TABLE OF CONTENTS

1	SAFETY		POWERHEAD SERVICE REDESIG MODEL (See Listing on Page)	NED 3-27
	INTRODUCTION	1-1	Removal	3-27
	CLEANING, WAXING, & POLISHIN		Disassembling	3-32
	CONTROLLING CORROSION	1-1	Cleaning & Inspecting	3-66
	PROPELLERS	1-2	Assembling	3-48
	FUEL SYSTEM	1-7	Installation	3-60
	LOADING	1-9	-110	<i>></i> 00
	HORSEPOWER	1-10	CLEANING & INSPECTING	3-66
	FLOTATION	1-10	Thermostat Service	3-66
	EMERGENCY EQUIPMENT	1-12	Reed Block Service	3-66
	COMPASS	1-14	Crankshaft Service	3-68
	ANCHORS	1-16	Connecting Rod Service	3-70
	MISCELLANEOUS EQUIPMENT	1-17	Piston Service	3-72
	BOATING ACCIDENT REPORTS	1-18	Honing Procedures	3-74
	NAVIGATION	1-18	Cylinder Block Service	3-75
		1-10	Check valves	3-76
2	TUNING		CHCK VAIVES	J=7 C
	INTRODUCTION	2-1	4 FUEL	
	TUNE-UP SEQUENCE	2-2		
	COMPRESSION CHECK	2-3	INTRODUCTION	4-1
	SPARK PLUG INSPECTION	2-3	GENERAL CARBURETION	
	IGNITION SYSTEM	2-4	INFORMATION	4-1
	TIMING AND SYNCHRONIZING	2-5	TROUBLESHOOTING	4-4
	CARBURETOR ADJUSTMENT	2-7	"Sour" Fuel	4-4
	FUEL PUMPS	2-9	Leaded Gasoline & Gasohol	4-5
	CRANKING MOTOR	- •	Removing Fuel From the System	4-5
	AND SOLENOID	2-10	Fuel Pump Test	4-7
	INTERNAL WIRING HARNESS	2-11	Fuel Line Test	4-9
	WATER PUMP CHECK	2-12	Rough Engine Idle	4-10
	PROPELLER	2-13	Excessive Fuel Consumption	4-10
	LOWER UNIT	2-15	Engine Surge	4-11
	BOAT TESTING	2-16	Anti-Syphon Valve	4-11
	BOTT TESTING	2-10	ENRICHENER SYSTEM	4-11
2	POWERHEAD		2+2 SYSTEM W/ACCELERATOR	4-11
•	I O WERTIEAD		PUMP 100 & 115HP	4-12
	INTRODUCTION	3-1	CARBURETOR IDENTIFICATION	4-12
	Chapter Organization	3-3	CARBORETOR IDENTIFICATION	4-13
	POWERHEAD SERVICE ORIGINA		REFERENCED "A" - SIDE BOWL	
			AND BACK DRAG	h 1 h
	DESIGN (See Listing on Page)	3-5		4-14
	Removal	3-5	Removal & Disassembling	4-14
	Disassembling	3-7	Cleaning & Inspecting	4-16
	Cleaning & Inspecting	3-66	Assembling	4-19
	Assembling	3-14	Installation	4-21
	Installation	3-25	Adjustments	4-23

4 FUEL (Continued)		Cleaning & Inspecting	5-14
DEFENDED IN WAITECD AT		Assembling	5-17
REFERENCED "B" W/INTEGRAL FUEL PUMP	4-24	TYPE II - THUNDERBOLT -	
	4-24	DISTRIBUTOR LIGHTNING	
Removal & Disassembling	4-24 4-26	ENERGIZER - POINTLESS	
Cleaning & Inspecting	4-2 0 4-27	AKA ALTERNATOR DRIVER	E 22
Assembling		IGNITION (ADI)	5-23
Installation	4-29	Description The black action	5-23
Adjustments	4-30	Troubleshooting	5-23
REFERENCED "C" - CENTER	<i>l</i> . 21	Removal	5-26
SQUARE BOWL	4-31	Cleaning & Inspecting	5-28
Removal & Disassembling	4-31	Assembling	5-28
Cleaning & Inspecting	4-34	Installation	5-29
Assembling	4-36	TYPE III - THUNDERBOLT -	
Installation	4-38	DISTRIBUTOR C.D	
Operating Adjustments	4-39	POINTLESS	5-31
REFERENCED "D" SERIES WME	<i>t. t.</i> 1	Description	5-31
CENTER SQUARE BOWL	4-41	Troubleshooting	5-33
Removal & Disassembling	4-41	Servicing	5-34
Cleaning & Inspecting	4-43	Removal	5-37
Assembling	4-45	Cleaning & Inspecting	5-38
Installation	4-46	Assembling	5-38
Adjustments	4-47	TYPE IV - THUNDERBOLT -	
FUEL PUMP	4-47	FLYWHEEL - C.D POINTLESS	
Theory of Operation	4-47	Description & Operation	5-40
Pump Pressure Check	4-49	Troubleshooting	5-41
Removal	4-50	Servicing	5-43
Cleaning & Inspecting	4-51	Removal	5-43
Assembling	4-51	Installation	5_44
OIL INJECTION AUTO BLEND	4-53	TYPE V - THUNDERBOLT -	
Description	4-53	FLYWHEEL - C.D	
Troubleshooting	4-55	COIL PER CYLINDER	5-45
Preparation for Use		Description & Operation	5-45
Auto Blend	4-58	Troubleshooting	5-46
OIL INJECTION ADVANCED	4-59	Servicing	5-54
Description	4-59	Removal & Disassembling	5-54
Filling System	4-60	Cleaning & Inspecting	5-56
Purging System	4-61	Assembling & Installation	5-57
Troubleshooting	4-61	C THING AND SYNCHOONITING	
Servicing System	4-63	6 TIMING AND SYNCHRONIZING	
Disassembling	4-64	INTRODUCTION & PREPARATION	6-1
Cleaning & Inspecting	4-65	110mm, 200 10/2 10/2	
Assembling	4-67	MODEL 500 1965-1967 and	
Installation	4-69	1968 to Serial No. 2306755	6-3
		MODEL 500S No. 2306756 and Up	
5 IGNITION		Mid 1968	
J Id. Willow		MODEL 500M No. 2307056 and Up	
INTRODUCTION	5-1	Mid 1968	
SPARK PLUG EVALUATION	5-2	MODEL 500E No. 2406035 and Up	
POLARITY CHECK	5-4	Mid 1968 to 1975	
WIRING HARNESS	5- 5	MODEL 650S No. 2312311 to 2446775	5
TYPE I - DISTRIBUTOR MAGNETO		Mid 1968 and 1969	
WITH POINTS	5-6	MODEL 650E No. 2446775 to 2606853	3
Description & Operation	5-6	Mid 1968 and 1969	6-4
Troubleshooting	5-8	MODEL 500 1975	6-7
Servicing	5-12		6-10
· G			

MODEL 500 No. 4576237 and Up		STATOR SERVICE	/-1/
1977 to 1979		Removal	7-18
MODEL 50HP Since 1979		Installation	7-18
MODEL 45HP 1986 to 1989		CHOKE CIRCUIT AND	
MODEL 40HP Since 1990	6-11	ENRICHENER SYSTEM	7-19
Wie Dat Form Strick 1990	0	CRANKING MOTOR CIRCUIT	7-20
MODEL 650 1965 and 1966		Description & Operation	7-20
MODEL 650E 1968 to No. 2446744		Troubleshooting	7-21
	6-13	Removal	7-25
MODEL 650S 1968 to No. 2312310	6-13	Disassembling - Pinion Gear	, _,
MODEL (50 1070 11071		with Rubber Cushion	7-26
MODEL 650 1970 and 1971		Assembling	7-26
MODEL 800 1969 to 1972		Disassembling - Pinion Gear	7-20
MODEL 850 1973	6-15	with Snap Ring or Nut	7-27
110 777 400 4070 . 4070			7-28
MODEL 650 1972 to 1975	6-17	Assembling	7-20
MODEL 650 1976	6-19	Disassembling - Pinion Gear	7 20
		with Top Spring	7-29
MODEL 700 1977 to 1979		Assembling	7-30
MODEL 70HP 1979 to 1983		CRANKING MOTOR REPAIR	7-30
MODEL 60HP 1984 to 1990		Disassembling	7-31
MODEL 50HP 1986 to 1990	6-21	Testing Parts	7-32
		Cleaning & Inspecting	7-34
MODEL 850 1974 and 1975		Assembling a Bosch	7-39
To No. 4366801	6-23	Assembling a Delco Remy	7-39
MODEL 800 1978 and 1979			
MODEL 850 1976 and 1977		8 REMOTE CONTROLS	
No. 4366802 and Above			
MODEL 80HP 1979 to 1983		INTRODUCTION	8-1
MODEL 75HP 1984 to 86	6-25	STEERING SYSTEMS	8-1
WODEL / JIII 1784 to 80	0-27	DIRECTIONAL INDICATOR	8-2
MODEL 90HP Since 1987		ROTARY STEERING SERVICE	8-5
	0	Disassembling	8-5
MODEL 70HP, & 80HP 1987 to 198	7	Cleaning & Inspecting	8-5
MODEL 75HP Since 1990		Assembling	8-6
MODEL 50HP Since 1991		7 tostinomia	0-0
MODEL 60HP Since 1991	6-27	STANDARD RIDE GUIDE KIT	8-8
			8-8
MODEL 100HP Since 1988		CUSTOM RIDE GUIDE KIT	0-0
ALSO MODEL 115HP Since 1989	6-29	MERCONTROL PANEL	
		EARLY MODEL	8-8
		Disassembling	8-8
ELECTRICAL		Assembling	8-11
		MERCONTROL BOX LATE MODEL	
INTRODUCTION	7-1	Disassembling	8-13
BATTERIES	7-1	Assembling	8-16
GAUGES AND HORNS	7~7	COMMANDER CONTROL BOX	
Temperature Gauges	7-8	Removal & Disassembling	8-17
Warning Lights	7-8	Cleaning & Inspecting	8-24
Fuel Gauges	7-9	Assembling & Installation	8-26
Tachometer	7-11	CABLE ADJUSTMENTS	8-35
Horns	7-11		
ELECTRICAL SYSTEM	7-12		
General Information	7-12	9 POWER TRIM/TILT	
CHARGING CIRCUIT SERVICE	7-12	y are transact a absent a single	
Troubleshooting	7-14	INTRODUCTION	9-1
Rectifier Removal	7-15	Chapter Organization	9-2
Rectifier Installation	7-17	MECHANICAL TILT PIN	9-2
vefitte notaranon	,-1/	WILCHARDING TILL TIN	7-2

9 POWER TRIM/TILT (Continued)		Disassembling	10.14
CVCTCLI HAU LLODEL C WITHIN MIN		Bearing Carrier	10-16
SYSTEM "A" - MODELS WITH TW		Propeller Shaft	10-17
TRIM/TILT CYLINDERS	9-3	Driveshaft	10-17
Description & Operation	9-3	•	
Special Instructions	9-5	Assembling	
Bleeding	9-6	Lower Driveshaft Bearing	10-22
Troubleshooting	9-8	Shift Shaft	10-22
Trim Switch Service	9-8	Bearing Carrier	10-23
Service System "A"	9-12	Forward Gear & Bearing	10-24
Hydraulic Pump Service	9-14	Forward Bearing Race	10-25
Electric Motor Service	9-17	Driveshaft	10-26
		Shimming & Backlash	
SYSTEM "B" - MODELS WITH TW	' O	Pinion Gear Depth	10-28
TRIM CYLINDERS		Forward Gear Backlash	10-29
AND ONE TILT CYLINDER	9-21	Assembling & Installation	
Description & Operation	9-21	Bearing Carrier	10-32
Bleeding	9-22	Reverse Gear Backlash	10-33
Flushing	9-23		
Troubleshooting	9-24	SERVICING CAM-SHIFT TYPE II	
Removal & Disassembling	9-31	UNITS MATCHED WITH LATE	
Manual Release Valve	9-34	3- and 4-CYLINDER POWERHE	ADS
Oil Reservoir Cover	9-35	SINCE ABOUT 1980	10-34
Trim Cylinders	9-35	Removal and Disassembling	
Tilt Cylinder	9-36	Bearing Carrier	10-35
Motor & Pump	9-36	Propeller Shaft	10-36
Cleaning & Inspecting	9-37	Shift Shaft	10-37
Assembling & Installation	9-38	Pinion Gear	10-38
Pump & Motor	9-42	Driveshaft	10-38
Tilt Cylinder	9-45	Forward Gear	10-39
Trim Cylinders	9-48	Pinion Gear Bearing Race	10-40
Reservoir Cover	9-49	Forward Bearing Race	10-40
Manual Release Valve	9-49	Driveshaft Bearing	10-40
System Installation	9-50	Assembling and Installation	10-10
by stem instantation	7-70	Driveshaft Bearing	10-41
IA I AMITTA I IN THE		Pinion Gear Bearing Race	10-44
10 LOWER UNIT		Forward Gear Bearing Race	
		Shift Shaft	10-45
DESCRIPTION	10-1	Forward Gear	10-45
CHAPTER COVERAGE	10-1	Driveshaft	10-46
TROUBLESHOOTING	10-4	Pinion Gear	10-46
REMOVAL ALL UNITS	10-5	Propeller Shaft	10-47
Propeller Removal	10-7		10-47
WATER PUMP SERVICE	10-7	Bearing Carrier	10-48
Removal and Disassembling		Pinion Gear Depth Forward Gear Backlash	10-49
High Pressure Type Pump	10-8		10-20
	10-8	WATER PUMP ASSEMBLING AND	
High Volume Type Pump	10-7	INSTALLATION	10 50
SERVICING CAM-SHIFT TYPE I		High Pressure Type Pump	10-52
	V	Shimming (Certain Units)	10-52
UNITS MATCHED WITH EARI	→ I	High Volume Type Pump	10-56
3-CYLINDER POWERHEADS TO ABOUT 1979	10-11	CLEANING AND INSPECTING	10 57
	10-11	ALL UNITS	10-57
Removal		I OWED LINE WICE IN THE COLUMN	10.70
Bearing Carrier and	10.10	LOWER UNIT INSTALLATION	10-60
Propeller Shaft	10-12	Filling Lower Unit	10-60
Driveshaft & Bearing	10-13	Exhaust Tube Installation	10-61
Forward Gear & Bearing	10-15	Propeller Installation	10-64

11	HAND REWIND STARTER		PROPELLER SERVICE 12-13 POWER TRIM/TILT 12-15
	INTRODUCTION		INSIDE THE BOAT 12-16
	TYPE "A" (See Introduction)	11-2	LOWER UNIT 12-16
	Removal and Disassembling	11-2	WINTER STORAGE 12-18
	Cleaning and Inspecting	11-4	
	Assembling and Installation	11-6	•
	Assembling and installation	11-0	Battery Storage 12-20
	Type "B" (See Introduction)		APPENDIX
	Removal and Disassembling	11-13	
	Cleaning and Inspecting	11-16	METRIC CONVERSION CHART A-1
	Assembling and Installation	11-17	ENGINE SPECIFICATIONS
	•		AND TUNE-UP ADJ. A-2 thru A-12
12	MAINTENANCE		REED STOP OPENING A-13
			CARBURETOR JET SIZE/
	INTRODUCTION	12-1	ELEVATION CHART A-14
	OUTBOARD SERIAL NUMBERS	12-2	LOWER UNIT BACKLASH TABLE A-16
	LUBRICATION - COMPLETE UNIT	12-2	LOWER UNIT OIL CAPACITY
	PRE-SEASON PREPARATION	12-3	AND GEAR CHART A-17
	Units With Oil Injection	12-4	PISTON & CYLINDER
	All Units	12-5	SPECIFICATIONS A-18
	FIBERGLASS HULLS	12-10	WIRE IDENTIFICATION DWGS.
	BELOW WATERLINE SERVICE	12-10	Ignition Systems A-19 thru A-39
	SUBMERGED ENGINE SERVICE	12-11	Power Trim/Tilt A-40
	Salt Water Submersion	12-11	
	Fresh Water Submersion	12-12	
	i resit water Submersion	12-12	Console Wiring A-47