TECUMSEH

Basic Troubleshooting and Service Information

TECUMSEH®

ENGINES & TRANSMISSIONS

TABLE OF CONTENTS

The information in this guide is intended to assist individuals who are knowledgeable in basic engine repair and maintenance. If you are unfamiliar with two and four cycle engine operation and maintenance, DO NOT attempt any maintenance or repairs. Contact your local Tecumseh Servicing Dealer for assistance.

IMPORTANT NOTICE!

Safety Definitions

Statements in this manual preceded by the following words and graphics are of special significance:

Or

WARNING indicates a potentially hazardous situation which if not avoided, could result in death or serious injury.

NOTE
Refers to important information and is placed in italic type.

It is recommended that you take special notice of all items discussed on the next two pages and wear the appropriate safety equipment.

Before operating an engine *it is your responsibility* to read the Operator's Manual. Follow these basic rules for your personal safety:

- Keep this manual handy at all times for future reference.
- Read it carefully and familiarize yourself with operating, maintenance, components and safety instructions.

Notice Regarding Emissions

Engines which are certified to comply with California and U.S. EPA emission regulations for SORE (Small Off Road Equipment), are certified to operate on regular unleaded gasoline, and may include the following emission control systems: (EM) Engine Modification and (TWC) Three-Way Catalyst (if so equipped).

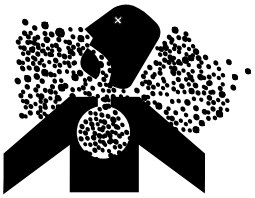
Tecumseh Contact Information

For engine adjustments, repairs or warranty service, contact your nearest Authorized Tecumseh Servicing Dealer. Find them on our website at www.TecumsehPower.com or call Tecumseh Power Company at 1-800-558-5402 or 262-377-2700 if you are located outside the U.S.

General Safety Precautions

A. Avoid Carbon Monoxide Poisoning

All engine exhaust contains carbon monoxide, a deadly gas. Breathing carbon monoxide can cause headaches, dizziness, drowsiness, nausea, confusion and eventually death.



Carbon monoxide is a colorless, odorless, tasteless gas which may be present even if you do not see or smell any engine exhaust. Deadly levels of carbon monoxide can collect rapidly and you can quickly be overcome and unable to save yourself. Also, deadly levels of carbon monoxide can linger for hours or days in enclosed or poorly-ventilated areas. If you experience any symptoms of carbon monoxide poisoning, leave the area immediately, get fresh air, and SEEK MEDICAL TREATMENT.

To prevent serious injury or death from carbon monoxide:

- NEVER run engine indoors. Even if you try to ventilate engine exhaust with fans or open windows and doors, carbon monoxide can rapidly reach dangerous levels.
- NEVER run engine in poorly-ventilated or partially enclosed areas such as barns, garages, basements, carports, under dwellings, or in pits.
- NEVER run engine outdoors where engine exhaust can be drawn into a building through openings such as windows and doors.

B. Avoid Gasoline Fires

Gasoline (fuel) vapors are highly flammable and can explode. Fuel vapors can spread and be ignited by a spark or flame many feet away from engine. To prevent injury or death from fuel fires, follow these instructions:

- NEVER store engine with fuel in fuel tank inside a building with potential sources of ignition such as hot water and space heaters, clothes dryers, electric motors, etc.
- NEVER remove fuel cap or add fuel when engine is running.
- NEVER start or operate the engine with fuel fill cap removed.
- Allow engine to cool before refueling.
- NEVER fill fuel tank indoors. Fill fuel tank outdoors in a well-ventilated area.
- DO NOT smoke while refueling tank.
- Use only an approved red GASOLINE container to store and dispense fuel. Tecumseh recommends purchasing gasoline in containers with a capacity of 2.5 gallons or less. Small containers are easier to handle and help eliminate spillage during refueling.
- DO NOT pour fuel from engine or siphon fuel by mouth.

C. Adult Supervision of Operation, Refueling and Maintenance

Not everyone who is allowed to use an engine is capable of safely and responsibly operating, maintaining and/or fueling it. Tecumseh recommends the following:

- An adult should fuel the engine. NEVER allow children to refuel an engine.
- An adult should perform maintenance on an engine. Only allow children to perform maintenance if an adult has determined they are experienced and capable of such operation.
- An adult should start the engine. Only allow children to start the engine if an adult has determined they are experienced and capable of such operation.

To avoid unsupervised operation of the engine, especially by children, NEVER leave it unattended when it is running.

D. Stay Away from Rotating Parts

NEVER operate an engine with an unguarded engine shaft.

The equipment manufacturer may attach a sprocket and chain or pulley and belt to the engine shaft. If these parts are not properly guarded, or if you are not sure whether they are properly guarded, DO NOT use your engine; contact the equipment manufacturer. Hands, feet, hair, jewelry, clothing, etc. can become entangled in rotating parts, leading to serious injury or death. To avoid serious injury or death, be sure the flywheel guard is in place.

General Information

The following information is being provided to assist you in locating and recording your engine model and specification numbers. This information will be needed to use this book or obtain parts from a local Tecumseh dealer.

Model Numbering System for Tecumseh's Full Engine Line 2004 Production and Later

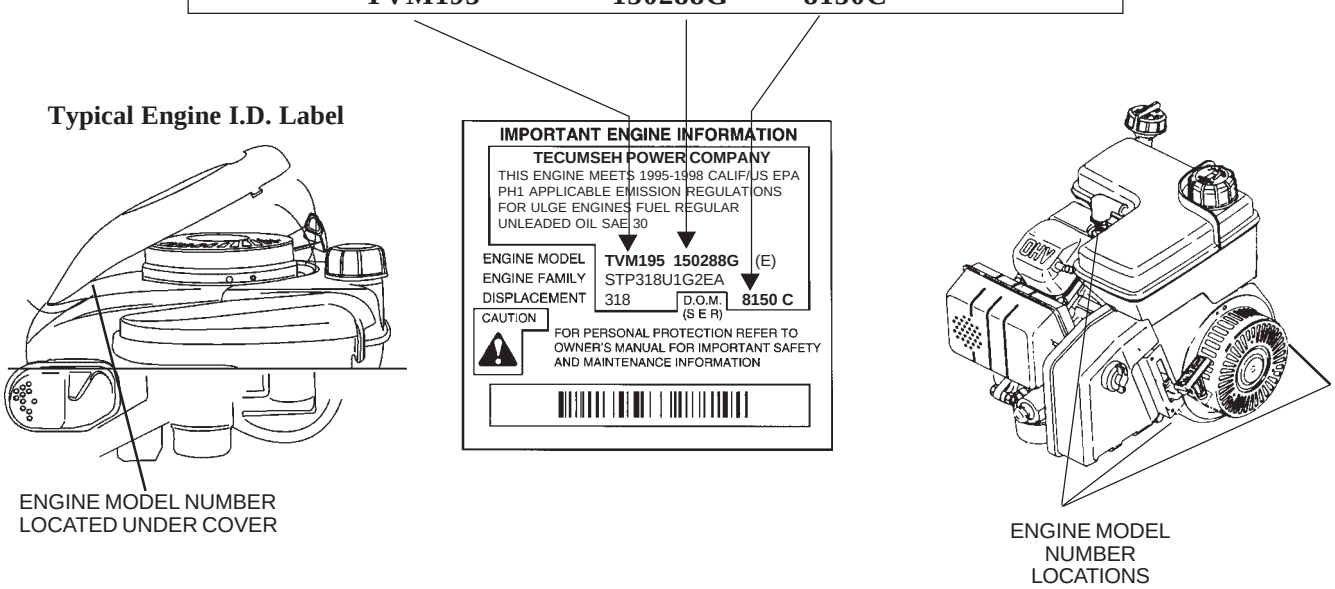
LOCATING AND READING ENGINE MODEL AND SPECIFICATION

THE FOLLOWING WILL BE NEEDED TO LOCATE PARTS FOR YOUR ENGINE.

	Model	Specification	(DOM)
ENGINE:	TVM195	150288G	8150C

ENGINE MODEL	SPEC NO.	D.O.M
TVM195	150288G	8150C

Typical Engine I.D. Label



Model Numbering System for Tecumseh's Full Engine Line 2004 Production and Later

Reviewing The Engine ID Label

Effective with the 2004 Model Year, we have changes to the engine I.D. label on our products. The following pages will explain the information contained on the label dependent on the age of your product.

Specification Number
The numbers following the model number make up the specification number.

Using model **LV195EA-361541B**, as an example, interpretation is as follows:

LV195EA-361541B is the model and specification number.

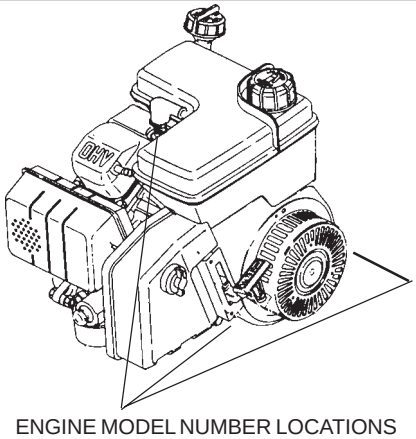
L V 195 E A - 361541B (B)

- Warranty Code
- Is the specification number used for properly identifying the parts of the engine
- Indicates a standard power configuration
- Indicates EPA/CARB compliant
- Indicates a 195 cc displacement
- Indicates a vertical shaft configuration
- Indicates an L-Head, side valve configuration

Date of Manufacture
The Date of Manufacture (D.O.M.) indicates the production date.

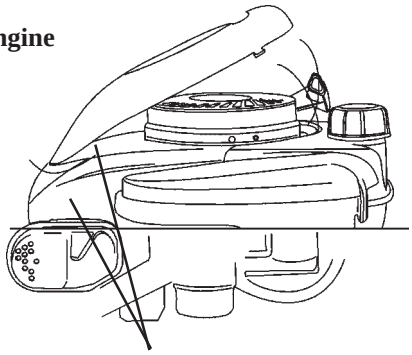
For this example, **03188BC0010** is the D.O.M. (Date of Manufacture).

Year	Day of Year	Mfg Facility	Assembly Line / Shift	Individual Serial # 10th unit built
2003	188th			
03	**188**	**B**	**C**	**0010**

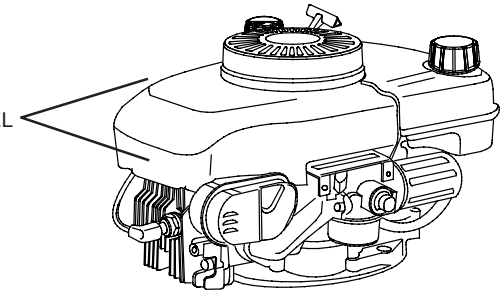


ENGINE MODEL NUMBER LOCATIONS

Typical Engine I.D. Label Locations



ENGINE MODEL NUMBER LOCATED UNDER COVER



ENGINE MODEL NUMBER LOCATIONS

Model Numbering System for Tecumseh's Full Engine Line 2004 Production and Later

CODE
1st Space - Valve Orientation
T = Two Cycle
O = Overhead Valve
L = L-Head
2nd Space - Crank Orientation
V = Vertical
H = Horizontal
M = Multi-position
3rd, 4th and 5th Space - Displacement in cc
6th Space - Emissions Class
E = 50 State/Global Emissions Compliant
X = Not for sale in California, except exempt applications
S = Snow Emission Compliant
7th Space - Engine Specifics
A = Standard
P = Powered Up

Model Conversion Chart

4-Cycle

LEV90 - LV148EA
LEV120 - LV195EA
HSSK50 - LH195SA
HSSK55 - LH195SP
VSK90 - LV148SA
OHV135 - OV358EA
OHV180 - OV490EA
TVT691 - OV691EA
VTX691 - OV691EP
OHH60 - OH195EA
OHH65 - OH195EP
OHSK70 - OH195SA
OHSK75 - OH195SP
HMSK90 - LH318SA
HMSK110 - LH358SA
OHSK110 - OH318SA
OHSK130 - OH358SA
OHM110 - OH318EA

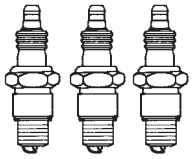
2-Cycle

TC300 - TM049XA
HSK870 - TH139SP
HSK600 - TH098SA
AV520 - TV085XA

4-Cycle Quick Reference - Model Letter Designation

ECH - Exclusive Craftsman Horizontal
ECV - Exclusive Craftsman Vertical
H - Horizontal Shaft
HH - Horizontal Heavy Duty (Cast Iron)
HHM - Horizontal Heavy Duty (Cast Iron) (Medium Frame)
HM - Horizontal Medium Frame
HMSK - Horizontal Medium Frame (Snow King)
HMXL - Horizontal Medium Frame (Extra Life)
HS - Horizontal Small Frame
HSSK - Horizontal Small Frame (Snow King)
HXL - Horizontal (Extra Life)
LAV - Lightweight Aluminum Frame Vertical
LEV - Low Emissions Vertical
OH - Overhead Valve Heavy Duty (Cast Iron)
OHH - Overhead Valve Horizontal
OHM - Overhead Valve Heavy Duty Horizontal (Medium Frame)
OHS - Overhead Valve Horizontal (Snow King)
OHV - Overhead Valve Vertical (Medium Frame)
OVM - Overhead Valve Vertical (Medium Frame)
OVRM - Overhead Valve Vertical (Small Frame) (Rotary Mower)
OVXL - Overhead Valve Vertical (Medium Frame) (Extra Life)
TNT - Toro 'N' Tecumseh (Toro Exclusive Series)
TVEM - Tecumseh Vertical European Model
TVM - Tecumseh Vertical (Medium Frame) (Replaces V & VM)
TVS - Tecumseh Vertical Styled
TVT - Tecumseh Vertical Twin
TVXL - Tecumseh Vertical (Extra Life)
V - Vertical Shaft
VH - Vertical Heavy Duty (Cast Iron)
VLV - Vector Lightweight Vertical
VLXL - Vector Lightweight Vertical (Extra Life)
VM - Vertical Shaft (Medium Frame)
VSK - Vertical Snow King
VTX - Vertical Twin

TECUMSEH Spark Plug Replacement



NOTE: Only models which will continue to be manufactured long term will have an updated Model designation.

4-CYCLE SPARK PLUG

Service Number 35395

RJ19LM

ECV100-120
HMSK70, LH318SA (HMSK80), HMSK90
HSK30-70
HSSK40, LH195SA (HSSK50), LH195SP (HSSK55)
LH358SA (HMSK100), HMSK110
LEV80, LV148EA (LEV90), LV195EA (LEV120)
LV148SA (VSK90), VSK100
TNT100
TNT120
TVS75-120
TVXL90-120

Service Number 34645

RN4C

OH318EA (OHM90-110)
† OHM120
OH195EA (OHH60), OH195EP (OHH65)
OHH/OHSK40-130
OH195SA (OHSK70), OH195SP (OHSK75)
‡ OH318SA (OHSK110), OH358SA (OHSK120-130)
OH180
OV195EA
OV358EA (OHV110-135), OV490EA (OHV140-180)
OV691EP (VTX691, TVT691)
OVM120
* OVXL120
* OVXL/C120
* OVXL125

Note:
*** OVXL models with specification nos. below 202700 use RL86C.**

† OHM120 models with specification nos. below 224000 use RL86C.

‡ OH318SA (OHSK110), OH358SA (OHSK120- 130) models with specification nos. below 223000 use RL86C.

Service Number 34046

RL86C

† OHM120
‡ OH318SA (OHSK110), OH358SA (OHSK120-130)
OVM120
* OVXL120
* OVXL/C120
* OVXL125

Note:
*** OVXL models with specification nos. 202700, 203000 and up, use RN4C.**

† OHM120 models with specification nos. 224000 and up, use RN4C.

‡ OHSK110, OHSK120-130 models with specification nos. 223000 and up, use RN4C.

Service Number 33636

RJ17LM

H30-80
HM70-100
HS40-50
TVM195-220
TVXL195-220
VLV-all

Service Number 35552

RL82C

HH140-160
OH120-160

Service Number 34277

RJ8C

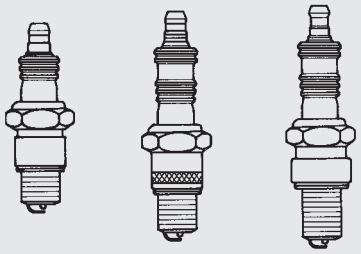
H22
H25
HH40-120
HHM80
HMXL70
HT30
HT35
HXL35
LAV25-50
TVM125-170
V40-80
VH40-100
VM70-100

NOTE: THE SERVICE NUMBERS LISTED BELOW WILL GIVE CORRESPONDING CHAMPION AND AUTOLITE SUBSTITUTIONS.

		Champion	Autolite
35395	-	**RJ-19LM**	**458**
37598	-	**RJ-19LM4**	**458**
35552	-	**RL-82C**	**4092**
34046	-	**RL-86C**	**425**
34645	-	**RN-4C**	**403**
37599	-	**RN-4C4**	**403**
33636	-	**RJ-17LM**	**245**
34277	-	**RJ-8C**	**304**

**NON CANADIAN APPLICATION*

SPARK PLUG AIR GAP ON ALL MODELS IS .030 (.762 mm)



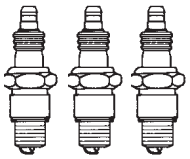
3/8" 9.525 mm | 1/2" 12.700 mm | 3/4" 19.050 mm

NOTE:
Not all spark plugs have the same heat range or reach. Using an incorrect spark plug can cause severe engine damage or poor performance. Tecumseh uses all three of the reaches shown.

FOR TWO CYCLE INFORMATION REFER TO NEXT PAGE.

Note: If you need assistance locating your engine model numbers please check page 3 or 4.

Spark Plug Replacement



NOTE: Only models which will continue to be manufactured long term will have an updated Model designation.

2-CYCLE SPARK PLUG

Service Number 611100
RCJ6Y

TC300
TCH300
TM049XA

Service Number 33636
RJ17LM

AV600
AV520
TVS600
TV085XA

Service Number 35395
RJ19LM

TVS840
TVXL840

Service Number 611049
RCJ8Y

AH520
AH600
HSK840
HXL840
TC200
TCH200 Type 1500
TH098SA
HSK600
HSK635
TH139SA
HSK845, 850
TH139SP
HSK870

EUROPA MODELS

4-CYCLE SPARK PLUG

Service Number 33636
RJ17LM

All Horizontal Models
BV
BVL
BVS
Centura
Futura
HTL
LAV
Legend
Premier 153/173
Prisma
Spectra
Synergy
Vantage

Service Number 34645
RN4C

Centrua OHV
Futura OHV
Geotec OHV
Premier 45/55
Synergy OHV

2-CYCLE SPARK PLUG

Service Number 33636
RJ17LM

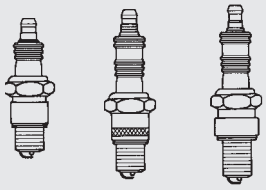
AV85/125
AV520/600
MV100S
TVS600

NOTE: THE SERVICE NUMBERS LISTED BELOW WILL GIVE CORRESPONDING CHAMPION AND AUTOLITE SUBSTITUTIONS.

		Champion	Autolite
35395	**-**	**RJ-19LM**	**458**
33636	**-**	**RJ-17LM**	**245**
611100	**-**	**RCJ-6Y**	**2974**
611049	**-**	**RCJ-8Y**	**2976**

**NON CANADIAN APPLICATION*

SPARK PLUG AIR GAP ON ALL MODELS IS .030 (.762 mm)



3/8" 9.525 mm 1/2" 12.700 mm 3/4" 19.050 mm

NOTE:
Not all spark plugs have the same heat range or reach. Using an incorrect spark plug can cause severe engine damage or poor performance. Tecumseh uses all three of the reaches shown.

Note: If you need assistance locating your engine model numbers please check page 3 or 4.

Fuel Recommendations

Today's fuels have a short shelf life and it is recommended you buy no more than a two week supply at a time.

GASOLINE

Tecumseh Power Company strongly recommends the use of fresh, clean, unleaded regular gasoline in all Tecumseh engines. Unleaded gasoline burns cleaner, extends engine life, and promotes good starting by reducing the build-up of combustion chamber deposits. Leaded gasoline, gasohol containing no more than **10%** ethanol, premium gasoline, or unleaded gasoline containing no more than **15%** MTBE (Methyl Tertiary Butyl Ether), **15%** ETBE (Ethyl Tertiary Butyl Ether) **or 10%** ethanol, can be used if unleaded regular gasoline is not available.

Reformulated gasoline that is now required in several areas of the United States is also acceptable.

NEVER USE gasoline, fuel conditioners, additives or stabilizers containing methanol, gasohol containing more than 10% ethanol, unleaded regular gasoline containing more than 15% MTBE (Methyl Tertiary Butyl Ether), 15% ETBE (Ethyl Tertiary Butyl Ether) or 10% ethanol, gasoline additives, or white gas because engine/fuel system damage could result.

SPECIALTY FUELS

Fuels being marketed for use on small engines can have a significant effect on starting and engine performance. Prior to using any specialty fuel, the Reid Vapor Pressure (RVP) must be determined. Fuels with a rating of less than 50kPa (7psi) should not be used in summer, and fuel with a rating of 85kPa (12psi) should not be used during winter.

SHORT TERM STORAGE

⚠ WARNING NEVER store the engine with fuel in the fuel tank inside a building with potential sources of ignition such as hot water and space heaters, clothes dryers, electric motors, etc.

If engine fuel stored in the gas tank and/or an approved gas container is to be unused without gasoline stabilizer for more than 15-30 days, prepare it for short term/seasonal storage.

Tecumseh recommends using ***ULTRA-FRESH™*** or Fuel Saver Plus Gasoline Stabilizer plus Fuel System Cleaner as an acceptable method of minimizing formation of fuel gum deposits during storage. This product is available from your Authorized Tecumseh Servicing Dealer.

Always follow mix ratio found on stabilizer container. Failure to do so may result in equipment damage.

It is not necessary to drain stabilized gas from carburetor.

FUEL TREATMENT

1. Add fuel stabilizer according to manufacturer's instructions.

2. Run engine at least 10 minutes after adding stabilizer to allow it to reach carburetor.

3. Instead of using a fuel preservative/stabilizer, you can empty the fuel tank as described under "Extended Storage".

Fuel Recommendations - *continued*

EXTENDED STORAGE

NOTES

Clean debris from engine before draining fuel from carburetor. If you have prepared your fuel for short term storage it is not necessary to drain fuel that contains stabilizer from your carburetor.

To avoid severe injury or death, DO NOT pour fuel from engine or siphon fuel by mouth.

1. To prevent serious injury from fuel fires, empty fuel tank by running engine until it stops from lack of fuel. DO NOT attempt to pour fuel from engine.

2. Run the engine while waiting until the remaining fuel is consumed.

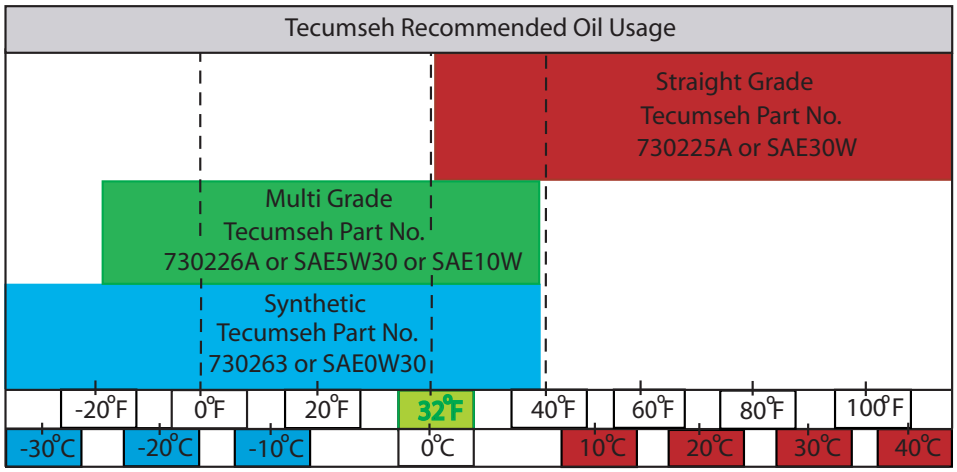
NEVER leave the engine unattended when it is running and NEVER run engine in enclosed areas.

FUEL ADDITIVES

Only fuel additives such as Tecumseh's fuel stabilizer Part No. 730245A or liquid varieties can be used when mixed properly. For winter applications, Isopropyl alcohol fuel dryers may be used in the fuel system but must be mixed at the proper ratio recommended by the manufacturer. **NEVER USE METHANOL BASED FUEL DRYERS.**

Tecumseh 4-Cycle Lubrication Requirements

Tecumseh recommends the use of a high quality, brand name oil with a minimum classification of SL/SJ. Very few air cooled engines have any type of oil filtration system, making regular oil changes critical to remove impurities from the engine and maximize engine life. **Consult the operator's or repair manual for the oil change interval and viscosity based on equipment operating temperature.**



TECUMSEH 4-CYCLE ENGINE OIL

shown with model names prior to 2004

CLASSIFICATIONS: "SL/SJ"
DO NOT USE 10W40
CAPACITIES:

Engine Model	ml	Oz.
All LAV, TVS, LEV, OVRM	630	21
ECV, TNT	630	21
V & VH50-70	810	27
TVM 125, 140	810	27
TVM 170-220	960	32
VM70-100, HHM80	960	32
VH100	1500	50
All VLV	810	27
VSK90-100	630	21
OVM120, OVXL120, 125	960	32
OHV11-13 without filter	960	32
OHV11-13 with filter	1170	39
OHV13.5-17 with filter	1800	61
OHV13.5-17 without filter	1650	55
TVT691 with filter	2150	71
TVT691 without filter	1950	64
H, HSK30-35	630	21
HS, HSSK40-50	630	21
H, HH, HSK50-70	570	19
OHH/OHSK50-70	630	21
HMSK, HM70-100	720	26
OHSK80-100	720	26
OHM120, OHSK110*-130	840	28
HH100,120, OH120-180	1560	52

**NOTE: Model OHSK110 with a spec. of 221000 and up, have a capacity of 26 oz. (720 ml.)*

TECUMSEH 4-CYCLE ENGINE OIL

shown with model names 2004 production and later

Engine Model	ml	Oz.
LH195SA, LH195SP	630	21
LH318SA, LH358SA	720	26
LV148EA, LV148SA	630	21
LV195EA	630	21
OH195EA, OH195EP	630	21
OH195SA, OH195SP	630	21
OH318EA	720	26
OH358SA	840	28
OV195EA	630	21
OV358EA With Filter	1170	39
OV358EA Without Filter	960	32
OV490EA With Filter	1800	61
OV490EA Without Filter	1650	55
OV691EA With Filter	2150	71
OV691EA Without Filter	1950	64
OV691EP With Filter	2150	71
OV691EP Without Filter	1950	64

EUROPA MODELS *

VERTICALS

	ml	Oz.
Vantage	630	21
Prisma	630	21
Synergy	630	21
Synergy "55"	810	27
Spectra	630	21
Futura	630	21
HTL	630	21
BVS	630	21

HORIZONTALS

BH Series	630	21
Geotec Series 35-50	630	21

NOTE: Vertical shaft engines with auxiliary PTO: 26 oz. / 700 ml

4-Cycle Troubleshooting

The following is provided as a basic troubleshooting guide. Its use requires a complete review of all conditions and symptoms. Always examine the exterior for clues: leaks, excessive dirt, or obvious damage. Some repairs will require the assistance of a Tecumseh Servicing Dealer.

Preparation

Before troubleshooting any system problem, see original equipment manufacturer's (O.E.M.) instructions.

Make your troubleshooting easier by preparing as follows:

- Work in a clean, well-lighted place.
- Keep proper tools and materials nearby.
- Keep an adequate supply of clean petroleum-based solvent.

⚠ WARNING To reduce the risk of serious injury or death from fires and/or explosions, NEVER use flammable solvents (e.g., gasoline) to clean serviceable parts. Use a water-based, non-flammable solvent such as Tecumseh Degreaser Cleaner.

CAUTION NEVER use compressed air to clean debris from yourself or your clothing. When using compressed air to clean or dry serviceable parts:

- Wear appropriate eye protection.
- Use only approved air blow nozzles.
- Air pressure must not exceed 30psi (206kPa).
- Shield yourself and bystanders from flying debris.

FUEL SYSTEM

Engine Will Not Start

Check if spark plug is wet or dry

Wet

- Defective spark plug Use Tester 670366
- Restricted air filter
- Improper or stale fuel
- Carburetion problems due to flooding, over priming, etc.
- Ignition system

Dry

- Review with the customer proper priming procedure (3-5 primes, waiting 2 seconds between each prime)
- If equipped with a choke, check for full travel. Check throttle cable and control for proper adjustment.
- Check fuel supply and fuel cap vent
- Restriction in fuel system (filter)
- Internal Carburetion Problem
- Poor compression

Should more extensive repair be needed, we recommend you contact a local Tecumseh Servicing Dealer for repair. Repair manuals are also available from your local dealer or direct from Tecumseh. A complete list of the available manuals can be found at the end of this book.

NOTE: Refer to Technician's Handbook for a more detailed list of remedies.

4-Cycle Troubleshooting - *continued*

⚠ WARNING To reduce the risk of serious injury or death from fires and/or explosions, NEVER use flammable solvents (e.g., gasoline) to clean serviceable parts. Use a water-based, non-flammable solvent such as Tecumseh Degreaser Cleaner.

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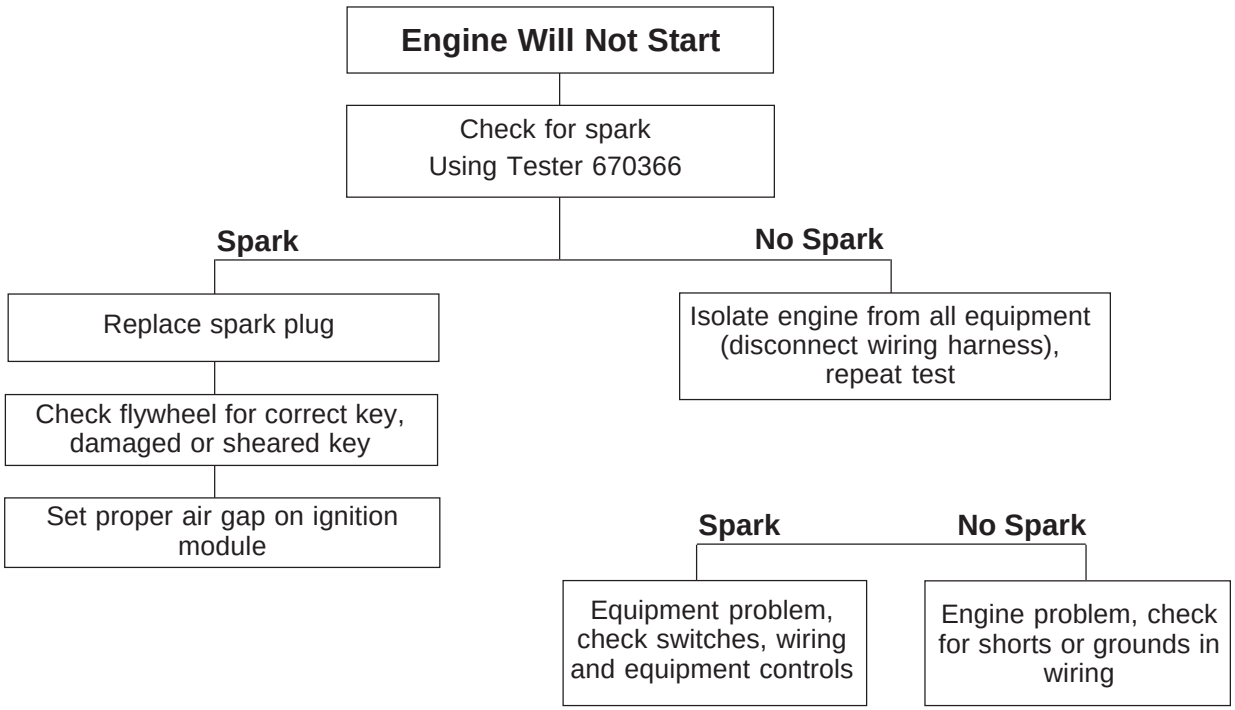
IGNITION SYSTEM



Should more extensive repair be needed, we recommend you contact a local Tecumseh Servicing Dealer for repair. Repair manuals are also available from your local dealer or direct from Tecumseh. A complete list of the available manuals can be found at the end of this book.

Tecumseh 2-Cycle Engine Oil Requirements

The proper type and ratio of 2-cycle oil is critical to long life and low maintenance of the engine. The use of non-certified oils and improper mix ratio's can cause severe engine damage and possibly void warranty consideration.

The following is a list of 2-cycle engine oil classifications which are certified for use in Tecumseh 2-cycle engines:

- National Marine Manufactures Association, (NMMA), TC-WII or TC-W3
- American Petroleum Institute, (API), TC
- Japanese Automobile Standard Organization, (JASO), FB or FC

TWO-CYCLE FUEL/OIL MIX RATIOS		
24:1	**32:1**	**50:1**
AV520 Types 670 & 653 TV085XA (AV600 Type 600-10 & Up) TC200, TCH200, TCH300 TM049XA (TC300) MV100S	TVS600 All Types AH600	TVS / TVXL HSK840 - 870 HSK600 - 635

Sears/Craftsman 40:1 2-cycle Oil has been tested and approved for use in all engines, EXCEPT the TC / TM Models which require a 24:1 Ratio.

2-CYCLE SYNTHETIC BLEND

ENGINE OIL WITH FUEL STABILIZER

PART NO. 730227C

TECUMSEH 2-CYCLE ENGINE OIL may be used in a variety of 2-cycle engines including: outboards, lawnmowers, snow-blower, string trimmers, and edgers at any fuel/oil mixing ratio up to 50:1.

- MIXES EASY
  DOES NOT SEPARATE
- PREMIUM BLEND FOR BOTH AIR AND WATER COOLED ENGINES ENSURES CYLINDER WALL LUBRICATION

ENGINE FUEL MIX				
	U.S. Gasoline	U.S. Amount of Oil To Be Added	METRIC Petrol	METRIC Amount of Oil To Be Added
24:1	1 Gallon	5 oz.	4 Liters	167 ml
	2 Gallons	11 oz.	8 Liters	333 ml
	5 Gallons	27 oz.	20 Liters	833 ml
32:1	1 Gallon	4 oz.	4 Liters	125 ml
	2 Gallons	8 oz.	8 Liters	250 ml
	5 Gallons	20 oz.	20 Liters	625 ml
50:1	1 Gallon	2.5 oz.	4 Liters	80 ml
	2 Gallons	5 oz.	8 Liters	160 ml
	5 Gallons	13 oz.	20 Liters	400 ml

2-Cycle Troubleshooting

The following is provided as a basic troubleshooting guide to any piece of equipment. Its use requires a complete review of all conditions and symptoms. Always examine the exterior for clues: leaks, excessive dirt, or obvious damage. Some repairs will require the assistance of a Tecumseh Servicing Dealer.

Preparation

Before troubleshooting any system problem, see original equipment manufacturer's (O.E.M.) instructions.

Make your troubleshooting easier by preparing as follows:

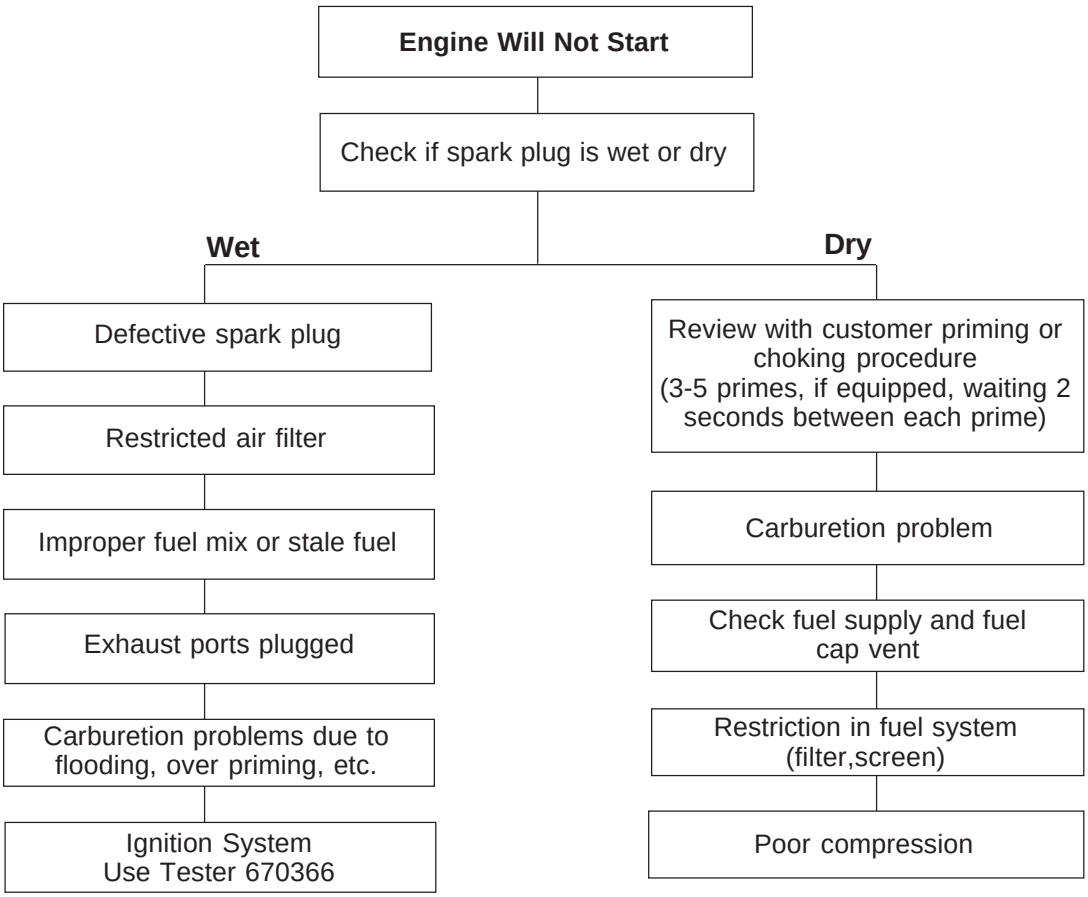
- Work in a clean, well-lighted place.
- Keep proper tools and materials nearby.
- Keep an adequate supply of clean petroleum-based solvent.

⚠ WARNING To reduce the risk of serious injury or death from fires and/or explosions, NEVER use flammable solvents (e.g., gasoline) to clean serviceable parts. Use a water-based, non-flammable solvent such as Tecumseh Degreaser Cleaner.

CAUTION NEVER use compressed air to clean debris from yourself or your clothing. When using compressed air to clean or dry serviceable parts:

- Wear appropriate eye protection.
- Use only approved air blow nozzles.
- Air pressure must not exceed 30psi (206kPa).
- Shield yourself and bystanders from flying debris.

FUEL SYSTEM



Should more extensive repair be needed, we recommend you contact a local Tecumseh Servicing Dealer for repair. Repair manuals are also available from your local dealer or direct from Tecumseh. A complete list of the available manuals can be found at the end of this book.

2-Cycle Troubleshooting - *continued*

⚠ WARNING To reduce the risk of serious injury or death from fires and/or explosions, NEVER use flammable solvents (e.g., gasoline) to clean serviceable parts. Use a water-based, non-flammable solvent such as Tecumseh Degreaser Cleaner.

CAUTION NEVER use compressed air to clean debris from yourself or your clothing. When using compressed air to clean or dry serviceable parts:

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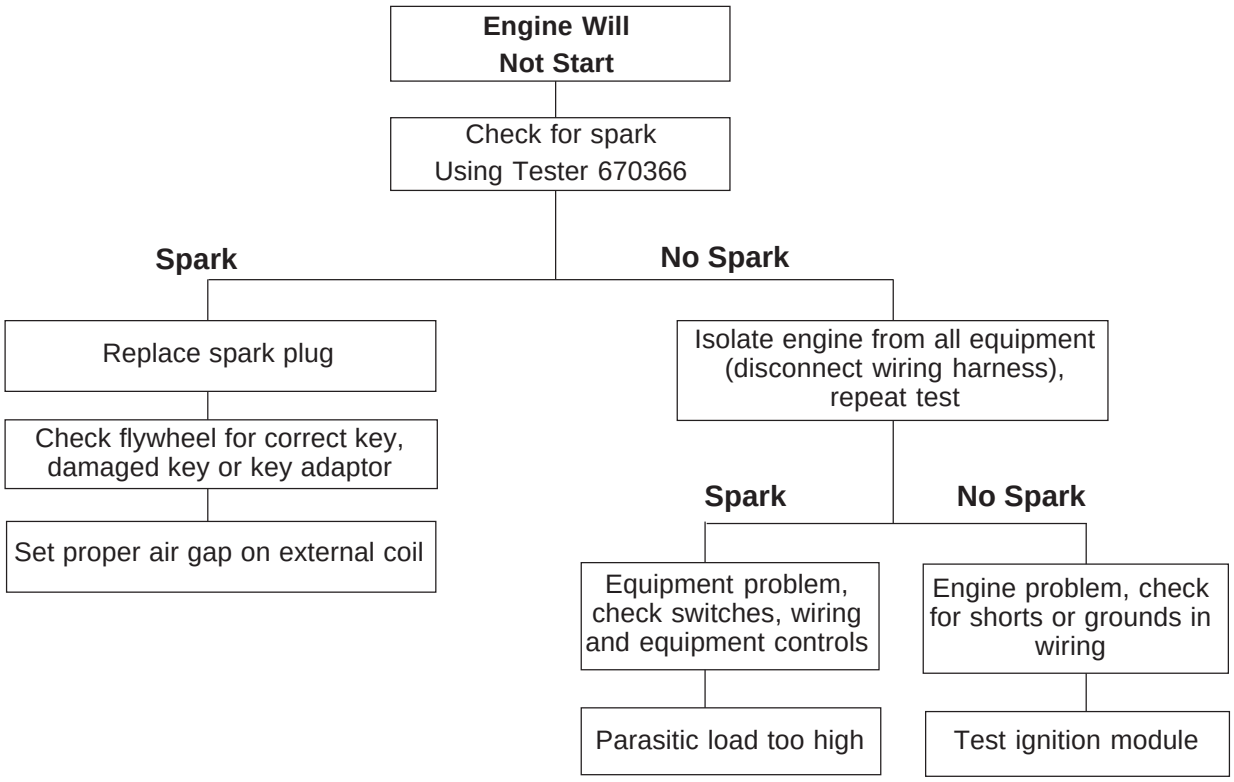
IGNITION SYSTEM



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Cross Reference for Specification - To - Model Number Designation

This cross reference chart allows you to determine an engine Model Number if you only have the Specification Number. Note that some Specification Number Series are current with our 2004 and later model numbering system.

VERTICAL 4-CYCLE ENGINES

Specification Number Series	Model Number	Equivalent 2004 & Later Model Number
10000	TNT100	
12000	TNT120	
20000	LAV25, OVRM55	
20500	OVRM105	
21000	OVRM60	
21800	OVRM60	
22000	OVRM65, OVRM120	
23000	OV195EA (RM)	
23500	OV195EA (Utility)	
30000	LAV30	
33000	TVS75	
40000	LAV35	
42000	OVRM905 (Sears Only)	
42600	OVRM40, OVRM45 (Premier Engine)	
42900	OVRM40 (High Tech Look)	
43000	TVS90	
43600	TVS90 (Premier Engine)	
43700	TVS90, TVXL90	
43900	TVS90 (High Tech Look)	
44000	TVS100	
44600	TVS100 (Premier Engine)	
44800	TVS100	
46000	TVS90, TVXL90	
46600	TVS90	
48000	TVS90	
50000	V40	
50200	LAV40	
52600	OVRM50, OVRM55 (Premier Engine)	
52800	OVRM50, OVRM55	
52900	OVRM50, OVRM55 (High Tech Look)	
53000	TVS105	
53600	TVS105 (Premier Engine)	
53800	TVS105	
53900	TVS105 (High Tech Look)	
54000	TVXL105	
56000	TVS105, TVS & TVXL115	
56600	TVS105, TVS115 (Premier Engine)	
56800	TVS115	
56900	TVS105, TVS115 (High Tech Look)	
57000	TVS & TVXL115	
57600	TVS115 (Premier Engine)	
57800	TVS115	
57900	TVS115 (High Tech Look)	
60000	V50, TVM125	
61000	TVS & TVXL115	
61600	TVS & TVXL115	
61800	TVS115	
61900	TVS115	
62000	LAV50	
62100	LAV50 & TVS115	
63000	TVS120	
63200	TVS120, TVEM120	
63600	TVS120 (Premier Engine)	
63900	TVS120 (High Tech Look)	
66000	TVS120	
66100	TVS120	
70000	V60, TVM140	
80000	VH40	
90000	VH50	
100000	VH60	
125000	V70	
127000	VM70, TVM170	
127200	TVXL170	
135000	VH70	
145000	ECV100	
147000	ECV105	
148000	VH80	
149000	VH100	
150000	V & VM80, TVM195	
150200	TVM & TVXL195	
150500	TVM195	
151000	ECV110, TVM195	
151500	TVM220	
152000	ECV120	
157000	VM100, TVM220	
157200	TVM & TVXL220	
157400	TVM220	
200000	OVM120	
202000	OVXL120, OVXL125	
202200	OVXL120 (I/C)	
202300	OHV11, OHV115	
202400	OVXL125	
202500	OHV115	
202600	OVXL125 (I/C)	
202700	OHV12, OVXL120 (Tec.1200)	
203000	OHV125, OVXL125 (Tec1250)	
203200	OHV13	
203500	OVXL125 (Tec.1250I/C), OHV13/135	
203600	OHV14/140	
203800	OHV145	
204000	OHV15/150	
204200	OHV16/160	
204400	OHV165	
204500	OHV155	
204600	OHV17/170	
204800	OHV175	
206000	OHV110	
206200	OHV115	
206400	OHV120	
206600	OHV125	
206800	OHV130	
206900	OHV135 (Sm. Enduro)	OV358EA
208000	OHV180 (Lg. Enduro)	OV490EA
334000	LEV90	LV148EA
334500	VSK90	LV148SA
335000	LEV100	
338000	LEV100	
338500	VSK100	
340000	LEV100	
345000	LEV100	
346000	LEV105	
347000	LEV105	
348500	VSK105	
350000	LEV115	
355000	LEV115	
360000	LEV115	
361000	LEV120	
361400	VSK120	
361500	LEV120 (Utility)	LV195EA
362000	LEV120 (RM)	LV195EA
400000	VLV40	
500000	ULT, VLV B24, VLXL50, & VLV126	
501000	ULT, VLV, VLXL55, & VLV126	
502000	ULT, VLV60, VLV65, & VLV126	
502500	VLV65, VLV66	
600400	TVT691	
600800	TVT691 (Twin)	OV691EA
600900	VTX691 (Twin)	OV691EP

Cross Reference for Specification - To - Model Number Designation

This cross reference chart allows you to determine an engine Model Number if you only have the Specification Number. Note that some Specification Number Series are current with our 2004 and later model numbering system.

HORIZONTAL 4-CYCLE ENGINES

Specification Number Series	Model Number	Equivalent 2004 & Later Model Number
15000	H22	
25000	H25	
26000	OHH45	
35000	H30	
35400	HSK30	
35800	H30	
36700	H30	
45000	H & HT35	
45400	HSK35	
45800	H35	
46700	H35	
47000	HXL35	
55000	H40	
55200	HS & HSSK40	
55500	HSK40	
55700	H40	
55800	H40	
55900	HSSK40	
65000	H50	
65300	HSK50	
67000	HS & HSSK50	LH195SA
67500	HSSK55	LH195SP
68000	OHH50	
68500	OHSK50	
69000	OHH55	
69500	OHSK55	
71100	OHH60	OH195EA
71500	OHSK60	
71700	OHH65	
71800	OHH65	OH195EP
71900	OHSK65	
72000	OHH70	
72500	OHSK70 (Premium)	OH195SA
73500	OHSK75 (Premium)	OH195SP
75000	H60	
76000	HSK60	
85000	HH40	
95000	HH50	
105000	HH60	
110000	HH80	
115000	HH100	
120000	HH120	
130000	H70	
130200	HSK70	
132000	HM & HMSK70	
132500	HMXL70	
140000	HH70	
146000	ECH90	
155000	H & HM80	
155000	HMSK80	
155800	HM85	
155900	HM & HMSK85	
156000	HM90	
156500	HMSK90	LH318SA
159000	HM & HMSK100	LH358SA
159900	HMSK105	
159950	HMSK110	
160000	HH & OH140	
170000	HH150 & 160	
170000	OH160	
175000	OH120	
180000	OH180	
190000	HHM80	
220000	OHM120	
221000	OHSK110	
221200	OHSK80	
221400	OHSK90	
221600	OHSK100	
221700	OHSK110	
221800	OHSK115 (Premium)	OH318SA
222000	OHSK120	
222300	OHM90	
222500	OHM100	
222700	OHM110	OH318EA
223000	OHSK90	
223400	OHSK110	
223600	OHSK120	
223700	OHSK125	
223800	OHSK130 (Premium)	OH358SA
224000	LH412SA	
224600	OHM120	

VERTICAL 2-CYCLE ENGINES

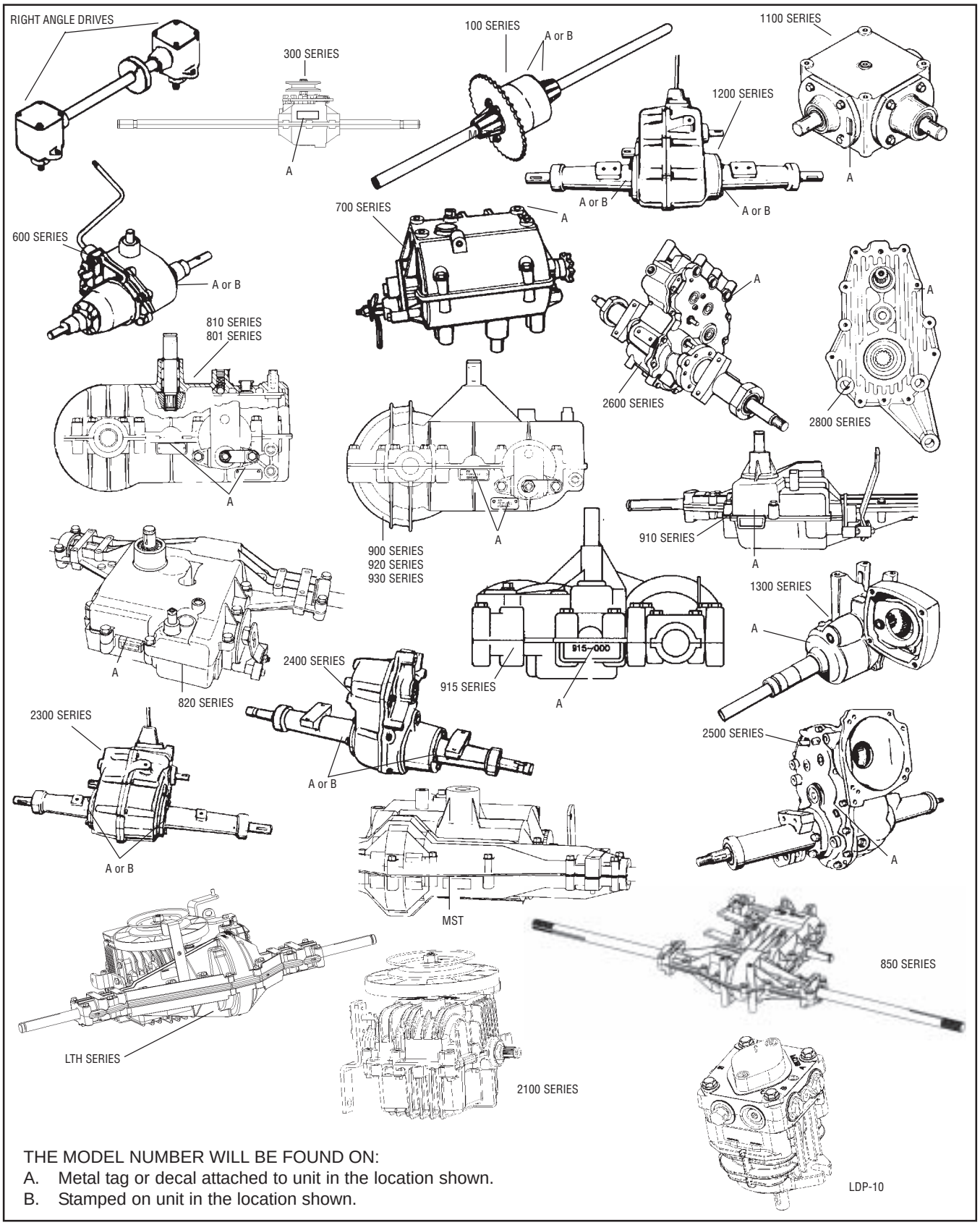
Specification Number Series	Model Number	Equivalent 2004 & Later Model Number
3600	TC300	TM049XA
670000	AV520	TV085XA

HORIZONTAL 2-CYCLE ENGINES

Specification Number Series	Model Number	Equivalent 2004 & Later Model Number
1720	HSK635	TH098SA
8300	HSK850	TH139SA
8700	HSK870	TH139SP

Tecumseh and Peerless®
Model and Specification Numbers

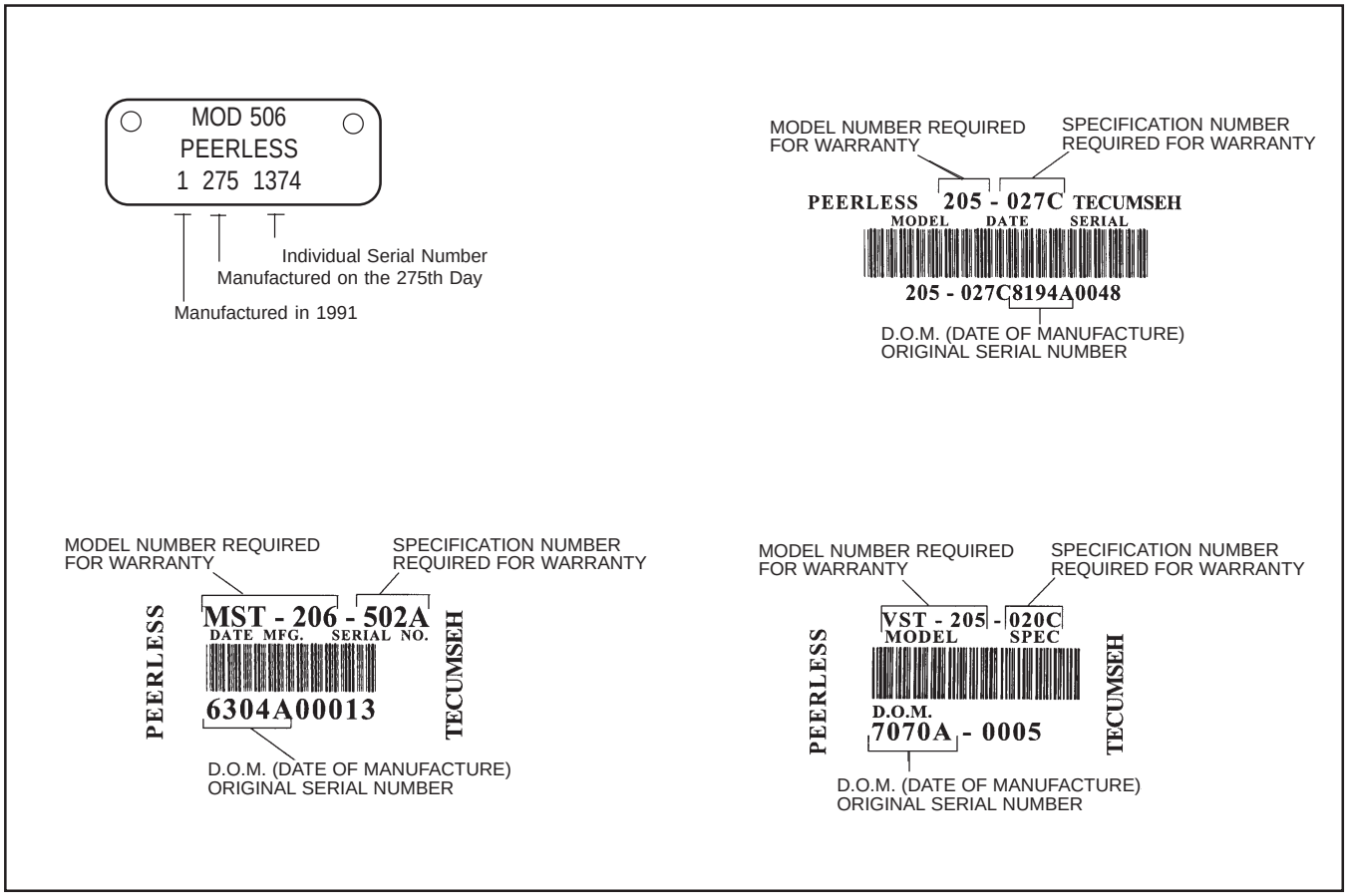
The following information is being provided to assist you in locating and recording your Tecumseh transmission components model and specification numbers. This information will be needed to use this book or obtain parts from a local Tecumseh dealer.



THE MODEL NUMBER WILL BE FOUND ON:

A. Metal tag or decal attached to unit in the location shown.
B. Stamped on unit in the location shown.

Various Styles of Identification Used On Tecumseh and Peerless Transmission, Transaxle and Gear Products



Early Models were not identified with a model number on the unit.

Basic Gear Drive Troubleshooting

Preparation

NOTE

Before troubleshooting any system problem, see original equipment manufacturer's (O.E.M.) instructions.

Make your troubleshooting easier by preparing as follows:

- Work in a clean, well-lighted place.
- Keep proper tools and materials nearby.
- Keep an adequate supply of clean petroleum-based solvent.

To avoid carbon monoxide poisoning, make sure engine is outdoors in a well-ventilated area.

⚠ WARNING Some maintenance procedures can not be performed until the vehicle wheels are secured and off the ground. Failure to do so could result in death or serious injury to yourself and/or bystanders.

⚠ WARNING DO NOT attempt any maintenance procedures with the engine running. Doing so could result in death or serious injury to yourself and/or bystanders.

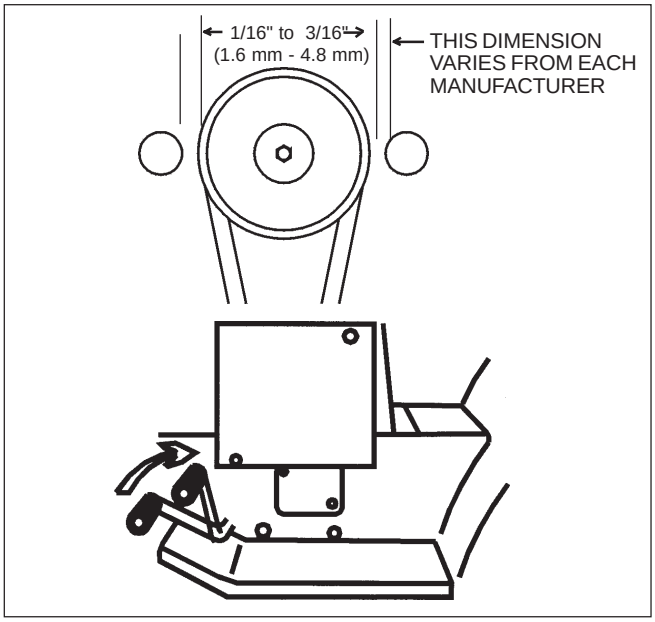
⚠ WARNING Use care when performing inspection of the drive belt assembly including all vehicle linkage. Failure to do so could result in death or serious injury to yourself and/or bystanders.

Hard Shifting Transaxles and Drive Belts

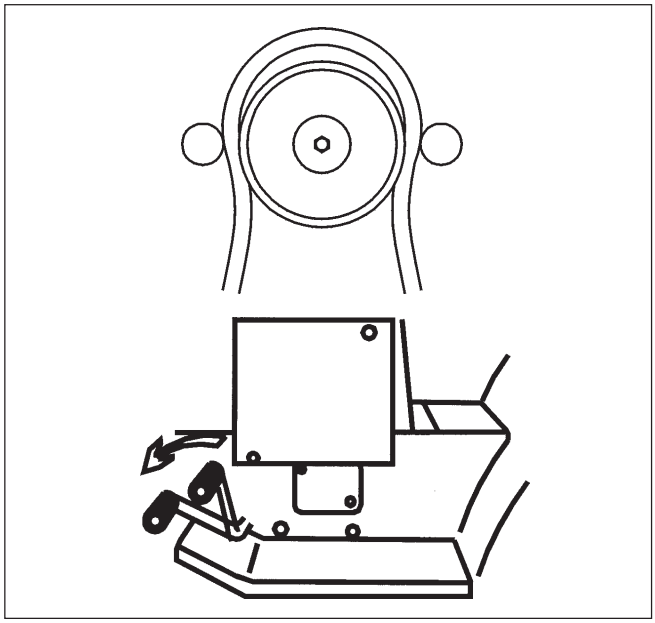
Often hard shifting is blamed on an internal problem in the transaxle.

To determine if the problem is transaxle or equipment related make these simple checks.

1. Turn the unit off so that all power is removed to the transaxle.
2. With the unit off, move the shift lever through the shift gate. Movement of the lever should have only slight resistance. The shifting effort should be equal when the engine is off and when running. If the unit is difficult to shift the problem would be internal and the transaxle would need to be removed and repaired.
3. If the unit shifts with ease, check the following areas that would be equipment related. Check to see if the belt is releasing from the pulley on the engine and transmission / transaxle, it may require that the belt guides be repositioned. The distance required from the pulley to the guide is typically 1/16" to 3/16" (1.6 mm - 4.8 mm), always check the O.E.M. specs.



For proper declutching to occur, it is very important that the engine belt guide be set at a predetermined clearance when engaged (set by the manufacturer) and away from the belt with the belt engaged.



With clutch disengaged, it is very important that the belt blossoms away from the engine pulley. Belt must stop turning before transaxle shifting can occur.

Improper belt or belt guide clearance will not allow the belt to disengage, causing internal transmission damage.

Basic Gear Drive Troubleshooting - *continued*

4. Check to see if the pulley is damaged and may not be releasing the belt.
5. Confirm the correct length and type of belt, as recommended by the manufacturer, is installed.
6. Check the brake/clutch pedal to make sure that when the pedal is depressed that the idler pulley is releasing the belt tension before it applies the brake. If this does not happen the unit will still be under a load and be impossible to shift.
7. The final area to check would be for damaged or binding shift linkage.

Hard shifting with the engine off could be caused by:

1. Shift linkage out of adjustment.
2. Corrosion in the transaxle or transmission.
3. Damaged shift keys, gears, or shifter brake shaft.
4. Belt guides missing or improperly adjusted (see equipment manufacturer specs).

Unit seems to slip:

1. Check for proper belt adjustment (consult O.E.M. operator's manual).
2. Check for proper clutch/brake adjustment (consult O.E.M. operator's manual).
3. Check pulley condition and wheels for sheared or damaged keys.
4. Check drive belt condition, if glazed or worn, replace it.
5. Possible internal transmission damage. We suggest you contact a local Tecumseh Servicing Dealer.

Tecumseh and Peerless Transmission, Transaxle and Gear Products

NOTE

Before troubleshooting any system problem, see original equipment manufacturer's (O.E.M.) instructions.

Make your troubleshooting easier by preparing as follows:

- Work in a clean, well-lighted place.
- Keep proper tools and materials nearby.
- Keep an adequate supply of clean petroleum-based solvent.

To avoid carbon monoxide poisoning, make sure engine is outdoors in a well-ventilated area.

⚠ WARNING Some maintenance procedures can not be performed until the vehicle wheels are secured and off the ground. Failure to do so could result in death or serious injury to yourself and/or bystanders.

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⚠ WARNING Use care when performing inspection of the drive belt assembly including all vehicle linkage. Failure to do so could result in death or serious injury to yourself and/or bystanders.

LTH-2000 Series Troubleshooting Chart

Tecumseh's lawn tractor hydrostatic transaxle (LTH) includes a hydrostatic transmission attached to a final drive. Use of this troubleshooting chart will aid in determining the source of a problem; the hydrostatic transmission, final drive or vehicle's belt drive and/or linkage systems.

Tecumseh LTH-2000 Series Hydrostatic Transaxle Troubleshooting

SYMPTOM	PROBLEM	CORRECTIVE ACTION
REDUCED POWER	Improper belt tension	Belt worn, replace
	Belt worn, glazed, or oil saturated	Replace belt
	Drive pulley worn	Replace pulley and belt (See O.E.M. equipment manual)
	Brake set too tight	Set brake adjustment (See O.E.M. equipment manual)
	Shifter linkage misadjusted or broken	Linkage damaged or loose, replace or adjust (See O.E.M. equipment manual)
	Fluid low in hydrostatic transmission	Check and add fluid if low (Part No. 730228)
	Hydrostatic transmission bad	Replace hydrostatic transmission
DIFFICULT TO SHIFT	Linkage broken or bent	Repair or replace linkage (See O.E.M. equipment manual)
	Hydrostatic transmission pump seized	Replace hydrostatic transmission
	Hydrostatic transmission control friction pack misadjusted	Replace friction pack washers, tighten nut to 100 in. lbs. loosen nut 4-turns

Tecumseh LTH2000 Series Transaxle
Troubleshooting - *continued*

SYMPTOM	PROBLEM	CORRECTIVE ACTION
UNIT IS NOISY	Final Drive Gear Noise	Check, add gear oil to final drive Check, replace worn gears Check, replace worn bearings
	Hydrostatic Transmission Noise	Replace hydrostatic transmission
	Transaxle clicking	Mechanical disconnect not properly engaged, check for obstruction Check, replace mechanical disconnect components (If hydrostatic transmission shaft is damaged, replace transmission)
DOES NOT DRIVE	Improper belt tension	Belt worn, replace (See O.E.M. equipment manual)
	Brake setting incorrect	Adjust brake to proper setting (See O.E.M. equipment manual)
	Belt worn, glazed, or oil saturated	Replace belt (See O.E.M. equipment manual)
	Drive pulley worn	Replace pulley and belt (See O.E.M. equipment manual)
	Transaxle - hydrostatic transmission bad	Replace hydrostatic transmission
	Shifter linkage misadjusted or broken	Linkage damaged or loose, replace or adjust (See O.E.M. equipment manual)
	Fluid low in hydrostatic transmission	Check and add fluid if low (Part No. 730228)
	Disconnect is in freewheel position	Move control to connected position (See O.E.M. equipment manual)
	Sheared or missing axle key	Replace missing or broken key
	Damaged or broken final drive gear	Check, replace worn or damaged gear
	Hydrostatic transmission leaking	Replace hydrostatic transmission
LEAKING LUBRICANT	Hydrostatic transmission leaking	Replace hydrostatic transmission
	Final drive leaking at seam	Split final drive housing, clean old sealant off, replace seals, apply new sealant (torque bolts 80-120 in. lbs.)
	Final drive leaking at shaft seal	Split final drive housing, clean old sealant off, replace seals, apply new sealant (torque bolts 80-120 in. lbs.)
BRAKE NOT WORKING	Linkage out of adjustment	Adjust brake linkage (See O.E.M. equipment manual)
	Linkage bent or broken	Replace components, set brake (See O.E.M. equipment manual)
	Brake setting incorrect	Adjust brake to proper setting (See O.E.M. equipment manual)

1800 / VST Troubleshooting

The information on this page has been provided to help understand the internal operation of the VST. Do not use this information to attempt any internal repairs. Tecumseh's current policy on hydrostatic transaxles that have internal failures is to replace the complete unit. This has not changed. However, Tecumseh would like to provide a failure checklist to assist in making an accurate evaluation of the complete tractor to eliminate any unnecessary replacements. Here is a list of items to check and corrective actions to take.

To properly test the unit for power loss.

1. Allow the unit to cool before trying the following steps.
2. Put the shift lever in a position that is 1/2 of the travel distance from neutral to forward.
3. Place the tractor on a 17° grade.
4. Drive the tractor up the grade (without the mower deck engaged). The loss of power experienced should be approximately 20%. This is considered normal. If the loss of power is approximately 50%, this would be considered excessive.
5. Bring the unit to neutral, shift into forward and note the response. Care should be taken to move the lever slowly to avoid an abrupt wheel lift.

To determine if the problem is with the hydro unit, all external problem possibilities must be eliminated. Here are some potential problem areas.

1. **Overheating:** Heat can cause a breakdown in the viscosity of the oil which reduces the pressure used to move the motor. Remove any grass, debris, or dirt buildup on the transaxle cover and / or between the cooling fins and fan. Buildup of material will reduce the cooling efficiency.
2. **Belt slippage:** A belt that is worn, stretched, or the wrong belt (too large or wide) can cause belt slippage. This condition may have the same loss of power symptom as overheating. Typically, the unit which has a slipping belt will exhibit a pulsating type motion of the mower. This can be verified visually by watching the belt and pulley relationship. If the belt is slipping, the belt will chatter or jump on the pulley. If the belt is good, a smooth rotation will be seen. Replace the belt and inspect the pulley for damage.
3. **Leakage:** The VST and 1800 Series have two oil reservoirs which can be checked for diagnostic purposes. The first is the pump and motor expansion bellows. With a small diameter blunt or round nose probe, check the bellows depth through the center vent hole. Proper depth from the edge of that hole is 3-1/4 - 3-1/2 inches (8.25 - 8.9 cm).

   The second chamber is for the output gears including the differential. FIRST make sure the tractor is level, then remove the drain/fill plug. NOTE: Some units that do not have differential disconnect will have two plugs. We recommend using only the primary plug. With a small pocket rule insert until you touch bottom of case. You can then remove it and check for 1/4 - 3/8 inches (6.5 - 9.5 mm) contact, this is full at its 8 oz. capacity.
4. **Low ground speed:** If the linkage is not synchronized to absolute neutral, or the shift lever is not properly fastened to the tapered control shaft, full forward travel may not be achieved. This may cause a false reading and be misdiagnosed as a low power condition. This also could be caused by the brake not releasing.

   To determine absolute neutral, the hole in the tapered control shaft must face straight up and down, at this point make sure the O.E.M. linkage is in neutral. To properly fasten the control lever to the shaft, torque the nut to 25-35 ft. lbs. (34 - 48.3 Nm) of torque with the shaft and the lever in neutral.

   When attaching the shifter arm to the shaft you must prevent any rotation during torquing. This can be done by placing a long 5/16" bolt in the hole of the shaft. Hold the bolt until the tapers are locked and the nut torque is correct.

   To make sure that the brake is not binding, drive the unit up a slight grade. Position the speed control lever into neutral. The unit should coast backwards. If the unit does not coast back slowly, the brake is not released from the brake disk. Adjust the brake linkage to release the brake completely when the foot pedal is released.
5. **Hard to shift:** Typically hard to shift symptoms are not caused by the hydrostatic unit. The shift arm should move with relative ease. Approximately 40-50 in. lbs. (4.48 - 5.6 Nm) at the transaxle for foot pedal units or 150-200 in. lbs. (16.8 -22.4 Nm) for hand operated units. This varies depending on the type of linkage. Binding may occur in the linkage connections due to rust or moisture. Lubricating these connections and checking for bent or damaged parts should resolve hard shifting.

Tecumseh and Peerless® Lubrication Requirements

NOTE

Use ONLY the recommended lubricant in all models as listed to insure proper operation and long life.

TRANSAXLES

Model No.	Quantity
301	Non-Serviceable
600	24 oz./710 ml Oil
800	30 oz./887 ml Grease
801	36 oz./1065 ml Grease
820	36 oz./1065 ml Grease
900	26 oz./769 ml Grease
910	18 oz./532 ml Grease
915	10 oz./296 ml Grease
920	30 oz./887 ml Grease
930	30 oz./887 ml Grease
1200	48 oz./1420 ml Oil ††
1301 1305 1309 1313	32 oz./946 ml Oil
1302 1303 1304 1306 1307 1308 1310 1311 1312 1314 1315 1316 1317 1318 1320 1321 1322 1325 1328 1329 1319	44 oz./1301 ml Oil
1323 1326 1327	24 oz./710 ml Oil
MST200	16 oz./473 ml Oil
VST205 and 1800's	††††
2300	64 oz./1892 ml Oil
2400	32 oz./946 ml Oil

TRANSMISSIONS

Model No.	Quantity
2500	†
2600	†
700	12 oz./355 ml Grease
700H	12 oz./355 ml Grease
2800	†

HYDROSTATIC TRANSAXLES and TRANSMISSIONS

1800 Series	Limited service; use Kit Part No. 799030
VST205/705	Limited service; use Kit Part No. 799030
LTH 2000	Limited service; final drive ONLY 8 oz./240 ml Oil
2100	Non-Serviceable
LDP-10	Non-Serviceable

RIGHT ANGLE AND T-DRIVES

Model No.	Quantity
All Models Except *	4 oz./118 ml Grease
*1408-P91 *1409-P91 *1410-P91 *3002 *3003 *3028 *3029 *3035	3 oz./89 ml Grease
1000 Series	6 oz./180 ml Oil †††
1100	16 oz./473 ml Oil

DIFFERENTIALS

All Models	3 oz./89 ml Grease

TWO SPEED AXLE

All Models	2 oz./59 ml Grease

THREE SPEED AXLE

All Models	2 oz./59 ml Grease

Grease: Bentonite Grease
Part Number 788067B

Oil: SAE E.P. 80W90 Oil
Part Number 730229A

† Refer to O.E.M. Technician's Manual for type of lubricant.

†† To be filled through shift lever opening.

††† Some 1000 Right Angle and T-Drives use Bentonite Grease.

†††† Tecumseh's current policy on VST and 1800 Series transaxles with internal failure, is to replace the complete unit. VST and 1800's have two separate reservoirs which can be checked for diagnostic purpose only. The output gear reservoir can be checked with a small pocket rule as outlined in the Tecumseh & Peerless Transmission and Drive Products Handbook.

Refer to Tecumseh & Peerless Transmission and Drive Products Handbook, 691218.

Repair Manuals

Service Number 740043 or 695244A

† OHM120
‡ OH318SA (OHSK110), OH358SA (OHSK120-130)
OH318EA (OHM90-110)
† OHM120
OH195EA (OHH60), OH195EP (OHH65)
OHH/OHSK40-130
OH195SA (OHSK70), OH195SP (OHSK75)
‡ OH318SA (OHSK110), OH358SA (OHSK120-130)
OH180
OVM120
* OVXL120,
* OVXL/C120
* OVXL125
OV195EA
OV358EA (OHV110-135)
OV490EA (OHV140-180)
OV691EP (VTX691, TVT691)
OVM120
* OVXL120
* OVXL/C120
* OVXL125

Service Number 691462A

HH140-160
OH120-160

Service Number 740047 or 692508

AH520
AH600
HSK840
HXL840
TC200
TCH200 Type 1500
TH098SA (HSK600), HSK635
TH139SA (HSK845, 850)
TH139SP (HSK870)
AV600
TV085XA (AV520)
TVS600

Service Number 694988

TVS840
TVXL840

Service Number 694782

TCH300
TM049XA (TC300)

Service Number 740049 or 692509

ECV100-120
HMSK70, LH318SA (HMSK80), HMSK90,
H22
H25
H30-80
HM70-100
HH40-120
HHM80
HMXL70
HT30
HT35
HXL35
HS40-50
HSK30-70
HSSK40, LH195SA (HSSK50), LH195SP (HSSK55)
LH358SA (HMSK100), HMSK110
LAV25-50
LEV80, LV148EA (LEV90), LV195EA (LEV120)
LV148SA (VSK90), VSK100
TNT100
TNT120
TVS75-120
TVXL90-120
TVM125-170
TVM195-220
TVXL195-220
V40-80
VH40-100
VM70-100
VLV-ALL

Service Number 740045 or 691218

100 Series Differentials
MST200 Series Transaxles
300 Series Transaxles
600 Series Transaxles
601 Slow Speed Transaxle
700 Series Transmissions
700H Series Transmissions
800/801 Series Transaxle
820 Series Transmission
900 Series Transaxles
910 Series Transaxles
915/940 Series Transaxles
920 Series Transaxles
930 Series Transaxles
1000/1100 Series Right Angle / T-Drives
1200 Series Transaxles
1300 Series Transaxles
2300 Series Transaxles
2400 Series Transaxles
2500 Series Transaxles
2600 Series Transaxles
VST Transaxles

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Grafton, Wisconsin 53024

1-800-558-5402

Form No. 696533 Litho In U.S.A. R 5/04