING LINK	1	AP
48	95780-08300-00	NUT, SELF-LOCKING	2	AP
49	92990-08600-00	WASHER, PLATE	2	AP
50	663-42518-00-00	SHAFT, FRICTION	1	AP
51	663-42528-00-00	PLATE, FRICTION	1	AP
52	97095-06035-00	BOLT	1	AP
53	90175-06003-00	NUT, WING	1	AP
54	663-42126-01-00	FRICTION, STEERING HANDLE GRIP	1	
55	97095-06025-00	BOLT	2	
56	92990-06600-00	WASHER, PLATE	1	

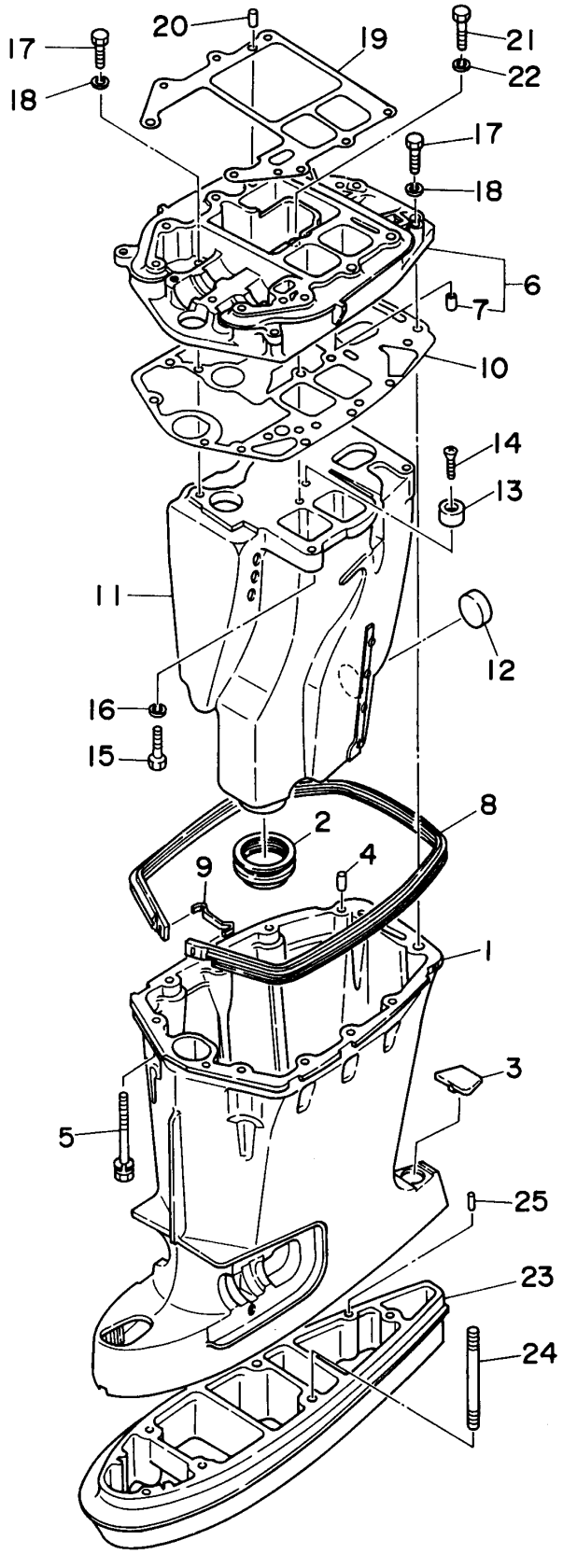
CONTINUED ON NEXT FRAME ➤

STEERING

Ref. No.	Part Number	Description	Qty	Remarks
57	90175-06003-00	NUT, WING	1	
58	6K5-82575-02-00	ENGINE STOP SWITCH ASSEMBLY	1	
59	682-82556-00-00	. STOPPER	1	
60	689-8257Y-00-00	. CAP	1	

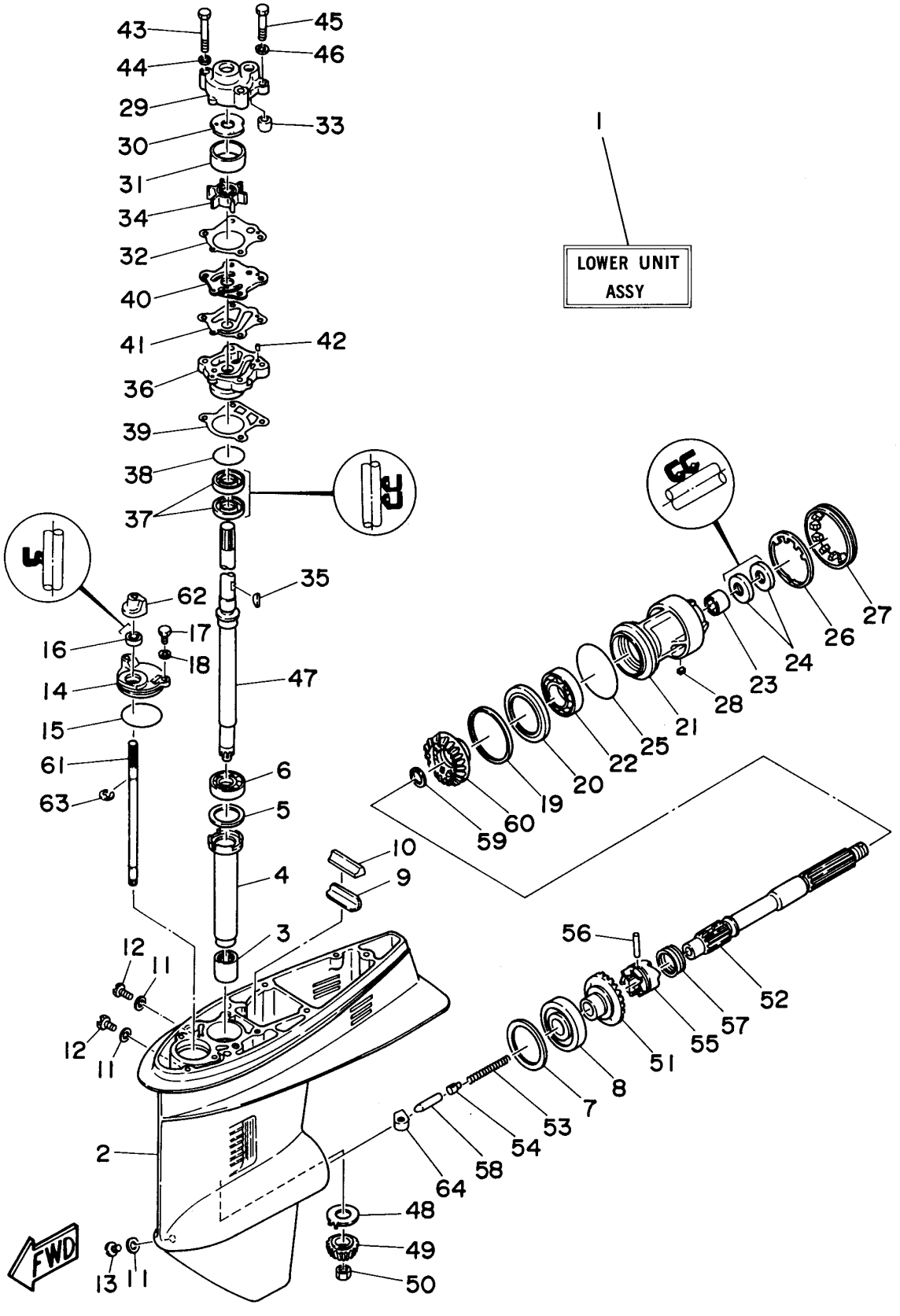


UPPER CASING



Ref. No.	Part Number	Description	Qty	Remarks
1	697-45111-13-4D	CASING, UPPER	1	
2	663-45123-00-00	GASKET, MUFFLER	1	
3	663-45155-10-00	CAP	1	
4	93606-12019-00	PIN, DOWEL	2	
5	90119-08M82-00	BOLT, WITH WASHER	8	
6	663-41137-04-5B	GUIDE, EXHAUST	1	
7	90386-02M04-00	. BUSH	1	
8	663-45127-00-00	SEAL	1	
9	663-45129-00-00	HOOK, DAMPER SEAL	1	
10	697-45114-A0-00	GASKET, UPPER CASING	1	
11	663-14711-12-5B	MUFFLER 1	1	
12	90334-30017-00	PLUG, STRAIGHT	1	
13	663-45251-00-00	ANODE	1	
14	92180-06025-00	SCREW, OVAL HEAD	1	
15	97095-08035-00	BOLT	1	
16	92990-08100-00	WASHER	1	
17	97095-08030-00	BOLT	6	
18	92990-08100-00	WASHER	6	
19	696-45113-A0-00	GASKET, UPPER CASING	1	
20	93606-12019-00	PIN, DOWEL	2	
21	97395-08040-00	BOLT (97095-08040-00)	1	
22	92990-08100-00	WASHER	1	
23	696-45211-01-4D	EXTENSION	1	
24	90116-10M31-00	BOLT, STUD	4	
25	93606-12019-00	PIN, DOWEL	2	

LOWER CASING - DRIVE 1



Ref. No.	Part Number	Description	Qty	Remarks
1	696-45300-11-4D	LOWER UNIT ASSEMBLY	1	
2	697-45311-02-4D	CASING, LOWER	1	
3	93315-32224-00	BEARING	1	
4	663-45536-00-00	SLEEVE, DRIVE SHAFT	1	
5	663-45587-01-10	SHIM (T:0.10MM)	1	UR
	663-45587-01-12	SHIM (T:0.12MM)	1	UR
	663-45587-01-15	SHIM (T:0.15MM)	1	UR
	663-45587-01-18	SHIM (T:0.18MM)	1	UR
	663-45587-01-30	SHIM (T:0.30MM)	1	UR
	663-45587-01-40	SHIM (T:0.40MM)	1	UR
	663-45587-01-50	SHIM (T:0.50MM)	1	UR
6	93332-00079-00	BEARING	1	
7	663-45567-01-10	SHIM (T:0.10MM)	1	UR
	663-45567-01-12	SHIM (T:0.12MM)	1	UR
	663-45567-01-15	SHIM (T:0.15MM)	1	UR
	663-45567-01-18	SHIM (T:0.18MM)	1	UR
	663-45567-01-30	SHIM (T:0.30MM)	1	UR
	663-45567-01-40	SHIM (T:0.40MM)	1	UR
	663-45567-01-50	SHIM (T:0.50MM)	1	UR
8	93332-00003-00	BEARING	1	
9	663-45376-00-94	GUIDE, SEAL DAMPER	1	
10	663-45375-00-00	DAMPER, SEAL	1	
11	90430-08020-00	GASKET	3	
12	90340-08M04-00	PLUG, STRAIGHT SCREW	2	
13	688-45341-00-00	PLUG, DRAIN	1	
14	663-45321-00-00	PLATE	1	
15	93210-49046-00	O-RING	1	
16	93106-09014-00	OIL SEAL	1	
17	97095-06016-00	BOLT	2	

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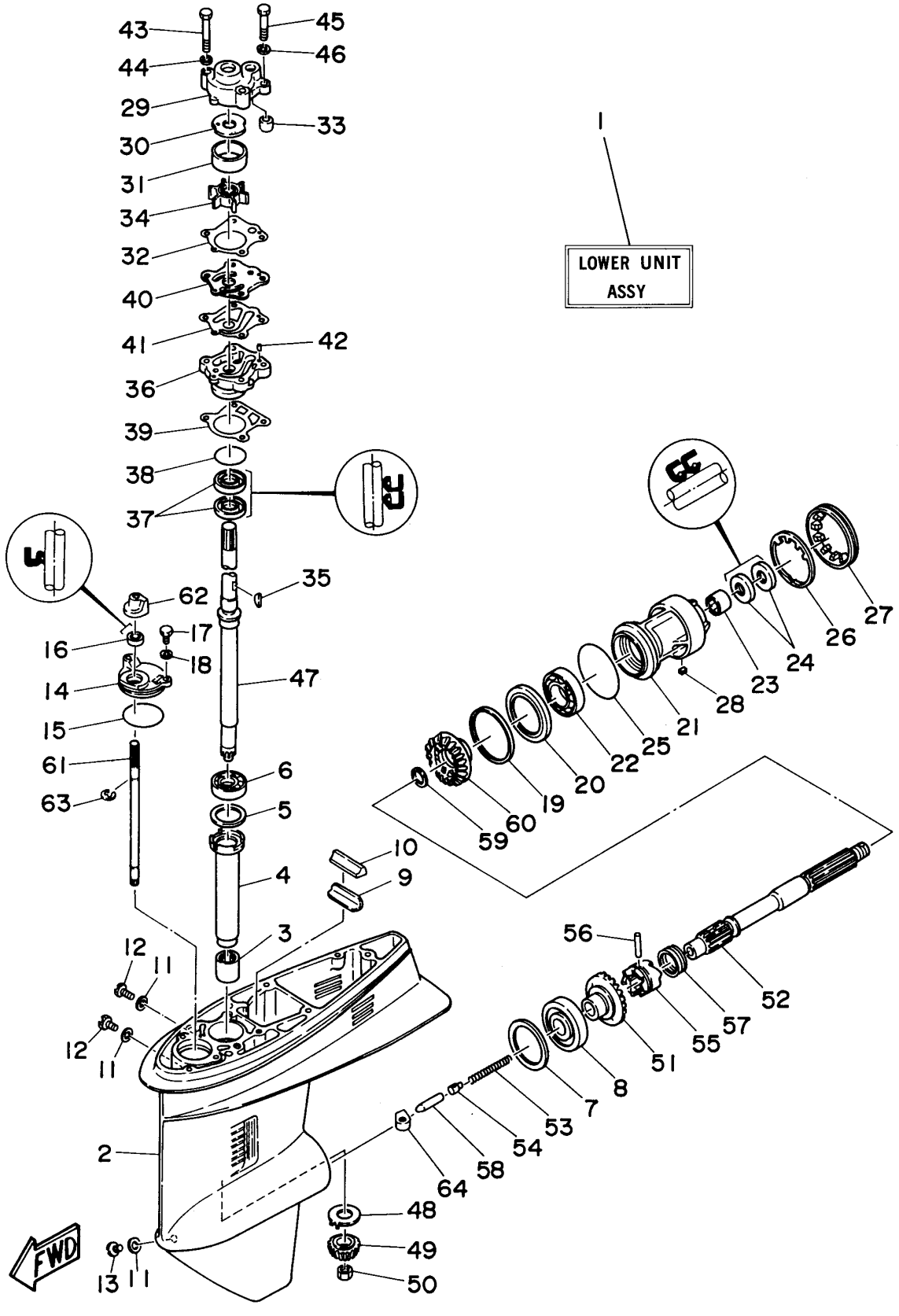

LOWER CASING - DRIVE 1

Ref. No.	Part Number	Description	Qty	Remarks
18	92990-06600-00	WASHER, PLATE	2	
19	663-45577-01-10	SHIM (T:0.10MM)	1	UR
	663-45577-01-12	SHIM (T:0.12MM)	1	UR
	663-45577-01-15	SHIM (T:0.15MM)	1	UR
	663-45577-01-18	SHIM (T:0.18MM)	1	UR
	663-45577-01-30	SHIM (T:0.30MM)	1	UR
	663-45577-01-40	SHIM (T:0.40MM)	1	UR
	663-45577-01-50	SHIM (T:0.50MM)	1	UR
20	663-45576-00-00	WASHER, THRUST	1	
21	663-45331-00-94	HOUSING, BEARING	1	
22	93306-00702-00	BEARING	1	
23	93317-22204-00	BEARING	1	
24	93101-22067-00	OIL SEAL	2	
25	93210-66M98-00	O-RING	1	
26	90214-48M03-00	WASHER, CLAW	1	
27	697-45384-00-00	NUT	1	
28	90282-04010-00	KEY, STRAIGHT	1	
29	663-44311-02-00	HOUSING, WATER PUMP	1	
30	670-44321-00-00	INNER PLATE, CARTRIDGE	1	
31	670-44322-01-00	INSERT, CARTRIDGE	1	
32	663-44315-A0-00	GASKET, WATER PUMP	1	
33	663-44366-00-00	DAMPER, WATER SEAL	1	
34	697-44352-00-00	IMPELLER	1	
35	90280-03M03-00	KEY, WOODRUFF	1	
36	663-44341-00-94	HOUSING, WATER PUMP	1	
37	93101-23070-00	OIL SEAL	2	
38	93210-41042-00	O-RING	1	
39	663-44316-A0-00	GASKET, WATER PUMP	1	
40	670-44323-00-00	OUTER PLATE, CARTRIDGE	1	

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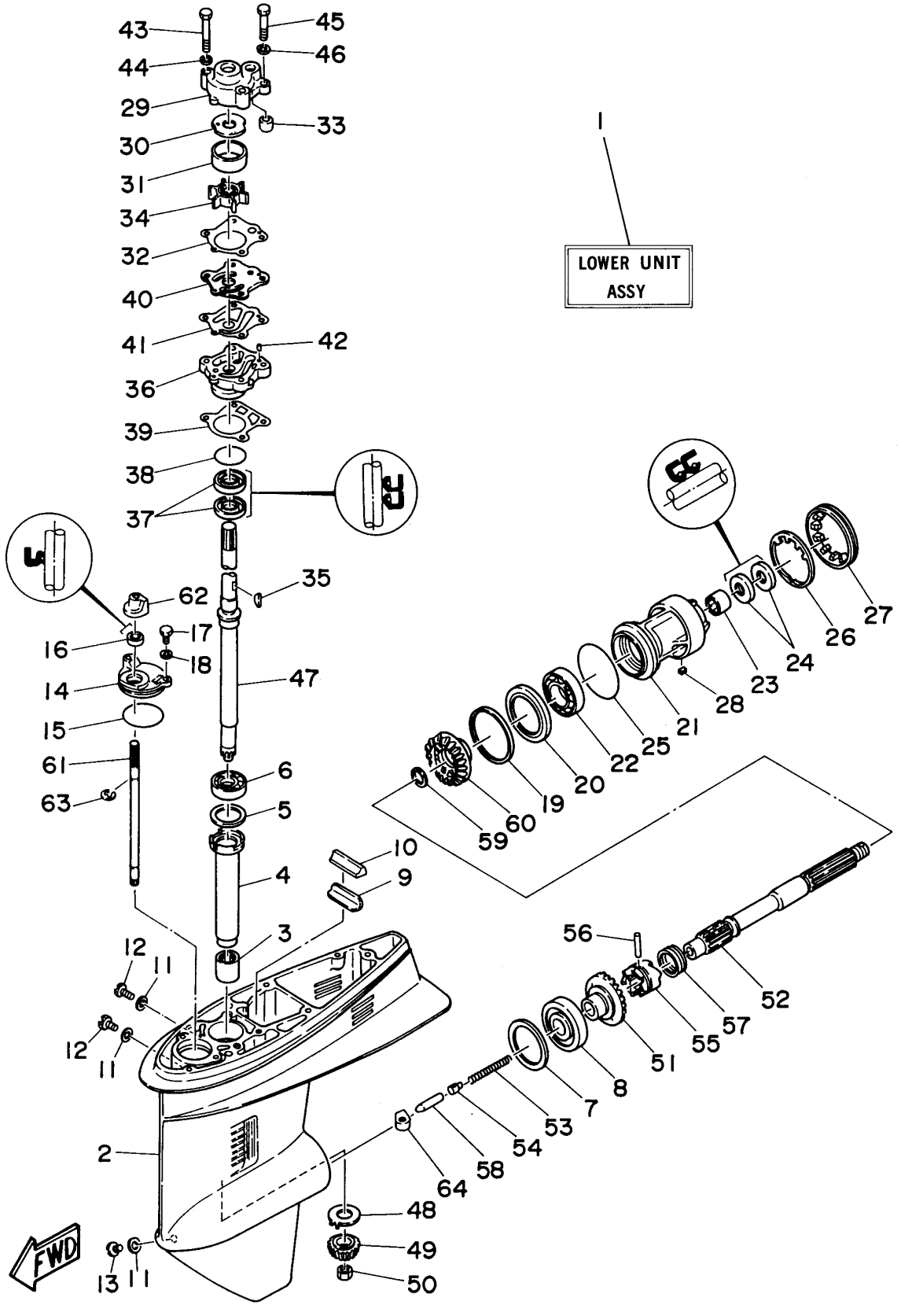
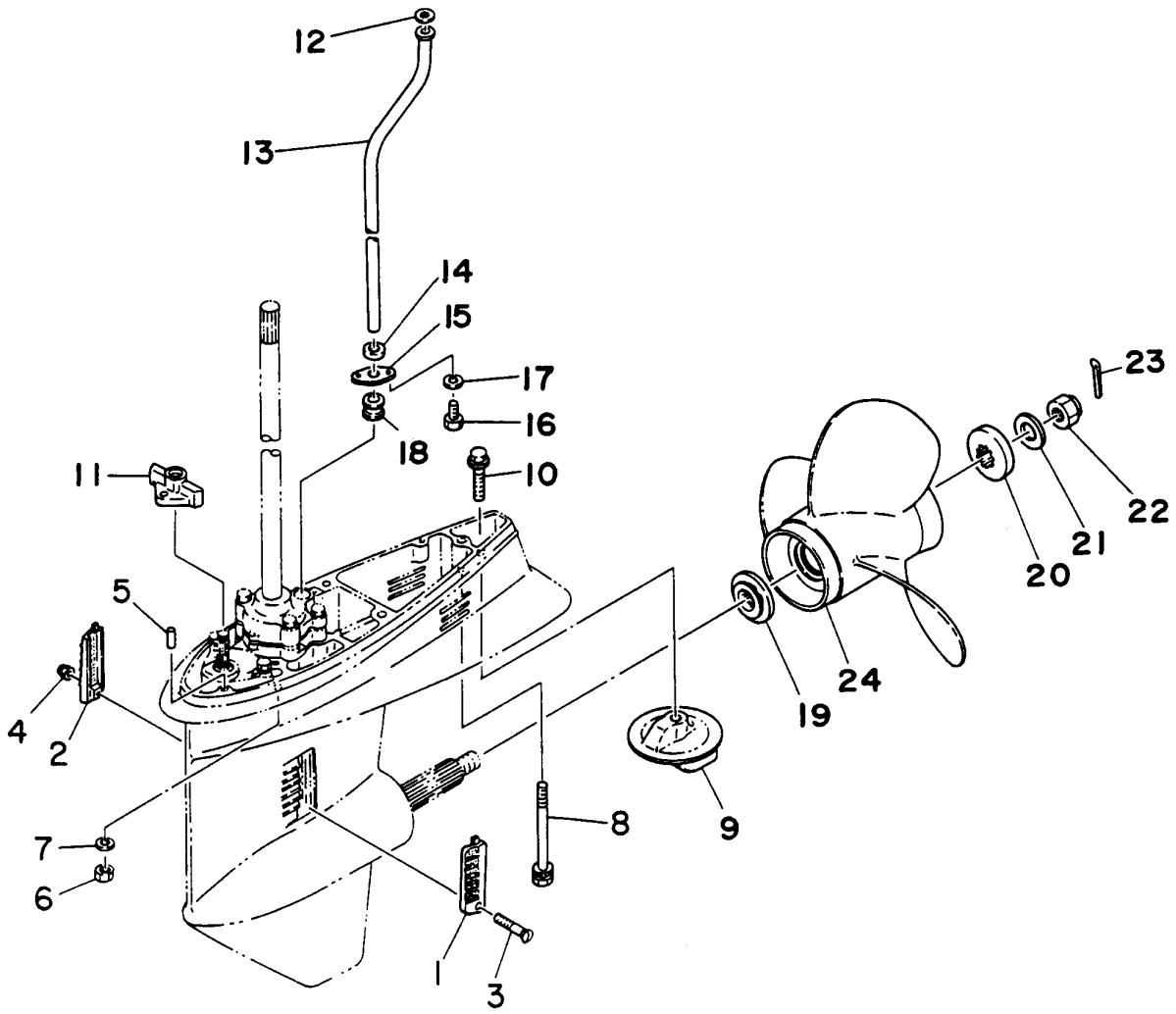
LOWER CASING - DRIVE 1



Ref. No.	Part Number	Description	Qty	Remarks
41	663-44324-A0-00	GASKET, CARTRIDGE	1	
42	93604-08062-00	PIN, DOWEL	2	
43	97095-08055-00	BOLT	2	
44	92990-08600-00	WASHER, PLATE	2	
45	97095-08045-00	BOLT	2	
46	92990-08600-00	WASHER, PLATE	2	
47	670-45510-10-00	DRIVE SHAFT ASSEMBLY	1	
48	663-45552-00-00	BEARING, PLAIN	1	
49	697-45551-00-00	PINION	1	
50	90170-12138-00	NUT	1	
51	697-45560-00-00	GEAR	1	
52	697-45611-00-00	SHAFT, PROPELLER	1	
53	90501-16233-00	SPRING, COMPRESSION	1	
54	663-45634-00-00	SLIDE, SHIFT	1	
55	663-45631-01-00	CLUTCH, DOG	1	
56	90250-06023-00	PIN, STRAIGHT	1	
57	663-45633-00-00	RING, CROSS PIN	1	
58	688-45635-00-00	PLUNGER, SHIFT	1	
59	90201-22429-00	WASHER, PLATE	1	
60	697-45571-00-00	GEAR	1	
61	663-44144-01-00	ROD, SHIFT	1	
62	663-44155-01-00	CAM, REVERSE ROD	1	
63	99001-08600-00	CIRCLIP	1	
64	663-44151-00-00	CAM, SHIFT	1	

LOWER CASING - DRIVE 2



Ref. No.	Part Number	Description	Qty	Remarks
1	688-45214-02-00	COVER, WATER INLET	1	
2	688-45215-02-00	COVER, WATER INLET	1	
3	98780-05540-00	SCREW, OVAL HEAD	1	
4	90185-05904-00	NUT, SELF-LOCKING (90185-05002-00)	1	
5	93606-12019-00	PIN, DOWEL	2	
6	95380-10600-00	NUT	4	
7	92990-10100-00	WASHER, SPRING	4	
8	90119-08M85-00	BOLT, WITH WASHER	1	
9	679-45371-00-00	TAB-TRIM	1	
10	90105-10M67-00	BOLT, WASHER BASED	1	
11	696-43662-00-00	GUIDE, REVERSE ROD	1	
12	90202-12060-00	WASHER, PLATE	1	
13	670-44361-10-00	TUBE, WATER	1	
14	90430-12072-00	GASKET	1	
15	663-44373-00-00	SET PLATE, WATER TUBE ...	1	
16	97095-06012-00	BOLT	2	
17	92995-06100-00	WASHER, SPRING	2	
18	663-44367-00-00	DAMPER, WATER SEAL	1	
19	663-45987-02-00	SPACER	1	
20	670-45997-02-00	SPACER	1	
21	92990-16200-00	WASHER, PLAIN	1	
22	90171-16011-00	NUT, CASTLE	1	
23	91490-40030-00	PIN, COTTER	1	
24	663-45930-00-98	PROPELLER (3X10-1/4"X14"-G)	1	UR S/S
	663-45941-01-EL	PROPELLER (3X10-3/4"X17"-G)	1	UR ALUM.
	663-45947-02-EL	PROPELLER (3X11-5/8"X11"-G)	1	UR ALUM.
	663-45949-01-EL	PROPELLER (3X10-3/4"X16"-G)	1	UR ALUM.
	663-45956-01-EL	PROPELLER (3X12-1/4"X9"-G)	1	UR ALUM

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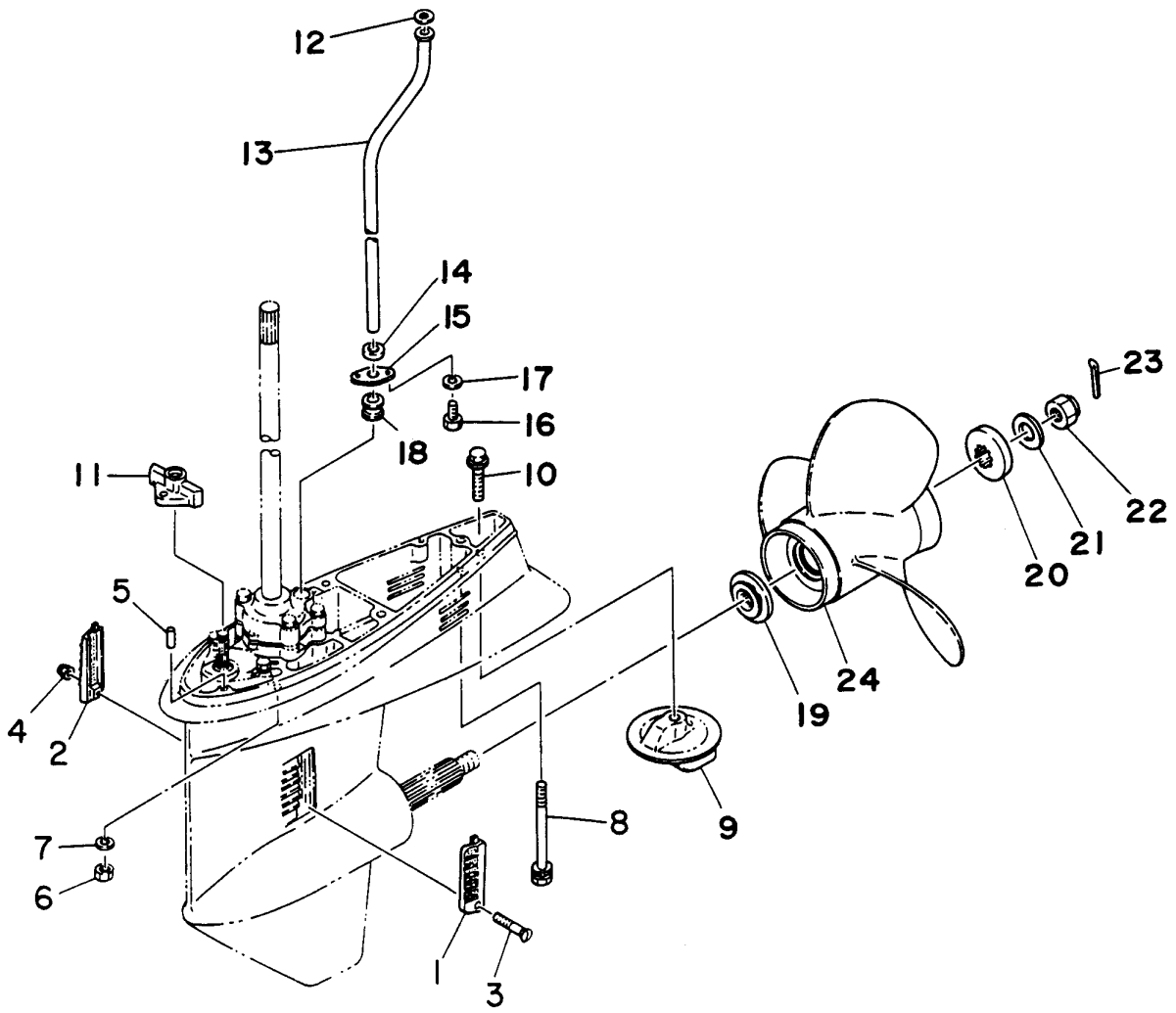
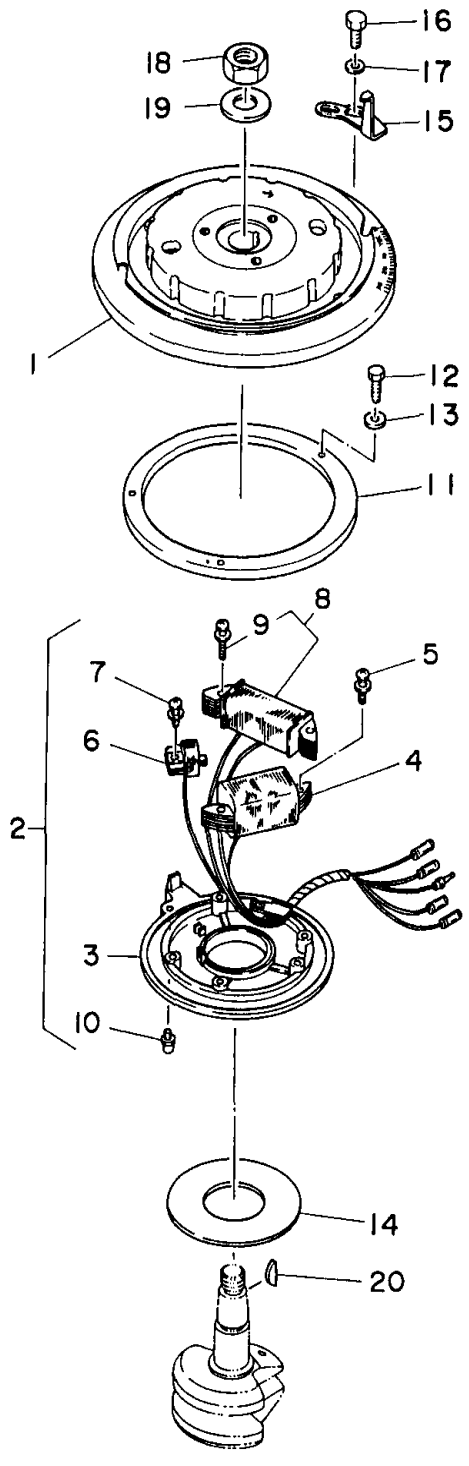


LOWER CASING - DRIVE 2

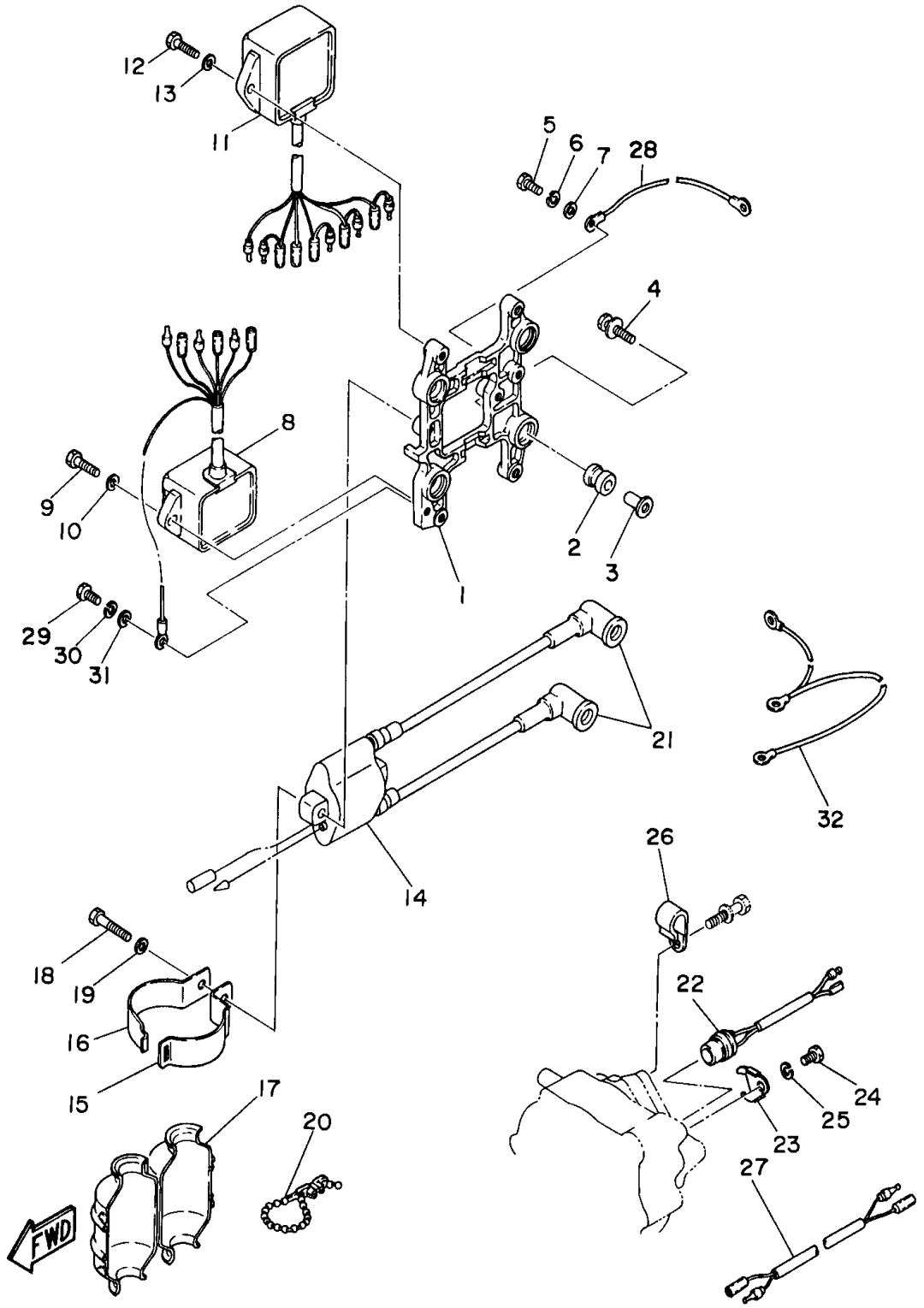
Ref. No.	Part Number	Description	Qty	Remarks
24	663-45958-01-EL	PROPELLER (3X11-1/4"X14"-G)	1	UR ALUM
	663-45970-60-98	PROPELLER (3X11-3/4"X12"-G)	1	UR S/S
	663-45972-60-98	PROPELLER (3X12"X11"-G) . .	1	UR S/S
	663-45974-60-98	PROPELLER (3X11-1/2"X13"-G)	1	UR S/S
	663-45976-00-98	PROPELLER (3X10-1/4"X15"-G)	1	UR S/S
	6H5-45943-00-EL	PROPELLER (3X10"X15"-G) . .	1	UR ALUM.
	6H5-45945-00-EL	PROPELLER (3X10-3/8"X13"-G)	1	UR ALUM.
	6H5-45952-00-EL	PROPELLER (3X10-5/8"X12"-G)	1	UR ALUM.

GENERATOR



Ref. No.	Part Number	Description	Qty	Remarks
1	696-85550-F1-00	ROTOR ASSEMBLY	1	
2	696-85560-F0-00	BASE ASSEMBLY	1	
3	696-85561-F0-00	. BASE, MAGNETO	1	
4	6E7-85520-70-00	. COIL, CHARGE	1	
5	90159-05039-00	. SCREW, WITH WASHER	2	
6	6E7-85580-70-00	. COIL, PULSER	1	
7	90159-05038-00	. SCREW, WITH WASHER	1	
8	696-81303-F0-00	. LIGHTING COIL ASSEMBLY	1	
9	90159-05040-00	. . SCREW, WITH WASHER	2	
10	663-85518-00-00	. JOINT, BALL	1	
11	663-41612-00-00	RETAINER, MAGNETO BASE	1	
12	97095-06020-00	BOLT	3	
13	92990-06600-00	WASHER, PLATE	3	
14	663-41619-00-00	WASHER, MAGNETO	1	
15	663-81332-01-00	PLATE, TIMING	1	
16	97095-06016-00	BOLT	1	
17	92990-06600-00	WASHER, PLATE	1	
18	90170-20137-00	NUT	1	
19	90201-21M18-00	WASHER, PLATE	1	
20	90280-05049-00	KEY, WOODRUFF	1	

ELECTRICAL 1



Ref. No.	Part Number	Description	Qty	Remarks
1	696-85542-00-94	BRACKET	1	
2	6A0-82317-00-00	DAMPER, IGNITION COIL	4	
3	624-42542-00-00	PIPE	4	
4	90119-06M90-00	BOLT, WITH WASHER	4	
5	97013-06012-00	BOLT	1	
6	92995-06100-00	WASHER, SPRING	1	
7	92990-06600-00	WASHER, PLATE	1	
8	696-85540-11-00	C.D.I. UNIT ASSEMBLY	1	
9	97095-06020-00	BOLT	2	
10	92990-06600-00	WASHER, PLATE	2	
11	696-85590-10-00	CONTROL UNIT ASSEMBLY	1	
12	97095-06020-00	BOLT	2	
13	92990-06600-00	WASHER, PLATE	2	
14	696-85570-11-00	IGNITION COIL ASSEMBLY	1	
15	696-81443-00-00	CLAMP, LEAD 1	1	
16	696-81444-00-00	CLAMP, LEAD 2	1	
17	696-81916-00-00	COVER, TERMINAL	1	
18	97095-06030-00	BOLT	2	
19	92990-06600-00	WASHER, PLATE	2	
20	90464-20M04-00	CLAMP	1	
21	663-82370-01-00	PLUG CAP ASSEMBLY	2	
22	688-82560-00-00	THERMOSWITCH ASSEMBLY	1	
23	663-82588-00-00	PLATE	1	
24	97095-06010-00	BOLT	1	
25	92995-06100-00	WASHER, SPRING	1	
26	90465-08028-00	CLAMP	1	
27	696-82531-00-00	WIRE, LEAD	1	
28	662-82519-00-00	WIRE, EARTH LEAD	1	
29	97013-06012-00	BOLT	1	

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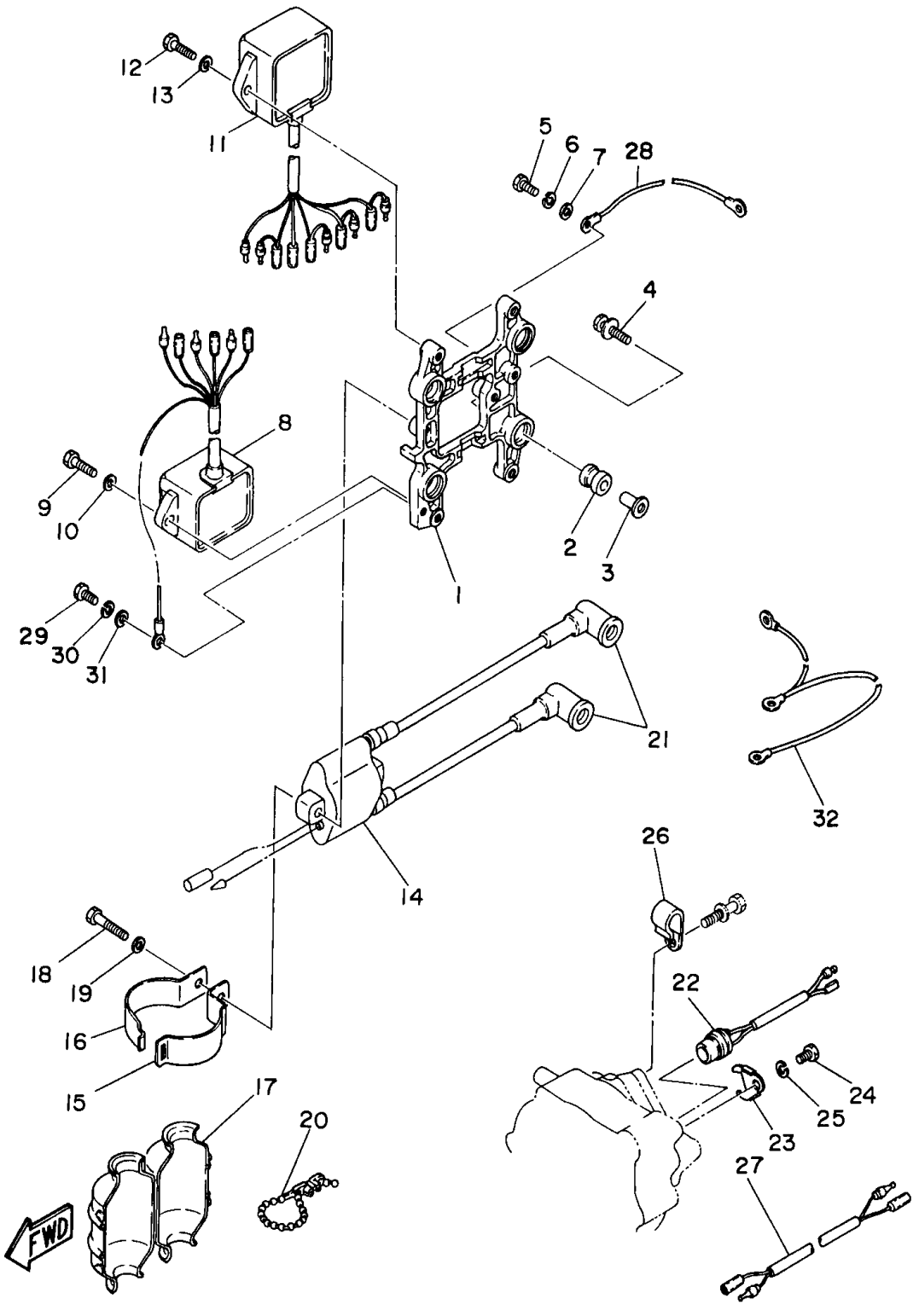
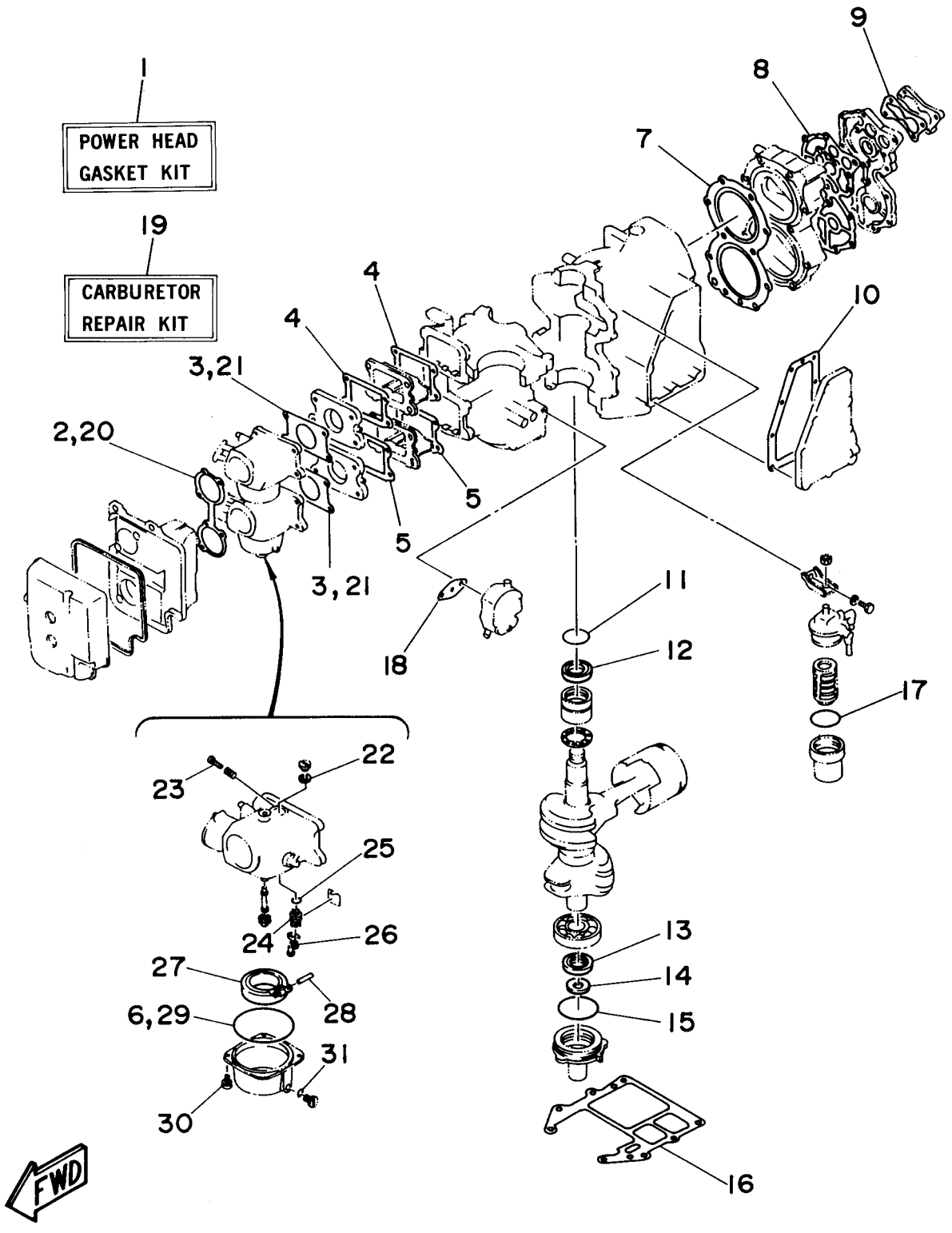
ELECTRICAL 1



Ref. No.	Part Number	Description	Qty	Remarks
30	92995-06100-00	WASHER, SPRING	1	
31	92990-06600-00	WASHER, PLATE	1	
32	697-82519-00-00	WIRE, EARTH LEAD	1	



REPAIR KIT 1

Ref. No.	Part Number	Description	Qty	Remarks
1	697-W0001-02-00	POWER HEAD GASKET KIT ..	1	
2	663-14483-A0-00	. GASKET	1	
3	663-14198-A0-00	. GASKET	2	
4	663-13621-A0-00	. GASKET, VALVE SEAT	2	
5	663-13622-A0-00	. GASKET, VALVE SEAT	2	
6	93210-64272-00	. O-RING	2	
7	697-11181-A1-00	. GASKET, CYLINDER HEAD 1	1	
8	663-11193-A0-00	. GASKET, HEAD COVER 1 ...	1	
9	663-12414-A0-00	. GASKET, COVER	1	
10	663-41114-A0-00	. GASKET, EXHAUST OUTER COVER	1	
11	93210-42159-00	. O-RING	1	
12	93102-32M07-00	. OIL SEAL	1	
13	93102-28135-00	. OIL SEAL	1	
14	93104-18049-00	. OIL SEAL	1	
15	93210-62269-00	. O-RING	1	
16	696-45113-A0-00	. GASKET, UPPER CASING ...	1	
17	93210-32738-00	. O-RING	1	
18	650-24431-A0-00	. GASKET, FUEL PUMP 1	1	
19	696-W0093-02-00	CARBURETOR REPAIR KIT ...	1	
20	663-14483-A0-00	. GASKET	1	
21	663-14198-A0-00	. GASKET	2	
22	679-14557-00-00	. WASHER	2	
23	663-14923-00-00	. SCREW, PILOT	2	
24	696-14590-00-00	. NEEDLE VALVE ASSEMBLY .	2	
25	93210-07229-00	. O-RING	2	
26	676-14186-00-00	. PIN, FLOAT	2	
27	6F0-14985-00-00	. FLOAT	2	
28	663-14548-00-00	. PIN, FLOAT ARM	2	

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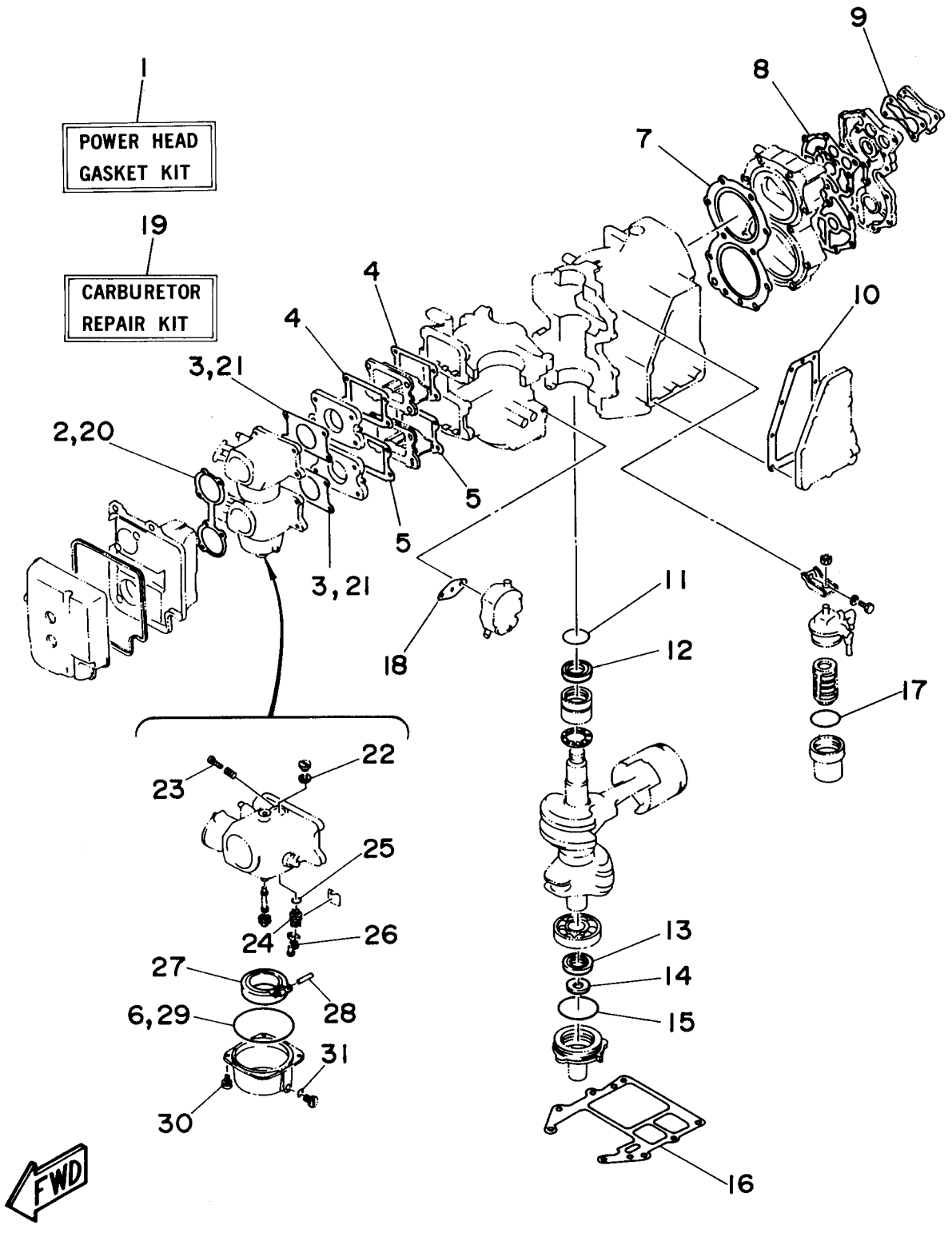
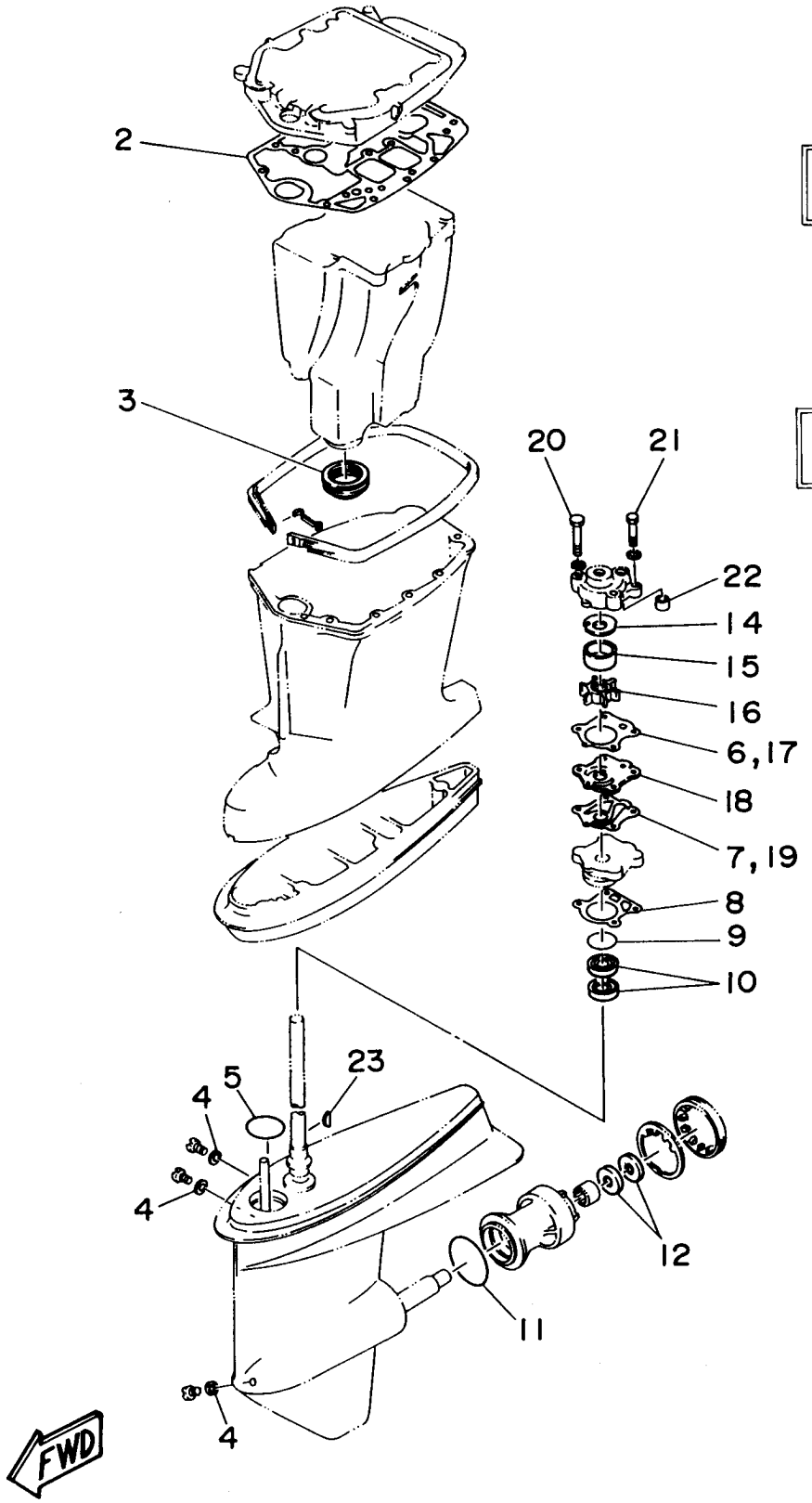


REPAIR KIT 1

Ref. No.	Part Number	Description	Qty	Remarks
29	93210-64272-00	. O-RING	2	
30	97980-04112-00	. SCREW, WITH WASHER	2	
31	93210-04230-00	. O-RING	2	

REPAIR KIT 2



Ref. No.	Part Number	Description	Qty	Remarks
1	698-W0001-21-00	LOWER UNIT GASKET KIT ...	1	
2	697-45114-A0-00	. GASKET, UPPER CASING ...	1	
3	663-45123-00-00	. GASKET, MUFFLER	1	
4	90430-08020-00	. GASKET	3	
5	93210-49046-00	. O-RING	1	
6	663-44315-A0-00	. GASKET, WATER PUMP	1	
7	663-44324-A0-00	. GASKET, CARTRIDGE	1	
8	663-44316-A0-00	. GASKET, WATER PUMP	1	
9	93210-41042-00	. O-RING	1	
10	93101-23070-00	. OIL SEAL	2	
11	93210-66M98-00	. O-RING	1	
12	93101-22067-00	. OIL SEAL	2	
13	670-W0078-00-00	WATER PUMP REPAIR KIT ...	1	
14	670-44321-00-00	. INNER PLATE, CARTRIDGE .	1	
15	670-44322-01-00	. INSERT, CARTRIDGE	1	
16	697-44352-00-00	. IMPELLER	1	
17	663-44315-A0-00	. GASKET, WATER PUMP	1	
18	670-44323-00-00	. OUTER PLATE, CARTRIDGE .	1	
19	663-44324-A0-00	. GASKET, CARTRIDGE	1	
20	97095-08055-00	. BOLT	2	
21	97095-08045-00	. BOLT	2	
22	663-44366-00-00	. DAMPER, WATER SEAL	1	
23	90280-03M03-00	. KEY, WOODRUFF	1	

SUBJECTS: 1. Oxygenated Fuels
2. Overheating When Using Flush Attachment

Oxygenated Fuels

Beginning in 1992, all gasoline sold during the winter months (usually October through February) in 39 designated metropolitan areas (and **all** of California) must be oxygenated as mandated by the 1990 Amendments to the Federal Clean Air Act. The purpose of the oxygenated fuel is to reduce the amount of carbon monoxide in the air. Internal combustion engines tend to emit more carbon monoxide at low operating temperatures such as when first started and during longer warm-up times in the colder, winter months.

The information provided in this Tech Exchange clarifies some concerns that customers and dealers may have about the use of oxygenated fuels in Yamaha outboards.

What is "Oxygenated Gasoline"?

Oxygenated gasoline is a blend of gasoline and one or more combustible liquids containing oxygen. Presently, two different classes of oxygenates are being added to gasoline: alcohol (both ethanol and methanol) and ethers (methyl tertiary-butyl-ether; MTBE). The oxygen content of the gasoline must be 2.7%.

Can oxygenated fuels be used in Yamaha Outboards?

Yes, oxygenated fuel can be used in Yamaha outboards. This Tech Exchange addresses concerns regarding its use.

Service, Storage, & Usage Information
PRACTICE GOOD FUEL MANAGEMENT . . .

Don't worry about instructing customers about testing or identifying oxygenated fuel. If they are in one of the mandated areas, oxygenated fuel is all they can purchase. Instead, educate your customers about oxygenated gasoline using the following tips:

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- Match gasoline purchases to consumption. Don't buy more than will be used in one month.
- Store gasoline in a tightly-closed, approved container in a cool, dry place.
- Store boats with built-in fuel tanks FULL with fresh fuel and treat the fuel with a stabilizer such as Yamaha Fuel Conditioner & Stabilizer

NOTE: Yamaha Ring Free Fuel Additive can be used with all oxygenated gasoline and is recommended for use in all Yamaha outboard engines. For more information about Ring Free, refer to Technical Bulletin O91-014.

Carburetor Jetting
Oxygenated fuels have a very slight leaning affect on the fuel mixture. This will not cause any problems with the performance of Yamaha outboards. At times the leaner mixture may cause the idle to be slightly rougher than normal. If this occurs, richen the pilot screws 1/4 turn.

Water Absorbing Additives
If the oxygenated gasoline being used contains an alcohol blend, **do not use** additional alcohol based water absorbing additives. If there is water in the fuel tank prior to refueling, **do not use** oxygenated gasoline until all water has been removed from the tank.

⚠WARNING
Gasoline and oxygenated gasoline are extremely flammable and can be explosive under certain conditions. Follow the recommendations in the owner's and service manuals for handling and storing gasoline.

Phase Separation

Although small amounts of water in the fuel will normally not affect or interfere with engine operation, problems can develop if too much water is present in alcohol oxygenated gasoline. If there is enough water in the oxygenated fuel, the alcohol and gasoline will separate into two liquid phases: a top phase or layer which is almost entirely gasoline, (and oil, in the case of 2-stroke premix fuel) and a bottom phase of water and alcohol. Phase separation makes the engine difficult or often impossible to start. Replace the separated fuel with fresh gasoline.

Parts Information

Part Number	Description	Remarks	Dealer Cost
LUB-RNGFR-EE-12	Ring Free Fuel Additive	Case/12	
LUB-FUELC-12-00	Fuel Conditioner & Stabilizer	Case/12	

Overheating When Using Flush Attachment

Yamaha Marine Field Service has received some reports about overheating when using a flush attachment, especially aftermarket flush attachments. NEVER TROUBLESHOOT AN OVERHEATING PROBLEM ON A YAMAHA OUTBOARD WHILE USING A FLUSH ATTACHMENT!

When using a flush attachment, the water entry into the engine's cooling system is directly related to the supply of water pressure, size of the hose used, and the design of the attachment. All these areas are of no concern when the motor is being operated in the water. The Yamaha water intake screens on the lower unit are designed to direct water into the intake as the lower unit travels through the water. A flush attachment commonly directs water at the side of the intake. This produces excessive turbulence around the intake screen reducing the amount of water entering the intake. If you must operate an engine on a flush attachment with inferior water flow, the intake screens can be temporarily removed to increase water flow. **Do not** forget to reinstall the intake screens after removing the flush attachment.

For best results, use the flush attachment available from Yamaha Parts and Accessories, Part No. ABB-MOTOR-FL-SH.

SUBJECTS:
1. **Engine Noise or Interference in Radios or Other Electronic Equipment**
2. **Resetting Trip Meter Distance**
3. **Marine Exhaust Emission Regulation Update**

Engine Noise or Interference in Radios or Other Electronic Equipment

Use the following information to identify the source of and eliminate noise or interference in radios or other electronic equipment.

IDENTIFY THE SOURCE:

Customer complaints of noise or interference can usually be traced to the ignition (most common) or the charging system. Check for these symptoms:

Ignition Noise - Snapping noise from the radio speaker that varies directly with engine speed. On other equipment, like chart recorders, there will be sharp lines or other distinct interference.

Charging System Noise - A hum, whine, or whistle will emit from the speaker. The pitch of this sound will increase with engine speed.

If you cannot positively identify the source, disconnect the stator or lighting coil from the rectifier on the engine, then run the engine. If the noise or interference disappears, the problem is in the charging system. If not, the ignition is at fault.

ELIMINATING THE PROBLEM:

Ignition Noise
Ignition noise is caused by the transmission through the air of radio frequency electromagnetic energy. Ignition noise can usually be eliminated by using resistor spark plugs and resistor spark plug caps. (Resistor spark plug caps are more effective than resistor spark plugs, however, changing both is recommended.)

Spark Plugs - NGK spark plugs are identified by an "R" in the plug type number.
Example = an engine with a standard B8HS-10 would use a **BR8HS-10** resistor plug.

Some Yamaha outboards already have resistor plugs as standard equipment ('94 & '95 V4s & V6s - except the C115). The computer controlled models have both resistor plugs and caps.

Resistor Spark Plug Caps - Resistor spark plug caps should have a resistance reading of about 5KΩ. Replace the cap if it reads shorted or open. The part number for the resistor spark plug cap is: **6E3-82370-20-00.**

NOTE: In severe cases, you may reduce ignition noise by increasing the distance between the engine electrical wiring and the electronic equipment and wiring. For example, locate the engine wiring on one side of the boat and the electronic systems and accessories wiring on the opposite side.

Charging System Noise
All charging systems produce some electronic noise, and it is present in all boat wiring. All electronic manufacturers include noise filters in their equipment to reduce interference. Naturally, the better the equipment, the better the filter. Some low quality equipment (or high quality equipment with defective filters) may not adequately filter out charging system noise. Also, an outboard motor produces a different type of charging system noise than stern drive does. If the equipment manufacturer does not allow for outboard charging system noise, the noise may not filter out. Contact the equipment manufacturer for advice if you have problems.

If you have technical tips you think other dealers could use, let us know. You'll receive credit in the Tech Exchange for ideas we use, and we'll send you an exclusive Yamaha Tech Exchange hat as our thanks.
Send your tips to: Yamaha Motor Corporation, U.S.A., Attn: Tech Exchange, P.O. Box 6555, Cypress, CA 90630

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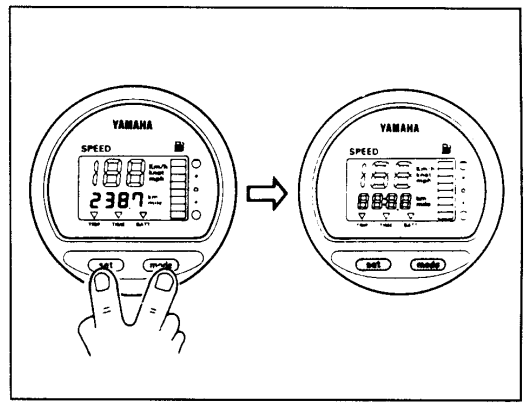
Resetting Trip Meter Distance

Some customers who have had experience with older Yamahas have been confused when attempting to reset the trip distance meter on a 1994 or 1995 Yamaha mulitfiunction speedometer. The trip distance meter used from 1987 to 1993 could be reset with the use of **only one button.** The 1994 and later multifunction speedometer has a trip distance meter which requires that **both the "SET" and "MODE" buttons** be pressed at the same time to reset the trip distance.



Marine Exhaust Emission Regulation Update

This past fall the Environment Protection Agency (EPA) proposed regulations for emission control for marine engines, including outboards, personal watercraft, and stern drives. Yamaha and other members of the marine industry have worked with the EPA to redefine the proposal in a way that increases its technical feasibility and cost effectiveness. While further cooperation between the EPA and the marine industry will be needed, enough of the potential basics of regulations is known to provide a general outline of its material aspects.

IMPLEMENTATION DATE:

Beginning with the 1998 model year, manufacturers will have nine years to phase in complying models. Full fleet compliance will be required in 2006.

EMISSION CONTROLS:

The regulation will eventually require a 75% hydrocarbon reduction from today's typical two-stroke engines. NO_x and CO emissions will also have controls limits.

TECHNICAL ISSUES:

At this time there appear to be three basic technology types which are candidates to achieve regulation compliance:

- Four-Stroke
- Two- Stroke Direct-Injection
- Catalyzed Two-Stroke

It cannot now be assumed that only one of these technologies will be adopted. It is foreseeable that some models and applications will benefit from one technology while the performance needs of other models will require another technology.

Yamaha customers expect marine performance products which are both cost-effective and technically superior. We can expect that Yamaha, with its abilities in leading-edge technology and its long history of emission-control experience with a host of other products, will continue to be the leader in successfully meeting the challenge.

OUTBOARD | 2/27/95 | O95-005

SUBJECTS: 1. Reformulated Gasoline
2. Areas Exceeding Federal Ozone Standards

Reformulated Gasoline

Beginning January 1, 1995, extreme and severe non-ozone attainment cities are required to sell only reformulated gasoline (RFG) year round, not seasonally like Oxygenated fuels. Topic number 2 in this Tech Exchange contains a list of affected cities. Other serious, moderate, and marginal attainment areas will phase in this gasoline to fulfill their individual agendas for pollution abatement.

What is RFG?

As the name indicates, it is the next generation of fuels reformulated to reduce pollutants and protect the environment. The main focus of RFG is to reduce pollutants that affect the ozone, however, it will contain the same Oxygenates used in fuels that are currently being used (seasonally) in various mandated areas to lower CO emissions. Oxygenated fuels are primarily used between the months of October and February in these selected areas. The following table illustrates the major ingredients of RFG that will be reformulated and the environmental benefits of reformulation.

FOCUS OF FUEL REFORMULATING

Potential Reformulation
Reduce Sulfur
Reduce Benzene
Reduce Aromatics & Olefins
Reduce fuel volatility
Increase oxygen contents
Alter distillation characteristics
Deposit control additives

Environmental Benefits
Reduces acid rain, improves vehicle catalyst efficiency
Reduces incidence of cancer, reduces toxicity of emissions
Reduces photochemical reactivity/smog formation
Reduces evaporative emissions/smog formation
Reduces tailpipe/exhaust CO emissions, replaces toxic components
Control of evaporative & exhaust emissions
Reduce engine deposits, thus reducing exhaust emissions

Can Yamaha Products Operate On Reformulated Gasoline?

Extensive testing has been done on the affects of RFG on lubricity and material compatibility, **particularly with 2-stroke engines.** Results show no adverse affects or catastrophic failures when using RFG. Tests also indicate that no increase in service intervals beyond the existing Yamaha recommendations were necessary.

RUNNING CHARACTERISTICS WITH RFG

Because RFG contains oxygenates, the fuel mixture can lean-out slightly causing a rougher than normal idle. This can usually be corrected by small adjustments to the idle mixture screws. **Be sure to refer to your Yamaha technical specifications for correct fuel mixture settings!**

GUIDELINES FOR RFG USAGE

- Become familiar with the areas where RFG is sold. Normally the gas station will post a sign about the type of fuel they sell.
- Storage life of RFG is shorter than the fuel sold in the past. Treat stored fuel with Yamaha Fuel Stabilizer and Conditioner. Be sure to store gasoline in an approved container and place in a cool, dry place.
- In the case of large fuel tanks (such as in a boat or a large touring motorcycle), be sure to keep the tank completely full to prevent water accumulation. The expanding and contracting of the fuel causes air to enter the fuel tank. Water in the air will condense in the tank if the tank is not kept full.
- Be sure to use fresh fuel when doing a tune-up on any unit that has been in storage for a long time.

If you have technical tips you think other dealers could use, let us know. You'll receive credit in the Tech Exchange for ideas we use, and we'll send you an exclusive Yamaha Tech Exchange hat as our thanks.
Send your tips to: Yamaha Motor Corporation, U.S.A., Attn: Tech Exchange, P.O. Box 6555, Cypress, CA 90630

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SUMMARY

More information will become available during the next year as RFG penetrates the market. If you want more information on gasoline, send for the technical manual, *Changes in Gasoline II* at:

Changes in Gasoline II
Technicians Manual
Downstream Alternatives, Inc.
PO Box 190
Bremen, IN 46506-0190

The cost of this manual is $2.00 each.

Areas Exceeding Federal Ozone Standards

The following charts show the areas of the country that exceed the Federal Ozone Standards. The nine cities in the **Extreme and Severe** areas are required to start selling RFG during 1995. This program is optional in the other listed areas.

RFG FUEL AREAS EXCEEDING FEDERAL OZONE STANDARDS

Extreme Areas*	***Moderate Areas***	***Marginal Areas***	
Los Angeles*	Atlantic City, NJ	Albany, NY	South Bend, IN
	Bowling Green, KY	Allentown, PA-NJ	Stockton, CA
Severe Areas*	Charleston, WV	Altoona, PA	Sussex County, DE
Baltimore, MD	Charlotte, NC-SC	Birmingham, AL	Tampa, FL
Chicago, IL-IN-WI	Cincinnatti, OH-KY-IN	Buffalo, NY	Waldo County, ME
Houston, TX	Cleveland, OH	Canton, OH	York, PA
Milwaukee, WI	Dallas, TX	Columbus, OH	Youngstown, OH-Sharon, PA
Muskegon, MI	Dayton-Springfield, OH	Erie, PA	
New York, NY-NJ-CT	Detroit, MI	Essex County, NY	
Philadelphia, PA-NJ-DE-MD	Grand Rapids, MI	Evansville, IN-KY	
San Diego, CA	Greensboro, NC	Fayetteville, NC	
	Jefferson County, NY	Greenbrier County, WV	
Serious Areas*	Kewaunee County, WI	Greenville-Spartanburg, SC	
Atlanta, GA	Knox County, ME	Hancock County, ME	
Bakersfield, CA	Louisville, KY-IN	Harrisburg, PA	
Baton Rouge, LA	Memphis, TN-AR-MS	Indianapolis, IN	
Beaumont, TX	Miami, FL	Johnson City-Kingsport-Bristol, TN	
Boston, MA-NH	Modesto, CA	Johnstown, PA	
El Paso, TX	Nashville, TN	Kansas City, MO-KS	
Fresno, CA	Pittsburgh, PA	Knoxville, TN	
Hartford, CT	Portland, ME	Lake Charles, LA	
Huntington, WV-KY-OH	Raleigh-Durham, NC	Lancaster, PA	
Parkersburg, WV-OH	Reading, PA	Lewiston, ME	
Portsmouth, NH-ME	Richmond, VA	Lexington, KY	
Providence, RI	Salt Lake City, UT	Lincoln County, ME	
Sacramento, CA	San Francisco-Oakland-San Jose, CA	Manchester, NH	
Sheboygan, WI	Santa Barbara, CA	Montgomery, AL	
Springfield, MA	Smyth County, VA	Norfolk, VA	
Washington, DC-MD-VA	St. Louis, MO-IL	Owensboro, KY	
	Toledo, OH	Paducah, KY	
	Visalia, CA	Poughkeepsie, NY	
	Worcester, MA	Scranton, PA	

*Nine cities with highest ozone levels designated extreme or severe will be required to implement reformulated gasoline programs in 1995. Other ozone non-attainment areas may elect to "opt-in" to this program.

Oxygenated Fuel Sold Seasonally in These Areas Exceeding Federal Carbon Monoxide Standards

Albuquerque, NM	Fairbanks, AK	Memphis, TN	Reno, NV
Anchorage, AK	Ft Collins, CO	Minneapolis, MN	Sacramento, CA
Baltimore, MD	Fresno, CA	Missoula, MT	San Diego, CA
Boston, MA	Grants Pass, OR	Modesto, CA	San Francisco, CA
Chico, CA	Greensboro, NC	New York/Northern NJ	Seattle, WA
Cleveland, OH	Hartford, CT	Philadelphia, PA	Spokane, WA
Colorado Springs, CO	Klamath County, OR	Phoenix, AZ	Stockton, CA
Denver/Boulder, CO	Las Vegas, NV	Portland, OR	Syracuse, NY
Duluth, MN	Los Angeles, CA	Provo/Orem, UT	Washington, DC
El Paso, TX	Medford, OR	Raleigh, NC	

Technical BULLETIN

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OUTBOARD

INTRODUCTION

WARRANTY POLICIES

In the new **Yamaha Warranty and Y.E.S. Handbook** we have put together both the Motorsports and Marine versions of the previous Warranty Handbook, as well as the information contained in the *Yamaha Extended Service Policies and Procedures Manual.* This new handbook is much simpler and therefore easier to use.

Specific details about each product line's particular policies and procedures are no longer in the **Yamaha Warranty and Y.E.S. Handbook.** Instead, we provide this specific information to you in "Warranty Policies" Technical Bulletins like this one for each Yamaha product line you carry.

This makes finding the information you want even easier. When you want general policy and procedure information about Yamaha warranty, check the Handbook. When you know the policy but want to check the specific details that apply to the product line you carry, just check this quick-reference bulletin. This is also an advantage to you if a policy detail changes. We can provide the specifics in a new version of this bulletin rather than having you update your Warranty Handbook with several new pages.

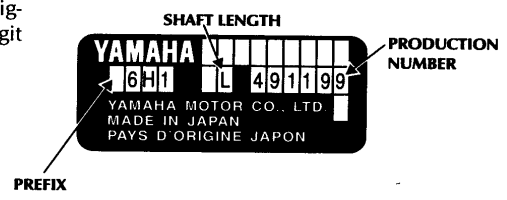
LIMITED WARRANTY STATEMENT INFORMATION

See **Yamaha Warranty and Y.E.S. Handbook**, Page 1-3 for more information.

Model	Warranty Period	Remarks	Limited Warranty Statement Part Number
Outboard Motor	Pleasure use: 2 Years Commercial use: 1 Year	Second year of warranty has some limitations. Refer to warranty statement.	LIT-18790-00-89
Jetdrive Outboard Motor	1 Year		LIT-18790-01-86

PRIMARY ID

The Primary ID of an outboard motor is the serial number which is on a label on the bracket. This number consists of a 3-digit model prefix, the shaft length designator, a hyphen, and a 6-digit production number.



PRIMARY ID
6H1L-491199

AUTHORIZATIONS

Warranty repairs[1] on in-warranty units require authorization only if the *total repair* cost exceeds the following:

$1,000.00 or below	Authorization NOT needed
$1,000.01 or above	Call RTA for authorization

Total repair cost includes:

	Warranty	Y.E.S.
Parts	Dealer cost + 10% NOTE: There is a maximum handling reimbursement of $150.00	YPAD Suggested Retail (except Major Assemblies[2])
Labor	Flat rate time at approved hourly rate + any extra labor claimed	Flat rate time at approved hourly rate + any extra labor claimed

[1]See Page 7-5 of the **Warranty and Y.E.S. Handbook** if an accident or fire occurred.

[2]*Major Assembly Replacement* (Y.E.S.-only)
Three major assemblies are exceptions to the retail parts price policy. They are:

- Power Head Assembly
- Lower Unit Assembly
- Power Trim and Tilt Assembly

If you need to replace one of these assemblies as part of a Y.E.S. repair, you will need to call your RTA for authorization first. If the repair is authorized, Yamaha will send you the assembly at no charge. You do not put the assembly part number as the Primary Failed Part. Instead, to receive a parts handling reimbursement amount, use the appropriate part number shown below:

Y.E.S. Claim Primary Failed Part Number	Assembly Replacement	Reimbursement Amount
YES-PWRHD-00-00	Power Head	
YES-LOWER-00-00	Lower Unit	
YES-PTTRR-00-00	Power Trim & Tilt	

REIMBURSEMENT POLICY

Warranty labor reimbursement is initially set at 80% of your approved labor rate. Participation in Yamaha technical training programs increases reimbursement.

Base Reimbursement	80% of approved hourly rate
Attendance at annual Service Seminar	+ 10%
Attendance at Yamaha regional school	+ 10%

To get or maintain the full 100% reimbursement, both the annual Service Seminar and technical training course must be attended each year, unless Yamaha waives part of the requirement. See the annual Technical Training bulletin for more information.

Warranty and Y.E.S. Phone Numbers (Cont'd.)

Department	Phone Number	Purpose	Handbook Ref.
Warranty	1-800-227-5963	Registration questions Labor Rate Questions Recall questions	Chapter 5 Chapter 1 Chapter 8
Warranty FAX	(714) 761-7303	FAXing (rather than mail): • Registration transfer or correction documents • Warranty Appeals form • Other Warranty or Y.E.S. documents	 Chapter 5 Chapter 10
Regional Technical Advisor	See "Toll-Free Service Assistance" Technical Bulletin	• Warranty Authorizations • Y.E.S. Authorizations • Out-of-Warranty Authorizations • Customer Relations Assistance • Technical Assistance	Chapter 7 Chapter 7 Chapter 7 Chapter 7
Y.E.S.	1-800-227-5963	Y.E.S. questions (except authorizations)	Chapters 2, 5
Customer Relations (Dealer Calls)	1-800-635-0736	• Return calls to Customer Relations • Accident or fire-related reports/authorizations	 Chapter 7
Customer Calls: • Customer Relations	1-800-962-7926	• For customers who insist on talking to Yamaha instead of letting you help • Any recall questions	Chapter 7 Chapter 8
Distribution	(714) 761-7650	Shipping Damage Authorizations	Chapter 3
Technical Publications	(714) 761-7462	Replacement copies of: • Technical Bulletins (current) • Flat Rate Tables (current)	
Bell & Howell	1-800-221-5362	Microfiche of Service Manuals, Technical Bulletins or Flat Rates for previous year models, and seminar literature from past years — Ask for "Yamaha Customer Service."	
YCS or DOES PLUS Support	1-800-854-4876	Questions related to the use of your on-line entry computer program	

WARRANTY AND Y.E.S. LITERATURE

Outboard-Only Forms

Description	Part Number	Handbook Reference and Usage Notes
Outboard Pre-Delivery Inspection Checklist (25/pkg.)	LIT-18161-01-90	See Page 4-2. Checklist for procedures required before delivery to customer.
Outboard Motor Warranty Registration	LIT-18790-00-00	See Page 5-2. This is an alternative method for registration if DOES PLUS or YCS is not used, and neither the paper registration form or Owner's Manual registration card are available.

Warranty and Y.E.S. Forms (for all product lines)

Description	Part Number	Handbook Reference and Usage Notes
Warranty and Y.E.S. Handbook	LIT-11760-00-95	New edition — covers warranty and Y.E.S. for all products.
Warranty Request Worksheets (25/pkg.)	LIT-11801-00-02	See Chapter 6. Fill out before submitting warranty or Y.E.S. claim on DOES PLUS or YCS.
Warranty Request Forms (25/pkg.)	LIT-11791-01-00	See Chapter 6. Mail-in warranty or Y.E.S. claim form if YCS or DOES PLUS is not used.
Warranty Request Parts Supplement (25/pkg.)	LIT-11791-00-01	See Page 6-7. For mail-in requests if request has more than 10 parts.
Transfer of Owner Registration (10/pkg.)	LIT-11790-07-83	See Page 5-7. Update registration records with new owner and transfer any warranty or Y.E.S. coverage.
Warranty Registration Correction Form (5/pkg.)	LIT-11792-00-00	See Page 5-6. For correcting warranty or Y.E.S. registration errors.
Warranty Return Envelopes (25/pkg.)	LIT-11784-00-01	Pre-addressed envelopes for mailing documents to Warranty Department.
Warranty Status Chart Pads (50/pad)	LIT-11790-00-00	See Chapter 10. Track status of warranty and Y.E.S. claims.
Warranty Parts Tags (50/pkg.)	LIT-11790-02-00	See Page 9-1. Identify parts claimed on warranty requests.
Warranty Document ID Form (25/pkg.)	LIT-11791-00-04	See Page 1-6. Identify any supporting documents mailed to Warranty.
Recall Reimbursement Request (10/pkg.)	LIT-11790-00-94	See Page 8-2. Mail-in form to request reimbursement for Factory Modification Campaign if YCS or DOES PLUS is not used.
Warranty Labor Rate Change Request	LIT-11791-02-95	See Page 1-5. Request setup or change of the labor rate amount used to calculate warranty reimbursement.
Service Schedule Pad (25/pkg.)	LIT-11561-00-95	Used to schedule service work. Includes column for warranty request information.
Warranty Error Notification Explanation Booklet	LIT-11791-01-94	See Page 10-3. Used only if registrations and warranty requests are mailed in on paper forms, and there are errors.

Y.E.S.-Only Forms

Description	Part Number	Handbook Reference and Usage Notes
Y.E.S. Plan Highlights Form for Outboards (10/pkg.)	LIT-11580-00-30	See Page 2-2. Sales tool to explain benefits of Y.E.S. plan to customer.
Sample Y.E.S. Contract for Outboard (10/pkg.)	LIT-11580-00-31	See Page 2-2. Given to each customer at the time of sale. The actual "live" contract is mailed to the customer separately by Yamaha.
Y.E.S. Plan Registration Card (10/pkg.)	LIT-11580-00-04	See Page 5-5. Used to register Y.E.S. coverage sold after unit purchase (not needed if DOES PLUS or YCS is used).
Y.E.S. Lienholder Information (20/pkg.)	LIT-11580-00-08	See Page 5-4. Used when lienholder requests additional documentation about the Y.E.S. coverage.
Y.E.S. Plan Request to Cancel (5/pkg.)	LIT-11580-00-10	See Page 2-5. Required for cancellation of Y.E.S. Plan.
Y.E.S. Outboard Hangtags (10/pkg.)	LIT-11580-00-32	For product display. Lists main customer benefits of coverage.
Y.E.S. Price Tags (20/pkg.)	LIT-11580-00-17	For product display. Promotes Y.E.S. coverage with convenient monthly payment information.
Y.E.S. Poster for Outboard (20/pkg.)	LIT-11580-00-33	Point-of-purchase poster with key benefits.
Factory Service Brochures for Outboard (20/pkg.)	LIT-11580-00-34	Sales brochure for Y.E.S. with features and benefits.

Florida Y.E.S. Forms

Description	Part Number	Handbook Reference and Usage Notes
Florida Y.E.S. Plan Highlights & Contract	Call Y.E.S.	See Page 2-2. A "live" contract required when Y.E.S. is sold in Florida.
Florida Envelopes (10/pkg.)	LIT-11580-FL-02	Used to mail contracts to Yamaha.

Technical BULLETIN

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Repainting Yamaha Marine Products

INTRODUCTION

Proper painting of Yamaha marine products is very important for both appearance and corrosion protection. Yamaha has conducted considerable research developing paint and painting processes to provide customers with a long lasting, high quality paint. YPAD has also spent considerable time developing touch up spray paint to allow paint repairs of similar quality as the original. Paint matching is achieved through following proper preparation and painting procedures. This bulletin provides the needed information to insure this match is obtained.

PREPARATION MATERIAL: Salt Water Cleaning Solution = 75% Vinegar & 25% Water
400 & 600 Grit Wet and Dry Sandpaper
Standard Painting Tack Cloth

PAINT: (All paints are 13oz. spray cans).

Color	Code	Part Number	Comments/Usage
Dark Blue Gray Metallic	04D	PNT-93000-S0-4D	1994(S) and later models. Use with clear coat for 08D.
Clear Top Coat		PNT-65000-04-00	Use with 04D to produce 08D 1996 and later color. Includes UV protection.
Marine Primer		PNT-00000-SP-WV	Epoxy based Marine Primer
Gray Primer		PNT-00000-00-86	Older Optional Primer
Metallic Marine Silver Spray	0EK	PNT-87000-S0-EK	1984 to '93 Standard Outboard
YEMS Silver	0EK	PNT-92YEM-SP-00	All YEMS Stern Drives
EST Silver	0EK	PNT-92EST-SP-00	All EST Stern Drives
Shiny Black Spray	0NA	PNT-91000-S0-NA	1990 and later Pro V Lower Unit and Lower Mount Covers. V76X Cowlings
Marine Dark Silver	0NG	PNT-92000-S0-NG	1986 to '89 Pro V Lower Unit and Lower Mount Covers
Metallic Marine Blue	0EJ	PNT-90000-S0-EJ	1989 to '91 C Models

TOUCH UP PAINT: (1/2 oz. brush in the cap).

Color	Code	Part Number	Comments/Usage
Metallic Marine Silver	0EK	PNT-84000-T0-EK	1984 to '93 Standard Outboard
Shiny Black	0NA	PNT-86000-T0-NA	1990 and later Pro V Lower Unit and Lower Mount Covers. V76X Cowlings
Harbor White	0EL	PNT-85000-T0-EL	FT, T9.9 1985 to '94

PREPARATION

1. Select a dust free and wind protected area with adequate ventilation.
2. Clean all unpainted surfaces of any salt water deposits by using a solution of 75% vinegar and 25% water.
3. Rinse all surfaces being painted with clean water and allow to dry.
4. Be sure all surfaces being painted are completely dry and free from moisture, grease, oils and lubricants.
5. Sand all fiberglass, aluminum, and molded plastic surfaces to be painted with 400 grit wet and dry sandpaper. The purpose is to rough-up the surface so the primer will adhere better.
6. Mask off all areas not being painted. For best results, mask an area to a clean break point such as an edge, gap, etc.

PRIMING

1. Apply Yamaha Marine Primer in several thin coats at 5 to 8 minute intervals.
2. Apply the primer by spraying in one direction from top to bottom.
3. Use long even strokes, and be sure to spray past the area to be painted by several inches.
4. After thirty minutes to one hour, lightly sand the primer with 600 grit wet and dry sandpaper.

IMPORTANT: If scratches, pitting or imperfections appear, repeat steps 1~4 above until a smooth even surface is achieved.

5. Apply at least two primer coats to match the original factory process.
6. Allow the primer to set at least 4 hours in temperatures of over 75°F (overnight if temperatures are less or humidity is high).
7. Before applying the finish coat, wipe the surface with a tack cloth. Be careful to remove all dust from the surfaces to be painted.

FINAL PAINTING

IMPORTANT: Heavier paint products will eventually settle to the bottom of a spray can. The longer the can has set on the shelf the longer you will need to shake the can to properly mix the paint or proper color match will not occur. Shake the paint can at least one minute after hearing the ball rattle (most clear coating paints do not contain a ball). Extend the shaking time for any paint can that has been in storage an extended time.

It is difficult to properly match older Yamaha paint products. The EK color is difficult to match, because the EK spray paint may change color during long time storage. Proper shaking of the can with EK paint is especially important.

Yamaha Marine Finishes are made from the highest grade polyurethane resins available. They are formulated to set-up slowly; allowing the clear resin to surface as it dries.

1. Apply a Yamaha Marine Finish Paint over the primer in several thin coats.

NOTE: Applying thick, uneven coats may not allow the coating to dry properly, which may result in a loss of adhesion.

2. Apply several fog coats at 5 to 8 minute intervals holding the aerosol can approximately 14 inches from the surface being painted.
3. After several fog coats have been applied, move the aerosol can 10 inches from the surface. Apply thin even coats until the proper color is achieved.
4. When ready to apply the final coat, move the spray can 6 inches from the surface, and applying a single heavier final coat.

IMPORTANT: Be careful not to run the paint. If the paint is allowed to completely dry between coats, be sure to sand between coats with 600 grit wet & dry sandpaper.

FINAL CLEAR COAT

Yamaha Clear Coat may be added to provide a physical protection layer and match the Yamaha original factory finish. Other clear coats are not recommended, since they may have a chemical imbalance with the new finish coat and cause a mismatch, foggy look or paint lifting.

FINAL DRYING AND CURING

It is not recommended to use heat as an aid in curing paint. Excessive heat may damage the fresh paint. If heat is used, be sure to wait 4 hours before applying it to the final paint. Although the finish will appear dry overnight, it will not be totally cured for several days. If possible, do not subject painted surfaces to water for 6 to 7 days.

NOTE: If some dull spots appear on the surface, they may be rubbed out using a quality grade polishing compound. Wax the painted surfaces with a good marine wax before using the marine item. Do not apply polishing compounds and wax until the paint is completely cured.

PAINT CAN STORAGE

1. If you are going to let the can stand idle for more than twenty minutes, be sure to turn the can upside down, and spray until no paint comes out of the nozzle. Another method of clearing a spray nozzle before storing, is to put the nozzle on a can of contact cleaner and spray for a few seconds.
2. Store partially used spray cans upside down to reduce the chance of the paint thickening and stopping up the nozzle as you begin to spray.

NOTE: Empty spray cans are recyclable in most cities. Check with your local disposal or recycle company.

WARRANTY INFORMATION

Following the above procedure will produce a paint finish virtually equal to the factory finish in both appearance and corrosion protection. The above repainting procedure may be used to repair any shipping damage or other paint & finish problem covered by the normal Yamaha warranty.

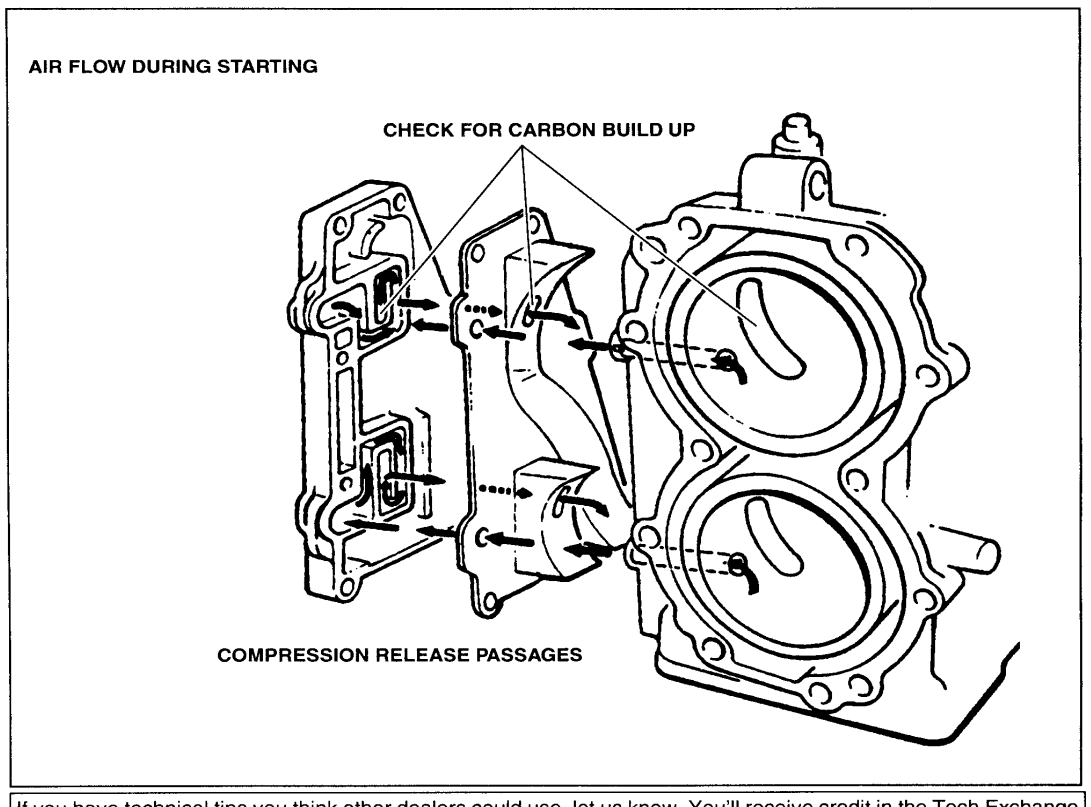
SUBJECTS:
1. Rough Idle - 25HP Engines
2. Finding Oil Leaks - All Models
3. Cleaning Gasket Surfaces - All Models

Rough Idle - 25HP Engines

The following Tech Exchange was submitted by Jerry Herota of Buck's Outboard Repair, Inc. in Sacramento, CA. Thanks Jerry! Your Tech Exchange hat is on its way!

If you have a 1988 or later model (20hp or 25hp) outboard engine with a rough idle, examine the carburetion, engine compression, and spark. If they all check out okay and the manual starter seems harder to pull than usual, check for carbon build up in the built in compression release (refer to pg. 2-6 in the 1996 Marine Technical Guide).

NOTE: Carbon build up is more common if the customer is using some other oil than "Yamalube for Outboards."



If you have technical tips you think other dealers could use, let us know. You'll receive credit in the Tech Exchange for ideas we use, and we'll send you an exclusive Yamaha Tech Exchange hat as our thanks.
Send your tips to: Yamaha Motor Corporation, U.S.A., Attn: Tech Exchange, P.O. Box 6555, Cypress, CA 90630

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Finding Oil Leaks - All Models

If you have trouble finding an oil leak, try performing a powder check. A powder check is performed as follows:

1. Clean the suspected area fully of all oil residue and dry fully. Yamaha Mud, Grease and Engine Cleaner (ACC-MUDGR-CL-NR) and Simple Green (ACC-SMPGR-00-24) both work well for this. Make sure the area is completely dry.

2. Sprinkle some talcum powder, baby powder or other light powder over the area of the suspected leak. An aerosol can that dispenses light powder (e.g., deodorant or foot powder) may also be used. Make sure the suspected area has a remaining coat of the dry powder. If any wet spots appear, this may be where the leak is located. If the spot is wet from incomplete cleaning, note the spot and repeat steps 1 and 2.

⚠WARNING

Use the powder in a well ventilated area and use adequate protection from breathing any of the powder. Read the label on the powder container to insure it is safe to use.

3. Briefly start the engine or operate the device in question (e.g., the power trim and tilt). Inspect the dry powder for a new wet spot indicating the start of a leak. **NOTE:** Additional engine running may be necessary if there is no indication of a leak.

Cleaning Gasket Surfaces - All Models

When repairing an engine, lower unit, or other item using fabric gaskets, the removal of all the small pieces of old gasket may be quite time consuming. First, apply several coats of MEK (Methyl Ethyl Ketone) with a brush to the old gasket. While thoroughly soaked, remove the large pieces of the old gasket using a scraper, if necessary. Then, use a standard 1" to 2" by 6" to 8" flat sharpening stone with solvent to rub (as if using sandpaper) the remaining gasket material from the casting. This will not only easily remove the small pieces of old gasket, but will remove any glue and smooth out any nicks to produce a nice, clean surface for the new gasket.

NOTE: Use a standard, double sided medium/fine grit sharpening stone large enough to span the openings when preparing the crankcase or other large castings. The stone may be readily purchased from sporting goods stores and some tool suppliers.

OUTBOARD	7/15/96	O96-011

SUBJECTS:
1. **Highlights of Changes for 1997 Models**
2. **1997 Model Standard Equipment**
3. **Float Plan Availability**

HIGHLIGHTS OF CHANGES FOR 1997 MODELS

Yamaha has made a number of changes for the 1997 Outboard model line. This Tech Exchange gives a brief summary of some of these changes. More information is also in the Model Guide being sent to you now, and in technical literature for the EFI and TRP systems sent later. Complete details will be included in Technical Service Update Seminars to be presented this fall.

A. Current Model Changes

1. Plastic remote fuel tanks shipped separately; no fuel tank in the crate.
   a. 3 Gallon for 6, 8, F9.9, & T9.9
   b. 6 Gallon for 9.9 to 40, E48, E60, & E75
2. 25-HP name changes for clarity:
   a. Three-cylinder '96-models 25MSHU2 and 25MLHU2 (manual start, tiller handle) are now '97-model 25MSHV3 and 25MLHV3
   b. Twin-cylinder '96-models 25MSHU and 25MLHU are now '97-models 25MSHV2 and 25MLHV2.
   c. The twin-cylinder 25E electric-start models names are unchanged.
3. YDC-30 corrosion-resistant alloy through mid-size models (except Enduros)
4. P50TLRU (Pro 50) model name changed to 50TLRV.
5. New High-Performance Gear Case on T50, C60, C80, E60, P60, 70, E75, P75, 90, and B90.
6. Trim meter and harness are no longer standard on C models.
7. New bracket and trim & tilt on V4 & V6s (not V76). Bracket is larger to fit all transoms and trim and tilt is easily removable.
8. Electronic Fuel Injection (EFI) with oxygen (O_2) sensor on V76 Models (225 and 250).
9. Left-hand models now include the Fuel Management Gauge in the rigging kit.

B. New Models for 1997:

1. T9.9EXRV (Electric Start, Remote, 25" Shaft)
2. 40ESHV (Electric Start, Tiller Handle, 15" Shaft)
3. C80TLRV (C Model, Trim & Tilt, Electric Start, Remote, 20" Shaft) Includes Micro Computer Ignition. Replaces C75 and C85.
4. B90TLRV (Trim & Tilt, Electric Start, Remote, 20" Shaft) New Inshore 90 model with extensive salt water protection, salt water flushing device, and new high-performance gear case.
5. D150TLRV (Trim & Tilt, Electric Start, Remote, 20" Shaft) Pro V Max Twin Rotating Propellers (TRP) Model. Provides the ultimate in both top speed and great handling for a Bass boat.
6. The 225 and 250 models are considered new models because of the extensive changes with the introduction of EFI. The oxygen sensor provides a closed-loop fuel mixture feedback system that produces unequaled fuel economy and engine operation.

C. Deleted Models

1. 9.9ELH
2. P50TLR (Replaced by 50TLRV)
3. C75TLR & C85TLR (Replaced by C80TLRV)
4. P115TLR

If you have technical tips you think other dealers could use, let us know. You'll receive credit in the Tech Exchange for ideas we use, and we'll send you an exclusive Yamaha Tech Exchange hat as our thanks.
Send your tips to: Yamaha Motor Corporation, U.S.A., Attn: Tech Exchange, P.O. Box 6555, Cypress, CA 90630

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1997 MODEL STANDARD EQUIPMENT

You've asked for an easy-to-use program to help you get the right rigging equipment for your particular installations. The Yamaha Sales Department is proud to announce a Kitting Program for 1997 with simple control and rigging kit options. This Kitting Program will allow you to order the standard equpment specific to your needs. Below is a list of the basic standard equipment as of the publication date of this Tech Exchange. Additional standard equipment will depend upon the kits you order. Contact your Marketing Representative for full details about the Kitting Program.

BASIC STANDARD EQUIPMENT*

6, 8, F9.9, & T9.9	3-gallon plastic fuel tank shipped separately, fuel hose in crate.
9.9 to 40, E48, E60, & E75	6-gallon plastic fuel tank shipped separately, fuel hose in crate.
F50 & T50	Analog tachometer, trim meter, harness, and fuel hose in crate.
40MJ (Jet Drive)	Water pump and fuel hose in crate.
40EJ and 50J (Jet Drive)	Analog tachometer, harness, fuel hose, and water pump in crate.
90J (Jet Drive)	Multifunction tachometer, harness, fuel hose, and water pump in crate.
115J and 150J (Jet Drive)	Multifunction tachometer, multifunction speedometer, harness, fuel hose, and water pump in crate.
L130 to L250	Dual engine tie bar in crate. Left-hand rigging kit is standard equipment.
D150 (TRP model)	25" propeller set (front and rear).

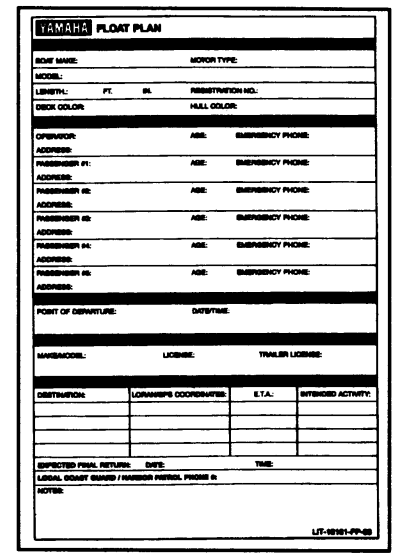
*The standard equipment included with each model is subject to change.

FLOAT PLAN AVAILABILITY

Common good-boating practice is to leave a "float plan" with a responsible person on shore before going out. Yamaha has prepared an easy-to-use Float Plan in pads of 25 for your customers' convenience.

A sample pad of float plans has been sent to you recently. Additional pads are available from YPAD.

Part Number	Description	Qty	Dlr Cost
LIT-18161-FP-96	Float Plan	25 per pad	$1.00


YAMAHA FLOAT PLAN

BOAT MAKE: MOTOR TYPE:
MODEL:
LENGTH: FT. IN. REGISTRATION NO.:
DECK COLOR: HULL COLOR:
OPERATOR: AGE: EMERGENCY PHONE:
ADDRESS:
PASSENGER #1: AGE: EMERGENCY PHONE:
ADDRESS:
PASSENGER #2: AGE: EMERGENCY PHONE:
ADDRESS:
PASSENGER #3: AGE: EMERGENCY PHONE:
ADDRESS:
PASSENGER #4: AGE: EMERGENCY PHONE:
ADDRESS:
PASSENGER #5: AGE: EMERGENCY PHONE:
ADDRESS:
POINT OF DEPARTURE: DATE/TIME:
MAKE/MODEL: LICENSE: TRAILER LICENSE:

DESTINATION:	LORAN/GPS COORDINATES:	E.T.A.:	INTENDED ACTIVITY:

EXPECTED FINAL RETURN: DATE: TIME:
LOCAL COAST GUARD / HARBOR PATROL PHONE #:
NOTES:
LIT-18161-FP-96

OUTBOARD	DATE: 7/15/96	O96-012

Technical BULLETIN

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1997 MODELS

PRIMARY I.D. NUMBERS AND PROPELLER, CONTROLS, FUEL TANK & RIGGING ITEMS SHIPPING LOCATION

INTRODUCTION

For identification purposes, the factory has released the following list of primary I.D. numbers. Production of 1997 models started with the numbers listed below. Shipping locations for propellers and other rigging hardware are listed to the right of each model's primary I.D. number. For an explanation of the 1997 model identification codes, please refer to the chart at the end of this bulletin.

NOTE: To simplify the various control and rigging kit options for the dealer, the Sales department has instituted a Kitting Program for 1997. Because of this Kitting Program, the standard equipment can vary. For more details refer to Tech Exchange O96-011 or contact your Marketing Representative.

MODEL	STARTING I.D.	PROPELLER	CONTROL	FUEL TANK	RIGGING ITEMS
2MSHV	6A1-177165	CRATE	N/A	N/A	N/A
3MSHV	6L5S-057799	CRATE	N/A	N/A	N/A
3MLHV	6L5L-311477	CRATE	N/A	N/A	N/A
4MSHV	6E0S-160048	CRATE	N/A	N/A	N/A
4MLHV	6E0L-352848	CRATE	N/A	N/A	N/A
5MSHV	6E3S-017855	CRATE	N/A	N/A	N/A
5MLHV	6E3L-312209	CRATE	N/A	N/A	N/A
6MSHV	6M8S-003801	CRATE	N/A	SEPARATE	N/A
6MLHV	6M8L-303150	CRATE	N/A	SEPARATE	N/A
8MSHV	6N0S-008601	CRATE	N/A	SEPARATE	N/A
8MLHV	6N0L-305564	CRATE	N/A	SEPARATE	N/A
9.9MSHV	682CS-155717	CRATE	N/A	SEPARATE	N/A
9.9MLHV	682CL-455706	CRATE	N/A	SEPARATE	N/A
9.9ESHV	682CS-700311	CRATE	N/A	SEPARATE	N/A
9.9ELRV	682CL-690216	CRATE	CRATE	SEPARATE	CRATE
F9.9MSHV	6G9S-009927	CRATE	N/A	SEPARATE	N/A
F9.9MLHV	6G9L-307742	CRATE	N/A	SEPARATE	N/A
T9.9MLHV	6G8L-304349	CRATE	N/A	SEPARATE	N/A
T9.9ELHV	6G8L-471752	CRATE	N/A	SEPARATE	N/A
T9.9MXHV	6G8UL-703344	CRATE	N/A	SEPARATE	N/A
T9.9EXHV	6G8UL-787945	CRATE	N/A	SEPARATE	N/A
T9.9ELRV	6G8L-412586	CRATE	CRATE	SEPARATE	CRATE
T9.9EXRV	6G8UL-762268	CRATE	CRATE	SEPARATE	N/A
15MSHV	684CS-405638	CRATE	N/A	SEPARATE	N/A
15MLHV	684CL-153440	CRATE	N/A	SEPARATE	N/A
15ESHV	684CS-300231	CRATE	N/A	SEPARATE	N/A
15ELHV	684CL-600581	CRATE	N/A	SEPARATE	N/A
20MSHV	6L3S-003408	CRATE	N/A	SEPARATE	N/A
20MLHV	6L3L-304119	CRATE	N/A	SEPARATE	N/A
25MSHV2	6L2S-111644	CRATE	N/A	SEPARATE	N/A
25MLHV2	6L2L-405543	CRATE	N/A	SEPARATE	N/A
25ESHV	6L2S-253373	CRATE	N/A	SEPARATE	N/A
25ELHV	6L2L-552726	CRATE	N/A	SEPARATE	N/A
25ELRV	6L2L-481148	CRATE	CRATE	SEPARATE	CRATE
25MSHV3	6K9S-200281	CRATE	N/A	SEPARATE	N/A
25MLHV3	6K9L-500176	CRATE	N/A	SEPARATE	N/A
C25MSHV	695S-041604	CRATE	N/A	SEPARATE	N/A
C25MLHV	695L-332562	CRATE	N/A	SEPARATE	N/A
C25ELHV	695L-403276	CRATE	N/A	SEPARATE	N/A
C25ELRV	695L-560377	CRATE	SEPARATE	SEPARATE	CRATE
30MSHV	6J8S-108684	CRATE	N/A	SEPARATE	N/A
30MLHV	6J8L-407535	CRATE	N/A	SEPARATE	N/A
30ELHV	6J8L-760441	CRATE	N/A	SEPARATE	N/A
30ESRV	6J8S-155578	CRATE	CRATE	SEPARATE	CRATE
30ELRV	6J8L-461450	CRATE	CRATE	SEPARATE	CRATE
C30ELRV	61TL-402644	CRATE	SEPARATE	SEPARATE	CRATE
40MSHV	6H4S-191155	ORDER YPAD	N/A	SEPARATE	CRATE
40MLHV	6H4L-491030	ORDER YPAD	N/A	SEPARATE	CRATE
40ESRV	6H4S-110507	ORDER YPAD	SEPARATE	SEPARATE	CRATE
40ELRV	6H4L-841774	ORDER YPAD	SEPARATE	SEPARATE	CRATE
40TLRV	6H4L-543418	ORDER YPAD	SEPARATE	SEPARATE	CRATE
40TLHV	6H4L-430241	ORDER YPAD	N/A	SEPARATE	TILLER KIT
40MJHV	6H4S-191175	N/A*	N/A	SEPARATE	CRATE*
40EJRV	6H4S-820221	N/A*	CRATE	SEPARATE	CRATE*
C40ELRV	6E9L-556824	ORDER YPAD	SEPARATE	SEPARATE	CRATE
C40MSHV	6E9S-011803	ORDER YPAD	N/A	SEPARATE	N/A
C40PLRV	6E9L-338274	ORDER YPAD	SEPARATE	SEPARATE	CRATE
C40ESHV	6E95-110325	ORDER YPAD	SEPARATE	SEPARATE	CRATE
E48MLHV	670L-381379	ORDER YPAD	N/A	SEPARATE	N/A
50EJRV	6H5S-090316	N/A*	CRATE	N/A	CRATE*
50TLHV	6H5L-590261	ORDER YPAD	N/A	N/A	TILLER KIT
50TLRV	6H5L-443259	ORDER YPAD	SEPARATE	N/A	50-90 KIT
F50TLRV	62YL-405003	ORDER YPAD	SEPARATE	N/A	CRATE
F50TLHV	62YL-450872	ORDER YPAD	N/A	N/A	TILLER KIT
T50TLRV	64JL-401005	ORDER YPAD	SEPARATE	N/A	CRATE
C60TLRV	6H2L-353657	ORDER YPAD	SEPARATE	N/A	CRATE
P60TLHV	6H2L-551529	ORDER YPAD	N/A	N/A	TILLER KIT
E60MLHV	6K5L-312655	ORDER YPAD	N/A	SEPARATE	N/A
70TLRV	6H3L-488888	ORDER YPAD	SEPARATE	N/A	50-90 KIT
P75TLHV	692L-900196	ORDER YPAD	N/A	N/A	TILLER KIT
E75MLHV	692L-514527	ORDER YPAD	N/A	SEPARATE	N/A
C80TLRV	6H0L-351385	ORDER YPAD	SEPARATE	N/A	CRATE
90TLRV	6H1L-493116	ORDER YPAD	SEPARATE	N/A	50-90 KIT
B90TLRV	6H1L-493261	ORDER YPAD	SEPARATE	N/A	50-90 KIT
90TJRV	6H1L-493311	N/A*	CRATE	N/A	CRATE*

ROUTE TO: ☐ SERVICE ☐ PARTS ☐ WARRANTY ☐ SALES

E48MHV

A1

MODEL	STARTING I.D.	PROPELLER	CONTROL	(A) OIL TANK	RIGGING ITEMS
115TLRV	6E5L-400614	ORDER YPAD	SEPARATE	SEPARATE	VL KIT
S115TLRV	6E5L-400664	ORDER YPAD	SEPARATE	SEPARATE	VL KIT
S115TXRV	6E5UL-727472	ORDER YPAD	SEPARATE	SEPARATE	VX KIT
C115TLRV	6E5L-329256	ORDER YPAD	SEPARATE	N/A	CRATE
C115TXRV	6E5UL-522556	ORDER YPAD	SEPARATE	N/A	CRATE
115TJRV	6E5L-400614	N/A*	SEPARATE	CRATE	CRATE*
130TLRV	6L1L-308805	ORDER YPAD	SEPARATE	SEPARATE	VL KIT
S130TLRV	6L1L-308845	ORDER YPAD	SEPARATE	SEPARATE	VL KIT
S130TXRV	6L1UL-704230	ORDER YPAD	SEPARATE	SEPARATE	VX KIT
L130TXRV	6L6UL-701646	ORDER YPAD	L KIT	L KIT	L KIT
150TLRV	6G4L-350635	ORDER YPAD	SEPARATE	SEPARATE	VL KIT
S150TLRV	6G4L-350574	ORDER YPAD	SEPARATE	SEPARATE	VL KIT
S150TXRV	6G4UL-501239	ORDER YPAD	SEPARATE	SEPARATE	VX KIT
L150TXRV	6K0UL-500361	ORDER YPAD	L KIT	L KIT	L KIT
P150TLRV	6J9L-500750	ORDER YPAD	SEPARATE	SEPARATE	VL KIT
D150TLRV	6J9L-600101	CRATE	SEPARATE	SEPARATE	VL KIT
C150TLRV	6G4L-303795	ORDER YPAD	SEPARATE	N/A	CRATE
C150TXRV	6G4UL-702190	ORDER YPAD	SEPARATE	N/A	CRATE
150TJRV	6G4L-350584	N/A*	SEPARATE	CRATE	CRATE*
P175TLRV	62HL-500263	ORDER YPAD	SEPARATE	SEPARATE	VL KIT
S175TXRV	6G5UL-500434	ORDER YPAD	SEPARATE	SEPARATE	VX KIT
200TLRV	6G6L-350387	ORDER YPAD	SEPARATE	SEPARATE	VL KIT
S200TXRV	6G6UL-501890	ORDER YPAD	SEPARATE	SEPARATE	VX KIT
L200TXRV	6K1UL-500570	ORDER YPAD	L KIT	L KIT	L KIT
P200TLRV	61HL-500695	ORDER YPAD	SEPARATE	SEPARATE	VL KIT
225TLRV	6K7L-450173	ORDER YPAD	SEPARATE	SEPARATE	VL KIT
S225TXRV	62JUL-100101	ORDER YPAD	SEPARATE	SEPARATE	VX KIT
L225TXRV	62KUL-100101	ORDER YPAD	L KIT	L KIT	L KIT
S225TURV	62JSU-200101	ORDER YPAD	SEPARATE	SEPARATE	VX KIT
L225TURV	62KSU-200101	ORDER YPAD	L KIT	L KIT	L KIT
S250TXRV	61AUL-100101	ORDER YPAD	SEPARATE	SEPARATE	VX KIT
L250TXRV	61BUL-100101	ORDER YPAD	L KIT	L KIT	L KIT
S250TURV	61ASU-200101	ORDER YPAD	SEPARATE	SEPARATE	VX KIT
L250TURV	61BSU-200101	ORDER YPAD	L KIT	L KIT	L KIT

*Jetdrive Models have the jet pump shipped separately.

KEY:

N/A	**Model does not include this item as standard equipment**
CRATE	**These items are included in the crate with the unit.**
SEPARATE	**If ordered, these items are shipped in a separate box.**
50-90 KIT	**50, 70, 90 Rigging Kit**
VL KIT	**If ordered, V4/V6 Long Shaft Rigging Kit (20" Shaft)**
VX KIT	**If ordered, V4/V6 Extra/Ultra Long Shaft Rigging Kit (25" & 30" Shaft)**
L KIT	**V4/V6 Left Hand Rigging Kit**
ORDER YPAD	**Item is not standard equipment. Order from YPAD.**
TILLER KIT	**40TLH to P75TLH Tiller Handle Rigging Kit**

NOTE: All models that used a rigging kit still have some basic rigging items, such as mounting bolts and steering arm, included in the unit crate. Also, all left hand models have the dual engine tie bar included in the crate.

(A) If rigging kit is ordered, oil tank is included with rigging kit.

Technical BULLETIN

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1997 MODELS

OUTBOARD SERVICE LITERATURE

This bulletin contains a comprehensive listing of service literature available for 1997 models. Certain models will not have new literature if the prior year's information is still current. Those literature part numbers will still be listed, but "Same as . . ." will occur in the Remarks column. Other information on publications interchangeability may also be found in the Remarks column. This bulletin also lists other publications related to your dealership operations. All publications can be ordered from Yamaha Parts and Accessories.

Model	Publication	Part Number	Remarks
2V	Owner's Manual Service Manual	LIT-18626-02-59 LIT-18616-01-31	
3V	Owner's Manual Service Manual	LIT-18626-02-59 LIT-18616-01-63	
4V, 5V	Owner's Manual Service Manual	LIT-18626-02-59 LIT-18616-01-33	
6V, 8V	Owner's Manual Service Manual	LIT-18626-02-60 LIT-18616-01-64	
9.9V, 15V	Owner's Manual Service Manual	LIT-18626-02-60 LIT-18616-01-65	
F9.9V, T9.9V	Owner's Manual Service Manual	LIT-18626-02-66 LIT-18616-01-35	
20V, 25V, 25V(2)	Owner's Manual Service Manual	LIT-18626-02-61 LIT-18616-01-66	
C25V/C30V	Owner's Manual Service Manual	LIT-18626-02-68 LIT-18616-01-67	
25V(3), 30V	Owner's Manual Service Manual	LIT-18626-02-61 LIT-18616-01-68	
C40V	Owner's Manual Service Manual	LIT-18626-02-68 LIT-18616-01-50	
40V, 50V 28 & 35 Jet Drive Models	Owner's Manual Service Manual *Operation & Service Manual (Supp.)	LIT-18626-02-62 LIT-18616-01-38 LIT-18619-00-95	
E48V	Owner's Manual Service Manual	LIT-18626-02-70 LIT-18616-01-28	Same as E48T
F50V, T50V	Owner's Manual Service Manual	LIT-18626-02-67 LIT-18616-01-48	Supp. to LIT-18616-01-23

Model	Publication	Part Number	Remarks
E60V	Owner's Manual Service Manual	LIT-18626-02-70 LIT-18616-01-72	
P60V, 70V, P75V, 90V, B90V 65 Jet Drive Model	Owner's Manual Service Manual *Operation & Service Manual (Supp.)	LIT-18626-02-63 LIT-18616-01-69 LIT-18619-00-95	
E75V	Owner's Manual Service Manual	LIT-18626-02-70 LIT-18616-01-73	
C60, C80V	Owner's Manual Service Manual	LIT-18626-02-69 LIT-18616-01-69	
C115V	Owner's Manual Service Manual	LIT-18626-02-69 LIT-18616-01-70	
115V, 130V, L130V 80 Jet Drive Model	Owner's Manual Service Manual *Operation & Service Manual (Supp.)	LIT-18626-02-64 LIT-18616-01-70 LIT-18619-00-95	
C150V 105 Jet Drive Model	Owner's Manual Service Manual *Operation & Service Manual (Supp.)	LIT-18626-02-69 LIT-18616-01-71 LIT-18619-00-95	
150V, P150V, 175V, P175V, 200V, P200V, 225(L), L150V, L200V	Owner's Manual Service Manual	LIT-18626-02-64 LIT-18616-01-71	
D150V	Owner's Manual Service Manual	LIT-18626-02-80 LIT-18616-01-71	
225(X/U)V, L225V, 250V, L250V	Owner's Manual Service Manual	LIT-18626-02-65 LIT-18616-01-61	

*This manual is included with all Jet Drive models along with the standard Owner's Manual for the particular propeller drive model the Jet Drive model is based on.

OTHER OUTBOARD PUBLICATIONS

Dual Station System Owner's Manual	LIT-18626-01-59	
Warranty Statement—Outboard	LIT-18790-00-89	
Warranty Statement—Jet Drive	LIT-18790-01-86	
Outboard Rigging Specs (1996)	LIT-18865-00-96	
Outboard Rigging Specs (1996-1997) (Supp.)	LIT-18865-00-97	
1996 Service Data Poster	LIT-18531-00-14	
Warranty & Y.E.S. Handbook	LIT-11760-00-95	
Parts Policies & Procedures Manual	LIT-10080-05-00	
Service Appointment Pad	LIT-11561-00-80	
Heavy-Duty Service Binder	LIT-18501-00-87	

NOTE: Pages 77 and 78 of the "1997 Marine Power Marketing Guide" are incorrect. Please remove these pages and insert a copy of this Technical Bulletin in their place.

ROUTE TO: ☑ SERVICE ☑ PARTS ☑ WARRANTY ☑ SALES

SUBJECTS: 1. Disconnect Trailer Wiring Before Launching
2. Notes on the Use of the "Transom Saver"

Yamaha wants its customers to get the most out of their boats. The following are some helpful tips you can pass on to your marine customers. Display this as a poster in your service reception area, the service manager's area, or any other heavily trafficked area.

Save Your Trailer's Electrical System! Disconnect Trailer Wiring Before Launching

DID YOU KNOW?
It is a good idea to disconnect the trailer wiring before launching (even if you are using water tight lights on your trailer) to improve the durability and life of your trailer's electrical system!

WHY?
- If the wiring is left connected, trailer lights will get hot with the use of brakes on an inclined launch ramp. Lights will then become suddenly cooled when submerged into water. This change in temperature can break lights or weaken water tight seals.
- Also, temperature change affects the air pressure inside the light assemblies, causing water to be drawn through any leak in the seal.
- Electrical wiring can be weakened at joints, at spots where the wiring is starting to fray, or at the main connector by corrosion amplified by the presence of electrical current.

TIP!
Disconnect the trailer wiring before launching. Always remember to reconnect the trailer lights before leaving the launch ramp area!

Notes On The Use Of Outboard Motor Support "Transom Saver" When Trailering

DID YOU KNOW?
If you like to use an outboard motor support bar commonly called a "transom saver" when trailering take note of the following:

Transom savers, especially rigid ones, can actually **increase** the load to both the outboard motor and the boat transom. After an extended amount of time using the transom saver, the bushings within the outboard clamp bracket assembly will deteriorate.

WHY?
- Because the trailer flexes and roads are rough, the outboard motor and boat bounce during transportation. If the boat bounces up and down while the motor is held stationary in relation to the trailer, considerable load is put on the motor clamp bracket and transom.

TIP!
If you use a transom saver, pick one that has some give or flex to absorb shock. Also, insure that the boat is firmly secured to the trailer.

If you have technical tips you think other dealers could use, let us know. You'll receive credit in the Tech Exchange for ideas we use, and we'll send you an exclusive Yamaha Tech Exchange hat as our thanks.
Send your tips to: Yamaha Motor Corporation, U.S.A., Attn: Tech Exchange, P.O. Box 6555, Cypress, CA 90630

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