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TECUMSEH

Update 2006



ENGINES & TRANSMISSIONS

FACTORY TRAINING

www.mymowerparts.com

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4-Cycle

OV490 Improvements

Vibration and sound are always a concern on any piece of equipment. Through on going efforts to improve these characteristics on the OV490 engine, we have made significant advances. Tecumseh has decided to make these premium features basic.



Vibration Improvements OV490

We continue our efforts to build an engine with performance standards that are unmatched in the industry. Tecumseh has made a number of changes to the OV490 engine that significantly reduce vibration. These efforts include a new lightweight piston with a redesigned skirt profile, a dynamically balanced crankshaft and balanced dual countershafts.



Sound Improvements OV490

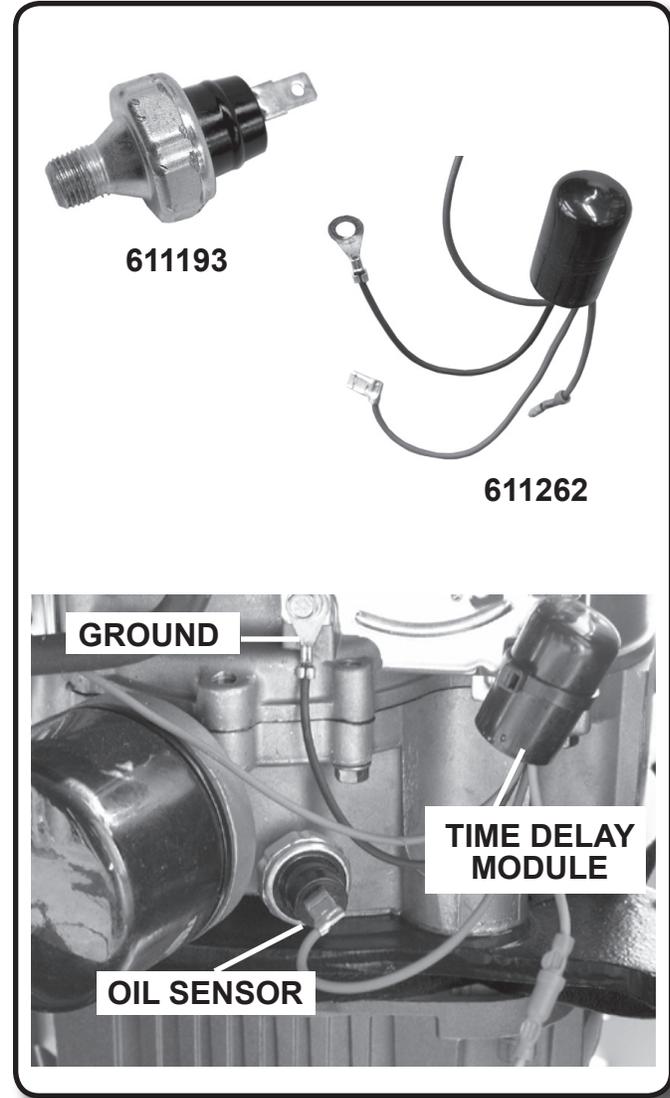
We have also made improvements to help lower the noise being emitted by both internal and external components of the engine. The blower housing is made of a laminated steel which reduces its harmonic vibration and dampens engine noise. The lightweight piston with its profiled skirt and lighter valve springs also to help reduce noise levels.



4-Cycle

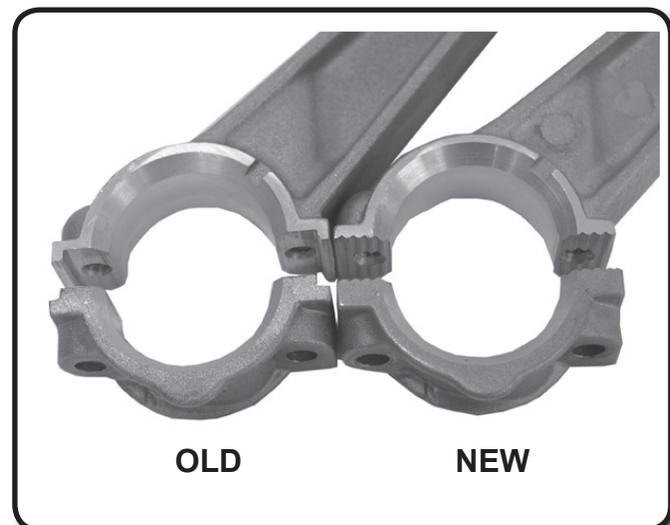
Time Delay Module

Many engines designed to run for extended periods of time use some type of oil level or pressure detection system to protect the engine. One of the systems we use today incorporates a time delay module. This system requires an oil sensor, which detects oil pressure in the engine. In this type of system it is necessary to delay the sensors ability to shut the engine down at start up until the oil pressure is significant enough to be measured. This requires a time delay system which operates for five to twenty seconds at 1500 RPM, before the sensor is activated. There are three tests that can be preformed on the components of this system to trouble shoot the unit. To TEST THE SYSTEM disconnect the red wire from the oil sensor and the black wire from the ground and check the ignition spark. If the engine has spark, continue to test the individual components. To test the TIME DELAY MODULE, disconnect the red wire from the oil sensor. Start and run the engine at low speed (about 1500 to 1750 RPM). Use a jumper wire with insulated alligator clips to connect the red wire to the engine block. These are live wires and caution should be taken to avoid contacting them. The engine should stop running in about 5 to 20 seconds. If the engine does not stop, replace the delay module, the part number for the module is **611262**. If it does stop, test the oil sensor. To TEST THE OIL SENSOR, disconnect the red wire from the oil sensor and connect an ohmmeter between the engine frame and the terminal on the oil sensor. While the engine is off, the ohmmeter should indicate closed contacts (low resistance). Start the engine, and with the engine running, the ohmmeter should indicate open contacts (infinite resistance). If the oil's sensor fails either of these tests, replace the oil sensor, part number **611193**.



OV195EA Rod Change

The OV195EA is changing the style of the joint between the connecting rod and rod cap. This was done to standardize the process in machining and assembly for LV and OV195 engines. The OV195 rod will be changing from a stepped joint to a serrated joint. Always remember that it is critical that the match marks on the rod and cap must face each other and face out toward the technician when they are assembled. The torque spec on the OV195 rod for both the stepped joint and the serrated will remain at 50-60 in. lbs. (5 - 6 Nm).



4-Cycle

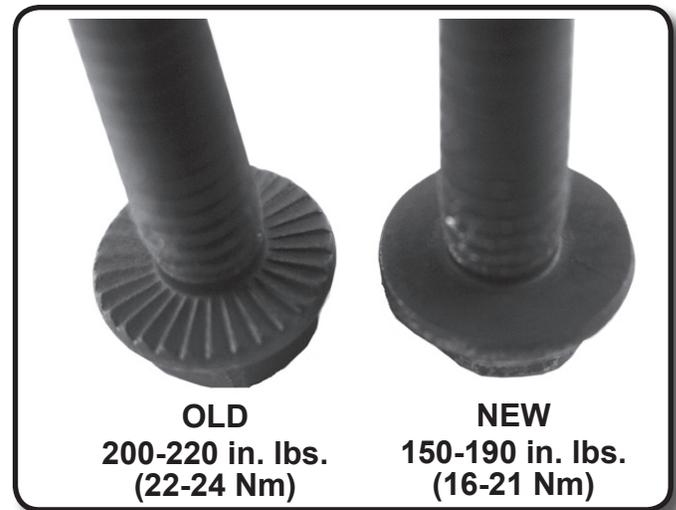
OV195 Flywheel Key Standardized

The current field population of riding lawn mowers built with the OV195 engines is less than one thousand. These engines use a flywheel key different than the one used on rotary lawn mower engines. Because the flywheel key requirements on riding mowers are satisfied by the rotary mower key, it was decided to eliminate the need to carry both keys and crankshafts, and standardize on the key used to comply with rotary lawn mower regulations. This will not negatively affect rider applications. Because keys seldom need replacement on rider applications service will carry just one key. If a replacement is needed contact your source of parts supply.



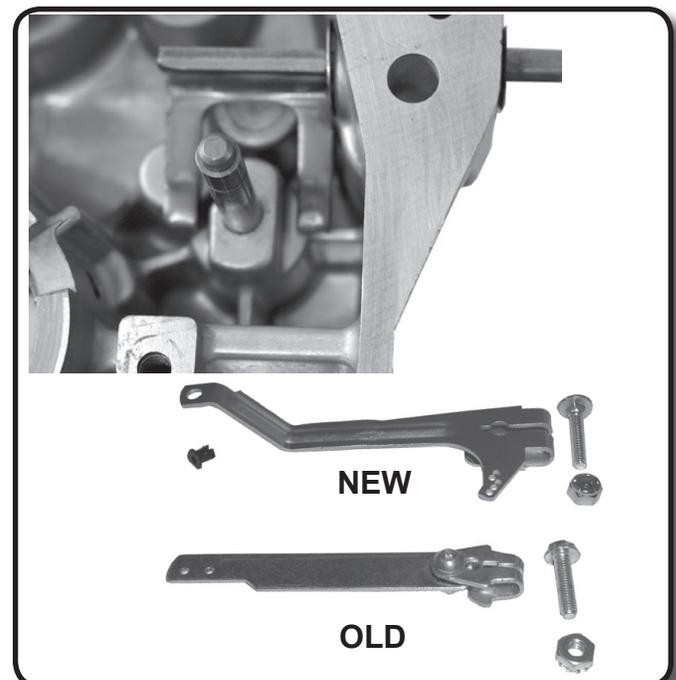
New Rod Bolt Design/Torque Spec to Change

For LH/OH318, LH/OH358, OV358 and TVM220 the rod bolts will no longer have serrations on the bottom side of the head of the bolt. Extensive testing has been done on these models, and it has been found that there was significant increase in torque retention without the serrations. In a situation where serrated rod bolts have been removed it is acceptable to use non-serrated rod bolts to replace the original bolts. The torque specifications will be changing from, 200-220 in. lbs. (22-24 Nm) to 150-190 in. lbs. (16-21 Nm).



New Governor Shaft, Linkage & Cylinder Cover

The LH318, LH358 & OH318 will have a newly designed yoke style governor system. This design rests evenly on both sides of the governor spool and provides quick governor response and a more consistent speed control. A new one piece governor lever has also been incorporated simplifying the adjustment procedure. This eliminates the smaller lever section that attached directly to the governor shaft. The cylinder cover crankshaft bearing area has been beefed up to give added support and strength to the entire cover.

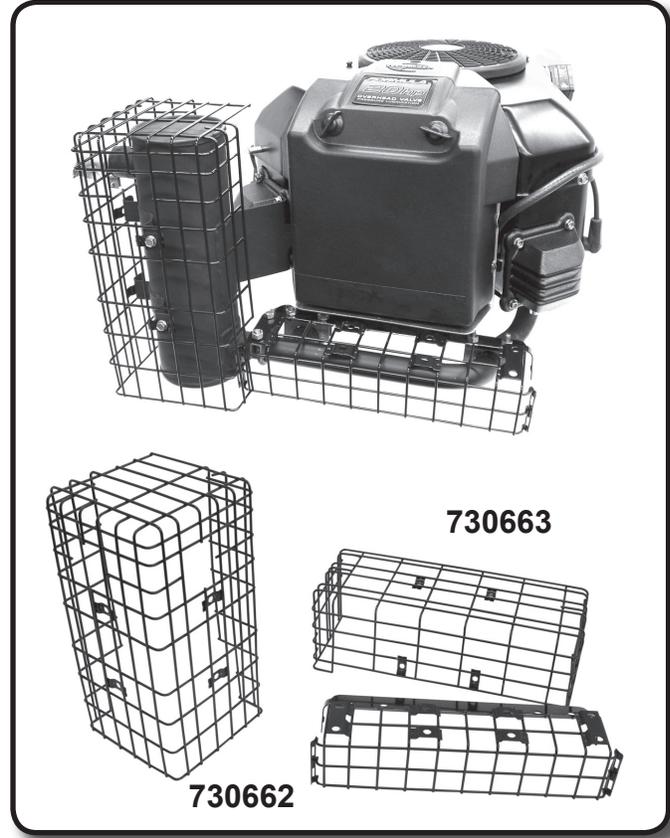


4-Cycle

Muffler Guards for OV691 Twins

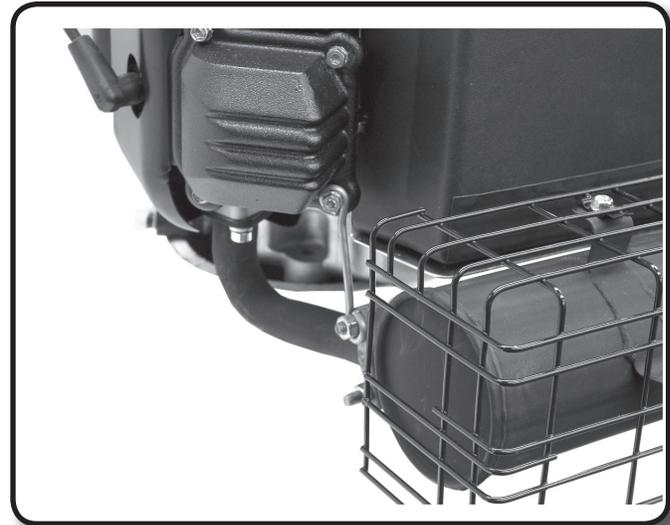
Muffler guards are now available for all the twin muffler systems. These guards will cover both the Muffler and Exhaust Manifold. They are designed to give the equipment operator that added safety feature to prevent unintended mishaps. The horizontal guard part number **730663** accommodates both left and right discharge. The **730662** kit is a two piece kit that includes a guard for the crossover pipe and adapts to left and right discharge.

Muffler Part Number	Description	Guard
730658	Vertical discharge left	730662
730659	Vertical discharge right	730662
730660	Horizontal discharge left	730663
730661	Horizontal discharge right	730663



Twin Muffler Kit 730660 & 730661 Added Support

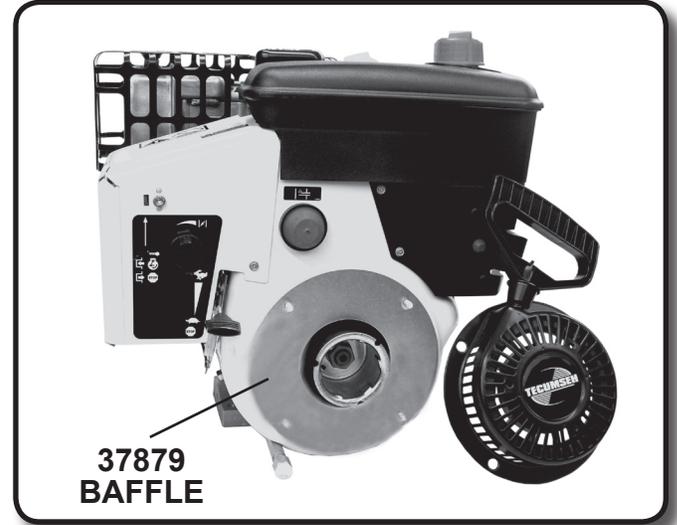
There will be two wire support brackets added to these horizontal muffler kits for twin cylinder engines. These brackets will go from the lower insider rocker box bolt to the muffler clamp on the crossover pipe. These brackets have been added to give the muffler greater support and stability.



4-Cycle

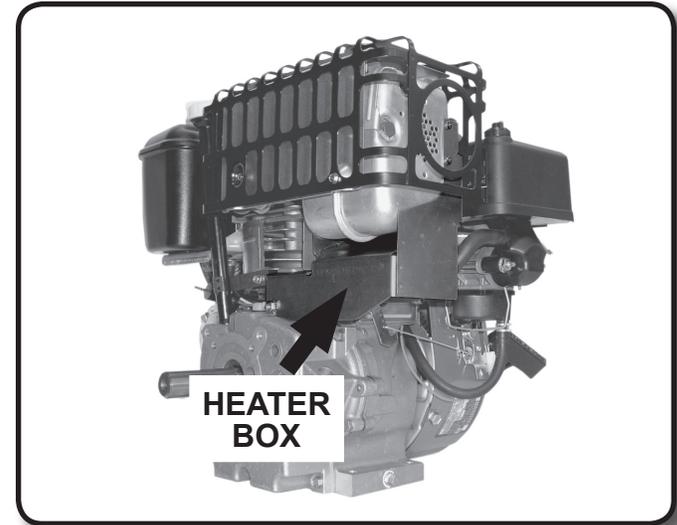
OH318SA Baffle

A baffle is being added to the OH318SA Snow King engine to prevent the potential for freeze ups to occur in the carburetor. This baffle part number **37879** helps the heater box generate sufficient heat to warm the air around the carburetor to prevent moisture from accumulating and freezing. The restrictor baffle is placed between the recoil and the blower housing. The kit will retrofit on existing OH318SA's, but should only be used where there has been a persistent icing problem. This information can also be found on **Service Bulletin 129**.



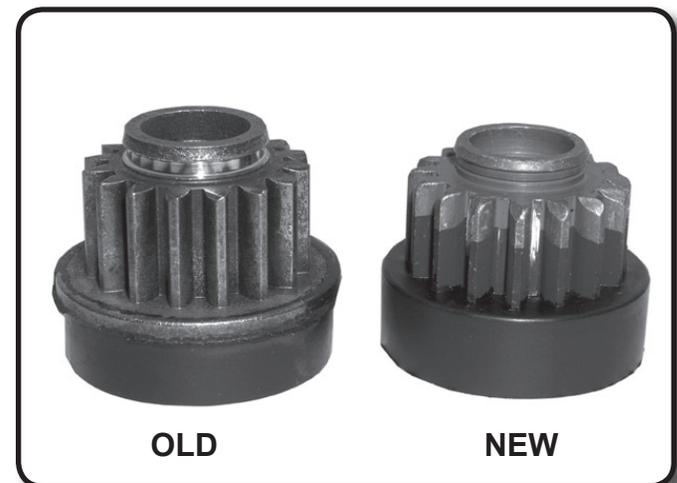
Ariens Power Brush Carburetor Icing

We have received field reports of carburetor icing on the OHM90 & OH318EA (Non-Snow King) engines equipped on Ariens power brush equipment. This typically occurs in conditions of high humidity and a temperature of below 40° F (4° C). Because this engine runs in both summer and winter a new heater box has been designed, (part number **730273**) which directs warmer air from under the muffler straight into the air cleaner intake snorkel when the air cleaner cover is in the winter position. The air cleaner cover position must still be changed for operation based on ambient temperatures. This new heater box only needs to be installed on units, which have exhibited this concern. **Bulletin 131** gives all of the details on any necessary procedures to follow.



120 Volt Snow King Starter Pinion

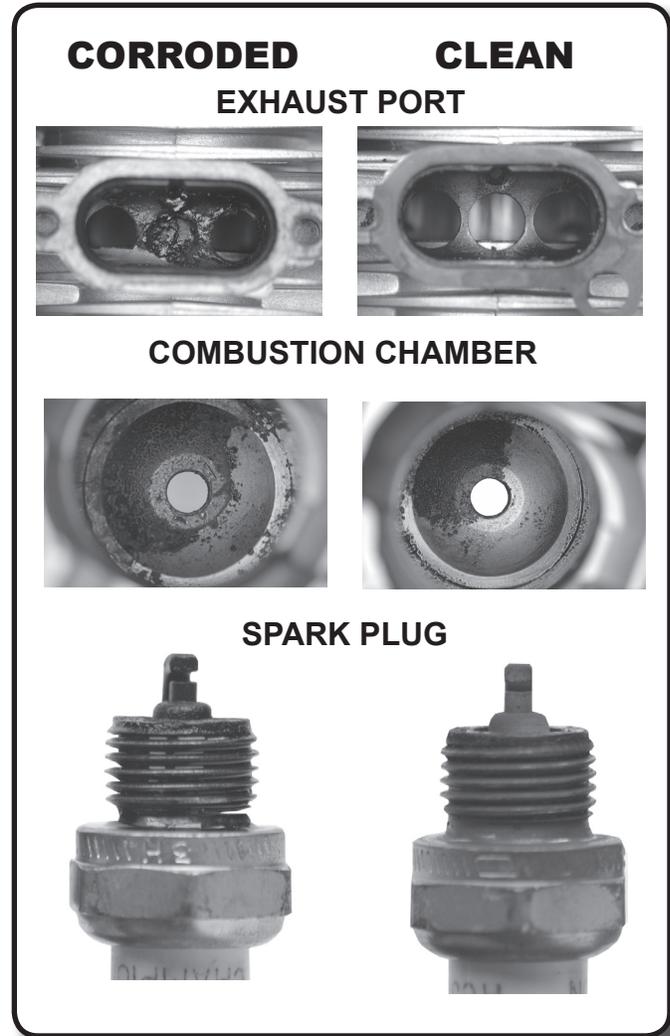
Tecumseh Power uses several different starters on 8-13 HP engines. We have received field reports regarding damaged pinion gears over the past year on one starter in particular, part number 37000. Test results indicate a combination of two changes resolve the matter. The use of a steel cut pinion gear with a slightly different profile has corrected the problem. The pinion gear comes in a kit part number 37052A. This kit includes a number of parts, but the most critical are the pinion and the cap. The old cap will not work with the new pinion. It is recommended to use all of the components in the service kit when making this repair. Do not reuse any of the old parts.



2-Cycle

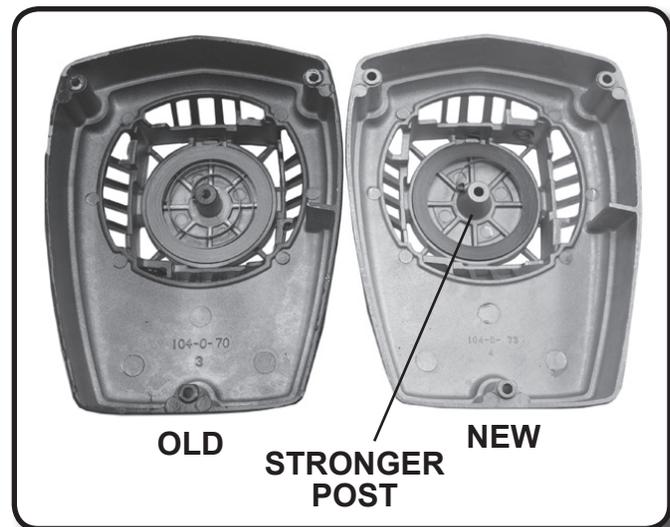
Oil Update

The following pictures depict two different two cycle engines run under identical conditions. One engine was run using a standard, mineral based two cycle oil, and the other with Tecumseh's synthetic blend. These photos illustrate that using Tecumseh synthetic blended oil provides longer life and reduced emissions. With fuel stabilizer already added the upside to the consumer is a plus. These benefits can be experienced in other engines not manufactured by Tecumseh simply by using part number **730227D**. Prove it to yourself. We have included a wall poster in this booklet for you to display in your customer service area to help promote the Tecumseh difference.



TM049 Recoil Change

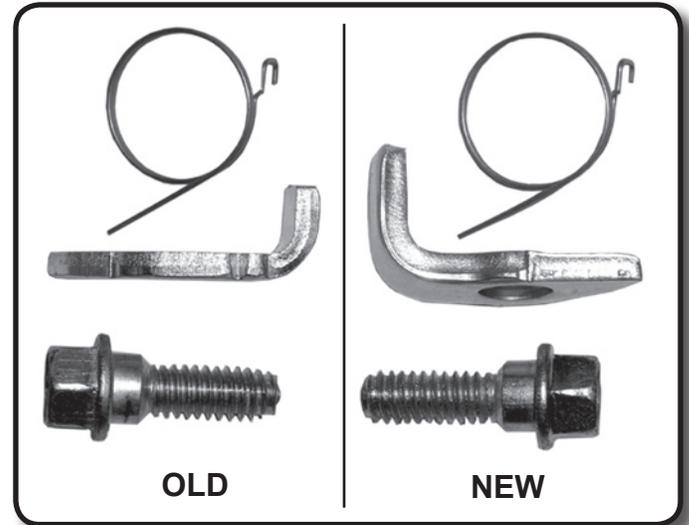
In our quest for product improvement, we have increased the dimension of the center post on the TM049 recoil housing. These changes have made it necessary to also change the components which make up the assembly. The pulley has been changed to accommodate the increased size on the housing post. This dimension change will occur at the bottom of the pulley and will not affect the fit on any existing housings. However, when a new style pulley is used it will require a new recoil spring be used. The new spring is thinner and will allow the recoil rope to extend fully when the rope is pulled. Remember it will now be necessary to replace both components for the recoil to operate properly.



2-Cycle

TM049 Starter Dog Change

The spring loaded starter dogs used on the TM049 have been changed to give some additional strength to help increase cold weather durability. These parts have been thickened which means the space on the tang of the spring had to be widened and the depth on the shoulder of the screw changed to accommodate for that upgrade. These parts will only be sold as a kit (part number **590779**) and will supersede any of the individual component parts from the original spec. The kit will retro fit any existing flywheel that uses these components. Included in the kit are, pawl springs, starter pawls, shoulder screws, recoil spring, starter pulley, washer and two of each, 10-24 x 1-3/8" screws and 10-24 x 13/16" screws.



Painted TM/TC Recoil Starter Housings

Along with the changes made to the internal starter parts on the TM/TC recoils, we are also making available three painted recoil assemblies: They are completely assembled and painted in the more popular colors used on this engine.

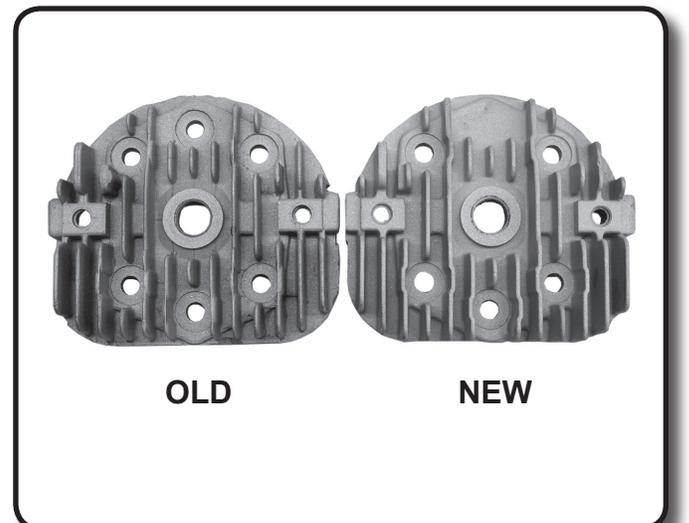
- 590780** - Black
- 590781** - White
- 590782** - Yellow



AVAILABLE IN BLACK, WHITE AND YELLOW

TH098SA 5 Bolt Head

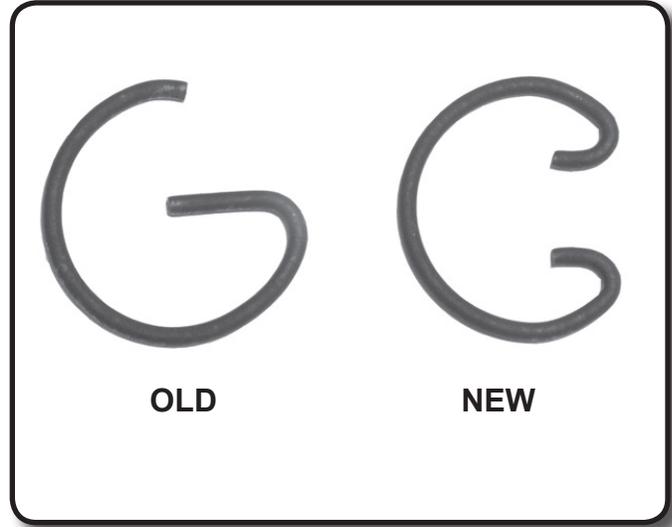
Here is a heads up (no pun intended) for you dealers, who question things when they do not appear the same as they were. The TV085/AV520 has been built with a five bolt head for many years. The success of using this bolt pattern has prompted our engineering staff to change from a 6 to a 5 bolt head on the TH098SA/HSK600. If you have a block that was built with a six bolt pattern and have to order a new head, you may receive a head with a 5 bolt pattern. It will seal properly and not affect the engines performance, even if you have a gasket with six holes.



2-Cycle

Piston Wrist Pin Circlip

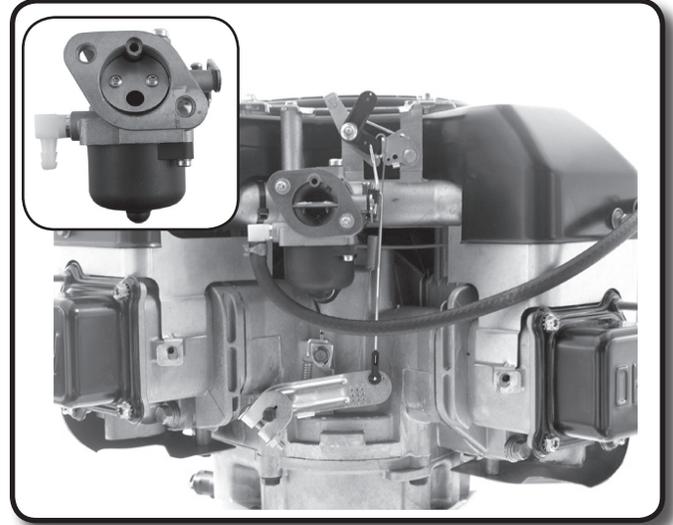
The wrist pin circlip on the TV085, TH098 and TH139 is being changed from a "G" shape to a "U" shape design. The "U" shaped clip will make it much easier to remove and install the circlip into the piston wrist pin area when servicing the engine. This will reduce the possibility of scratching the piston skirt and causing damage to the cylinder bore.



Carburetion

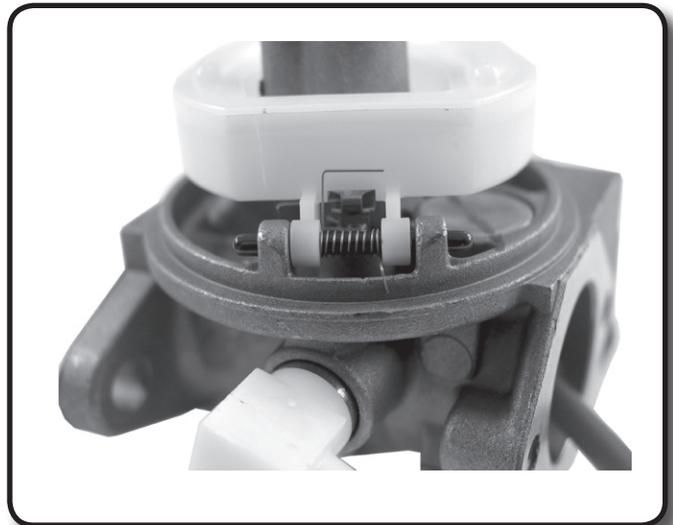
Series "14" Single Carbureted Twin

The series 14 carburetor will be available this year on some of the OV691 engine's as an option. On those selected models this single carburetor feature will be used in place of the proven dual, series "7". It is configured as a horizontal choke and throttle plate operation with an easily serviced composite fuel bowl. None of the critical adjustments such as static governor setting or RPM adjustments have changed, so service is simple.



Composite Float Dampening Spring

The original design of the composite float prevented the use of a dampening spring. There is a new composite float that will accommodate a dampening spring for those applications that need additional float stability. The float and spring assembly comes in a kit part number **632019A**. If individual part numbers are needed for repair or replacement use the number **632815** for the dampening spring and **632816** for the float. The kit or individual parts will retro fit any application that currently has a composite or brass float.



Carburetor Kit Lite

There is a reduced size carburetor kit that is now available in the service system. This basic kit, part number **631021B** provides the most common parts needed to guarantee the integrity of the carburetor when you drop the bowl of a metal bowl carburetor for a quick inspection, carburetor tune up or minor repair. The basic kit includes the inlet needle seat, inlet needle, inlet needle clip, float bowl gasket and bowl nut gasket. When a complete rebuild is needed on a metal bowl Tecumseh carburetor, the universal repair kit part number **632760B** contains all the internal parts needed to complete the job. The **631021B** gives you a basic kit to guarantee the integrity of the inspection or repair without the cost.



Carburetion

Carburetor Cleaning Reminder

Last year Tecumseh introduced the “Accu-Prime” primer system for use on our small vertical shaft engines. As a reminder, we recommend when cleaning any Tecumseh carburetor, to remove all non – metallic parts. This includes the plunger on the Accu-Prime system located under the Primer bulb. For the past several years we have also recommended not to soak the carburetor in carburetor cleaner, because of the use of non-metallic jetting in some internal passages. Using a spray cleaner such as Tecumseh’s “**696410**” carburetor cleaner, tag wire and compressed air is the recommended procedure.



|————— Miscellaneous —————|

Recoil Rope Change

The bulk rope 4.5 mm used for service replacement has been changed in both strength and spool size. Identified by its black color this 250 ft. spool boasts of a 25% increase in strength over the bulk service rope we currently offer. That allows it to be used on all 4 cycle engines through 13 HP. This can only be used on recoils that have the larger diameter pulleys, which covers most engines built for the last 10 years. The part number **730526** will supersede to an “A” as stock is depleted.



Clean Up Valve Guide Reamer

Tecumseh is introducing several clean up reamers. These reamers are designed to recondition the valve guide with out over sizing the guide. This should help with the occasional sticking valve and could be used as part of the tune up procedure for off season maintenance. The three new sizes that are available are, **670395** = .250 (6.350 mm), **670396** = .248 (6.299 mm), and **670397** = .312 (7.937 mm).

This list shows all of the available valve guide reamers and their sizes.

Reamer Part #	Actual size	Diameter range
670328	.2790"/7.086mm	.2787"/.2797" (7.078mm/7.104mm)
670283	.2810"/7.137mm	.2807"/.2817" (7.129mm/7.155mm)
670284	.3438"/8.732mm	.3432"/.3442" (8.717mm/8.742mm)
670395	.2500"/6.350mm	.2497"/.2507" (6.336mm/6.361mm)
670396	.2480"/6.299mm	.2477"/.2487" (6.285mm/6.310mm)
670397	.3125"/7.937mm	.3122"/.3132" (7.923mm/7.949mm)



Miscellaneous

Low Perm Fuel Line

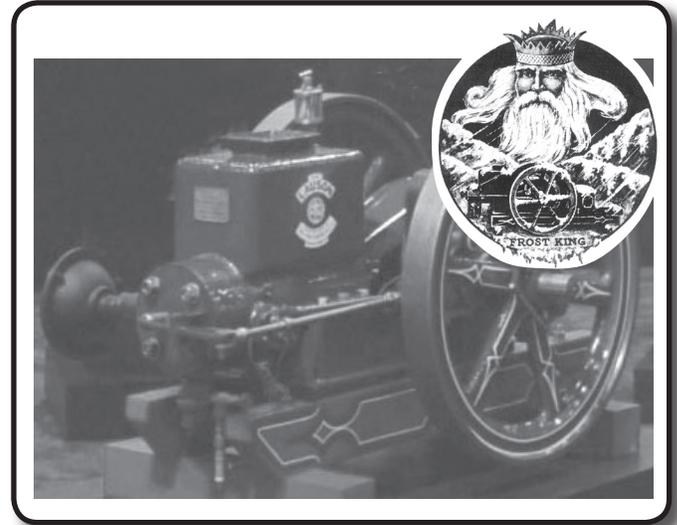
Fuel line has now been designed to meet emissions compliance standards. This regulation takes effect on January 1st, 2006 on production engines sold in California. This new design has a thin membrane of low permeation material molded into the fuel line. This liner eliminates the potential for vapors to permeate the outer layer of the fuel line, and evaporate into the atmosphere. Tecumseh has taken the extreme step to provide this fuel line through our service network to guarantee that our dealer network can meet these standards and avoid any possibility of violating federal regulations. All Tecumseh engines built after October 1st, 2005 will come equipped with low perm fuel line. When servicing any compliance built engine, the repair components must also meet emission standards. It is absolutely imperative that the service replacement part be ordered using the part number listed on the parts list to remain in compliance. Installation of the low perm fuel line will require the use of a small piece of 180-220 grit emery cloth to slightly rough up the fuel tank spud. One revolution performed in a horizontal motion is sufficient. Then use isopropyl alcohol on clean rag to clean the tank spud and wet it for line installation. While the tank spud is still wet from the alcohol push the line back on, but do not twist or kink the line. Re-install the clamp making sure the fuel line is approximately 3/32" (2mm) from tank bottom.



Miscellaneous

Tecumseh Marks 100 Years of Winter Engines

2005 marks the 100th year of manufacturing quality engines for winter applications for Tecumseh Power Company. In 1905 the John Lauson Manufacturing Company of New Holstein, Wisconsin introduced the Frost King, a two horse power, eleven hundred pound power plant. Designed for reliable starting in even the coldest of Wisconsin's winter farm mornings, the engine used a calcium chloride coolant solution to prevent freeze-up.



Today, Tecumseh, who purchased Lauson in 1956, manufactures more than 80% of all snow thrower engines in the world. The Tecumseh Snow King engine line ranges from three to thirteen horsepower in 2- and 4-cycle models.



In honor of the 100th Anniversary, Tecumseh is making available a limited number of special anniversary Winter Power T-shirts. Click on "Merchandise" on our website www.TecumsehPower.com menu to order yours.

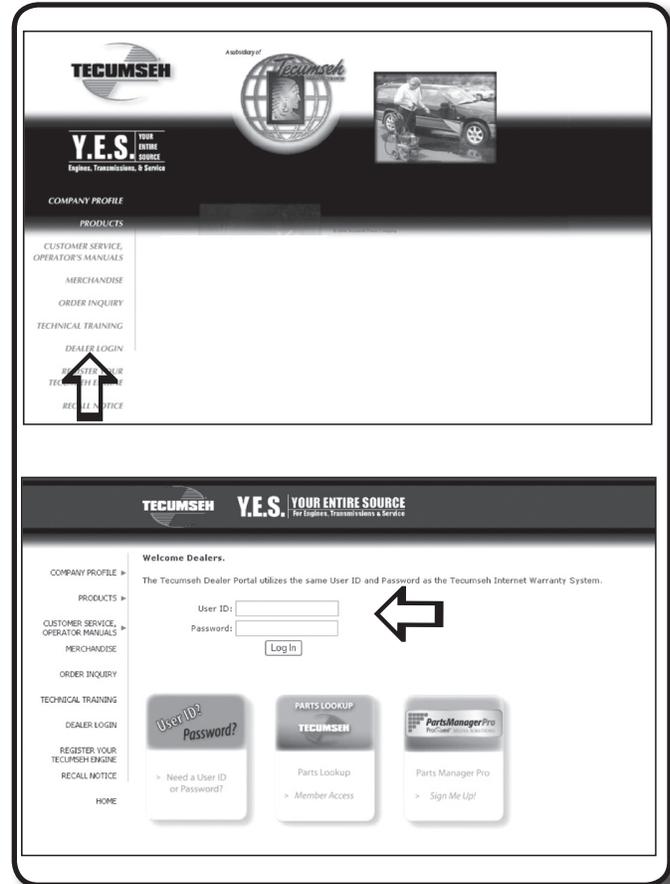


Miscellaneous

Dealer Portal on www.TecumsehPower.com

All Tecumseh dealers can now have immediate access to a number of materials through a special dealer portal on our web site. To access this password protected area, log onto the TecumsehPower main page and click on "Dealer Login". Input your electronic warranty code and password. That's all there's to it. Inside you'll find the latest Technical literature, bulletins, dealer ads and radio scripts, product photos, logos, and more.

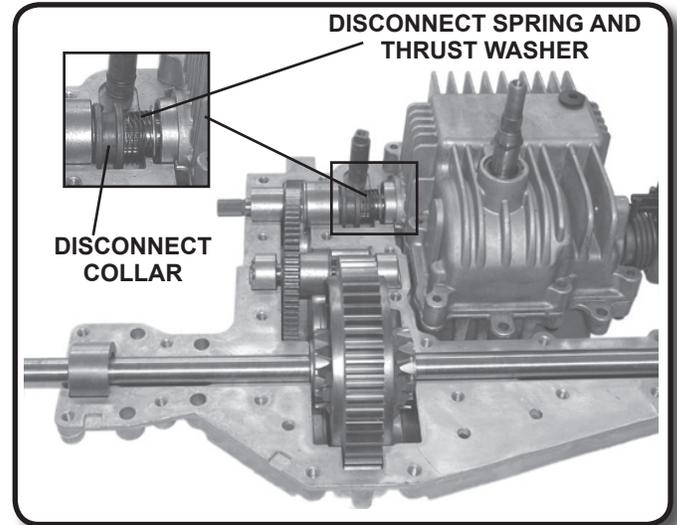
If you are not already approved for our electronic warranty system, there is a form to download to apply. Print it out, fill it in, and mail it to your Central Warehouse Distributor for approval. You will be notified via email of your user name and password.



Peerless

LTH Mechanical Disconnect Change

There has been a modification in the spring used on the mechanical disconnect mechanism of the LTH hydrostatic transaxle. The spring rate has been increased to prevent any units from forcing the connect collar off the drive shaft and disengaging the drive. These incidents occurred only occasionally under extreme conditions. Our warehouse stock has been purged and a running change was made in production. If you experience repeated incidents replace the spring. **Service Bulletin 309** outlines the procedure and tools required to make this repair.



Shift Key Sets

To make things more convenient and prevent from having to delay a repair to reorder a key because you forgot to, we have taken the step to provide the most popular shift keys in sets of two. So when ordering keys for the following models use the new part number, and remember you will now get TWO keys for each order. If equipped with 4 keys it is necessary to order 2 kits.

792089B - 700 Series

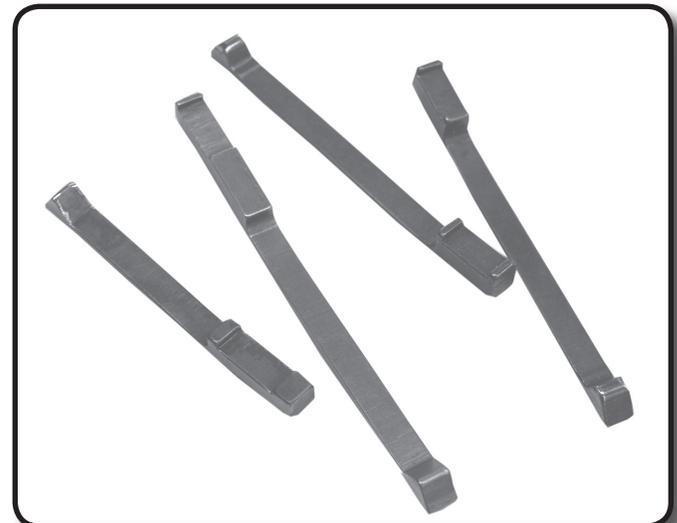
792180A - MST/820 Series (820's 2 kits required)

792223 - 855 Series

792160A - 915 Series

792136B - 930 Series

792156A - 9000 Series



Service Tips

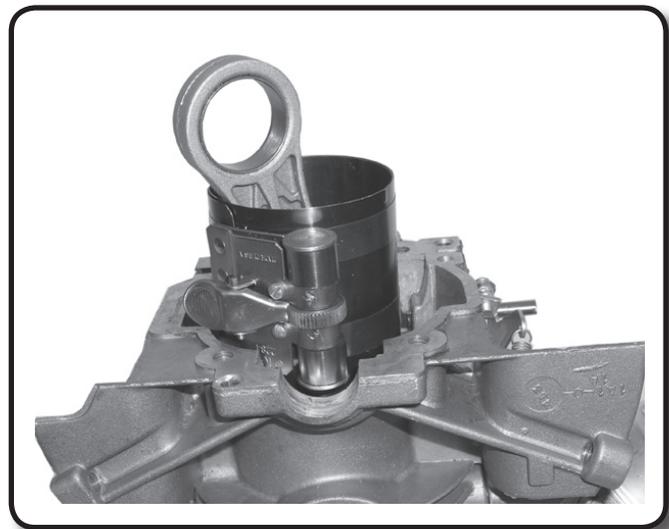
Fuel Line Tool Double Duty

The fuel line removal tool **670382** has been suggested as a handy tool for removing choke and control lever knobs. Often times when servicing engines these items are cumbersome and difficult to remove. Prying them off with a screwdriver or pliers can damage the component because of the press fit used to fasten them. This has been tried on all types of levers and removes them with ease every time.



8 Cube Piston Tip

The popular 8 cubic inch vertical and horizontal shaft engine can at times present some challenges when installing the piston. The engine has no removable head and splits at the crankshaft to service the internal components. The cylinder is tapered so that the rings are compressed when the piston is pressed into the bore. This can be a painstaking procedure if you are short on patience. The following tip was shared at one our training schools this past year. Use the **670359** ring compressor tool to compress the rings as you would on any other two or four cycle engine, but do it in the inverted position. This will allow the release mechanism enough clearance in the crankcase to put the piston in position and tap it into the cylinder.



Tecumseh School Schedule 2005-2006

Tecumseh Factory Training

Tecumseh believes that education is a vital part of meeting the challenges facing our industry.

This season we will again be offering the 4-day training at two of our factory facilities, Grafton, Wisconsin and Dunlap, Tennessee.

Day One

- Information Retrieval Systems
Computer, Microfiche and Paper
- 2-Cycle Engine Theory and hands on covering
TC/TM, HSK and AV engine lines

Day Three

- Enduro TVT Teardown/Reassembly
- Fuel Systems, Emissions
- Carburetors
- Electrical/Charging Systems

Day Two

- 4-Cycle Overview: L-Head and Overhead Valve
- LEV Teardown/Reassembly
- OHH Enduro Teardown/Rebuild and Running
Adjustments

Day Four

- Failure Analysis
- Warranty Procedures
- Transaxle Teardown/Reassembly
MST, 800 and 900 Series
- LTH Overview

In addition to the 4-day training, the Tecumseh Master Technician test will be offered at both factory locations.

Tecumseh Master Technician Benefits

- Certification stays with Technician.
- TMT on staff allows dealer to seek Premier status.
- TMT certification adds value and marketability.

Total cost of package includes:

- Hotel accommodations from Sunday evening through Friday morning.
 - The Grafton school hotel is located nearby in the scenic town of Port Washington, 20 miles north of Milwaukee on Lake Michigan.
 - The Dunlap school hotel is located just a 30 minute drive away in Chattanooga, Tennessee.
- Noon lunches Monday through Thursday.
- Thursday night banquet.
- All class materials.
- Daily transportation to and from class.

Classes in Grafton will run until 12 noon on Friday. Dunlap classes are completed after the Thursday night banquet.

Cancellations must be received in writing 2 weeks before the scheduled training in order to obtain a refund.

Mail this application along with the tuition fee to:

Tecumseh Power Company

900 North Street • Grafton, Wisconsin 53024-1499
ATTN: Education Department, School Reservations

To check for availability call 262-377-2700.



ENGINES & TRANSMISSIONS

Tecumseh Factory Training Application

Please Print

Name: _____ Phone: _____
 Address: _____
 City: _____ State: _____ Zip: _____
 Email Address: _____
 Dealer Name: _____ Dealer Email: _____
 Dealer Address: _____ Fax: _____
 City: _____ State: _____ Zip: _____

4-DAY 2005/2006 SCHOOL SCHEDULE - Factory Facilities

**Grafton, Wisconsin
Date**

Dec. 4-9, 2005

 Jan. 22-27, 2006
 Feb. 5-10, 2006
 March 5-10, 2006
 March 19-24, 2006
 Dec. 3-8, 2006

**Dunlap, Tennessee
Date**

Nov. 13-18, 2005

 Jan. 8-13, 2006
 Feb. 19-24, 2006
 Nov. 12-17, 2006

2006 TEACHER'S SCHOOL

**Grafton, Wisconsin
Date**

June 11-16, 2006
 Aug. 6-11, 2006

**Dunlap, Tennessee
Date**

July 16-21, 2006

School Dates: 1st choice _____ 2nd choice _____

Tecumseh Master Technician Testing

Requirements

- Testing will only be offered for pre-registered applicants
- All applicants must have a current EETC 4-cycle certificate
- A copy of the EETC 4-cycle certificate must be submitted with your application. (see bottom of form)



Tecumseh Master Technician Testing will be available on the final day of school

Please check all that apply

- Single Accommodations **\$475.00**
 Double Accommodations **\$350.00**
 Tuition Only (No Room Needed) **\$200.00**
 Tecumseh Master Technician Test **\$45.00**

TOTAL \$ _____

- Smoker Non-Smoker

**To make payment using a credit card,
please fill out the following information:**

(Check One)

- Master Charge Visa Discover

Print Name (as it appears on card): _____

Account Number: _____

Signature of Card Holder _____

Exp. Date: _____ Phone Number: _____

For registration information call the Education Department: 262-377-2700, fax your application: 262-376-8238 or apply on line at **www.TecumsehPower.com**.

The Tecumseh Support Network Distributors in your area may hold in-house Factory Certified Training. Please contact them for further information.



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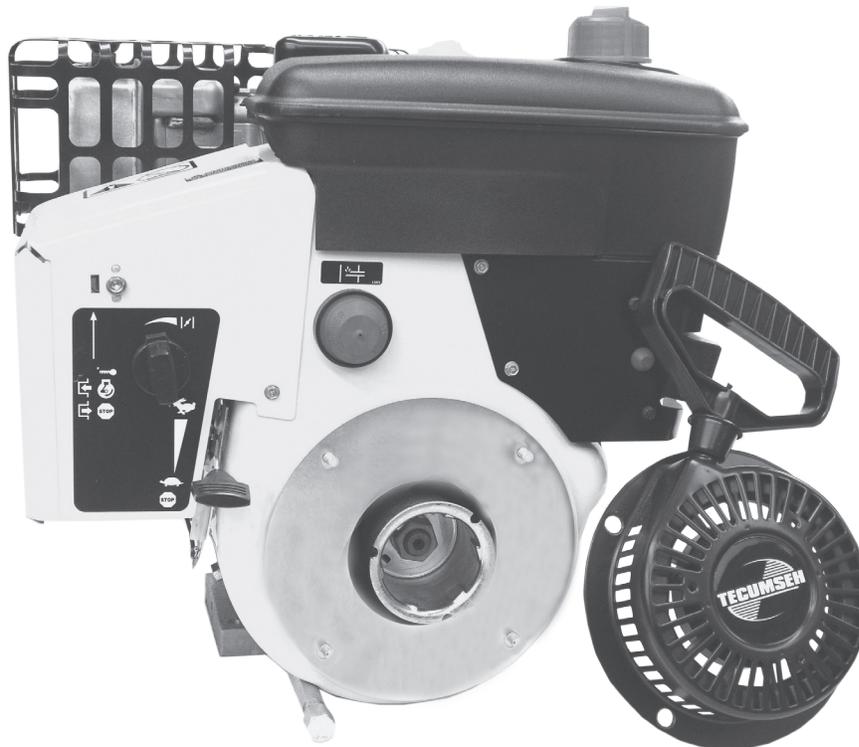
ISSUED: November 1, 2005
SUBJECT: Carburetor Icing
MODELS OR TYPES AFFECTED: OH318SA Snow King

We have received reports from our service network that under certain weather conditions the OH318SA Snow King engine can experience carburetor icing.

Our engineering department has been able to duplicate the symptoms during field tests, and have designed an Air Restrictor Baffle to prevent this from occurring. The restrictor baffle (**part number 37879**) was designed to help the heater box generate sufficient heat to warm the air around the carburetor preventing moisture from accumulating and freezing.

The restrictor baffle is placed between the recoil starter and the blower housing. The kit will retrofit existing OH318SA's, but should only be used where there has been a persistent icing problem.

Simply remove the recoil assembly from the engine, place the air restrictor plate over the recoil-mounting studs. Install the recoil assembly onto the blower housing of the engine and torque the nuts to 80 inch lbs. (9Nm).





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ISSUED: November 1, 2005

SUBJECT: Fuel Starvation, Vapor Locking on Stylized LH318SA & LH358SA

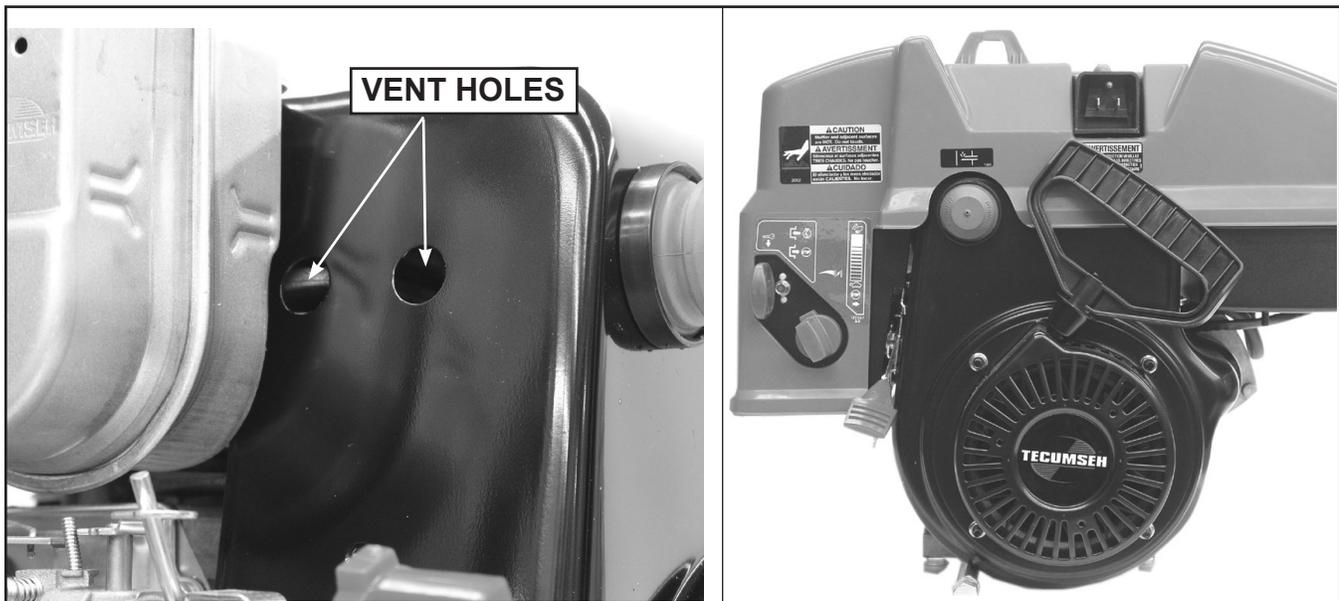
MODELS OR TYPES AFFECTED: Stylized LH318SA/LH358SA Snow King Engines Manufactured before D.O.M. 05220

We have identified a concern with poor run quality under no load on the 2004/2005 stylized LH318/358SA (Snow King) engines. Testing by our engineering department has confirmed that increased carburetor air intake temperatures can occur with the use of some regional blends of fuel.

If a unit with this additional stylized shrouding is brought in for service exhibiting the symptoms of fuel starvation, (after the engine has reached full operating temperature) the condition may be resolved by changing the blower housing.

The new blower housing (**part number 37961**) has two vent holes added to the area just inside the heater box, which reduce the carburetor air intake temperatures.

An electronic or OPEESA -157R warranty claim for part number 37961 and 30 min labor may be submitted to Tecumseh Power Company for this repair.





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ISSUED: November 11, 2005

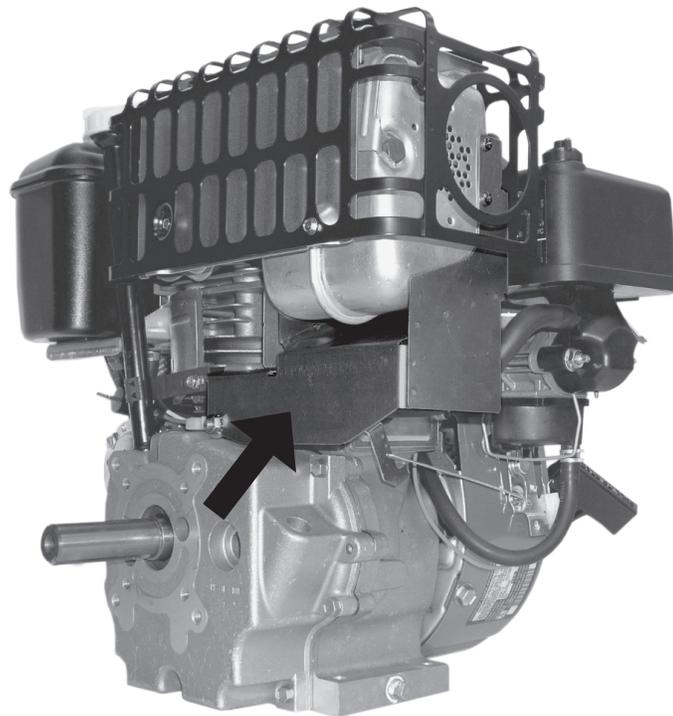
SUBJECT: Carburetor Icing OH318EA Ariens Power Brush.

MODELS AFFECTED: OHM90 – 222304B,C. OH318EA – 222719D,E.

We have received field reports of carburetor icing on the OHM90 & OH318EA (Non-Snow King) engines equipped on Ariens power brush equipment. This occurrence has only been duplicated under conditions of high humidity and a temperature of below 40° F (4° C).

To alleviate this concern a new heater box has been designed, (**part number 730273**) which directs warmer air from under the muffler straight into the air cleaner intake snorkel when the air cleaner cover is in the winter position. The air cleaner cover position must still be changed for operation based on ambient temperatures. This new heater box only needs to be installed on units, which have exhibited this concern.

If a repair is necessary complete and file an electronic or OPEESA-157R warranty claim for 20 minutes.





SERVICE BULLETIN 309 PEERLESS

ISSUED: December 13, 2004

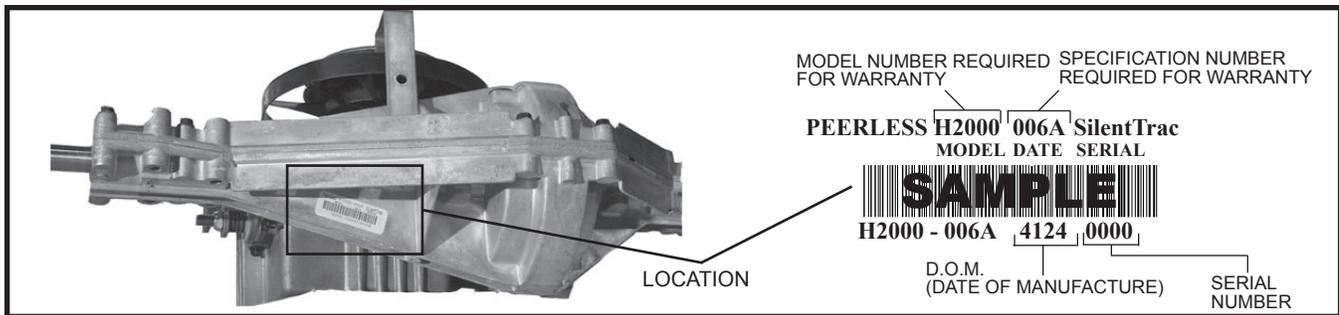
CONDITION: LTH Transaxle Loss of Drive

MODELS OR TYPES AFFECTED: ALL LTH Series Transaxles in the D.O.M. range listed.

D.O.M.'S AFFECTED: 4006 thru 4325

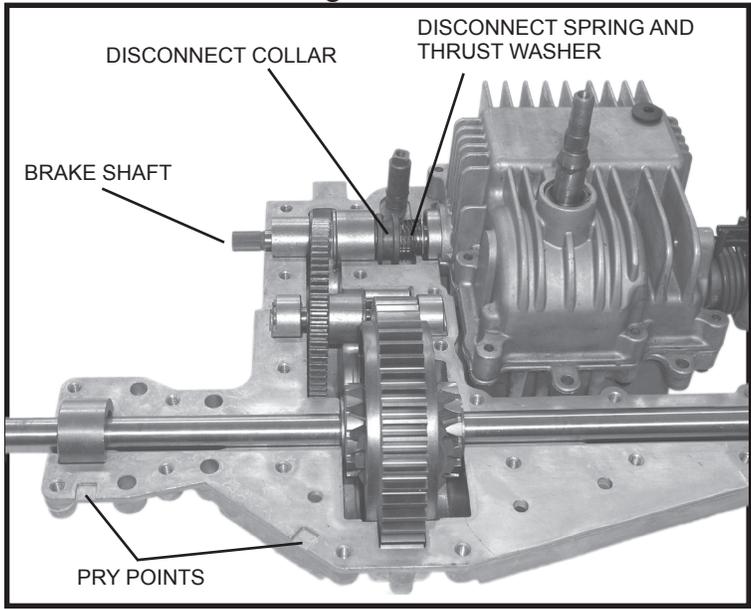
SERVICE KIT NUMBER: 799032

We have identified a situation with the mechanical disconnect mechanism used on our LTH Hydrostatic transaxle. This situation affects a very small percentage of units causing a potential LOSS of drive during operation. This may be described as jumping in and out of gear by the customer.



To verify this problem exists on a unit within the date range listed, please perform the following quick test.
• Place the tractors front wheels against an immovable object such as a concrete wall.
• Start the unit up and move the control mechanism (foot or hand) to the forward position. At this point the units rear wheel(s) should break traction (spin) for a 5 second duration without disengaging. If not, proceed as follows.

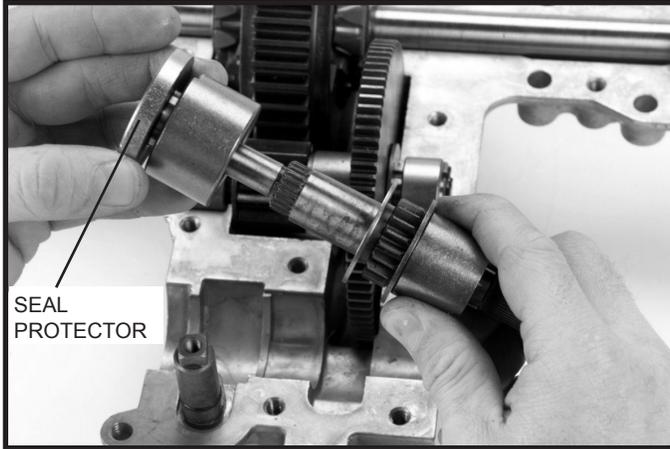
- 1. Remove the transaxle assembly from the tractor.
2. Remove the hydro module from the final drive.
3. Open the final drive unit using the dedicated pry-points found between the case and cover. Then clean the case and cover gasket surfaces.



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309 (Cont.)
PEERLESS

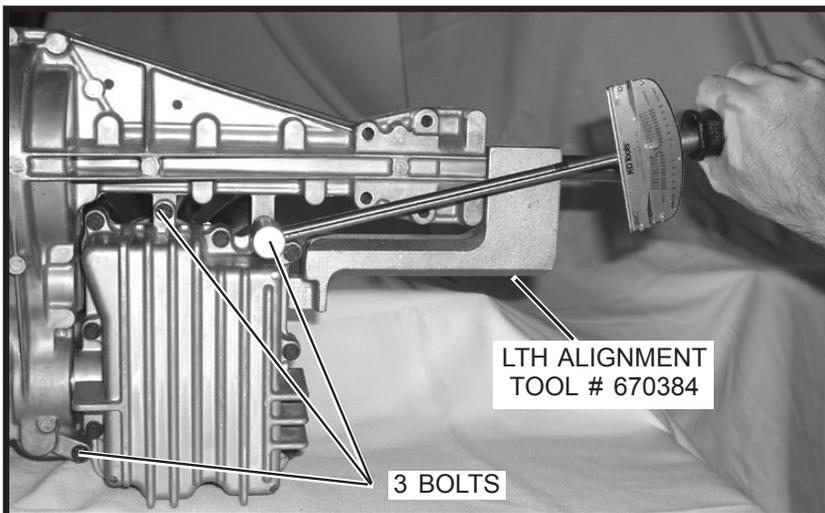


4. Remove the brakshaft, disconnect collar and seal/bearing packs from the final drive.
5. Install the new brakshaft assembly, disconnect collar along with the original seal/bearing packs using the supplied seal protectors. All required new parts are supplied in service kit **799032**.



6. Apply a thin bead of Loctite 598 RTV sealant to the case including the bearing pockets. Install the cover and torque the screws to 90 inch lbs. (10 Nm) in a standard "X" pattern.
7. Install the new disconnect spring and thrust washer, lubricate shaft and spring as directed in the instructions included with the kit.
8. Connect the hydro module drive to the final drive. The alignment of these two modules is critical. The alignment tool **part number 670384** must be used during re-assembly. If you do not already have one, it can be purchased from your Tecumseh distributor.

When complete, file an ESA-157 or electronic warranty claim for the repair and service kit **part number 799032**. Warranty labor reimbursement not to exceed 2.5 hours.



799032

KIT INCLUDES

- New disconnect spring
- New thrust washer
- New brake shaft
- New seal protector - 670394
- Seal protector - 670262A
- Lubriplate grease
- Disconnect collar
- Instruction sheet



ISSUED: February 2005

CONDITION: TRANSAXLE PRECAUTIONARY RECALL. A problem may exist with certain model tractors that could result in the transaxle developing a crack in the axle shaft and failing.

MODELS OR TYPES AFFECTED: MST206-545C

TRANSAXLE D.O.M. (Date of Manufacturer) RANGE: 4275G – 5047G

* **NOTE:** **ONLY** units equipped with the “**G**” suffix letter in the D.O.M. range listed above, need be replaced.

We have discovered a problem with the axles used in the above listed model Tecumseh/Peerless transaxle. Under extreme load conditions some of the axles could crack then break. Should the axle break, it may cause a loss of drive, stopping and/or braking ability. These transaxles can be quickly identified by locating the Model/D.O.M. tag (as shown below) checking it against the model and D.O.M. (date of manufacture) listed above.

The tractors equipped with this transaxle have been produced under the Poulan, Poulan Pro and Husqvarna brand names, between December 13, 2004 and February 13, 2005.

Should you have one of the potentially affected models in stock **DO NOT ALLOW** it to be sold without having the transaxle replaced using the following procedure. Should you have a unit come in for repair that has a broken axle in this DOM range please replace the complete transaxle.

A service replacement kit (**part number 799033**) can be ordered from your normal source of supply.



This service kit will contain anti-seize compound for the axles and instructions to perform the replacement of the transaxle.

Due to the nature of the repair we are requiring the OPEESA warranty claim contain the manufacturers complete model and serial number found under the seat. Write the OEM model and serial numbers in Box 12 of the claim.

Warranty reimbursement will be based on the following times.

Unit Inspection:	15 minutes per unit
Remove and Replace the transaxle and inspection	1.5 hours per unit

Should pick-up and delivery or a trip charge be required, Tecumseh will reimburse up to \$30.00 per unit. Any potential charge above that amount must be pre-approved by Tecumseh. When complete, file the standard OPEESA-157 warranty claim with Tecumseh.

If replacement was required, place the removed transaxle back in the original shipping box along with the warranty claim and return it directly to Tecumseh. In the case of E-warranty, you must print a copy of your claim from the system and insert it in the box.

Please note that **NO** claims for replacement labor will be processed without receipt of the defective unit by Tecumseh.



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ISSUED: December 2, 2005

SUBJECT: Potential Fuel Leakage from Low-permeation Fuel Line

MODELS OR EQUIPMENT MANUFACTURERS AFFECTED: See Attached List

D.O.M. (date of manufacture) RANGE AFFECTED:

05241C thru 05286C (Dunlap – ALL EXCEPT TM049, TH098, TH139, OV358, OV490, OV691)

05256J thru 05286J (Corinth – ALL EXCEPT LV148/195), and

05272J thru 05286J (Corinth LV148/195 only)

We have discovered a potentially HAZARDOUS situation with engines manufactured at two different plants during the above listed D.O.M. ranges. This situation requires your **IMMEDIATE** attention to prevent any potential fuel leakage. Engines in the listed D.O.M. ranges have the potential for the fuel line to come loose at the fuel tank outlet/spud. Once an engine is confirmed to be in the affected Model, Specification, and D.O.M. range, the following inspection/repair must be done prior to use of the machine.

If you have sold any of the listed products since **August 29, 2005**, we are asking your cooperation in contacting the customer to ask them not to fuel or use the machine until it has been inspected.

Uncrated Inspection Process

The first step is to identify the product by the OEM, Engine Model, Specification number and D.O.M. (see attached list to determine it is in the affected range). If the product is not within the affected range, record the OEM model and serial numbers and submit them on a copy of the attached repair log sheet along with a warranty claim. If a repair is required, proceed to Performing Repair section of this Service Bulletin. For permitted time, see Item 11 under the Performing Repair section of this Service Bulletin.

Crated or Boxed Units Inspection Process

If the unit is still in the box and will stay boxed, the first step is to identify the product by the OEM, Engine Model, Specification number and D.O.M. (see attached list). If the product is not within the affected range, record the OEM model and serial numbers and submit them on a copy of the attached repair log sheet with a warranty claim. If a repair is required, proceed to Performing Repair section of this Service Bulletin. For permitted time, see Item 11 under the Performing Repair section of this Service Bulletin.

1. Carefully open the top of the box (if needed) to locate the position of the engine ID label and fuel tank (fig. 2).
2. Next, cut a small 3-sided flap at that same height as the engine ID label through the side of the box to view the ID label and determine if it is in the affected range. Dependent on the OEM container, this may require the use of a telescoping mechanics mirror and a flashlight to view the ID label (fig. 5). If you are doing multiple machines you may wish to make a template to cut a small opening in the side of the box to access the ID label and the fuel line if needed. If the unit is boxed, reseal it to sellable condition using clear tape.
3. **If the product is not affected**, apply a BRIGHT GREEN 1" (25mm) diameter self-adhesive label (if labels are not available, a GREEN paint pen may be used) below each of the OEM's model identification decal or markings on the box containing the **unaffected** product (this may be as many as 4 locations per box - see fig. 4). Remember to record all OEM numbers and Tecumseh Engine Model, Specification, and COMPLETE D.O.M. Numbers and submit them with your warranty claim and log sheet. This unit is now available to sell.
4. **If the engine is in the affected range**, proceed to performing repair.

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Product that has been previously inspected and or repaired will be marked in one of two ways.

1. Crated/Boxed product that has been inspected or repaired will have a GREEN circle or self adhesive dot approximately 1" (25mm) diameter on the box. This will be located directly below the manufacturer's model/serial identification number (fig. 4). This mark identifies the product as **GOOD** and may be sold and used.
2. Engines in the affected D.O.M. range that have been repaired will have a **YELLOW** paint mark on the fuel line, adjacent to the fuel tank outlet (fig. 3).

Performing Repair:

Recommended tools and supplies:

- Tecumseh fuel line removal tool service part number **670382** or a 5/16" (8mm) or larger flat blade screwdriver is acceptable
- Spare fuel line clamp (if needed) service part number **26460**
- Standard pliers
- Yellow paint pen
- Self adhesive GREEN dot 1" (25mm)
- Clear packaging tape
- Box knife and flat cardboard for template if needed
- Isopropyl alcohol
- Shop rags
- Copies of attached log sheet as needed
- 180-220 grit emery cloth approximately 3/4" (19mm) wide (replace after sanding every (10) tanks)
- Flashlight
- Telescoping mechanics mirror

1. If the unit is crated or boxed, you will need to cut a three sided flap in the box to gain access to the bottom of the fuel tank.
2. Using a standard pliers, slide the fuel line clamp down the line and then remove the line using line removal tool part number **670382** or a 5/16" (8mm) or larger flat blade screwdriver is acceptable. Use CAUTION not to pull or stretch the line.
3. Push the line to the side to prevent contamination as shown in (fig. 6).
4. Next use a small piece of 180-220 grit emery cloth to slightly ROUGH up the fuel tank spud, as shown in (fig. 6) - one revolution is sufficient. **DO NOT** perform this in a vertical motion (fig. 7).

NOTE: The emery cloth MUST be replaced after roughing every (10) spuds.

5. Next use isopropyl alcohol on clean rag to clean the tank spud and wet it for line installation.
6. While tank spud is still wet from the alcohol push the line back on. DO NOT twist or kink line. The line should be approximately 3/32" (2mm) from tank bottom. Re-install the clamp.
7. Next use a permanent **YELLOW** paint marker to place a dot on the line as shown in (fig. 3) to mark the unit as repaired. These paint markers are available at many hardware or automotive stores.
8. If the unit is boxed, reseal it to sellable condition using clear tape.
9. Place a 1" (25mm) diameter self adhesive GREEN dot (available at any office supply store) on the outside of the box below any OEM model/serial number location (this may be up to four per carton) as shown in fig. 4. If a self adhesive dot is not available use a GREEN paint pen and place a 1" (25mm) diameter circle in those locations (fig. 4).
10. Record all the OEM model and serial numbers on the attached log sheet and attach to the OPEESA warranty claim or online through Tecumseharranty.com and submit the claim. We will allow batch filing.
 - Paper filing must include the completed log sheet
 - Electronic batch filing will be allowed when the required information is submitted in Box 12 (fig. 1)



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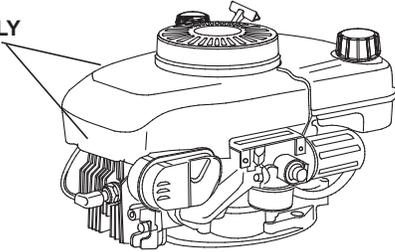
11. Charges will be allowed per the following:
- a. Inspection without repair – 15 minutes
 - b. Inspection with repair – 30 minutes
 - c. Trip charge to repair outlet - \$35
 - d. Miscellaneous shop material - \$2 per unit

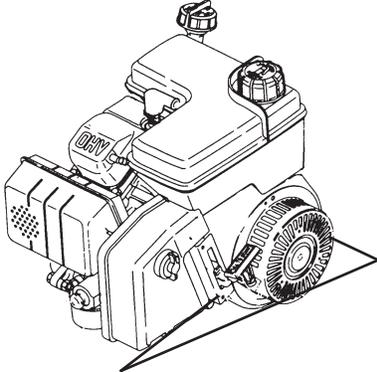
We appreciate your PROMPT attention to this issue.

Engine Model	Spec	Tecumseh D.O.M.	OEM Model	OEM Serial Number
OH358SA	223842F	05285C	3200XX50	2005111100

Figure 1

ENGINE MODEL NUMBER LOCATIONS ON LOG SPLITTERS AND PRESSURE WASHERS ONLY





ENGINE MODEL NUMBER LOCATIONS

⚠ WARNING 2083

To avoid injury or death, read the engine operator's manual and the equipment owner's manual. Call 1(800)558-5402 for engine owner's manual.

--- IMPORTANT ENGINE INFORMATION ---

TECUMSEH POWER COMPANY

THIS ENGINE MEETS 1995-2005 CALIF & US EPA PHASE II APPLICABLE EMISSION REGULATIONS FOR SI SORE ENGINES

FUEL: REGULAR UNLEADED OIL: SAE 30

MODEL: xxxxxxxx WARRANTY: (D)

SPEC: xxxxxx **DOM: 04015A/A0001**

ENGINE FAMILY: 4TPXS.1951BB DISP: 195 cc



AFFECTED RANGE

Plant C

D.O.M. 05241C thru 05286C
ALL EXCEPT TM049, TH098, TH139, OV358, OV490, OV691
or
D.O.M. 05256J thru 05286J
ALL EXCEPT LV148/195

Plant J

D.O.M. 05272J thru 05286J
LV148/195 ONLY

INDIVIDUAL SERIAL NUMBER

Figure 2

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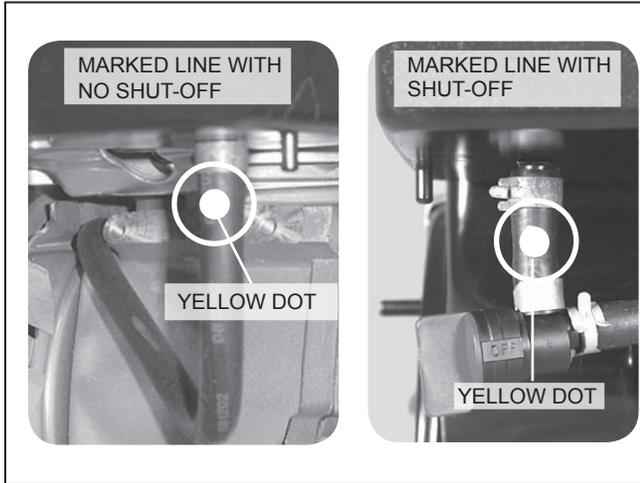


Figure 3

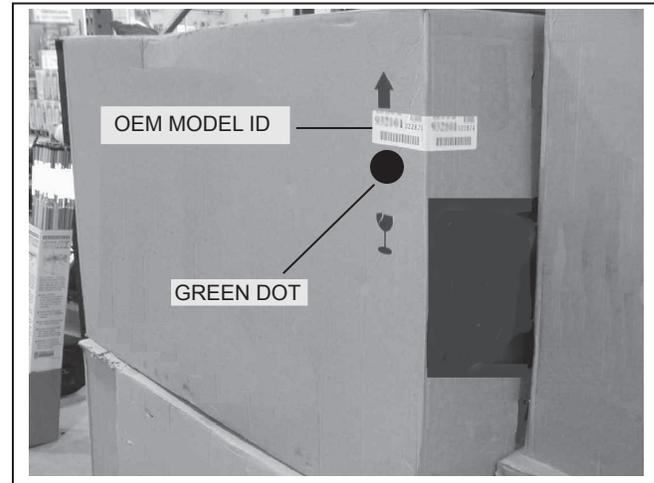


Figure 4

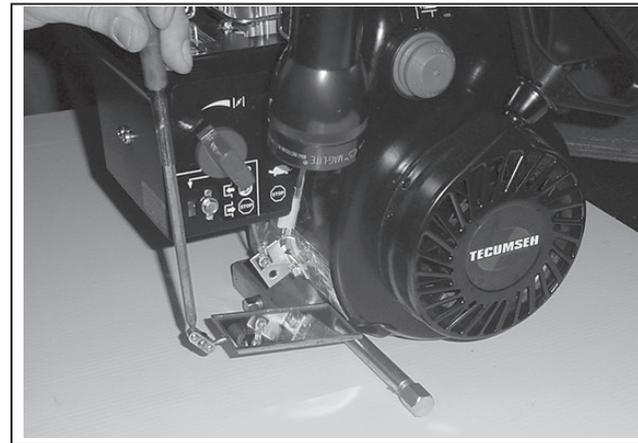


Figure 5

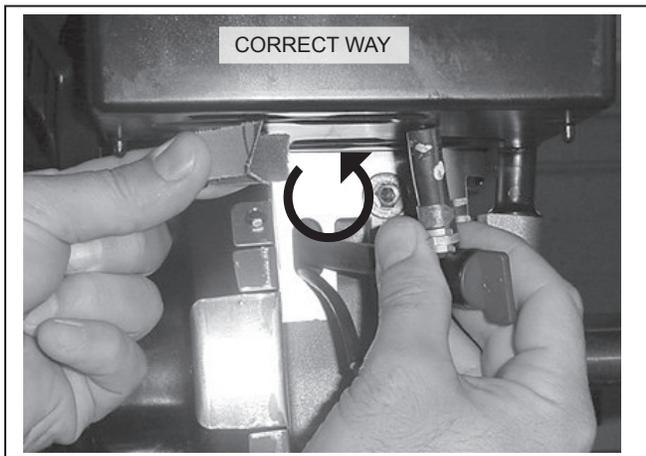


Figure 6

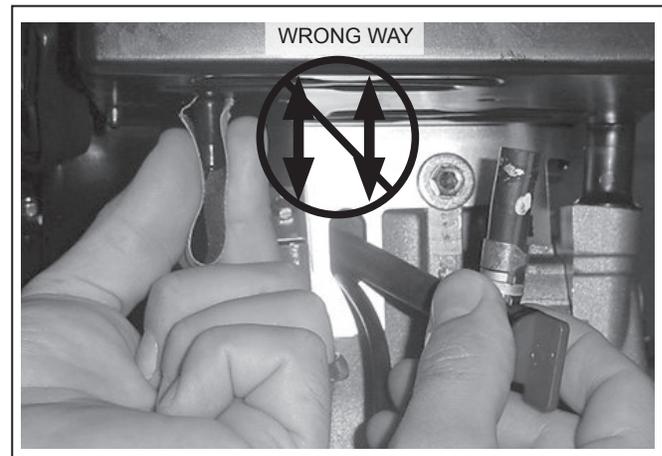


Figure 7



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The following list of OEM's along with engine model and specification numbers are being provided to assist you in your evaluation of potentially affected equipment. Remember ONLY the engines in the D.O.M. range listed in the beginning are affected.

Agri-Fab

HM80-155630Y

American Kleaner

LV148EA-334026B

Ardisam

LV195EA-361569D

TV085XA-670127W

TV085XA-670155W

Ariens

LH195SP-67523D

LH318SA-156582H

LV195EA-361570D

OH195SA-72551G

OH195SA-72558G

OH195SP-73503C

OH195SP-73504C

OH318EA-222719E

OH318SA-221825B

OH318SA-221826B

OH358SA-223841F

OH358SA-223842F

OH358SA-223843F

Carter Brothers

H35-45812B

LV148EA-334041B

OH195EA-71239G

OH195EP-71813B

Coleman

Powermate

HM80-155722X

LV195EA-361540D

EHP *

LH195SP-67524D

LH318SA-156551H

LH318SA-156589H

LH358SA-159622A

LH358SA-159628A

OH195SA-72536G

OH195SA-72549G

OH318SA-221806B

OH318SA-221807B

OH318SA-221813B

OH318SA-221814B

OH318SA-221821B

Feldmann

TV085XA-670119W

TV085XA-670151W

Hoffco

LV195EA-361579D

Ken-Bar

H40-55820D

OH195EA-71156G

MEPCO

TV085XA-670149W

MP Pumps

H35-45801B

OH195EA-71232G

MTD **

LH195SA-67418V

LH195SA-67419V

LH195SA-67424V

LH195SP-67513D

LH195SP-67514D

LH195SP-67517D

LH318SA-156553H

LH318SA-156554H

LH318SA-156568H

LH318SA-156583H

LH318SA-156584H

LH318SA-156585H

LH318SA-156586H

LH318SA-156587H

LH358SA-159502Z

LH358SA-159503Z

LH358SA-159506Z

LH358SA-159513Z

LH358SA-159517Z

LH358SA-159614A

LH358SA-159615A

LH358SA-159617A

LH358SA-159621A

LH358SA-159624A

LV195EA-361571D

OH195EA-71268H

OH195SA-72525G

OH195SA-72528G

OH195SA-72552G

OH195SA-72556G

OH195SA-72561G

OH195SA-72562G

OH318SA-221808B

OH318SA-221816B

OH318SA-221817B

OH318SA-221830B

OH318SA-221832B

OH358SA-223828F

OH358SA-223829F

OH358SA-223830F

OH358SA-223844F

OV195EA-23514B

MTD Products

Aktiengesellschaft

OV195EA-23513A

Murray ***

LH318SA-156577H

Northern Tool ****

HM80-155713X

LV148EA-334029B

LV195EA-361556D

LV195EA-361595D

Service Engines

H30-36702C

H35-45814B

HM100-159376W

HM100-159379V

HM100-159451V

HM80-155627X

HM80-155656Y

OH318EA-222722E

TVM220-157264L

TVM220-157299L

TVM220-157308L

LH358SA-159606A

LV148EA-334040B

LV195EA-362014C

LV195EA-362046C

OH318SA-221824B

Riordan

HM80-155651Y

HM80-155726Y

Toro

LH318SA-156563H

LH318SA-156564H

LH358SA-159625A

LV195EA-362003C

OH318SA-221812B

* EHP units include the following brands - Husqvarna and Poulon

** MTD units include the following brands - Yardman, Yard Machines, White, Troybilt, Cub Cadet

*** Murray - Product is branded Craftsman Canada only

**** Northern Tool is sold as North Star brand

2006 Update Seminar Technician Test

1. What is the part number of the starter pinion gear kit used to repair damaged starter pinions on 8 -13 HP Snow King engines?
 - A. 37000
 - B. 33032D
 - C. 37052A
2. How long is the delay on the low oil shutdown system time delay module?
 - A. 1 to 4 seconds
 - B. 5 to 20 seconds
 - C. One minute when the engine has reached operating temperatures.
3. What is the part number of the Low oil sensor?
 - A. 611262
 - B. 611193
 - C. 611111
4. A restrictor baffle has been added to the OH318SA. What is the application that this engine is used on?
 - A. Utility
 - B. Generator
 - C. Snow Thrower
5. Where is the restrictor baffle placed on the OH318SA engine?
 - A. Between the recoil and blower housing.
 - B. Between the blower housing and the heater box.
 - C. Between the air filter and the carburetor.
6. With the change to the OV195 rod cap from stepped to serrated, the torque has?
 - A. Increased
 - B. Decreased
 - C. Stayed the same
7. What are the primary characteristics that were addressed with the improvements made to the OV490?
 - A. Horsepower and Torque
 - B. Sound and Vibration
 - C. Heat and Displacement
8. Why did Tecumseh go to a smaller flywheel key on the OV195?
 - A. To standardize on one key for both rotary and rider engines.
 - B. To change the timing so the engine could be used on lawn mowers.
 - C. To allow a heavier flywheel to be used for utility applications.
9. The two wire brackets added to the 730660 and the 730661 twin muffler kits serve what purpose?
 - A. They transfer heat to cool the muffler.
 - B. They are used for decoration only.
 - C. They help support and stabilize the muffler.
10. Why has the starter components changed on the TM049?
 - A. To increase cold weather durability.
 - B. To add weight to the flywheel for smooth performance.
 - C. To allow for changes in the flywheel design.
11. What prevents the warm air from the heater box from being forced into the air filter during the summer on the Ariens Power brush?
 - A. Ambient temperature
 - B. A small metal disc
 - C. Rotating the Climate Guard air filter cover to the summer position.
12. How many Factory Dealers schools are there in 2006?
 - A. 8
 - B. 10
 - C. 11
13. What other uses can the 670382 Fuel line removal tool be used for?
 - A. Removing wing nut on air filter covers
 - B. Removing choke and speed control lever knobs
 - C. Removing carburetor welsh plugs

2006 Update Seminar Technician Test

14. You can only replace a composite float with the new style float and dampening spring?
 - A. TRUE
 - B. FALSE
15. What is the torque spec on the medium frame engine rod bolts without serrations?
 - A. 200 – 220 in. lbs.
 - B. 318 – 358 in. lbs.
 - C. 150 – 190 in. lbs.
16. Can the non serrated rod bolts on medium frame engines be used to service serrated bolts?
 - A. YES
 - B. NO
17. What style is the redesigned governor on the LH318, LH358 and OH 318?
 - A. Center Force style
 - B. Side Force style
 - C. Yoke style
18. Which 2-cycle engine has already used a 5 bolt head for years?
 - A. TV085/AV520
 - B. TVS/HSK 840-870
 - C. TC200 - 300/TM049
19. On a 2 cycle engine, you can use a head gasket with a 6 bolt pattern even if the head has a five bolt pattern.
 - A. TRUE
 - B. FALSE
20. What are the part numbers for the two muffler guard kits for the twin cylinder engine?
 - A. 730658 & 730695
 - B. 730660 & 730661
 - C. 730662 & 730663
21. How many Reamers does Tecumseh have that are for clean up and not for oversizing.
 - A. Three
 - B. Six
 - C. None
22. What are some of the benefits of Tecumseh's synthetic blended two cycle oil?
 - A. Longer life and reduced emissions
 - B. Fuel stabilizer
 - C. All of the above
23. What was done to the LTH hydrostatic transaxle to prevent the mechanical disconnect from becoming disengaged?
 - A. Disconnect collar widened
 - B. Spring rate on the disconnect spring increased
 - C. Disconnect shaft lengthened
24. The Tecumseh Web site has a special Dealer Portal. To access the information provided there you need to click the "Dealer Login" and enter your password and what number?
 - A. Day and year of birth
 - B. Social security number
 - C. Electronic warranty code
25. Tecumseh has been building winter application engines for 100 years what percent of the snow thrower engines built since 1956 use Tecumseh engines?
 - A. 60%
 - B. 75%
 - C. 80%
26. What special feature is incorporated into the low perm fuel line to prevent vapors from evaporating into the atmosphere?
 - A. Metal liner
 - B. Thin low perm membrane
 - C. Fiber liner
27. How many shift keys do you get when you order any key part number?
 - A. 1 key
 - B. 2 keys
 - C. 4 keys

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28. How many feet is on a spool of the 4.5mm black bulk service rope?
- A. 250 ft.
 - B. 275 ft.
 - C. 200 ft.
29. What major change has taken place on the OV691 twin cylinder engine this year that will be available as an option?
- A. A series "14" single carburetor option.
 - B. A series "7" single carburetor option.
 - C. A series "14" dual carburetor option.
30. Which carburetor kit is the best to use when doing a quick inspection or repair that only requires you to drop the fuel bowl?
- A. 632760A
 - B. 631021A
 - C. 631021B

For Discount Tecumseh Engine Parts Call 606-678-9623 or 606-561-4983

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