

CONTENTS

1	GENERAL INFORMATION, SAFETY AND TOOLS	HOW TO USE THIS MANUAL	1-2
		BOATING SAFETY	1-4
		BOATING EQUIPMENT (NOT REQUIRED BUT RECOMMENDED)	1-10
		SAFETY IN SERVICE	1-12
		TROUBLESHOOTING	1-13
		SHOP EQUIPMENT	1-16
		TOOLS	1-18
		FASTENERS, MEASUREMENT, AND CONVERSIONS	1-26
<hr/>			
2	ENGINE AND DRIVE MAINTENANCE	ENGINE AND DRIVE MAINTENANCE	2-2
		FLUIDS AND LUBRICANTS	2-32
		LUBRICATION POINTS	2-54
		BOAT MAINTENANCE	2-58
		WINTER STORAGE	2-63
		FIRING ORDERS	2-65
		SPRING COMMISSIONING	2-65
		SPECIFICATIONS	2-75
<hr/>			
3	ENGINE MECHANICAL - GM INLINE ENGINES	ENGINE MECHANICAL	3-2
		EXPLODED VIEWS	3-16
		SPECIFICATIONS	3-18
<hr/>			
4	ENGINE MECHANICAL - GM V6 AND V8 ENGINES	ENGINE MECHANICAL	4-2
		EXPLODED VIEWS	4-39
		SPECIFICATIONS	4-46
<hr/>			
5	ENGINE OVERHAUL	ENGINE RECONDITIONING	5-2
<hr/>			
6	FUEL SYSTEM - CARBURETORS	FUEL AND COMBUSTION	6-2
		CARBURETED FUEL SYSTEM	6-3
		MERCARB 2BBL CARB	6-8
		WEBER WFB 4BBL CARB	6-17
		WIRING DIAGRAMS	6-27
		SPECIFICATIONS	6-30
<hr/>			
7	FUEL SYSTEM - FUEL INJECTION (EFI)	FUEL AND COMBUSTION	7-2
		ELECTRONIC FUEL INJECTION	7-4
		SYSTEM DIAGNOSIS - TBI ENGINES AND EARLY 2001 MPI ENGINES	7-24
		SYSTEM DIAGNOSIS - 2001-06 MPI ENGINES	7-45
		SPECIFICATIONS	7-66
<hr/>			
8	COOLING SYSTEM	COOLING SYSTEMS	8-2
		MAINTENANCE AND TESTING	8-2
		FLOW DIAGRAMS	8-8

CONTENTS

UNDERSTANDING AND TROUBLESHOOTING	
ELECTRICAL SYSTEMS	9-2
BATTERY	9-8
CHARGING SYSTEM	9-10
STARTER CIRCUIT	9-17
ELECTRONIC SPARK SYSTEM (ST)	9-23
THUNDERBOLT V IGNITION SYSTEM	9-29
DISTRIBUTOR ELECTRONIC IGNITION (DEI) SYSTEM - PCM 555	9-33
DISTRIBUTORLESS ELECTRONIC IGNITION (DIS) SYSTEM - PCM 555	9-35
INSTRUMENTS AND GAUGES	9-36
SENDING UNITS AND SWITCHES	9-39
WIRING DIAGRAMS	9-44
SPECIFICATIONS	9-74

IGNITION AND ELECTRICAL

9

STERN DRIVE UNIT - ALPHA	10-2
GEAR HOUSING (LOWER UNIT)	10-5
DRIVESHAFT HOUSING (UPPER UNIT)	10-25
TRANSOM ASSEMBLY	10-34
SPECIFICATIONS	10-47

DRIVE SYSTEMS - ALPHA

10

STERN DRIVE UNIT - BRAVO	11-2
GEAR HOUSING (LOWER UNIT)	11-4
DRIVESHAFT HOUSING (UPPER UNIT)	11-18
TRANSOM ASSEMBLY	11-32
SPECIFICATIONS	11-46

DRIVE SYSTEMS - BRAVO

11

VELVET TRANSMISSIONS	12-2
ZF/HURTH TRANSMISSIONS	12-6
SPECIFICATIONS	12-9

DRIVE SYSTEMS - TRANSMISSIONS

12

STANDARD POWER TRIM AND TILT	13-2
AUTO TRIM II SYSTEM	13-24
WIRING SCHEMATICS	13-25

TRIM AND TILT

13

MANUAL STEERING SYSTEM	14-2
POWER STEERING SYSTEM	14-4
COMPACT HYDRAULIC SYSTEM	14-17

STEERING

CONVENTIONAL REMOTE CONTROLS	15-2
SMARTCRAFT DIGITAL THROTTLE AND SHIFT (DTS)	15-2
PRECISION PILOT	15-26

REMOTE CONTROLS

15

MASTER INDEX	15-31
--------------	-------

MASTER INDEX

ALTERNATOR	9-12	MECHANICAL FUEL PUMP	6-24
DISASSEMBLY & ASSEMBLY	9-14	MERCARB 2BBL CARBURETOR	6-8
PRECAUTIONS	9-12	OPERATION	6-5
REMOVAL & INSTALLATION	9-12	TROUBLESHOOTING	6-3
AUDIO WARNING SYSTEM	9-42	WEBER WFB 4BBL CARBURETOR	6-17
TESTING	9-42	CHARGING SYSTEM	9-10
AUTO TRIM II SYSTEM	13-24	ALTERNATOR	9-12
CONTROL MODULE	13-24	GENERAL INFORMATION	9-10
DESCRIPTION	13-24	TROUBLESHOOTING	9-11
OPERATION	13-24	CHEMICALS	1-17
ANODES	2-59	COMBINATION MANIFOLD	3-7
INSPECTION	2-59	REMOVAL & INSTALLATION	3-7
SERVICING	2-59	COMBUSTION	
AUDIO WARNING SYSTEM	9-42	CARB	6-2
TESTING	9-42	EFI	7-2
BALANCE SHAFT	4-34	COMPACT HYDRAULIC SYSTEM	14-17
REMOVAL & INSTALLATION	4-34	DESCRIPTION	14-17
BASIC ELECTRICAL THEORY	9-2	HYDRAULIC FLUID	14-17
BASIC OPERATING PRINCIPLES	1-13	STEERING UNIT	14-18
BATTERY		COMPASS	1-10
CABLES	2-62	COMPRESSION	2-20
CHARGERS	2-62	CONTINUITY CIRCUIT	2-60
CLEANING	2-61	CONTROL MODULE	13-24
CONSTRUCTION	9-8	ADJUSTMENT	13-24
DUAL BATTERY INSTALLATION	9-9	CONTROL VALVE - POWER	14-9
GENERAL INFORMATION	2-60	BALANCING	14-10
LOCATION	9-9	DISASSEMBLY & ASSEMBLY	14-9
MARINE BATTERIES	9-8	REMOVAL & INSTALLATION	14-9
RATINGS	9-8	CONTROLLER	15-39
SAFETY PRECAUTIONS	2-62	REMOVAL & INSTALLATION	15-29
SPECIFIC GRAVITY	3-61	CONVENTIONAL REMOTE CONTROLS	15-2
STORAGE	2-62	COOL FUEL MODULE (GEN III)	7-12
TERMINALS	2-61	DISASSEMBLY & ASSEMBLY	7-12
BATTERY GAUGE	9-37	REMOVAL & INSTALLATION	7-12
BELL HOUSING		COOL FUEL SYSTEM	7-10
ALPHA	10-40	REMOVAL, DISASSEMBLY & INSTALLATION	7-10
BRAVO	11-40	COOLING SYSTEM	
BELLOWS		DESCRIPTION & OPERATION	8-2
EXHAUST		TROUBLESHOOTING	8-2
ALPHA	10-38	DRAINING & FILLING	2-42
BRAVO	11-36	FLUSHING (CLOSED)	2-42
EXHAUST PIPE		FLUSHING (SEAWATER) - INBOARDS	2-40
4 CYL	3-9	FLUSHING (SEAWATER) - STERN DRIVES	2-39
V6 AND V8	4-26	LEVEL CHECK	2-38
U-JOINT		MAINTENANCE & TESTING	8-2
ALPHA	10-39	PRESSURE CAP TESTING	2-38
BRAVO	11-37	PRESSURE TEST	2-38
BELTS	2-8	RAW WATER COOLING TEST	8-3
ADJUSTMENT	2-9	RAW WATER FLOW TEST	8-3
INSPECTION	2-8	TROUBLESHOOTING	8-2
REMOVAL & INSTALLATION	2-10	CRANKSHAFT PULLEY	4-32
SERPENTINE BELT ROUTING	2-10	V6 AND V8	4-32
BOAT MAINTENANCE	2-58	CROSSOVER	8-3
ANODES (ZINCS)	2-59	REMOVAL & INSTALLATION	8-3
BATTERIES	2-60	CRUISELOG METER	9-38
CONTINUITY CIRCUIT	2-60	CYLINDER BLOCK	5-9
INSIDE THE BOAT	2-58	ASSEMBLY	5-13
THE BOAT'S EXTERIOR	2-58	DISASSEMBLY	5-10
BOATING SAFETY	1-4	GENERAL INFORMATION	5-9
COURTESY MARINE EXAMINATIONS	1-10	INSPECTION	5-11
REGULATIONS FOR YOUR BOAT	1-4	REFINISHING	5-13
REQUIRED SAFETY EQUIPMENT	1-5	CYLINDER COMPRESSION	2-20
BOOSTER CYLINDER - POWER	14-11	CYLINDER HEAD	
REMOVAL & INSTALLATION	14-11	ASSEMBLY	5-9
TESTING	14-12	DISASSEMBLY	5-5
BUY OR REBUILD?	5-3	GENERAL INFORMATION	5-5
CAMSHAFT, BEARINGS AND GEAR (4 CYL)	3-13	INSPECTION	5-6
CHECKING LIFT	3-13	REFINISHING & REPAIRING	5-8
REMOVAL & INSTALLATION	3-14	REMOVAL & INSTALLATION	
CAMSHAFT V6/V8	4-34	4 CYL	3-15
CHECKING LIFT	4-34	V6 AND V8	4-36
REMOVAL & INSTALLATION	4-35	CYLINDER HEAD COVER	
CARBURETED FUEL SYSTEM	6-3	4 CYL	3-5
CARBURETOR APPLICATIONS	6-3	V6 AND V8	4-13
ELECTRIC FUEL PUMP	6-26	DETERMINING ENGINE CONDITION	5-2

15-32 REMOTE CONTROLS

COMPRESSION TEST	5-2	COOL FUEL MODULE (GEN III)	7-12
OIL PRESSURE TEST	5-2	COOL FUEL SYSTEM	7-10
DIAGNOSTIC TROUBLE CODES (DTC) - TBI	7-28	DESCRIPTION AND OPERATION	7-4
CLEARING CODES	7-29	ELECTRONIC CONTROL MODULE (ECM)	7-20
READING CODES	7-28	ENGINE COOLANT TEMPERATURE SENSOR (ECT)	7-20
DISTRIBUTOR		FUEL BOOST PUMP (ELECTRIC)	7-13
DISASSEMBLY & ASSEMBLY		FUEL INJECTORS	7-14
REMOVAL & INSTALLATION		FUEL METER COVER	7-13
DEI	9-34	FUEL PRESSURE REGULATOR	7-13
EST	9-27	FUEL PUMP - ELECTRIC	7-13
THUNDERBOLT	9-33	FUEL PUMP RELAY	7-13
DISTRIBUTOR CAP		FUEL RAIL AND INJECTORS	7-14
DEI	9-33	IDLE AIR CONTROL VALVE (IAC)	7-20
EST	9-26	KNOCK SENSOR (KS)	7-22
THUNDERBOLT	9-31	KNOCK SENSOR MODULE	7-22
DISTRIBUTOR ELECTRONIC IGNITION (DEI) SYSTEM - ECM 555	9-33	MAIN POWER RELAY	7-23
DISTRIBUTOR	9-34	MANIFOLD ABSOLUTE PRESSURE SENSOR (MAP/MAPT)	7-22
DISTRIBUTOR CAP	9-33	OIL PRESSURE SWITCH/SENSOR	7-23
GENERAL INFORMATION	9-33	RELIEVING FUEL PRESSURE	7-9
IGNITION COIL	9-35	THROTTLE BODY	7-17
DISTRIBUTORLESS ELECTRONIC IGNITION (DIS) SYSTEM - PCM 555	9-35	THROTTLE BODY ADAPTER PLATE	7-19
GENERAL INFORMATION	9-35	THROTTLE POSITION SENSOR (TP)	7-22
IGNITION COIL	9-35	ELECTRONIC SHIFT CONTROL (ESC)	15-3
DRIVESHAFT HOUSING - BRAVO	11-18	ACTUATOR ADJUSTMENT	15-3
DESCRIPTION	11-18	SHIFT ACTUATOR REMOVAL & INSTALLATION	15-3
DRIVESHAFT HOUSING	11-19	SHIFT OVERRIDE PROCEDURE	15-4
GEAR RATIO IDENTIFICATION	11-18	ELECTRONIC SPARK TIMING SYSTEM (EST)	9-23
DRIVESHAFT HOUSING - ALPHA	10-25	DESCRIPTION	9-23
DESCRIPTION	10-25	DISTRIBUTOR	9-26
DISASSEMBLY & ASSEMBLY	10-26	DISTRIBUTOR CAP	9-26
DRIVEN GEAR/DRIVESHAFT	10-30	IGNITION COIL	9-29
EXPLODED VIEWS	10-26	TROUBLESHOOTING	9-25
U-JOINT/DRIVE GEAR	10-26	ELECTRONIC THROTTLE CONTROL (ETC)	15-4
GEAR RATIO IDENTIFICATION	10-25	REMOVAL & INSTALLATION	15-4
PRE-LOAD AND SHIM ADJUSTMENTS	10-32	ELECTRONIC TOOLS	1-23
DRIVEN GEAR SHIMMING	10-33	EMERGENCY STOP SWITCH	9-42
DRIVE (PINION) GEAR SHIMMING	10-33	ENGINE	
GENERAL INFORMATION	10-32	4 CYL	3-2
UPPER DRIVESHAFT BEARING PRELOAD	10-32	V6 AND V8 - CARB/TBI	4-3
REMOVAL & INSTALLATION	10-26	V6 AND V8 - MPI	4-9
DRIVESHAFT HOUSING - BRAVO	11-18	ENGINE AND DRIVE MAINTENANCE	2-2
DESCRIPTION	11-18	BELTS	2-8
DISASSEMBLY & ASSEMBLY	11-23	COMPRESSION	2-20
DRIVESHAFT HOUSING	11-19	FLAME ARRESTOR	2-3
EXPLODED VIEWS	11-19	FUEL FILTER	2-6
GEAR RATIO IDENTIFICATION	11-18	IDLE SPEED AND MIXTURE	2-27
REMOVAL & INSTALLATION	11-19	IGNITION TIMING	2-25
BRAVO I/II/Z/XR/XZ	11-19	IMPELLER	2-16
BRAVO III/X	11-22	PCV VALVE	2-29
DRIVESHAFT OIL SEAL CARRIER	10-24	PROPELLER	2-29
REMOVAL & INSTALLATION	10-24	SEAWATER STRAINER	2-16
DUAL POWER TRIM SYSTEM	13-22	SERIAL NUMBER IDENTIFICATION	2-2
DIODE MODULE REPLACEMENT	13-23	SPARK PLUG WIRES	2-25
RELAY REPLACEMENT	13-23	SPARK PLUGS	2-20
TESTING	13-22	THERMOSTAT	2-12
DIODE MODULE	13-23	VALVE ADJUSTMENT	2-29
GENERAL	13-22	WATER PUMP	2-16
PORT TRIM SWITCH	13-23	ENGINE BLOCK	5-9
RELAY NO. 1	13-22	ASSEMBLY	5-13
RELAY NO. 2	13-23	DISASSEMBLY	5-10
STARBOARD TRIM SWITCH	13-23	GENERAL INFORMATION	5-9
TRAILER SWITCH	13-23	INSPECTION	5-11
TRIM CONTROL SWITCH REPLACEMENT	13-24	REFINISHING	5-13
ECM	7-20	ENGINE COOLANT TEMPERATURE SENSOR (ECT)	7-20
REMOVAL & INSTALLATION	7-20	REMOVAL & INSTALLATION	7-20
ECM PIN LOCATIONS		ENGINE COUPLER	
MPI	7-55	4 CYL	3-11
TBI	7-41	V6 AND V8	4-31
ELECTRIC FUEL PUMP		ENGINE IDENTIFICATION	
CARB	6-26	4 CYL	3-2
EFI	7-13	ALL V6/V8 EXC. 8.1L V8	4-2
ELECTRICAL COMPONENTS	9-2	8.1L V8 ENGINES	4-2
ELECTRONIC CONTROL MODULE (ECM)	7-20	ENGINE MECHANICAL - 4 CYL	3-2
REMOVAL & INSTALLATION	7-20	CAMSHAFT, BEARINGS AND GEAR	3-13
ELECTRONIC FUEL INJECTION	7-4	COMBINATION MANIFOLD	3-7

CYLINDER HEAD	3-15	FIRST AID KIT	1-10
CYLINDER HEAD COVER	3-5	OAR/PADDLE	1-10
ENGINE	3-2	TOOLS AND SPARE PARTS	1-12
ENGINE COUPLER AND FLYWHEEL	3-11	VHF-FM RADIO	1-10
ENGINE IDENTIFICATION	3-2	EXHAUST BELLOWS	
EXHAUST ELBOW	3-9	ALPHA	10-38
EXHAUST HOSE (BELLOWS)	3-9	BRAVO	11-36
EXHAUST PIPE(S)	3-9	EXHAUST ELBOW	
EXHAUST VALVE (FLAPPER/SHUTTER)	3-9	4 CYL	3-9
FRONT COVER AND OIL SEAL	3-12	V6 AND V8	4-25
FRONT ENGINE MOUNTS	3-4	EXHAUST HOSE (BELLOWS)	
GENERAL INFORMATION	3-2	4 CYL	3-9
HYDRAULIC VALVE LIFTER	3-7	V6 AND V8	4-26
OIL FILTER BYPASS VALVE	3-11	EXHAUST MANIFOLD	4-22
OIL PAN	3-10	REMOVAL & INSTALLATION	4-22
OIL PUMP	3-10	EXHAUST PIPE(S)	
PUSH ROD COVER	3-5	4 CYL	3-9
REAR ENGINE MOUNTS	3-5	V6 AND V8	4-27
REAR MAIN SEAL	3-11	EXHAUST RISER	4-25
ROCKER ARMS AND PUSH RODS	3-6	REMOVAL & INSTALLATION	4-25
TORSIONAL DAMPER	3-12	EXHAUST TUBE	11-36
ENGINE MECHANICAL - V6/V8	4-2	REMOVAL & INSTALLATION	11-36
BALANCE SHAFT	4-34	EXHAUST VALVE	
CAMSHAFT	4-34	4 CYL	3-9
CRANKSHAFT PULLEY/TORSIONAL DAMPER	4-32	V6 AND V8	4-28
CYLINDER HEAD	4-36	EXPLODED VIEWS	
CYLINDER HEAD COVER	4-13	3.0L	3-16
ENGINE	4-3	4.3L V6	4-39
ENGINE COUPLER & FLYWHEEL	4-31	5.0L, 5.7L & 6.2L V8	4-41
ENGINE IDENTIFICATION	4-2	8.1L V8	4-44
EXHAUST ELBOW/RISER	4-25	BRAVO	11-38
EXHAUST HOSES (BELLOWS) AND INTERMEDIATE EXHAUST PIPE	4-26	PRECISION PILOT	15-28
EXHAUST MANIFOLD	4-22	FASTENERS, MEASUREMENTS AND CONVERSIONS	1-26
EXHAUST VALVE (FLAPPER/SHUTTER)	4-28	BOLTS, NUTS AND OTHER THREADED RETAINERS	1-26
FRONT COVER AND OIL SEAL	4-32	TORQUE	1-27
FRONT ENGINE MOUNTS	4-13	STANDARD AND METRIC MEASUREMENTS	1-27
GENERAL INFORMATION	4-2	FIRING ORDERS	2-65
HYDRAULIC VALVE LIFTER	4-16	FLAME ARRESTOR	2-3
INTAKE MANIFOLD	4-18	DESCRIPTION & OPERATION	2-3
LOWER EXHAUST PIPE (Y-PIPE)	4-27	REMOVAL & INSTALLATION	2-4
OIL FILTER BYPASS VALVE	4-30	FLAPPER VALVE	
OIL PAN	4-28	4 CYL	3-9
OIL PUMP	4-29	V6 AND V8	4-28
REAR MAIN SEAL	4-37	FLOW DIAGRAMS	8-8
REAR MAIN SEAL RETAINER	4-38	INDEX	8-8
ROCKER ARMS AND PUSH RODS	4-14	FLUIDS AND LUBRICANTS	2-32
TIMING CHAIN AND SPROCKETS/GEARS	4-33	COOLING SYSTEM	2-38
WATER (ENGINE) CIRCULATING PUMP	4-38	FLUID DISPOSAL	2-32
ENGINE OIL	2-32	FUEL AND OIL RECOMMENDATIONS	2-32
OIL LEVEL CHECK	2-33	POWER STEERING	2-37
OIL & FILTER CHANGE	2-34	POWER TRIM PUMP	2-53
ENGINE OVERHAUL TIPS	5-3	STERN DRIVE UNIT	2-50
CLEANING	5-3	TRANSMISSION FLUID	2-49
OVERHAUL TIPS	5-3	FLYWHEEL	
REPAIRING DAMAGED THREADS	5-4	4 CYL	3-11
TOOLS	5-3	V6 AND V8	4-31
ENGINE PREPARATION	5-4	FRONT COVER AND OIL SEAL	
ENGINE RECONDITIONING	5-2	4 CYL	3-12
BUY OR REBUILD?	5-3	V6 AND V8	4-32
CYLINDER HEAD	5-5	FRONT ENGINE MOUNTS	
DETERMINING ENGINE CONDITION	5-2	4 CYL	3-4
ENGINE BLOCK	5-9	V6 AND V8	4-13
ENGINE OVERHAUL TIPS	5-3	FRONT SAFETY GUARD	15-29
ENGINE PREPARATION	5-4	REMOVAL & INSTALLATION	15-29
ENGINE START-UP AND BREAK-IN	5-15	FUEL - CARB	6-2
ENGINE START-UP AND BREAK-IN	5-15	ALCOHOL-BLENDED FUELS	6-2
BREAKING IT IN	5-16	HIGH ALTITUDE OPERATION	6-2
KEEP IT MAINTAINED	5-16	OCTANE RATING	6-2
STARTING THE ENGINE	5-15	RECOMMENDATIONS	6-2
EQUALIZER	15-29	VAPOR PRESSURE	6-2
REMOVAL & INSTALLATION	15-29	FUEL - EFI	7-2
EQUIPMENT (NOT REQUIRED BUT RECOMMENDED)	1-10	ALCOHOL-BLENDED FUELS	7-2
ANCHORS	1-10	OCTANE RATING	7-2
BAILING DEVICES	1-10	RECOMMENDATIONS	7-2
COMPASS	1-10	VAPOR PRESSURE	7-2

15-34 REMOTE CONTROLS

FUEL AND COMBUSTION - CARB	6-2	GIMBAL HOUSING/TRANSOM PLATE	
COMBUSTION	6-2	ALPHA	10-44
FUEL	6-2	BRAVO	11-43
FUEL AND COMBUSTION - EFI	7-2	GIMBAL RING	
COMBUSTION	7-2	ALPHA	10-41
FUEL	7-2	BRAVO	11-41
FUEL SYSTEM APPLICATIONS	7-3	HAND TOOLS	1-19
FUEL AND OIL RECOMMENDATIONS	2-32	HEAT EXCHANGER	8-4
FUEL	2-32	CLEANING	8-4
ENGINE OIL	2-32	REMOVAL, DISASSEMBLY & INSTALLATION	8-4
FUEL BOOST PUMP (ELECTRIC)	7-13	TESTING	8-5
REMOVAL & INSTALLATION	7-13	HOW TO USE THIS MANUAL	1-2
FUEL FILTER	2-6	AVOIDING COMMON MISTAKES	1-3
FUEL INLET	2-7	AVOIDING TROUBLE	1-2
FUEL PUMP	2-6	CAN YOU DO IT?	1-2
INLINE	2-7	DIRECTIONS AND LOCATIONS	1-2
WATER SEPARATING	2-7	MAINTENANCE OR REPAIR?	1-2
FUEL GAUGE	9-36	PROFESSIONAL HELP	1-3
FUEL INJECTORS	7-14	PURCHASING PARTS	1-3
REMOVAL & INSTALLATION	7-14	WHERE TO BEGIN	1-2
FUEL METER COVER	7-13	HYDRAULIC VALVE LIFTER	
REMOVAL & INSTALLATION	7-13	4 CYL	3-7
FUEL PRESSURE REGULATOR	7-13	V6 AND V8	4-16
REMOVAL & INSTALLATION	7-13	IDLE AIR CONTROL VALVE (IAC)	7-20
FUEL PUMP		REMOVAL & INSTALLATION	7-20
ELECTRIC		IDLE SPEED AND MIXTURE	2-27
CARB	6-26	IGNITION COIL	
EFI	7-13	DEI	9-35
MECHANICAL	6-24	DIS	9-35
FUEL PUMP RELAY	7-13	EST	9-29
REMOVAL & INSTALLATION	7-13	IGNITION MODULE	9-32
FUEL RAIL AND INJECTORS	7-14	IGNITION SYSTEMS	9-23
INJECTOR BALANCE TEST	7-16	APPLICATIONS	9-23
REMOVAL & INSTALLATION	7-14	GENERAL INFORMATION	9-23
FUEL SYSTEM		IGNITION SWITCH	9-41
CARBURETED	6-3	IGNITION TIMING	2-25
EFI	7-4	IMPELLER	
EFI APPLICATIONS	7-3	DISASSEMBLY & ASSEMBLY	8-5
FUEL TANK SENDING UNIT	9-40	ALPHA DRIVES	8-5
GEAR HOUSING - ALPHA	10-5	BRAVO/INBOARD - CARB & TBI	8-5
ASSEMBLY	10-13	BRAVO/INBOARD - MPI	8-6
COUNTER ROTATION	10-17	OUTPUT TEST	8-7
STANDARD ROTATION	10-13	REMOVAL & INSTALLATION	
CLEANING AND INSPECTION	10-13	ALPHA	2-16
DESCRIPTION	10-5	BRAVO	2-18
DISASSEMBLY	10-6	INBOARD	2-18
COUNTER ROTATION	10-11	IMPELLER - PRECISION PILOT	15-29
STANDARD ROTATION	10-6	REMOVAL & INSTALLATION	15-29
DRIVESHAFT OIL SEAL CARRIER	10-24	INSTRUMENTS AND GAUGES	9-36
GEAR HOUSING (LOWER UNIT)	10-5	BATTERY GAUGE	9-37
PROPELLER	10-21	CRUISELOG METER	9-38
REMOVAL & INSTALLATION	10-5	FUEL GAUGE	9-36
SEA WATER PUMP & IMPELLER	10-23	OIL AND TEMPERATURE GAUGES	9-36
GEAR HOUSING - BRAVO I/II/X/XR/XZ	11-4	SPEEDOMETER	9-38
ASSEMBLY	11-10	TACHOMETER	9-38
CLEANING AND INSPECTION	11-9	VACUUM GAUGE	9-39
DESCRIPTION	11-4	INTAKE MANIFOLD	4-18
DISASSEMBLY	11-5	REMOVAL & INSTALLATION	4-18
GEAR HOUSING	11-4	JOYSTICK	15-29
PROPELLER(S)	11-18	REMOVAL & INSTALLATION	15-29
DISASSEMBLY	11-5	KNOCK CONTROL MODULE	9-32
REMOVAL & INSTALLATION	11-4	KNOCK SENSOR (KS)	7-22
GEAR HOUSING - BRAVO III	11-4	REMOVAL & INSTALLATION	7-22
ASSEMBLY	11-16	KNOCK SENSOR MODULE	7-22
CLEANING AND INSPECTION	11-16	REMOVAL & INSTALLATION	7-22
DESCRIPTION	11-4	LANYARD STOP SWITCH	9-42
DISASSEMBLY	11-12	LOWER EXHAUST PIPE (Y-PIPE)	4-27
GEAR HOUSING	11-11	REMOVAL & INSTALLATION	4-27
PROPELLER(S)	11-18	LOWER UNIT - ALPHA	10-5
REMOVAL & INSTALLATION	11-11	ASSEMBLY	10-13
GEAR LUBE MONITOR SWITCH	9-43	COUNTER ROTATION	10-17
GEAR RATIO IDENTIFICATION	10-25	STANDARD ROTATION	10-13
GIMBAL BEARING		CLEANING AND INSPECTION	10-13
ALPHA	10-34	DESCRIPTION	10-5
BRAVO	11-32	DISASSEMBLY	10-6

COUNTER ROTATION	10-11	REMOVAL & INSTALLATION	6-9
STANDARD ROTATION	10-6	MOTORS - PRECISION PILOT	15-30
DRIVESHAFT OIL SEAL CARRIER	10-24	REMOVAL & INSTALLATION	15-30
GEAR HOUSING (LOWER UNIT)	10-5	OIL AND TEMPERATURE GAUGES	9-36
PROPELLER	10-21	OIL FILTER BYPASS VALVE	
REMOVAL & INSTALLATION	10-5	4 CYL	3-11
SEA WATER PUMP & IMPELLER	10-23	V6 AND V8	4-30
LOWER UNIT - BRAVO I/II/X/XR/XZ	11-4	OIL PAN	
ASSEMBLY	11-10	4 CYL	3-10
CLEANING AND INSPECTION	11-9	V6 AND V8	4-28
DESCRIPTION	11-4	OIL PRESSURE SENDING UNIT	9-39
DISASSEMBLY	11-5	OIL PRESSURE SWITCH	9-42
GEAR HOUSING	11-4	OIL PRESSURE SWITCH/SENSOR	7-23
PROPELLER(S)	11-18	REMOVAL & INSTALLATION	7-23
DISASSEMBLY	11-5	OIL PUMP	
REMOVAL & INSTALLATION	11-4	4 CYL	3-10
LOWER UNIT - BRAVO III	11-4	V6 AND V8	4-29
ASSEMBLY	11-16	PANEL MOUNT REMOTE CONTROL	15-4
CLEANING AND INSPECTION	11-16	REMOVAL, DISASSEMBLY & INSTALLATION	15-4
DESCRIPTION	11-4	PCV VALVE	2-29
DISASSEMBLY	11-12	INSPECTION	2-29
GEAR HOUSING	11-11	REMOVAL & INSTALLATION	2-29
PROPELLER(S)	11-18	POWER STEERING	2-37
REMOVAL & INSTALLATION	11-11	BLEEDING THE SYSTEM	2-37
LUBRICATION POINTS	2-54	FLUID LEVEL	2-37
ENGINE COUPLER/U-JOINT SPLINES	2-56	POWER STEERING COOLER	14-15
PROPELLER SHAFT	2-57	REMOVAL & INSTALLATION	14-15
SHIFT CABLE AND TRANSMISSION LINKAGE PIVOT POINTS	2-54	POWER STEERING PUMP	14-12
STARTER MOTOR	2-57	BLEEDING	14-12
STEERING SYSTEM	2-55	DISASSEMBLY & ASSEMBLY	14-14
THROTTLE CABLE	2-54	FLOW CONTROL VALVE SERVICE	14-13
TRANSOM AND GIMBAL ASSEMBLY, HINGE PINS AND GIMBAL BEARING	2-56	FLUID LEVEL	14-12
MAIN POWER RELAY	7-23	OIL SEAL REPLACEMENT	14-14
REMOVAL & INSTALLATION	7-23	PUMP PULLEY	14-13
MAINTENANCE INTERVALS		REMOVAL & INSTALLATION	14-12
3.0L	2-73	4 CYLINDER ENGINES	14-12
V6/V8 CARB/TBI	2-73	V6/V8 ENGINES (EXC. 8.1L)	14-12
4.3L, 5.0L, 5.7L & 6.2L MPI, STERN DRIVE	2-75	8.1L V8 ENGINES	14-13
5.0L, 5.7L & 6.2L MPI, INBOARD	2-76	POWER STEERING SYSTEM	14-4
8.1L MPI, STERN DRIVE	2-77	BOOSTER CYLINDER	14-11
8.1L MPI, INBOARD	2-78	CONTROL VALVE	14-9
MANIFOLD ABSOLUTE PRESSURE SENSOR (MAP/MAPT)	7-22	DESCRIPTION	14-4
REMOVAL & INSTALLATION	7-22	POWER STEERING COOLER	14-15
MANUAL STEERING SYSTEM	14-2	POWER STEERING PUMP	14-12
GENERAL INFORMATION	14-2	POWER STEERING UNIT	14-8
STEERING CABLE	14-2	STEERING CABLE	14-6
SWIVEL RING	14-2	STEERING CABLE GUIDE TUBE	14-8
MEASURING TOOLS	1-24	TESTING	14-4
DEPTH GAUGES	1-26	TIE BAR - MULTIPLE DRIVES	14-16
DIAL INDICATORS	1-25	POWER STEERING UNIT	14-8
MICROMETERS & CALIPERS	1-25	GENERAL INFORMATION	14-8
TELESCOPING GAUGES	1-26	REMOVAL & INSTALLATION	14-8
MECHANICAL FUEL PUMP	6-24	POWER TRIM PUMP	2-53
DESCRIPTION	6-24	PRECISION PILOT	15-26
FUEL LINE TEST	6-25	CONTROLLER	15-39
PRESSURE TEST	6-25	EQUALIZER	15-29
REMOVAL & INSTALLATION	6-25	EXPLODED VIEWS	15-28
MERCARB 2BBL CARB	6-8	FRONT SAFETY GUARD	15-29
ADJUSTMENT	6-9	IMPELLER	15-29
ACCELERATOR PUMP LEVER	6-9	JOYSTICK	15-29
CHOKE SETTING	6-11	MOTORS	15-30
CHOKE UNLOADER	6-11	REAR SAFETY GUARD	15-30
FLOAT LEVEL AND DROP	6-11	TROUBLESHOOTING	15-26
IDLE SPEED & MIXTURE	6-10	WIRING SCHEMATICS	15-30
PUMP ROD	6-10	PROPELLER	2-29
THROTTLE CABLE	6-10	GENERAL INFORMATION	
ASSEMBLY	6-16	ALPHA	10-21
MODELS W/O TKS	6-16	BRAVO	11-18
MODELS W/TKS	6-17	INSPECTION	10-23
CLEANING & INSPECTION	6-16	REMOVAL & INSTALLATION	2-29
DESCRIPTION	6-8	ALPHA, BRAVO I/II	2-29
DISASSEMBLY	6-12	BRAVO III	2-31
MODELS W/O TKS	6-12	PUMP ASSEMBLY	13-9
MODELS W/TKS	6-15	FLUID LEVEL	13-9
		DISASSEMBLY & ASSEMBLY	13-10

15-36 REMOTE CONTROLS

GENERAL INFORMATION	13-9
REMOVAL & INSTALLATION	13-9
PUSH ROD COVER	3-5
REMOVAL & INSTALLATION	3-5
PUSH RODS	
REMOVAL & INSTALLATION	
4 CYL	3-6
V6 AND V8	4-14
VALVE ADJUSTMENT	
4 CYL	3-6
V6 AND V8	4-15
REAR ENGINE MOUNTS	3-5
REMOVAL & INSTALLATION	3-5
REAR MAIN SEAL	
4 CYL	3-11
V6 AND V8	4-37
REAR MAIN SEAL RETAINER	4-38
REMOVAL & INSTALLATION	4-38
REAR SAFETY GUARD	15-30
REMOVAL & INSTALLATION	15-30
REGULATIONS FOR YOUR BOAT	1-4
CAPACITY INFORMATION	1-4
CERTIFICATE OF COMPLIANCE	1-4
DOCUMENTING OF VESSELS	1-4
HULL IDENTIFICATION NUMBER	1-4
LENGTH OF BOATS	1-4
NUMBERING OF VESSELS	1-4
REGISTRATION OF BOATS	1-4
SALES AND TRANSFERS	1-4
VENTILATION	1-5
VENTILATION SYSTEMS	1-5
RELIEVING FUEL PRESSURE	7-9
MPI ENGINES	7-9
TBI ENGINES	7-9
REQUIRED SAFETY EQUIPMENT	1-5
FIRE EXTINGUISHERS	1-6
PERSONAL FLOTATION DEVICES	1-7
SOUND PRODUCING DEVICES	1-8
TYPES OF FIRES	1-5
VISUAL DISTRESS SIGNALS	1-8
WARNING SYSTEM	1-7
ROCKER ARMS	
REMOVAL & INSTALLATION	
4 CYL	3-6
V6 AND V8	4-14
VALVE ADJUSTMENT	
4 CYL	3-6
V6 AND V8	4-15
ROCKER ARMS AND PUSH RODS	4-14
VALVE ADJUSTMENT - 5.0L, 5.7L, 6.2L V8	4-15
ROTOR/SENSOR WHEEL	9-31
SAFETY IN SERVICE	1-12
DO'S	1-12
DON'TS	1-12
SAFETY TOOLS	1-16
SEAWATER PUMP	
DISASSEMBLY & ASSEMBLY	8-5
ALPHA DRIVES	8-5
BRAVO/INBOARD - CARB & TBI	8-5
BRAVO/INBOARD - MPI	8-6
OUTPUT TEST	8-7
REMOVAL & INSTALLATION	
ALPHA	2-16
BRAVO	2-18
INBOARD	2-18
SEAWATER STRAINER	
CLEANING & INSPECTION	2-16
REMOVAL & INSTALLATION	8-5
SENDING UNITS AND SWITCHES	9-39
AUDIO WARNING SYSTEM	9-42
EMERGENCY (LANYARD) STOP SWITCH	9-42
FUEL TANK SENDING UNIT	9-40
IGNITION SWITCH	9-41
OIL PRESSURE SENDING UNIT	9-39
OIL PRESSURE SWITCH	9-42

START/STOP SWITCH	9-42
STERN DRIVE GEAR LUBE MONITOR SWITCH	9-43
TRANSMISSION FLUID TEMPERATURE SWITCH	9-43
WATER TEMPERATURE SENDER	9-39
WATER TEMPERATURE SWITCH	9-43
SENSOR	9-32
SERIAL NUMBER IDENTIFICATION	2-2
ENGINE	2-2
STERN DRIVE	2-2
TRANSMISSION	2-3
TRANSOM ASSEMBLY	2-3
SHIFT CABLE - ALPHA	10-34
ADJUSTMENT	10-36
REMOVAL & INSTALLATION	10-34
REMOTE CABLE	10-34
TRANSOM CABLE	10-35
SHIFT CABLE - BRAVO	11-33
ADJUSTMENT	11-35
REMOVAL & INSTALLATION	11-33
REMOTE CONTROL CABLE	11-33
TRANSOM CABLE	11-33
SHIFT CABLE - VELVET	12-2
ADJUSTMENT	12-2
EXCEPT 5000 SERIES	12-2
5000 SERIES	12-3
SHIFT CABLE - ZF/HURTH	12-6
ADJUSTMENT	12-7
GENERAL INFORMATION	12-6
SHIFT CUT-OUT SWITCH	10-37
ADJUSTMENT	10-37
SHOP EQUIPMENT	1-16
CHEMICALS	1-17
SAFETY TOOLS	1-16
SHUTTER VALVE	
4 CYL	3-9
V6 AND V8	4-28
SINGLE HANDLE CONSOLE MOUNT REMOTE CONTROL	15-4
REMOVAL, DISASSEMBLY & INSTALLATION	15-4
SMARTCRAFT DIGITAL THROTTLE & SHIFT (DTS)	15-2
DESCRIPTION & OPERATION	15-2
DUAL HANDLE CONSOLE MOUNT REMOTE CONTROL	15-5
ELECTRONIC SHIFT CONTROL (ESC)	15-3
ELECTRONIC THROTTLE CONTROL (ETC)	15-4
PANEL MOUNT REMOTE CONTROL	15-4
SINGLE HANDLE CONSOLE MOUNT REMOTE CONTROL	15-4
WIRING SCHEMATICS - 10-PIN	15-6
WIRING SCHEMATICS - 14-PIN	15-9
SPARK PLUG WIRES	2-25
REMOVAL & INSTALLATION	2-25
TESTING	2-25
SPARK PLUGS	2-20
HEAT RANGE	2-21
INSPECTION & GAPPING	2-25
READING	2-22
REMOVAL & INSTALLATION	2-21
SERVICE	2-21
SPECIFICATIONS	
ALTERNATOR	9-74
CAPACITIES	2-71
CARB APPLICATIONS	6-3
CARB - 2 BBL MERCARB	6-30
CARB - 4 BBL WEBER	6-30
CONVERSION FACTORS	1-27
EFI APPLICATIONS	7-3
ENGINE	
3.0L	3-19
4.3L V6	4-49
5.0L & 5.7L V8	4-50
6.2L V8	4-52
8.1L V8	4-54
APPLICATIONS	2-67
IGNITION APPLICATIONS	9-23
MAINTENANCE INTERVALS	2-73
METRIC BOLTS	1-28
PRESSURE - VELVET	12-10

STARTER.....	9-74	ENGINES.....	7-50
STERNDRIVE APPLICATIONS		GENERAL DIAGNOSTIC TESTS - 8.1L MPI ENGINES.....	7-54
ALPHA.....	10-48	INTERMITTENT FAULTS.....	7-46
BRAVO.....	11-47	PRECAUTIONS.....	7-46
TORQUE		TROUBLESHOOTING.....	7-47
3.0L.....	3-18	WIRING SCHEMATICS.....	7-57
4.3L V6.....	4-46	SWIVEL RING - MANUAL.....	14-2
5.0L, 5.7L & 6.2L V8.....	4-47	DISASSEMBLY & ASSEMBLY.....	14-3
8.1L V8.....	4-48	REMOVAL & INSTALLATION.....	14-2
EFI ENGINES.....	7-68	TACHOMETER.....	9-38
ALPHA.....	10-47	TEST EQUIPMENT.....	9-4
BRAVO.....	11-46	THERMOSTAT.....	2-12
INBOARDS.....	12-10	REMOVAL & INSTALLATION.....	2-13
TRANSMISSION ID.....	2-3	TESTING.....	2-16
TUNE-UP.....	2-69	THROTTLE BODY.....	7-17
U.S. STANDARD BOLTS.....	1-28	REMOVAL & INSTALLATION.....	7-17
SPEEDOMETER.....	9-38	THROTTLE CABLE ADJUSTMENT.....	7-19
SPRING COMMISSIONING.....	2-65	THROTTLE BODY ADAPTER PLATE.....	7-19
CHECKLIST.....	2-65	REMOVAL & INSTALLATION.....	7-19
STANDARD POWER TRIM AND TILT.....	13-2	THROTTLE CABLE	
DESCRIPTION & OPERATION.....	13-2	MERCARB 2 BBL.....	6-10
DUAL POWER TRIM SYSTEM.....	13-22	EFI.....	7-19
PUMP ASSEMBLY.....	13-9	WEBER 4 BBL.....	6-20
SERVICE PRECAUTIONS.....	13-6	THROTTLE POSITION SENSOR (TP).....	7-22
SYSTEM BLEEDING.....	13-7	REMOVAL & INSTALLATION.....	7-22
SYSTEM TESTING.....	13-7	THUNDERBOLT V IGNITION SYSTEM.....	9-29
TRIM CYLINDER.....	13-17	DESCRIPTION.....	9-29
TRIM LIMIT SWITCH/TRIM POSITION SENDER.....	13-8	DISTRIBUTOR.....	9-32
TROUBLESHOOTING.....	13-3	DISTRIBUTOR CAP.....	9-31
START/STOP SWITCH.....	9-42	IGNITION OR KNOCK CONTROL MODULES.....	9-32
STARTER CIRCUIT.....	9-17	ROTOR/SENSOR WHEEL.....	9-31
DESCRIPTION AND OPERATION.....	9-17	SENSOR.....	9-32
STARTER MOTOR.....	9-17	TROUBLESHOOTING.....	9-30
TROUBLESHOOTING.....	9-17	TIE BAR - MULTIPLE DRIVES.....	14-16
STARTER MOTOR.....	9-17	INSTALLATION.....	14-16
DESCRIPTION & OPERATION.....	9-17	PORT CABLE.....	14-17
DISASSEMBLY & ASSEMBLY.....	9-20	STARBOARD CABLE.....	14-16
PRECAUTIONS.....	9-18	TIE BAR LENGTH.....	14-16
REMOVAL & INSTALLATION.....	9-20	TIMING CHAIN AND SPROCKETS/GEARS.....	4-33
TESTING.....	9-19	REMOVAL & INSTALLATION.....	4-33
STEERING CABLE - MANUAL.....	14-2	TOOLS.....	1-18
REMOVAL & INSTALLATION.....	14-2	ELECTRONIC TOOLS.....	1-23
STEERING CABLE - POWER.....	14-6	HAND TOOLS.....	1-19
REMOVAL & INSTALLATION.....	14-6	MEASURING TOOLS.....	1-24
STEERING CABLE GUIDE TUBE - POWER.....	14-8	OTHER COMMON TOOLS.....	1-22
REMOVAL & INSTALLATION.....	14-8	SPECIAL TOOLS.....	1-23
STEERING UNIT - COMPACT.....	14-18	TORSIONAL DAMPER.....	3-12
REMOVAL & INSTALLATION.....	14-18	4 CYL.....	3-12
STERN DRIVE UNIT - ALPHA.....	10-2	V6 AND V8.....	4-32
CHECKING FOR WATER.....	2-51	TRANSMISSION - VELVET.....	12-5
DESCRIPTION.....	10-2	PRESSURE TEST.....	12-6
DRAIN AND REFILL.....	2-52	REMOVAL & INSTALLATION.....	12-5
FLUID LEVEL.....	2-50	EXCEPT 5000 SERIES.....	12-5
REMOVAL & INSTALLATION.....	10-3	5000 SERIES.....	12-5
STERN DRIVE UNIT.....	10-3	TRANSMISSION - ZF/HURTH.....	12-8
TROUBLESHOOTING.....	10-2	PRESSURE TEST.....	12-9
STERN DRIVE UNIT - BRAVO.....	11-2	REMOVAL & INSTALLATION.....	12-8
DESCRIPTION.....	11-2	TRANSMISSION FLUID.....	2-49
REMOVAL & INSTALLATION.....	11-2	DRAINING.....	2-49
STERN DRIVE UNIT.....	11-2	FLUID LEVEL.....	2-49
TROUBLESHOOTING.....	11-2	TRANSMISSION FLUID TEMPERATURE SWITCH.....	9-43
SYSTEM DIAGNOSIS - TBI ENGINES & EARLY 2001 MPI ENGINES 7-24		TRANSMISSION IDENTIFICATION	
DIAGNOSTIC TROUBLE CODE TEST SCHEMATICS.....	7-36	VELVET.....	12-2
DIAGNOSTIC TROUBLE CODES (DTC).....	7-28	ZF/HURTH.....	12-6
ECM PIN LOCATIONS & SYMPTOMS CHARTS.....	7-41	TRANSOM ASSEMBLY - ALPHA.....	10-34
GENERAL DIAGNOSTIC TEST SCHEMATICS.....	7-26	BELL HOUSING.....	10-40
GENERAL DIAGNOSTIC TESTS.....	7-25	DESCRIPTION.....	10-34
INTERMITTENT FAULTS.....	7-24	EXHAUST BELLOWS.....	10-38
PRECAUTIONS.....	7-24	GIMBAL BEARING.....	10-34
VACUUM DIAGRAMS.....	7-39	GIMBAL HOUSING.....	10-44
WIRING SCHEMATICS.....	7-39	GIMBAL RING.....	10-41
SYSTEM DIAGNOSIS - 2001-06 MPI ENGINES.....	7-45	SHIFT CABLE.....	10-34
ECM PIN LOCATIONS.....	7-55	SHIFT CUT-OUT SWITCH.....	10-37
GENERAL DIAGNOSTIC TESTS - 2001-06 4.3L, 5.0L, 5.7L & 6.2L MPI		TRANSOM PLATE.....	10-44
		U-JOINT BELLOWS.....	10-39

15-38 REMOTE CONTROLS

TRANSOM ASSEMBLY - BRAVO	11-32	BRAVO III/X	11-22
DESCRIPTION.....	11-32	VACUUM DIAGRAMS - TBI.....	7-39
EXHAUST BELLOWS	11-36	VACUUM GAUGE	9-39
EXHAUST TUBE	11-36	VALVE ADJUSTMENT	
EXPLODED VIEWS	11-38	4 CYL	3-6
GIMBAL BEARING.....	11-32	V6 AND V8	4-15
GIMBAL HOUSING/TRANSOM PLATE.....	11-43	VALVE LIFTER	
GIMBAL RING	11-41	4 CYL	3-7
SHIFT CABLE	11-33	V6 AND V8	4-16
U-JOINT BELLOWS.....	11-37	VELVET TRANSMISSIONS	12-2
WATER HOSE & FITTING	11-38	GENERAL INFORMATION	12-2
TRIM CYLINDER	13-17	IDENTIFICATION.....	12-2
DISASSEMBLY & ASSEMBLY.....	13-19	SHIFT CABLE	12-2
GENERAL INFORMATION	13-17	TRANSMISSION	12-5
REMOVAL & INSTALLATION	13-18	TRANSMISSION FLUID	12-2
TRIM LIMIT SWITCH/TRIM POSITION SENDER.....	13-8	SHIFT CABLE	12-2
ADJUSTMENT.....	13-8	WATER DISTRIBUTION HOUSING	8-7
TRIM LIMIT SWITCH	13-8	REMOVAL & INSTALLATION	8-7
TRIM POSITION SENDER.....	13-8	WATER HOSE & FITTING	11-38
GENERAL INFORMATION	13-8	REMOVAL & INSTALLATION.....	11-38
REMOVAL & INSTALLATION	13-8	WATER PUMP	
TROUBLE CODES (DTC) - TBI.....	7-28	DISASSEMBLY & ASSEMBLY.....	8-5
CLEARING CODES	7-29	ALPHA DRIVES	8-5
COOLING SYSTEM.....	8-2	BRAVO/INBOARD - CARB & TBI.....	8-5
READING CODES	7-28	BRAVO/INBOARD - MPI	8-6
TROUBLESHOOTING		OUTPUT TEST	8-7
ALPHA	10-2	REMOVAL & INSTALLATION	
BASIC OPERATING PRINCIPLES	1-13	ALPHA -	2-16
CARB - W/O TKS	6-4	BRAVO -	2-18
CHARGING SYSTEM	9-11	INBOARD -	2-18
COMBUSTION RELATED PISTON FAILURES	6-4	WATER (ENGINE) CIRCULATING PUMP.....	4-38
ELECTRICAL SYSTEM.....	9-6	REMOVAL & INSTALLATION	4-38
EST	9-25	WATER TEMPERATURE SENDER.....	9-39
ENGINES OVERHEATS - CLOSED SYSTEM	8-2	WATER TEMPERATURE SWITCH	9-43
ENGINE OVERHEATS - MECHANICAL.....	8-2	WEBER WFB 4BBL CARB	6-17
ENGINE OVERHEATS - SEAWATER SYSTEM	8-2	ADJUSTMENT.....	6-18
EST	9-25	ACCELERATOR PUMP LEVER.....	6-18
POWER TRIM	13-3	ACCELERATOR PUMP	6-18
PRECISION PILOT	15-26	ELECTRIC CHOKE	6-18
STARTER.....	9-18	FLOAT LEVEL AND DROP	6-18
STARTING SYSTEM	9-17	IDLE SPEED & MIXTURE	6-19
THUNDERBOLT	9-30	PORTED VACUUM SWITCH (PVS).....	6-19
TKS DIAGNOSTICS	6-4	THROTTLE CABLE	6-20
WATER IN CYLINDERS	8-2	DESCRIPTION.....	6-17
WATER IN OIL.....	8-2	DISASSEMBLY & ASSEMBLY.....	6-20
U-JOINT BELLOWS		REMOVAL & INSTALLATION	6-17
ALPHA	10-39	WIRE AND CONNECTOR REPAIR.....	9-8
BRAVO	11-37	WIRING DIAGRAMS	
UNDERSTANDING AND TROUBLESHOOTING ELECTRICAL SYSTEMS	9-2	3 BUTTON TRIM/TRAILER PANEL	13-25
BASIC ELECTRICAL THEORY.....	9-2	AUTO TRIM II SYSTEM	13-27
ELECTRICAL COMPONENTS	9-2	DUAL POWER TRIM	13-26
TEST EQUIPMENT	9-4	HANDLE AND SEPARATE TRAILER SWITCH.....	13-25
TROUBLESHOOTING THE ELECTRICAL SYSTEM	9-6	MAIN SYSTEM INDEX	9-44
WIRE AND CONNECTOR REPAIR.....	9-8	MPI SYSTEM.....	7-57
UPPER UNIT - ALPHA	10-25	PRECISION PILOT	15-30
DESCRIPTION.....	10-25	SMARTCRAFT DTS (10-PIN).....	15-6
DISASSEMBLY & ASSEMBLY.....	10-26	SMARTCRAFT DTS (14-PIN).....	15-9
DRIVEN GEAR/DRIVESHAFT	10-30	TBI SYSTEM	7-39
EXPLODED VIEWS	10-26	TKS SYSTEM - 3.0L	6-27
U-JOINT/DRIVE GEAR	10-26	TKS SYSTEM - 4.3L/5.0L W/ALPHA.....	6-28
GEAR RATIO IDENTIFICATION.....	10-25	TKS SYSTEM - 5.0L/5.7L W/BRAVO	6-29
PRE-LOAD AND SHIM ADJUSTMENTS.....	10-32	TRIM UP RELAY CIRCUIT	13-27
DRIVEN GEAR SHIMMING	10-33	WINTER STORAGE	2-63
DRIVE (PINION) GEAR SHIMMING	10-33	CHECKLIST.....	2-63
GENERAL INFORMATION.....	10-32	Y-PIPE	4-27
UPPER DRIVESHAFT BEARING PRELOAD	10-32	REMOVAL & INSTALLATION	4-27
REMOVAL & INSTALLATION	10-26	ZF/HURTH TRANSMISSIONS	12-6
UPPER UNIT - BRAVO	11-18	GENERAL INFORMATION	12-6
DESCRIPTION.....	11-18	IDENTIFICATION.....	12-6
DISASSEMBLY & ASSEMBLY.....	11-23	SHIFT CABLE	12-6
DRIVESHAFT HOUSING.....	11-19	TRANSMISSION	12-8
EXPLODED VIEWS	11-19	TRANSMISSION FLUID	12-6
GEAR RATIO IDENTIFICATION	11-18	ZINCS.....	2-59
REMOVAL & INSTALLATION.....	11-19	INSPECTION.....	2-59
BRAVO III/Z/XR/XZ	11-19	SERVICING	2-59