

TECUMSEH

TECHNICIAN'S HANDBOOK

This manual covers engine models:

ECV100 - 120, H22 - 80, HH40 - 70, HHM80, HM70 - 100,
HMSK70 - 110, HMXL70, HS40 - 50, HSK30 - 70, HSSK40 - 50,
HT30 - 35, HXL35, LAV30 - 50, LEV80 - 120, TNT100 - 120,
TVM125 - 220, TVXL170 - 220, TVS75 - 120, TVXL105 - 115,
V40 - 80, VH40 - 70, V60 - 70, VM70 - 100

Model numbers are located on the engine shroud.

3 TO 11 HP
4-CYCLE
L-HEAD
ENGINES



ENGINES & TRANSMISSIONS

CONTENTS

CHAPTER 1 GENERAL INFORMATION	1
ENGINE IDENTIFICATION	1
INTERPRETATION OF MODEL NUMBER	1
SHORT BLOCKS	2
FUEL	2
ENGINE OIL	3
TUNE-UP PROCEDURE	3
STORAGE	4
CHAPTER 2 AIR CLEANERS	5
GENERAL INFORMATION	5
OPERATION	5
COMPONENTS	5
TROUBLESHOOTING OR TESTING	5
SERVICE	6
DISASSEMBLY PROCEDURE	6
POLYURETHANE-TYPE FILTER ELEMENT	6
PAPER-TYPE FILTER ELEMENT	6
CHAPTER 3 CARBUREATORS AND FUEL SYSTEMS	7
GENERAL INFORMATION	7
OPERATION	8
FUEL PRIMERS	8
IMPULSE FUEL PUMPS	9
FLOAT STYLE CARBUREATORS	9
DIAPHRAGM (PRESSURE DIFFERENTIAL) CARBUREATORS	9
COMPONENTS	10
CARBURETOR IDENTIFICATION	11
DUAL SYSTEM CARBUREATORS	11
SERIES 1 CARBUREATORS	11
SERIES 3 & 4 CARBUREATORS	11
DIAPHRAGM CARBUREATORS	11
SERIES 6 CARBUREATORS 4-CYCLE	12
SERIES 8	12
SERIES 9	12
SERIES 10 (EMISSION)	12
SERIES 11	12
SERIES 11 BRIDGED	13
NON-TECUMSEH CARBUREATORS -- DELLORTO CARBURETOR	12
ENGINE TROUBLESHOOTING CHART	13
CARBURETION TROUBLESHOOTING CHART	14
TESTING	15
SERVICE	15
CARBURETOR PRE-SETS AND ADJUSTMENTS	15
FINAL ADJUSTMENTS (NON-EMISSION ENGINES)	16
NON-ADJUSTABLE CARBURETOR	16
DISASSEMBLY PROCEDURE	17
FLOAT STYLE CARBUREATORS	17
DIAPHRAGM CARBUREATORS	19
FLOAT ADJUSTING PROCEDURE	19
INSPECTION	20
ASSEMBLY	21
STANDARD SERVICE CARBUREATORS	24
CHAPTER 4 GOVERNORS AND LINKAGE	26
GENERAL INFORMATION	26
OPERATION	26
INTERNAL COMPONENTS (VARIOUS STYLES)	26
TROUBLESHOOTING	26
ENGINE OVERSPEEDING	27
ENGINE SURGING	27

SERVICE	27
GOVERNOR ADJUSTMENT	27
GOVERNOR ADJUSTMENT PROCEDURE FOR SHORT BLOCK INSTALLATIONS	27
GOVERNOR GEAR AND SHAFT SERVICE	28
SPEED CONTROLS AND LINKAGE	29
CHAPTER 5 REWIND STARTERS	35
GENERAL INFORMATION	35
OPERATION	35
COMPONENTS	35
SERVICE	35
ROPE SERVICE	35
RETAINER REPLACEMENT	36
STYLIZED REWIND STARTER (TVS, HM, TVM, TVXL), AND STAMPED STEEL STARTER (HM, VM, TVM, TVXL)	36
STYLIZED REWIND STARTER WITH PLASTIC RETAINER	37
STANDARD STAMPED STEEL AND CAST ALUMINUM STARTER (HM, VM)	38
VERTICAL PULL STARTER HORIZONTAL ENGAGEMENT TYPE	39
VERTICAL PULL STARTER VERTICAL ENGAGEMENT TYPE	40
CHAPTER 6 ELECTRICAL SYSTEMS	42
GENERAL INFORMATION	42
OPERATION	42
STARTING CIRCUIT AND ELECTRIC STARTERS	42
CHARGING CIRCUIT	42
CONVERTING ALTERNATING CURRENT TO DIRECT CURRENT	43
HALF WAVE RECTIFIER SINGLE DIODE	43
FULL WAVE RECTIFIER BRIDGE RECTIFIER	43
COMPONENTS	43
BATTERY	43
WIRING	43
ELECTRICAL TERMS	44
BASIC CHECKS	45
TROUBLESHOOTING ELECTRICAL STARTER CIRCUIT FLOW CHART	46
TROUBLESHOOTING ELECTRICAL CHARGING CIRCUIT FLOW CHART	47
TESTING PROCEDURE	48
STARTING CIRCUIT	48
CHARGING CIRCUIT	48
VOLTAGE REGULATIONS	56
LOW OIL SHUTDOWN SWITCHES	56
SERVICE	57
12 VOLT OR 120 VOLT ELECTRIC STARTERS WITH EXPOSED SHAFT	57
12 VOLT D.C. OR 120 VOLT A.C. ELECTRIC STARTERS WITH THE STARTER GEAR UNDER THE CAP ASSEMBLY	57
INSPECTION	58
CHAPTER 7 FLYWHEEL BRAKE SYSTEMS	59
GENERAL INFORMATION	59
OPERATION	59
BOTTOM SURFACE SYSTEM	59
INSIDE EDGE SYSTEM	60
COMPONENTS	60
SERVICE	61
FLYWHEEL REMOVAL	61
BRAKE LEVER AND PAD	61
IGNITION GOUNDOUT TERMINAL	61
STARTER INTERLOCK SWITCH	62
CONTROL CABLE	62
BRAKE BRACKET REPLACEMENT	62
CHAPTER 8 IGNITION	63
GENERAL INFORMATION	63
OPERATION	63
SOLID STATE IGNITION SYSTEM (CDI)	63
MAGNETO IGNITION SYSTEM (POINTS)	63

IDENTIFICATION OF TECUMSEH IGNITION SYSTEMS	64
COMPONENTS.....	64
IGNITION TROUBLESHOOTING	66
TESTING PROCEDURE	67
SERVICE	68
SPARK PLUG SERVICE	68
CONDITIONS CAUSING FREQUENT SPARK PLUG FOULING	68
IGNITION TIMING PROCEDURE	68
SERVICE TIPS	71
CHAPTER 9 INTERNAL ENGINE AND CYLINDER	72
GENERAL INFORMATION	72
OPERATION	72
4-CYCLE ENGINE THEORY	72
LUBRICATION SYSTEMS	73
COUNTERBALANCE SYSTEMS	73
COMPONENTS.....	74
ENGINE OPERATION PROBLEMS.....	75
TESTING	77
ENGINE KNOCKS	77
ENGINE OVERHEATS	77
SURGES OR RUNS UNEVENLY	77
ENGINE MISFIRES	77
ENGINE VIBRATES EXCESSIVELY	78
BREather PASSING OIL	78
EXCESSIVE OIL CONSUMPTION	78
LACKS POWER	78
SERVICE	79
DISASSEMBLY PROCEDURE	79
CYLINDERS	81
CYLINDER HEADS	82
PISTONS, RINGS AND CONNECTING RODS	82
CRANKSHAFTS AND CAMSHAFTS	84
VALVES	85
CRANKCASE BREATHERS	86
CYLINDER COVER, OIL SEAL, AND BEARING SERVICE	87
CRANKSHAFT BEARING SERVICE	88
COUNTERBALANCE SERVICE	89
FLYWHEEL SERVICE	89
CHAPTER 10 ENGINE SPECIFICATIONS	90
FOUR CYCLE TORQUE SPECIFICATIONS	91
ENGINE SPECIFICATIONS STANDARD POINT IGNITION	93
SOLID STATE AND EXTERNAL IGNITION	97
CHAPTER 11 EDUCATION MATERIALS AND TOOLS	102
DECIMAL / FRACTION CONVERSIONS	105
SEARS CRAFTSMAN CROSS REFERENCE SUPPLEMENT INCLUDED IN BACK OF BOOK	

