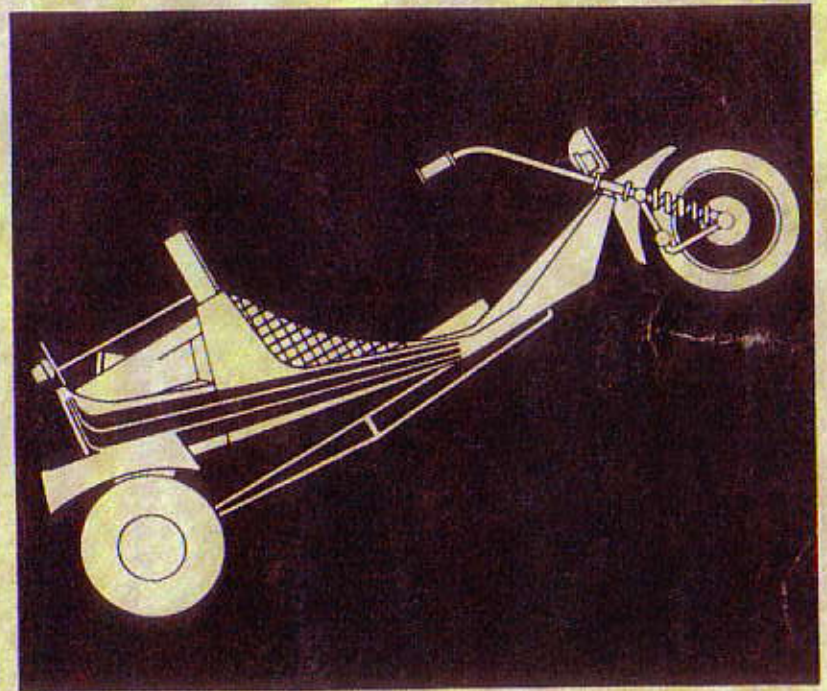


ALSPORT **Tri-Sport '74**



OWNER'S MANUAL



84 Whittlesey, Norwalk, Ohio 44857

LaGuadeloupe, Frontenac County, Quebec

759-330



congratulations

... On your becoming the proud owner of a new Alsport Three-Wheeler ... and thank you for selecting Tri-Sport, internationally known for its superior engineering and excellent workmanship.

A few moments spent with the Tri-Sport Owner's Manual, will help you maintain your Tri-Sport in top operating condition at minimum expense.

By riding your Tri-Sport **safely** you will derive maximum enjoyment and satisfaction from your valuable investment. A 3-wheeler, with high power-to-weight ratio such as a Tri-Sport requires a new awareness of its potential capabilities ... and a professional approach to handling technique and riding habits.

The new generation of light-weight, high performance 3-wheelers is as unfamiliar - and therefore annoying - to some of the older folk as the first automobile was to your grandparents and their horses. It is my earnest hope that by riding **safely and courteously** you will do your part in assuring all cyclists and motorists, young and old, the exhilarating freedom of American roads & trails.

R. M. Warner
President,
Alsport, Inc.

ALSPORT WARRANTY POLICY

Alsport, Inc. warrants each new Tri-Sport except those used for racing and rental, to be free from defects in factory materials and workmanship for a period of 90 days subsequent to first retail purchase.

There is no warranty of any kind, express or implied, for racing models, except as pertains to defective materials, parts or workmanship, misuse, negligence or accidents, rental purposes, or if a unit has been modified by the addition of parts.

Alsport shall be under no liability whatsoever in respect of any loss, damage, injury, or expense arising from any defect in said product(s).

Your Authorized Alsport Recreational Dealer will repair or replace, free of charge any parts that are found to be defective within the warranty period, subject to the "condition" as follows:

Purchased component parts (example: clothes, and engines, etc..) are subject to the individual manufacturer's warrantee, which Alsport shall abide by.

Alsport, Inc. warrantee is limited to products sold to original retail purchaser and is not transferable in any form.

ENGINE WARRANTY

The engines with the exception of Kohler and McCulloch are covered by their respective manufacturer. The Kohler engine warranty will be handled by Alsport.

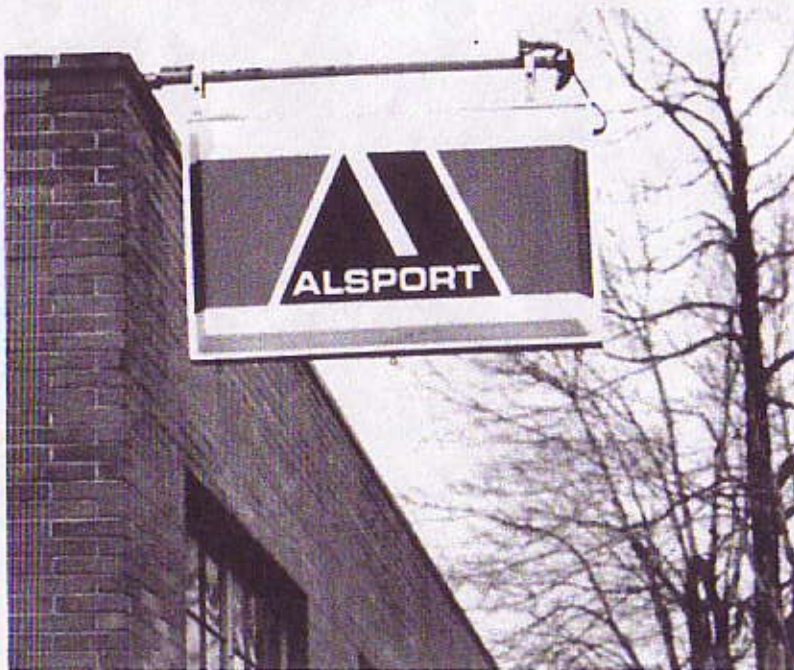
The McCulloch engine is sold on an "as is" basis, the entire risk as to the quality and performance of the engine is with the purchaser and should the product prove defective following purchase, the purchaser and not McCulloch assumes the entire cost of all necessary servicing and repair.

The warranty period as spelled out in the warranty policy is for 90 days from the original date of sale. The fact that our product is repaired or parts replaced during the original 90 day warranty period does not extend the expiration date of the original warranty, due to any loss of time resulting from failures.

No vehicle will be considered under warranty unless the warranty registration card has been properly completed, signed, and returned to Alsport within 10 days of sale. Four cycle engine repair or service will be done by an authorized Tecumseh or Briggs & Stratton repair station.

customer service

The Tri-Sport Vehicles are products that utilize very basic mechanical designs and require basic general maintenance throughout their operating life. By following the procedures in the preventative maintenance section of your manual most problems may be corrected before an actual failure. However if your vehicle does require service, take the Tri-Sport to an authorized dealer for service. He can be located in the yellow pages or identified by the Alsport sign at his dealership. Always use only Alsport factory parts to repair your vehicle.



tri-sport owner's manual

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tri-sport components

A. ENGINES

Tri-Sports are powered with a vast array of engines. They range from 3 horsepower to 50 plus on the competitive vehicles. Familiarize yourself in the following pages with your power train.

B. BODY

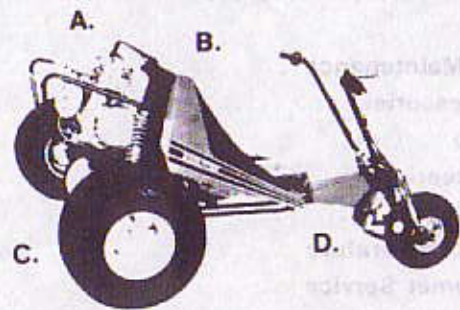
All "Tri-Sports" use a fiberglass reinforced "rigidite" body, orange in color. The "Splatter coat" of black and white on the underside is self cleaning. The "Rigidite" body is typically stronger than metaflake fiberglass, and will provide years of service if properly maintained. See "Maintenance for Body," Page 40.

C. TIRES

The various tires employed by Alsport are unique in their applications. The five bolt lug pattern allows all rear wheel assemblies to be interchanged, should your application require a different tread pattern. The proper inflation is specified on each tire. For increased tire wear maintain 1 to 2 pounds additional air in each wheel. The tires are tubeless and may be repaired like a conventional auto tire.

D. PAINT

All metal parts utilized on "Tri-Sports" feature an epoxy powder coat. The powder is electrostatically applied to metal parts, then baked at 300° F for 25 minutes. This type of paint provides uniform coating of all fabricated components. The paint averages 2 mils in depth.



SERVICE PUBLICATIONS

84 Whittlesey Avenue

Norwalk, OH 44857

Name _____

Address _____

City _____ State _____ Zip _____

Tri-Sport Model _____

Tri-Sport Serial # _____

Eng. Model _____

Eng. Serial # _____

This is your shipping label, print plainly.

FROM:

SERVICE PUBLICATIONS

84 Whittlesey Ave.

Norwalk, OH 44857

RETURN REQUESTED

For _____

Name _____

Address _____

City _____ State _____ Zip _____

RETURN POSTAGE GUARANTEED

TRANSMISSION

The automatic torque converter is a simple device - basically a variable pitch, belt type drive. The torque converter operates both as a clutch and as a transmission. It is easily controlled by the engine's throttle. The system downshifts automatically, not only improving braking, but offers better vehicle control.

VEHICLE IDENTIFICATION NUMBER

In order to protect the owner against theft an identification number has been assigned to all Tri-Sports (see figure A)

Likewise all Tri-Sport engines have an identification number plate located on them (see figure B). These numbers should be recorded on the spaces below so that in the event your Tri-Sport is stolen you will have a record of your vehicle identification number.

Tri-Sport identification number _____

Engine identification number _____



FIGURE A



FIGURE B

1974 Tri-Sport Specifications

1974 TRI-SPORT® 3-WHEELER SPECIFICATIONS

MODEL	MTS 30	TS 110	TS 101	TS 130	RTS B	RTS MAC	RTS 290	RTS 340	Snow Sport 200	Snow Sport 340	Phase III A.S. 340	SL 290	SL 340	SL 414	SL 416	
ENGINE	TECUMSEH	BRIGGS	MACQUELLEN	TECUMSEH	TECUMSEH	MACQUELLEN	KOHLER	KOHLER	KOHLER	KOHLER	KOHLER	KOHLER	KOHLER	KOHLER	TECUMSEH	TECUMSEH
APPROX. RATED HORSE POWER	3 HP	5 HP	14 1/2 HP	8 HP	8 HP	17 HP	24 HP	28 HP	24 HP	28 HP	50 HP est.	24 HP	28 HP	14 HP	16 HP	
CYLINDER DISPLACEMENT	11.06	12.52	123 cc	18.65	18.65	123 cc	290 cc	338 cc	290 cc	338 cc	338 cc	290 cc	338 cc	23.70 cu. in.	27.66 cu. in.	
APPROX. WEIGHT	150 lbs.	178 lbs.	170 lbs.	200 lbs.	205 lbs.	195 lbs.	335 lbs.	336 lbs.	339 lbs.	340 lbs.	365 lbs.	370 lbs.	380 lbs.	370 lbs.	370 lbs.	
FRAME	FABRICATED TUBULAR STEEL WELDED CONSTRUCTION															
TIRES (FRONT)	5.30/4.50 x 8	5.30/4.50 x 6	18/850 x 8	5.30/4.50 x 6	5.30/4.50 x 6	5.30/4.50 x 6	5.30/4.50 x 6	SK1 (TIRE OPT.)	5.30/4.50 x 6	3.50 x 10						
TIRES (REAR)	18 x 8.50 x 8	18 x 9.50 x 8	21 x 11 x 8.5 KNOBBY	18.5 x 9.50 x 8	18.5 x 9.50 x 8	18.5 x 9.50 x 8	18.5 x 8.5 x 8 (Approved)	21 x 11 x 8 KNOBBY	18.5 x 8.5 x 8 (Approved)	18.5 x 8.5 x 8 (Approved)						
TRANSMISSION	TORQUE CONVERTOR AUTOMATIC															
BRAKES	DRUM BAND	DRUM BAND	DRUM BAND	DRUM BAND	DRUM BAND	DRUM BAND	DRUM BAND	DRUM BAND	DRUM BAND	DRUM BAND	DRUM BAND	DRUM BAND	DRUM BAND	DRUM BAND	DRUM BAND	DUAL HYDRAULIC DISC
LENGTH	59"	67"	67"	81"	77"	77"	85"	85"	103"	103"	85"	87"	87"	87"	87"	87"
WIDTH	40"	48"	48"	48"	52 1/2"	52 1/2"	52 1/2"	52 1/2"	54 1/2"	54 1/2"	52 1/2"	52 1/2"	52 1/2"	52 1/2"	52 1/2"	52 1/2"

3-74 Allsport, Incorporated / 84 Whittier, Norwalk, Ohio 44857 / P. O. Box 7, LeGrande, Ontario, Quebec

Clip along line.

service literature

CIRCLE ITEM DESIRED

DESCRIPTIONS	PRICE EA.
Illustrated Parts Book	2.00
Engine III. Parts Book	4.95
Engine Service Book	4.95
Accessory Service Parts	1.00
Dealer Shop Manual (covers all models & acc.)	29.95
Wiring Diagrams	2.00
Tri-Sport Owners Manual — 1974	5.00
TOTAL ORDER	\$
Ohio Purchasers SALES TAX add 4% Sales Tax	\$
GRAND TOTAL	\$

Prices are subject to change without notice and without incurring obligation.

When ordering always specify the model, and serial number of your Tri-Sport and its engine.

- *All orders will be shipped within 10 days of order.
- *Please allow ample time for postal service.
- *Make Check payable to: Service Publications
- *Cut out and mail this completed page.

service literature

Service Literature on your Tri-Sport is available for do-it-yourselfers simply by circling the item you want and identifying your model of Tri-Sport of the facing page.

Cut the coupon out of manual, print your complete address plainly on reverse side, enclose a check or postal money order in the total amount. Insert all of the above in an envelope and mail to the attention of: Service Publications Dept.

ELECTRICAL INFORMATION

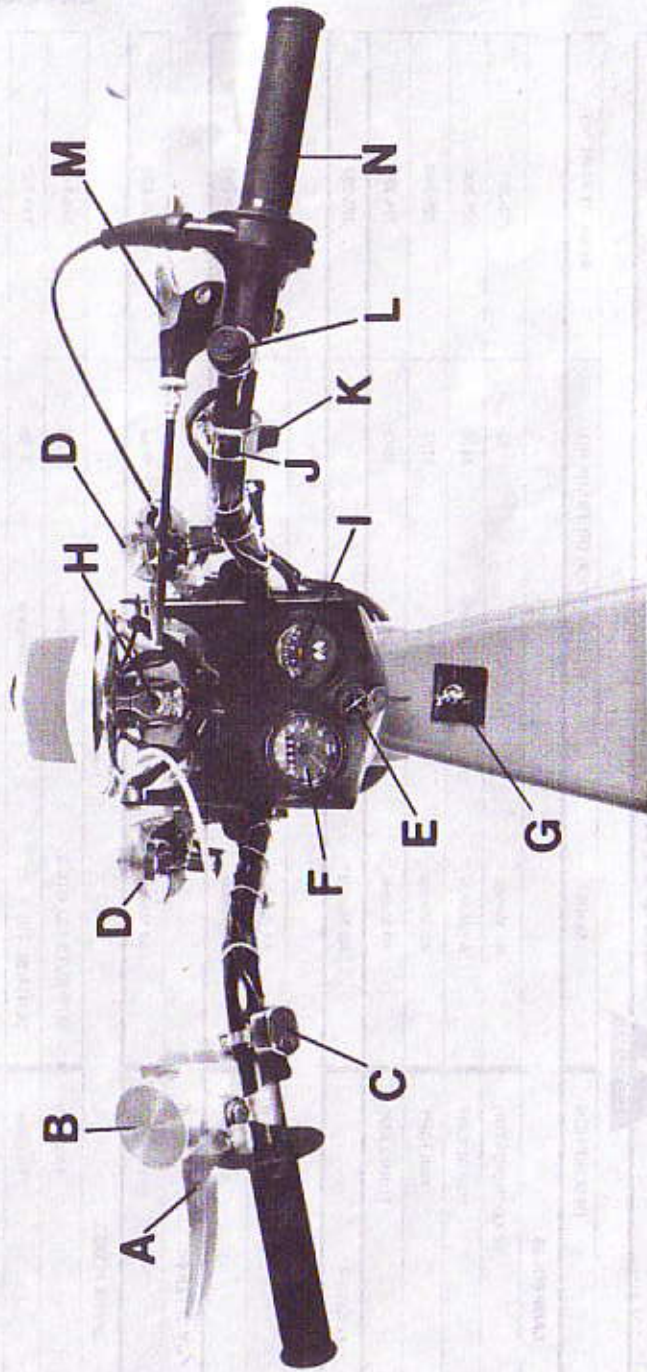
ALSPORT

DESCRIPTION	MODEL	SPECIFICATION OR TRADE NO.	ALSPORT PART NO.
LAMP BULBS			
HI-LO INDICATOR	All Models	1 C.P.	725-201
HEADLIGHT	All Models	30-30 Watts	725-200
TAILLIGHT	All Models	3 C.P.	725-249
TURN LAMP	All Models	32 C.P.	725-236
FLASHER	All Models	12 Volt	725-237
FUSES			
RECTIFIER	All Bosch Rectifiers	1-904-520-015	725-248
BATTERY	All Models	SFE 10 AMP	725-251
BATTERY			
Electric Start	All Models	12 Volt	32 AMP/Hour
SPARK PLUG			
Tecumseh	MTS-30, TS-130, RTS-8	Champion	J-8
Tecumseh	SL-414, SL-416	Champion	L-85
Briggs & Stratton	TS-110	Champion	J-8
McCulloch	TS-101, RTS-Mac	Champion	L-78
Kohler 295	RTS-290, SS-290, SL-290	Champion	N-3
Kohler 340	RTS-340, SS-340, SL-340	Champion	N-3
Kohler 340 AS	Phase III	Champion	N-3

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Subject to manufacturer's specifications, effort to sell Tri-Sport models and accessories without prior application.

tri-sport controls



training

Alsport, Inc. conducts through seminars on a National level, service training on a continuing basis. Alsport programs and complete up-to-date technical literature, keep dealer personnel informed of the best servicing techniques. Come tune-up or repair time, Alsport dealers will be ready to give fast, dependable service.

engineering

The Engineering Department of Alsport, Inc. is constantly striving to improve our products. The Research facilities within Alsport are staffed with the most experienced and dedicated technical personnel in the leisure vehicle industry today. It is because of the never-ending research, that specifications and/or data are subject to change without notice.



- A. **REAR BRAKE LEVER** — This lever activates the dual calipers, located on the rear axles. Normal driving requires only this brake system be used.
- B. **MASTER CYLINDER** — This is the reservoir for the brake system. The cap should be tight, so as to prevent leaking.
- C. **TURN SIGNAL SWITCH** — This switch has three positions, center position is off, moving switch lever right or left will cause the associate turn lamps to flash.
- D. **FRONT TURN SIGNAL LAMP.**
- E. **IGNITION SWITCH** — This waterproof switch is serialized for owners protection. The switch has 4 positions. The off position is all the way left. Advancing the switch to next position, right, for lights. 3rd to right is run and final position is a momentary position to engage the starter motor.



- F. **SPEEDOMETER** — indicates vehicles speed in 10 mph increments. The odometer is a part of the speedometer and accumulates the number of miles driven.
- G. **ELECTRIC PARKING BRAKE** — (Optional) Pushing the switch to on position and squeezing the rear brake lever will hydraulically lock the rear

- wheels. This is extremely useful when manually starting your Tri-Sport or parking on a hill. To clear brakes. Push switch to "off" position and squeeze brake lever again.
- H. **HIGH BEAM INDICATOR** — This red lamp will be on when the headlights are on high beam.
- I. **TACHOMETER** — (Optional) This gauge indicates engine revolutions per minute and allows the operator to maintain correct engine speed. See engine manual for operating range.
- J. **HORN BUTTON** — This is a momentary switch to activate horn.
- K. **HEADLIGHT - HIGH OR LOW BEAM SWITCH** — The up position selects high beam and lower position of the switch gives low beam. See paragraph H above for indicator.
- L. **ENGINE SAFETY SWITCH** — (Optional) This positive on-off switch allows operator to stop his engine without activating the ignition switch.
- M. **FRONT BRAKE LEVER.** Squeezing the lever causes the front brake to be applied. NOTE the front brake should not be used while making a turn on slippery surfaces.
- N. **THROTTLE TWIST GRIP** — Twisting the throttle towards you will increase the engine speed. The resultant engine speed change causes the automatic transmission to engage and the vehicle will move forward. The throttle will return to an idle or neutral position when released.

tri-sport engines

The Tri-Sport three wheeler is one of the most unique group of vehicles manufactured in America today. Alsport, has chosen the single wheel forward for steering with 2 common rear wheels to propel the unit. It is this section of your manual that we will familiarize you with the various engine choices available and their applications.

One half of the "Tri-Sport" model line has single cylinder, 4 cycle industrial engines providing torque and low RPM reliability; the remaining engines are both single and twin cylinder, 2 cycle units, with higher overall performance.

The specification page (4) will give you technical data, on the model you have purchased.

IMPORTANT

The 4 cycle engines are miniature versions of automobile engines and require automotive type lubricant in the engine crankcase.

All 2 cycle units must have oil pre-mixed with gasoline to lubricate the high speed components in the engine.

The following pages give you the proper fuel/oil programs for the various Tri-Sport engines. Find the page or section that is relative to your engine and familiarize yourself with its requirements.

CONVERSION TABLE

1 Gill = 4 fluid ounces = 7.219 cubic inches = 0.1183 liter
4 Gills = 1 pint = 16 fl. ozs. = 28.875 ci = 0.4732 liter
2 pints = 1 quart = 57.75 ci = 0.9463 liter = 1/4 gallon
4 quarts = 1 gallon = 231 ci = 3.7853 liter
1 liter = 1.0567 quarts

RATIO TABLE

Gas	1 qt.	2 qts.	3 qts.	1 gal.	1 gal.	1 gal.	1 gal.	2 gal.	2 gal.
Oil				1 qt.	1 qt.	2 qts.	3 qts.	1 qt.	1 qt.
1 oz.	32:1	64:1	96:1	128:1	160:1				
2 oz.	16:1	32:1	48:1	64:1	128:1	160:1			
3 oz.	11:1	21:1	32:1	48:1	54:1	64:1	75:1	86:1	96:1
4 oz.		16:1	24:1	32:1	40:1	48:1	56:1	64:1	72:1
5 oz.		13:1	19:1	26:1	32:1	38:1	45:1	51:1	58:1
6 oz.		11:1	16:1	21:1	26:1	32:1	38:1	43:1	48:1
7 oz.			14:1	18:1	23:1	27:1	32:1	37:1	41:1
8 oz.			12:1	16:1	20:1	24:1	28:1	32:1	36:1
9 oz.			11:1	14:1	18:1	21:1	25:1	28:1	32:1
10 oz.			10:1	13:1	16:1	19:1	22:1	26:1	29:1
11 oz.				12:1	15:1	17:1	21:1	24:1	28:1
12 oz.				10:1	13:1	14:1	16:1	19:1	24:1

oil fuel ratios

To one quart of gas
add two ozs. of oil — stir until

Your average two-stroke engine does not have an oil reservoir because the oil is added to the fuel. Some machines do have a separate tank used to store oil until it is fed into an injection pump. The end result is still the same — the oil is mixed at a precise ratio to the gas. Most racers remove the injection systems to save weight and resort to mixing gas and oil.

The ratio is very important since this is how the moving parts within the engine are lubricated. Engine designs, speeds and components vary and so must the amount of oil in relation to the fuel.

Most manufacturers and oil companies give the ratio figures, such as 40:1 or 20:1, but they don't tell you how to achieve these figures. Therefore we have carefully figured them out for you in the accompanying chart. Pick first the amount of fuel you'll need and then the ratio as specified by the manufacturer. Move to the intersecting point to find the proper amount of oil.

An old baby bottle or measuring cup are the best items to use for accurately measuring liquids. Don't use them for foods again after this!

In all cases it is possible to round off the figures a little from what we've shown here. For instance you can use a ratio of 19:1 in place of 20:1 without any problems. We've tried to show some of the more common ratios and quantities of fuel. If your requirements vary from this simply divide the number of ounces of fuel by the number of ounces of oil. Use the conversion table above to help.

break-in period

The "Tri-Sport" you have purchased will provide years of reliable performance if the initial usage is disciplined I.E., moderate operation the first 10-15 hours.

Alsport, Inc. uses self-aligning axle bearings most of which are lubricated for life. These bearings will take a "set" after a few hours. The drive chains will stretch 3-5% and require adjustment to remove the slack. Follow the instructions in Preventative Maintenance" section for chain adjustment.

Tri-Sport features 2 types of brake systems. The smaller units utilize a band type self-energizing brake. This band, will conform to the drum and adjustment can be made at either the brake lever or the drum itself.

The dual disc hydraulic brakes are self-adjusting. Occasionally the brake fluid level should be checked. The reservoir is an integral part of master cylinder on handle bar.

MTS 30



The MTS-30 features a 3 HP Tecumseh engine. It requires regular gasoline that is **not** mixed with oil. The crankcase holds 21 oz. of SAE 30 oil. For operation below 32°, use SAE 10W oil, see Figure 1.

ENGINE MAINTENANCE

1. Check equipment and engine periodically and re-tighten any loose engine base mounting screws, air cleaner cover mounting screws and other exposed hardware.
2. Change oil regularly. Be sure oil drain plug is replaced securely before refilling.

IMPORTANT— AFTER FIRST TWO TANKS OF GAS HAVE BEEN USED, DRAIN OIL COMPLETELY AND REFILL AS DIRECTED IN PARAGRAPH "1" ABOVE. OIL LEVEL SHOULD BE CHECKED FREQUENTLY DURING THIS "BREAK-IN" PERIOD.

3. Check oil level frequently between changes. Add oil if necessary.
4. Keep head and cylinder fins clean. This is an air-cooled engine and will operate efficiently only if kept clean. Over heating and any resultant damage from clogged cylinder fins is **NOT** covered by warranty.

AIR CLEANER MAINTENANCE

The air cleaner should be removed frequently and tapped lightly against a solid surface (Fig. 2) which will dislodge loose dirt accumulation. The pores will eventually clog (engine will begin to lose power) and at this point it will have to be replaced. Your Tecumseh dealer stocks them.

NEVER wash the paper air cleaner or attempt to brush dirt from it as this destroys its filtering ability.

NEVER run the engine without the filter in place or with a filter that has a hole punctured in the paper.

GET HOOKED ON AN Alsport TRAILER



TRAIL MASTER

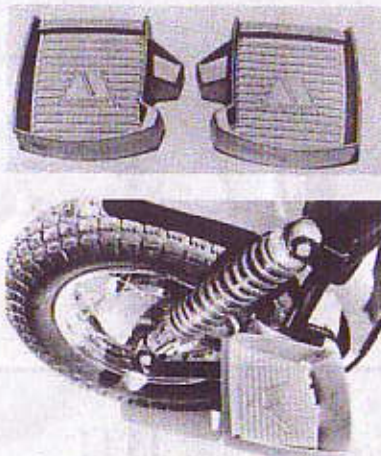
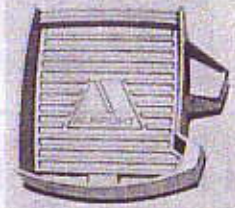
Yes, it is very possible for you to take the kids along . . . or anybody for that matter. Just hook up the Alsport 2-Passenger **Trail Master** and head out for Tri-Sport fun. It's all the fresh excitement you'd want . . . and more. Made of high-impact fiberglass, and has a light kit as optional equipment.

CARGO TRAIL — ALONG

Then follow the 2-Passenger trailer with the new Alsport **Cargo Trail-Along**. Enough cargo carrying space - over 6 cubic feet - to support a family on a week-end outing. It has two hatches so you have front and rear loading. Hook it up behind the 2-Passenger **Trail Master** and say good by to dull times . . . or hook it to a Tri-Sport for your own camping pleasure. Also has a light kit as optional equipment.

cast aluminum foot plates

A needed Tri-Sport accessory designed especially for the Street Legal models. They are made of cast aluminum and are deeply grooved to insure a positive foot grip at the front wheel. Will fit larger boots and shoes.



weather/storage covers

TO PROTECT TRI-SPORT MACHINES

Now you can fully protect your Tri-Sport from the elements with the handsome all-weather travel/storage cover. Sturdy nylon draw rope and elastic bungee cords securely fasten the cover to the Tri-Sport. Perfect for trailer or outdoor storage.

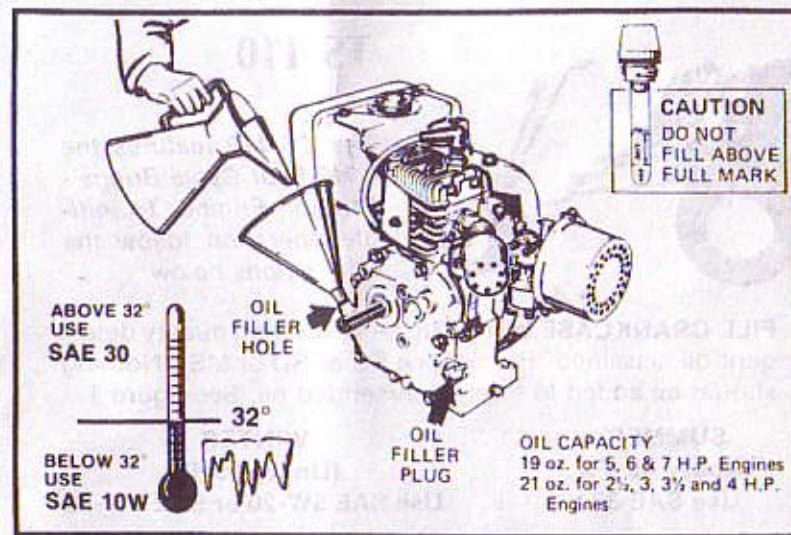


FIGURE 1

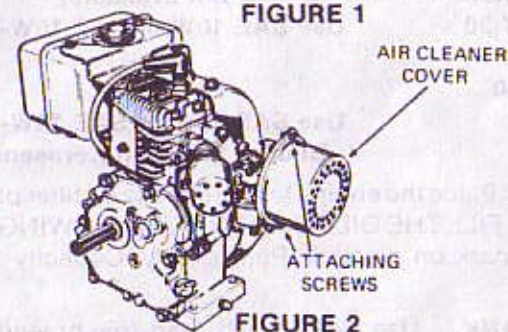


FIGURE 2

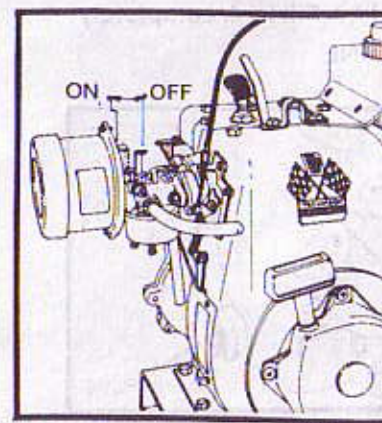


FIGURE 3

CHOKE OPERATION

Figure 3 shows the choke lever movement to facilitate starting when engine is cold. After engine has attained operating temperature, it is **not** necessary to re-choke, normally.



TS 110

The TS-110 features the 5 HP Four Cycle Briggs - Stratton Engine. To initiate operation follow the instructions below.

- FILL CRANKCASE WITH OIL.** — Use a high quality detergent oil classified "For Service SC or SD or MS". Nothing should be added to the recommended oil. See figure 1.

SUMMER
(Above 40° F.)
Use SAE 30

If not available,
Use SAE 10W-30
or
SAE 10W-40

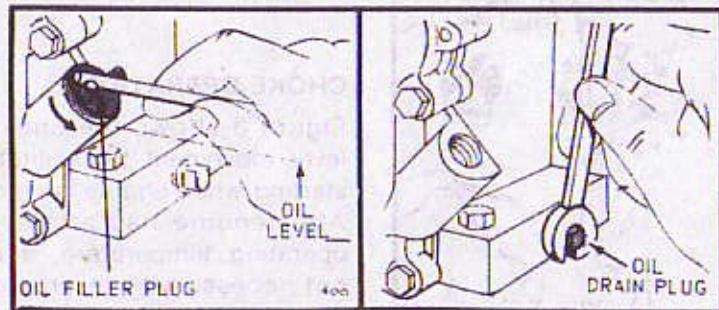
WINTER
(Under 40° F.)
Use SAE 5W-20 or SAE 5W-30

If not available,
Use SAE 10W or SAE 10W-30

Below 0° F.,
Use SAE 10W or SAE 10W-30
Diluted 10% with Kerosene

DIRECTIONS: Place the engine level. Remove oil filler plug or Oil-Minder. FILL THE OIL SUMP TO OVERFLOWING or to the FULL mark on dipstick. Pour slowly. Capacity 1¼ pints.

- FILL FUEL TANK** — Use clean, fresh, lead-free or leaded "regular" grade automotive gasoline. **Fill tank completely!** DO NOT MIX OIL WITH GASOLINE.



Check Oil Level

Change Oil

FIGURE 1

tool bag for maintenance

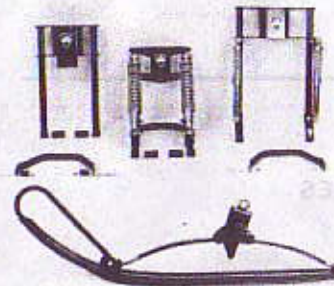


Carry just enough small tools for minor repairs. Convenient tool bag will attach where you want, or as suggested behind a head rest.



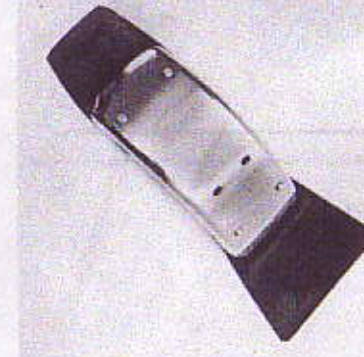
ski kit assemblies

FOR WINTER
TRI-SPORTING



A Tri-Sport 3-wheeler can be another snowmobile with an easy conversion of front wheel to ski. There's a conversion kit for all Tri-Sport Machines.

mud guards



Protect yourself from sand or mud with these new front fender mud guards. A genuine AlSPORT accessory with logo prominently embossed on each guard. Smaller guard fits front of fender to protect you from stones thrown forward. Rear Guard is larger. Fender shown not included.

Optional Accessories

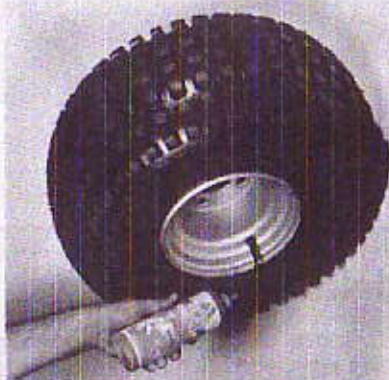
electric starter kit

Complete accessory kit to convert the RTS 290 or 340 to an electric starting Tri-Sport. All hardware and harnesses are furnished in this exciting kit package.



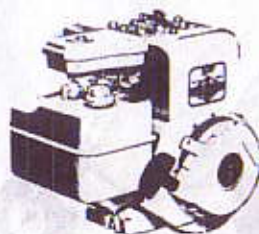
flat proof for tires

Flat proof tire sealant injected into Tri-Sport tires virtually eliminates flat tires due to punctures. Can also be used after a puncture providing you put in flat proof before removing the puncturing object.

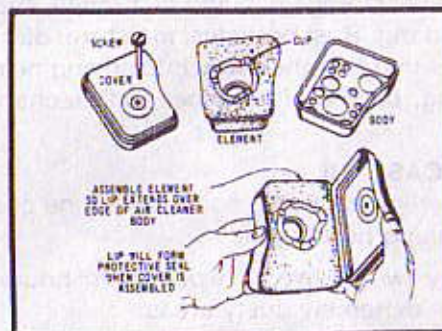


tachometer

Easy to install Tri-Sport tachometer from Alsport. Tach is shock mounted to insure accurate readings on engine RPM.



3. **CHANGE OIL** after first 5 hours of operation. Thereafter change oil every 25 hours of operation. Remove drain plug and drain oil while engine is warm. Replace drain plug. Remove oil filler cap and refill with new oil of proper grade. Replace filler cap.
4. **CLEAN AIR CLEANER AND RE-OIL ELEMENT** every 25 hours under normal conditions. The capacity of the "Oil-Foam" air cleaner is adequate for a full season's use without cleaning. (Clean every few hours under extremely dusty conditions).
 1. Remove screw.
 2. Remove air cleaner carefully to prevent dirt from entering carburetor.
 3. Take air cleaner apart.
 - A—Wash foam element in kerosene or liquid detergent and water to remove dirt.
 - B—Wrap foam in cloth and squeeze dry.
 - C—Saturate foam in engine oil. Squeeze to remove excess oil.
 - D—Assemble parts - fasten to carburetor with screw. See figure 2.



Clean Air Cleaner
FIGURE 2

TS 130 & RTS 8



The TS-130 "Tri-Sport" uses the 8 HP aluminum Tecumseh engine. This engine has an integral gas tank with gravity fed fuel system. The engine used on the RTS-8 has a fuel pump to prevent starvation in extreme driving attitudes. Aside from the fuel systems, the engines are identical.

ENGINE MAINTENANCE

- 1. FILL CRANKCASE** with high grade detergent oil. (See Figure 1. for location of oil fill and drain). During initial break in period, oil level should be checked frequently.

Position equipment so that engine is level. Remove dipstick and place it on a clean surface. Fill until oil reaches top line of "FULL" mark on dipstick. When checking oil level be sure dipstick fill cap is fully seated into filler opening to avoid inaccurate reading. Crankcase capacity is 24 ounces (1½ pints), premeasuring will avoid accidental overfill and spillage.

- 2. FILL FUEL TANK** with fresh, clean, leaded, low lead or non-leaded "Regular" grade of gasoline. After removing tank cap, carefully place it where it will not pick up dirt and abrasive grit. Fuel storage can and fill funnels should be clean inside and out. Rust particles, moisture, dirt and other contaminants that find their way into an engine may cause hard starting, poor performance, and mechanical damage.
- 3. CHANGE CRANKCASE OIL**
 - A. First time** — After initial two (2) hours of engine operation when first running new engine.
 - B. Thereafter** every twenty-five (25) operating hours, or more frequently, in extremely dusty areas.

cargo carrier/head rest



Style, protection, and cargo space you've been wanting ... and needing. Easily attached to the RTS 290 or 340. You can take a picnic lunch for short jaunts close to home, or take a bedroll and enough supplies for prospecting around the country-side.

RTS fender kit



Easily installed rear wheel fenders. Gives your RTS a custom design look and minimizes road spray for street legal operation.

deluxe light kit

Custom designed light package for street legal operation of the RTS 290 or 340 Tri-Sport. Front hi-lo beam headlight with directional blinkers, and rear tail light with companion directional blinkers. Speedometer and tachometer included in cluster mounting bracket. Horn is also included in this deluxe lighting kit. All attaching hardware and wiring harnesses are furnished.



dune flag

Standard dune flag for decoration and faster identification. Especially useful in trail riding.



hub cap

Hub caps for those who wish to dress Tri-Sport 3-wheelers for show.



hitch plate

A key to the workhorse world of Tri-Sport fun, add the hitch plate, then pull gang mowers, seeders, lawn rollers ... all sorts of lawn care and utility trailers, Alsport also has a 2-passenger trailer and a cargo trailer for camping and Tri-Sport club activities.

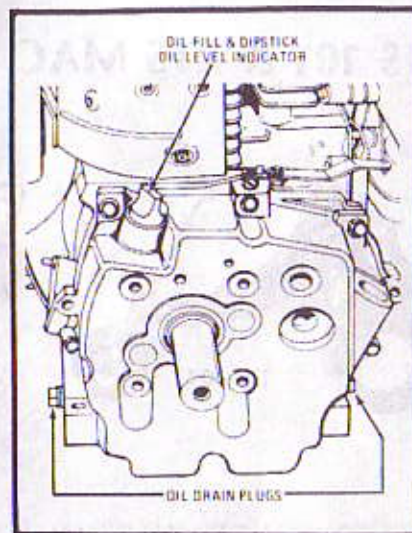
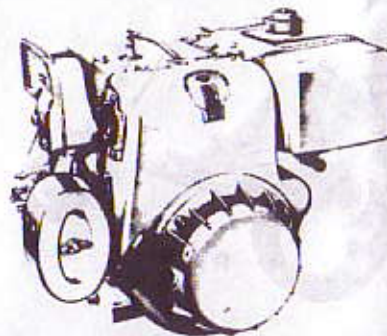


FIGURE 1

AIR CLEANER MAINTENANCE

4. **AIR CLEANER** — Treated paper type replaceable air filter element. This fine micron filter element should be inspected every ten hours or more often if engine is operated in extremely dusty conditions.

A. Remove element (Fig. 2). Tap on flat surface to dislodge clinging dirt or chaff. Low pressure air may assist cleaning, blow carefully from inside. If element is punctured, ruptured, torn or uncleanable — replacement elements are available at your nearby Tecumseh Service Dealer — Buy an extra and keep it handy for emergencies. **DO NOT WASH IN ANY LIQUID — DO NOT OIL ELEMENT.**

B. Before replacing element clean inside of base and cover thoroughly.

C. When replacing filter be sure it is seated correctly between base and cover.

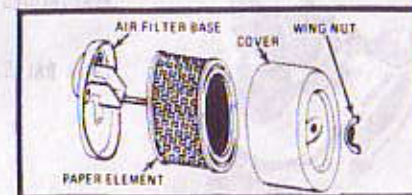
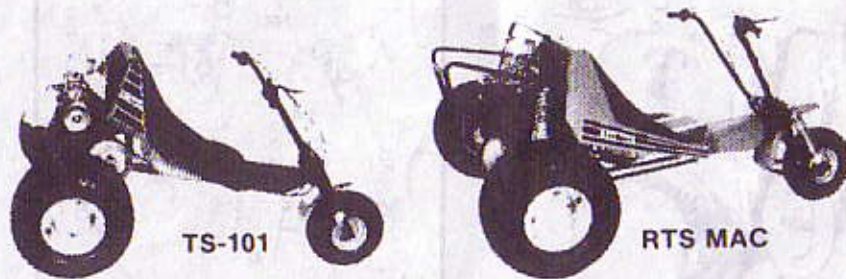


FIGURE 2

TS 101 & RTS MAC



The TS-101 & RTS "MAC" feature the 123cc McCulloch 2 cycle engine. This engine was selected to power the TS-101 & RTS "MAC" because McCulloch's American racing engines maintain the highest horsepower-per-pound ratio of any production engine suitable for recreational vehicle installation in the world.

FUEL MIXTURE

The proper fuel for your McCulloch Engine, as with most two-stroke-cycle gasoline engines, is a mixture of gasoline and oil. The best kind of gasoline to use in the fuel mixture is any good regular grade gasoline. Gasolines which have high octane ratings because of excessive leading are not good fuels for two-stroke-cycle engines. Any highly leaded gas used in the fuel mix will cause formation of lead balls on the spark plug electrodes, as illustrated in Figure 1. These lead balls will eventually short out the plug.

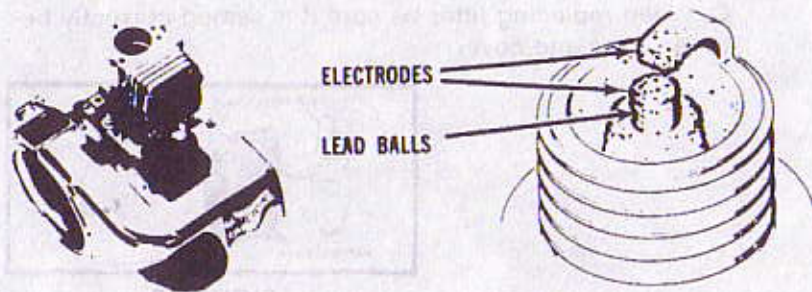


FIGURE 1

cargo carrier/head rest



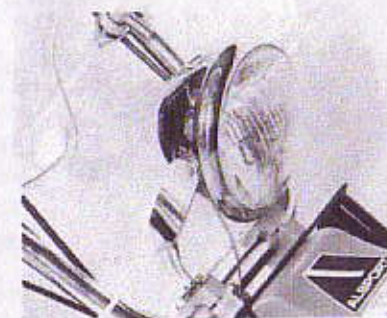
An added convenient rack to carry small cargo requirements as well as added engine protection and driver comfort.

windshield



Satisfies goggle requirements in most states, and reduces road spray to a minimum. Also should be considered for parade dress for those interested in Tri-Sport for show purposes. Fends off brush and branches in trail riding.

light kit



Front hi-lo beam headlight and rear tail light extends your Tri-Sport riding into the night.

optional accessories

While Tri-Sports are loads of fun and economical to operate, their ability to be used for chores or helping around the home are unlimited. Hundreds of options for Tri-Sports are available for all models. The following pages describe a select few for your perusal.

Should you have questions about a particular accessory or want to purchase for your unit, drop in at your Tri-Sport dealer and request it.

Cargo Carrier/Head Rest	Electric Starter Kit
Windshield	Flat Proof for Tires
Light Kit	Tachometer
Dune Flag	Tool Bag for Maintenance
Hub Cap	Ski Kit Assemblies
Hitch Plate	Mud Guards
Cargo Carrier/Head Rest	Cast Aluminum Foot Plates
RTS Fender Kit	Weather/Storage Covers
Deluxe Light Kit	

Some exotic fuels, such as nitro methane, are quite corrosive when in contact with magnesium and aluminum. These fuels are not recommended for McCulloch Engines.

Avoid the use of unknown zip-type additives and fuel blends. Many racers pour their own problems into the fuel tank and find the experience expensive. If you are in doubt, stick to regular pump gasoline and approved oil for your fuel mix.

If exotic fuels are used, it is best to purge the engine at the end of the day by running regular gasoline-oil mix through the system. This will minimize the corrosive effects of the fuel on components of the engine.

The oil in the fuel mixture provides the only lubrication of the engine's moving parts and, for this reason, the amount of oil in the mixture — as well as the kind of oil — is extremely important. High-speed racing engines require the very best lubrication possible if long, trouble-free service is expected.

When preparing the gasoline-oil mixture for your engine, use a good grade of Two-Cycle Engine Oil with a viscosity rating of SAE #40. Mix the fuel blend in a ratio of 20 parts of gasoline to 1 part of oil.

If a synthetic lubricant is used, the gasoline-to-lubricant ratio should be as recommended by the lubricant manufacturer.

When castor oil is used for engine lubricant, one of the "de-gummed" types is recommended. By using a "de-gummed" type, the possibility of ring sticking and gum formation (normally associated with castor oil) will be greatly reduced.

NOTE: Refer to engine owner's manual for specific engine "tuning tips."

Tri-Sport 290-340

Alsport's largest fully suspended "Tri-Sports" feature the Kohler Twin cylinder engines. These engines are found on Sno-Sports, Phase III, RTS & SL models.



Tri-Sport 290-340

GENERAL

This manual covers both AX and AS models of the Kohler 2-Cycle, Two Cylinder Engines. Given the **correct fuel** and a reasonable amount of care, your engine will continue to give top performance throughout a long, trouble-free service life. The importance of using the right fuel mixture cannot be overemphasized as this is the source of lubrication for your engine — make careful note of the fuel mixture directions below. Other important hints for keeping your engine in top condition are stated elsewhere in this manual — take a few minutes to review the material before operating your engine and save this manual for future reference.

FUEL RATIO CHART

40 To 1 Ratio Gas to Oil (gal.)	Gasoline Container Capacity					
	1 Gallon	2 Gallons	3 Gallons	4 Gallons	5 Gallons	6 Gallons
Oil Amount (oz.)	4 ounces	8 ounces	12 ounces	26 ounces	20 ounces	24 ounces

EQUIVALENT VALUES (APPROX.)

Ounces	4	5	6	7	8	9	10	11	12	13	14	15	20 Ounces
Pint	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{3}{10}$	$\frac{7}{20}$	$\frac{1}{5}$	$\frac{9}{20}$	$\frac{1}{2}$	$\frac{11}{20}$	$\frac{3}{5}$	$\frac{13}{20}$	$\frac{7}{10}$	$\frac{3}{4}$	1 Pint

2 pints = 1 quart 1 quart = 40 ounces (IMPERIAL MEASUREMENTS)



storing procedure

EXTENDED STORAGE

Before the vehicle is put into storage for any period exceeding 30 days, the following steps should be taken, to avoid fuel deposits in the fuel system, acid formation in the lubrication system, which can cause internal engine corrosion, and excessive battery discharge.

1. Drain all fuel from the fuel tank, sediment bowl, and fuel lines. Start the engine and run until all fuel is used up from the carburetor float bowl.
2. While the engine is warm, drain out the crankcase oil and replace with the proper weight of oil corresponding to the season when the vehicle will next be used.
3. Remove the spark plugs and squirt a small quantity of engine oil into the upper cylinder. Turn the engine over a few times to distribute this oil, and then leave it in a position with the timing marks lined up, which will position the pistons at top dead center.
4. Remove the battery completely, and store on wooden blocks preferably in a place where it may be connected to a charger from time to time. **DO NOT STORE THE BATTERY ON A CONCRETE FLOOR.** Check the battery at least every 30 days for discharge and recharge as required to maintain a fully charged condition.

To put the vehicle into operation after extended storage, fill the fuel tank, check crankcase oil level, replace battery, and start engine.



Phase III

PRE-START INSTRUCTIONS

COOLING: Make sure baffles and cooling shrouds are in place and tight. Air intake openings must be kept clean and unrestricted at all times.

RUN-IN (NEW ENGINE): FOR THE FIRST TANK ONLY, USE 20 TO 1 OIL MIX. During the first hour, run for short periods of time at varying speeds up to $\frac{3}{4}$ throttle. Avoid operation at low and continuous speeds as this causes build-up of heat during warm weather or heavy load conditions. **After first hour,** operate normally to full throttle. No further "Babying" of the engine is necessary. Subsequent mixture, use 40:1 rated oil - see chart facing page.

BATTERY: If battery has been removed or disconnected for any reason, make sure that the negative (-) terminal is connected to ground when battery is reinstalled.

FUEL MIXTURE: Mix gasoline (92 octane minimum) with SAE 30 or SAE 40 two-cycle (air-cooled type) engine oil* rated at 40 to 1 mix. The Premium grade gasoline may be especially desirable in Axial Flow models. To insure the proper mixture, pre-mix fuel thoroughly in separate container before adding to vehicle fuel tank. When pre-mixing, pour about 1 gallon into the container first then add the oil and agitate thoroughly before pouring in the rest of the gasoline. Agitate the fuel again after final quantity of gasoline is added, mixing fuel in the correct ratio with some common size containers. See page 56 for finite discussion on fuel-oil mixtures.

STARTING PROCEDURE

If engine has been out in snow, make sure air intake or baffle is cleared before attempting to start.

CAUTION: Throttle must move freely to prevent accidental sticking in running position during start-up. Check for freedom of movement.

1. **CHOKE:** Pull choke full on in cold weather. Little or no choking required with warm engine. After engine starts, open choke.
2. **PRIME:** If vehicle has primer button, press button several times before attempting to start (when cold). Choking not normally required with primer.
3. **THROTTLE:** Hold throttle slightly off idle while cranking engine.
4. **CRANK ENGINE:**

(A) **RETRACTABLE START MODELS:** Turn ignition switch ON, pull starting rope in quick steady motion **after starter engages. DO NOT ALLOW HANDLE TO SNAP BACK.**

(B) **ELECTRIC START MODELS:** Move switch to START position — release as soon as engine starts (switch will remain in "ON" position). Do not continue cranking if engine fails to start after 20 seconds. Allow starter to cool off before making another attempt. Use retractable starter if battery is low or dead.

(C) **STARTING AIDS:** If aid such as ether is sprayed into intake for starting in extreme cold, do this only once as ether provides no lubrication.

(D) **EMERGENCY START:** If battery won't start engine or retractable starter fails, the engine can still be started with rope provided in the tool kit. Remove the starter, insert rope in notch in drive cup and loop rope around. Turn ignition switch ON and pull rope to start. See figure .

DRIVE BELT ADJUSTMENTS

The proper drive belt center to center distance of each tri-sport may be found in the chart below. If adjustment is necessary, loosen engine mount bolts and simply slide the engine fore or aft until it meets the required dimension.

	8 1/2"	9 1/2"	10 1/2"	11"	11 1/2"	13 1/2"
MTS-30	X					
TS-110		X				
TS-101		X				
TS-130			X			
RTS-8	X					
RTS-MAC		X				
RTS 290-340					X	
SS 290-340					X	
SL 290-340					X	
SL 414-416						X
PHASE III					X	

STEERING MECHANISM

Lubricate the steering and front suspension pivot components with 30W engine oil. See figure 8.

NOTE: A small amount of oil periodically is all that is required.

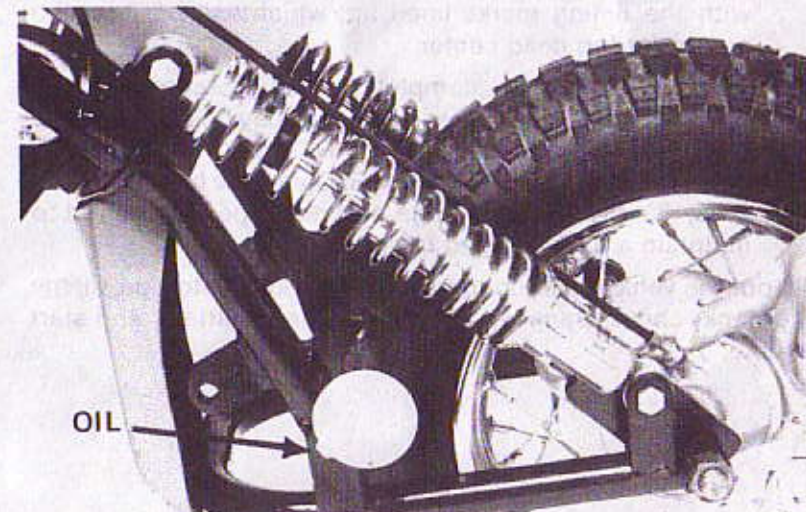


FIGURE 8

BATTERY CARE

(Electric Models)

For longer life and maximum efficiency of Tri-Sport battery, pay attention to the following points:

- A. Check the electrolyte level in the battery before going for a long ride.
- B. Check all battery and wire connections, vibrations may loosen them.
- C. Check battery hold-down plate.

LUBRICATION

Tri-Sports feature bearings on axles and jackshafts that are lubricated for life. These bearings do not require supplemental lubrication.

The parts that require pressure gun grease are front wheel bearings and universal joints. See Figure 7.

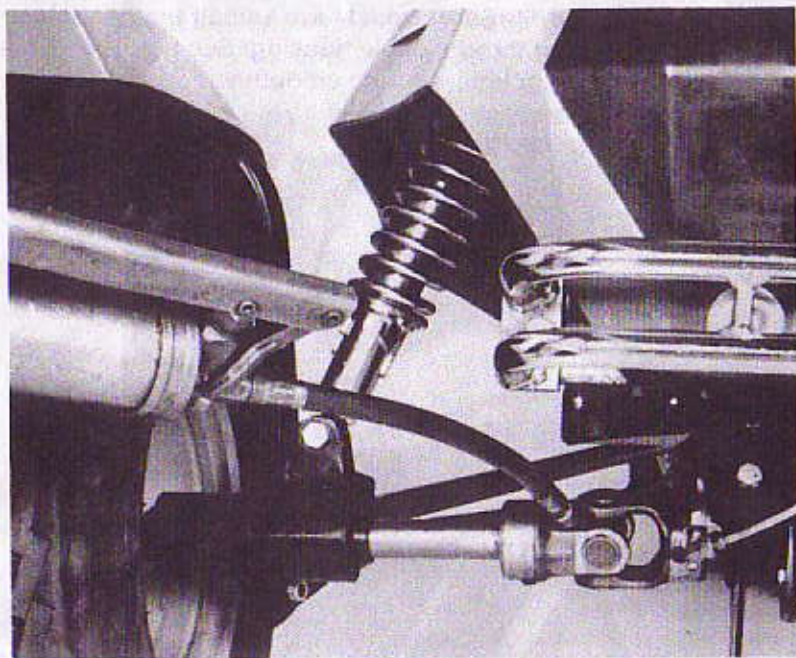
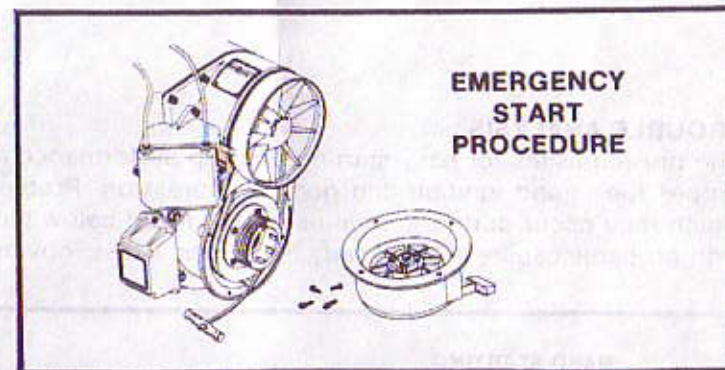


FIGURE 7



OPERATION

- 1. **WARM-UP:** Allow gradual warm-up by operating at moderate speed and load for the first few minutes after starting.
- 2. **DO NOT** attempt to race or place engine under heavy load immediately — performance is best after engine is thoroughly warmed.
- 3. **IDLING:** Avoid idling or slow speed operation for prolonged periods as this can result in crankcase flooding, carbon accumulation in head, and spark plug fouling.

STOPPING PROCEDURE

- 1. **THROTTLE:** Release throttle and allow engine to idle for a few moments under no load.
 - 2. **IGNITION SWITCH:** Move switch to OFF position.
- EMERGENCY STOPPING:** After operating under heavy load in warmer weather, engine may be hot enough to Dieselize and continue running after ignition is turned off. To stop the engine under these conditions, pull full choke and open throttle to shut off air and stall engine.

TROUBLE ANALYSIS

The pre-requisites for easy starting and top performance are: proper fuel, good ignition and good compression. Problems which may occur during normal usage are listed below along with probable causes. The remedy is, in most cases, obvious.

HARD STARTING**LACK OF FUEL**

1. Tank empty.
2. Line pinched or disconnected.
3. Plugged vent hole in filler cap.
4. Fuel filter plugged.
5. Impulse tube loose or pinched.

POOR OR NO IGNITION SPARK

1. Ignition not turned on.
2. Spark plug wet or carbon fouled.
3. Spark electrodes broken or improperly gapped.
4. High tension lead loose or broken.
5. Breaker points damp, pitted or improperly gapped.
6. Ignition switch faulty.
7. Ignition coil faulty.
8. Condenser faulty.

INCORRECT FUEL — AIR MIXTURE

1. Engine flooded, overchoking.
2. Fuel stale, doesn't vaporize properly.
3. Water in fuel.
4. Dirt or gum forming to restrict fuel supply.
5. Carburetor loose — too much air.

POOR COMPRESSION

1. Spark plug loose.
2. Cylinder head loose.
3. Cylinder head gasket "blown".
4. Piston rings broken.
5. Piston and cylinder badly worn.

CRANKS TOO SLOW (ELECTRIC START)

1. Loose or corroded battery connections.
2. Weak battery.
3. Starting solenoid faulty.
4. Moisture in starter.

FUEL SYSTEM

Drain fuel tank.

NOTE: Polypropylene tanks (as used on SL Tri-Sports) are not equipped with drain plugs. Carefully, remove the fuel line from tank outlet and allow fuel to run into a container. Pour fresh gas, (about 1 quart) into tank, shake vigorously to rinse old fuel and contaminants out. Drain again. Replace fuel line.

The Tri-Sports with 2 cycle engines have small fuel filters in the fuel line. See figure 5. These filters may need to be replaced periodically. Simply pull gas lines off and replace.

THROTTLE CONTROL

Tri-Sports use a remote throttle control to activate carburetor. This cable may stretch a small amount, and adjustment is made by loosening screw on carburetor throttle bracket and pulling excess cable out. Tighten the retaining screw to hold in place.

NOTE: The 2-cycle Tri-Sports must have a small amount of free-play in outer throttle cable housing. See figure 6. This allows the cable to operate smoothly.

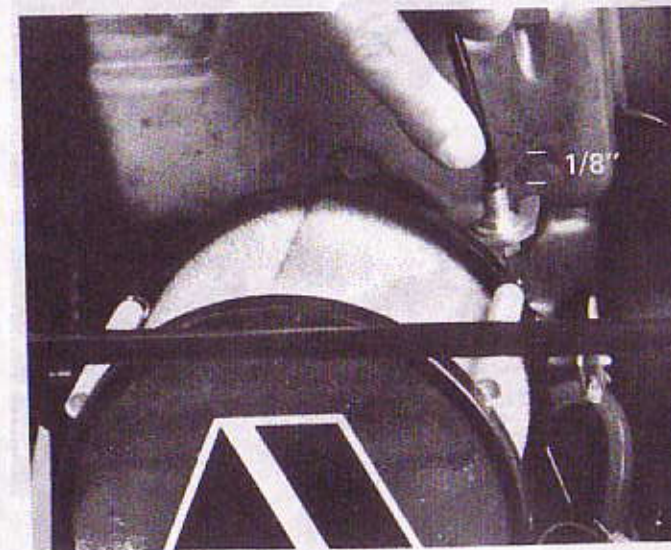


FIGURE 6

Spark plugs are considered hot or cold according to the length of the inner insulator from nose to plug shell. The longer the insulator, the longer it will take for the heat to travel to the shell and the hotter the plug will run. With a short heat path, the heat dissipates rapidly and the spark plug runs cooler. Figure 3 illustrates both spark plug types.

Examination of the electrodes and the insulator will tell you whether the spark plug in your engine is hot or cold enough for your running conditions. A spark plug of the correct heat range will show brown to grayish-tan deposits around the insulator. Wet, black and sludgy carbon deposits indicate the need for a hotter spark plug (figure 4). Whitish deposits, a blistered insulator nose and badly burnt electrodes call for use of a cooler spark plug (figure 4).

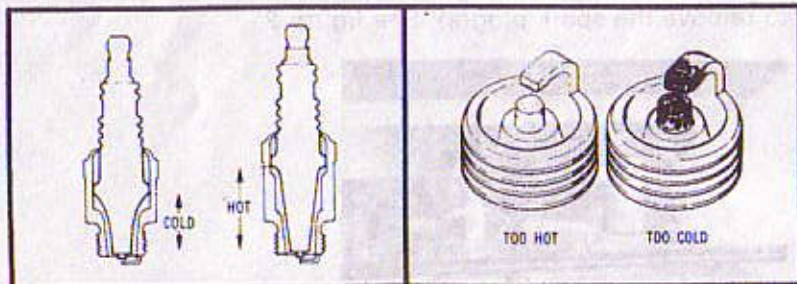


FIGURE 3

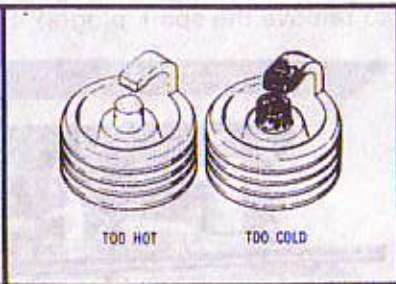


FIGURE 4

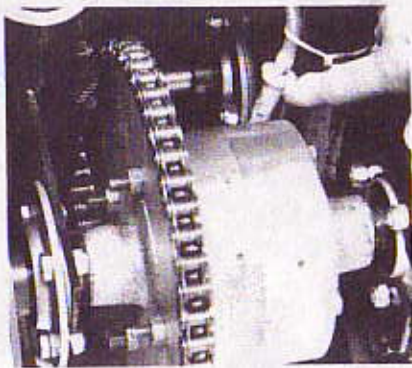


FIGURE 5

RUNNING TROUBLES**LACKS POWER**

1. Poor quality or improperly mixed fuel.
2. Water in fuel.
3. Air inlet restricted.
4. Exhaust port and/or muffler plugged.
5. Loose or improperly adjusted carburetor.
6. Ignition timing wrong.
7. Poor compression.

RUNS UNEVENLY

1. Spark plug in poor condition.
2. Wrong spark plug.
3. High tension lead loose.
4. Breaker points pitted.
5. Fuel bubbles in carburetor from overheating.

POOR ACCELERATION (ENGINE "FOURSTROKES")

1. Choke closed.
2. Carburetor improperly adjusted or malfunctioning.
3. Dirt on carburetor inlet needle.
4. Exhaust port heavily coated with carbon.

WILL NOT ACCELERATE

1. Carburetor idle mixture too lean.
2. Carburetor diaphragm coverplate loose.
3. Carburetor diaphragm gasket leaking.
4. Carburetor and/or manifold loose and leaking.
5. Carburetor malfunctioning.

BACK FIRES THRU CARBURETOR

1. Insufficient fuel.
2. Spark plug "too hot".
3. Water in carburetor.
4. Air leakage from faulty gaskets or oil seals.

PINGS UNDER HEAVY LOAD, FULL THROTTLE

1. Ignition timing too early.
2. Spark plug wrong heat range.
3. Carburetor main fuel set too lean.
4. Combustion chamber coated with carbon.

ENGINE STOPS

1. Fuel tank empty.
2. Vapor locks.
3. Ignition inadvertently turned off.
4. Exhaust pipe plugged.
5. Stalls from overload.
6. Clogged, restricted cooling system.
7. Cooling shrouds not in place or fan damaged.
8. Insufficient oil content in fuel.
9. Fuel line between tank and pump plugged or leaking.
10. Impulse tube plugged, kinked or loose.
11. Carburetor inlet screen or passages clogged.

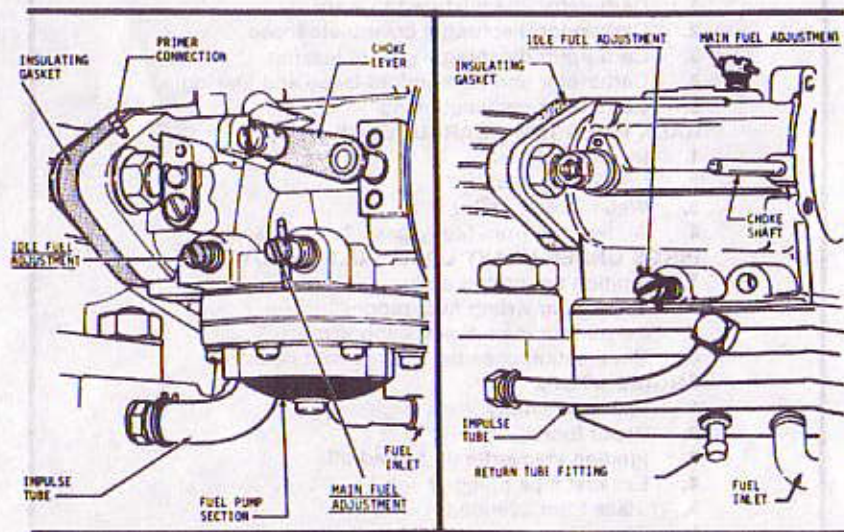
Tri-Sport 290-340

CARBURETORS

Diaphragm type carburetors are used on Kohler 2-Cycle Engines primarily due to the fact that they are unaffected by the extreme and constantly changing angles of operation so common to recreational type vehicle applications. The main job of any carburetor is to meter a correct amount of fuel for all load or speed conditions and in so doing, to change fuel from liquid to vapor and mix this with air in correct proportions to form the volatile gas needed for combustion. These diaphragm type carburetors provide an additional function of pumping fuel from the storage tank.

CARBURETOR ADJUSTMENT

Changing carburetor settings on a 2-cycle engine alters the amount of lubrication the engine receives. For initial adjustment or if readjustment becomes necessary, stop engine and turn IDLE FUEL and MAIN FUEL adjustments all the way in until they bottom **lightly**, (DO NOT FORCE), then set IDLE adjustment and MAIN adjustment to determine positions!



TILLOTSON WALBRO
TYPICAL CARBURETORS

CARBURETOR ADJUSTMENT

There are 4 different adjustments on the carburetors used on Tri-Sport engines:

- A. Idle speed adjustment.
- B. Idle speed mixture adjustment.
- C. High speed mixture adjustment.
- D. Maximum throttle opening.

NOTE: Note that a relationship exists between adjustments "A" and "B" and also between "C" and "D". DO NOT attempt to correct one adjustment without checking the other.

Refer to engine section for your particular Tri-Sport model.

SPARK PLUG(S) CHANGE-OVER

Disconnect the spark plug wire(s). Use the proper size wrench to remove the spark plug(s). See figure 2.



FIGURE 2

tri-sport maintenance

Power Train Drive belt change over:

Here is the procedure to follow if a drive belt replacement proves necessary on your Tri-Sport.

1. Remove the safety shields if applicable.
2. Open the driven pulley, (pulling and twisting the sliding half). See figure 1.

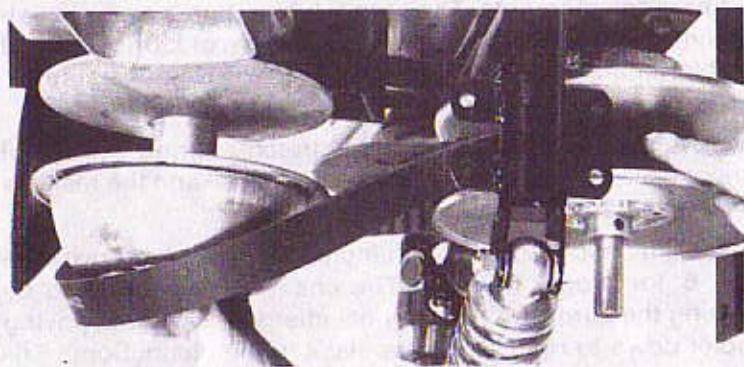


FIGURE 1

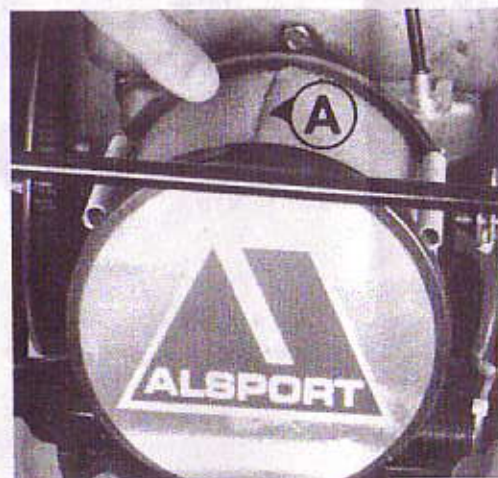
3. Press the drive belt down on the driven pulley shaft.
4. Disengage the belt from the driven pulley.

NOTE: After the belt has been removed from driven pulley, it can be easily slipped over the centrifugal governor, or engine clutch.

5. Remove the drive belt from the Tri-Sport (on the cam side of the driven pulley). Inverse the procedure to install new belt.

TRI-SPORT BODY

The Tri-Sport rigidite bodies may retain their bright luster for years if washed with a mild detergent & warm water periodically. The shine can be maintained by spraying with a "silicone" based cleaner & wiped off with clean, soft cloth.

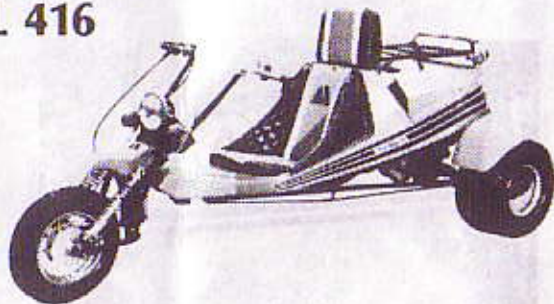


AIR CLEANER MAINTENANCE

CLEAN AIR CLEANER AND RE-OIL ELEMENT every 25 hours under normal conditions. The capacity of the "Oil-Foam" air cleaner is adequate for a full months use without cleaning in average service. (Clean every few hours under extremely dusty conditions).

1. Remove springs.
2. Remove air cleaner carefully to prevent dirt from entering carburetor.
3. Take air cleaner apart.
4. A—Wash foam element in kerosene or liquid detergent and water to remove dirt.
B—Wrap foam in cloth and squeeze dry.
C—Saturate foam in filter oil. Squeeze to remove excess oil.
D—Assemble parts - fasten to carburetor with springs.

SL 414 & SL 416



The SL 414 & 416 feature single cylinder 4 cycle engines producing economical horsepower with overhead valves for long life.

SET-UP INSTRUCTIONS

To be accomplished before initial usage after purchase or after off season storage. **CAUTION: DO NOT MIX OIL WITH GASOLINE.**

1. **FILL FUEL TANK** with fresh, clean leaded, low lead or non-leaded "Regular" grade of gasoline. After removing tank cap, carefully place it where it will not pick up dirt and abrasive grit. Fuel storage can and fill funnel should be clean inside and out. Rust particles, moisture, dirt and other contaminants that find their way into an engine may cause hard starting, poor performance, and mechanical damage.
2. **FILL CRANKCASE** with high grade detergent oil. (See Figure 1 for location of oil fill and drain.) During initial break in period oil level should be checked frequently.

Position equipment so that engine is level. Remove dipstick and place it on a clean surface. Fill until oil reaches top line of "FULL" mark on dipstick. When checking oil level be sure dipstick fill cap is fully seated into filler opening to avoid inaccurate reading. Crankcase capacity is 50 ounces, premeasuring will avoid accidental overfill and spillage.

CHAIN TENSION

The Tri-Sport product line, while varied in engine configurations and designed for different applications have a common drive system concept. This design utilizes drive chain(s) to transmit power from the torque convertor system to the differential. This transfer is accomplished by using #40 chain, with integral lubrication features. The drive chain **must not** be neglected. The chains must have supplemental oiling for lubrication when used in extreme environments. The proper lubrication is a good quality chain or "open gear" spray. When this type of lubricant is not available, temporary use of 30W engine oil is O.K. See figure 5.

CHAINS

The drive chains on all vehicles "stretch" during the initial hours of use. This causes the chain to be loose and the result is premature wearing or damage to sprocket, etc.

This slack must be kept at a minimum to reduce the above. See figure 6 for proper freeplay. The chain may be adjusted by loosening the hardware that mounts idler sprocket and moving the idler down to remove excess slack in the chain. Some Tri-Sports have idler bearings or sprockets that may be rotated on its mount bolt to reduce slack.

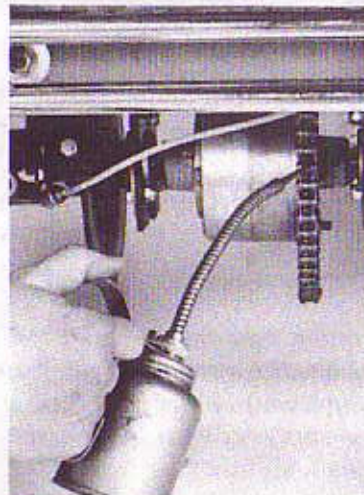


FIGURE 5



FIGURE 6

1/2" overall slack
or freeplay

Preventative Maintenance

Belts that are excessively worn will require a higher engine speed for engagement and the maximum ground speed of the vehicle will be reduced. (figure 4) The serviceable belt moves to the outer diameter resulting in a "high gear" ratio. (Upper solid belt, figures 4a and 4b). Figure 4b illustrates maximum travel of the movable face, worn belt, (hollow, lower) unable to move to greatest diameter of drive pulley. Vehicle performance is also affected if belts are coated with grease, oil or water.

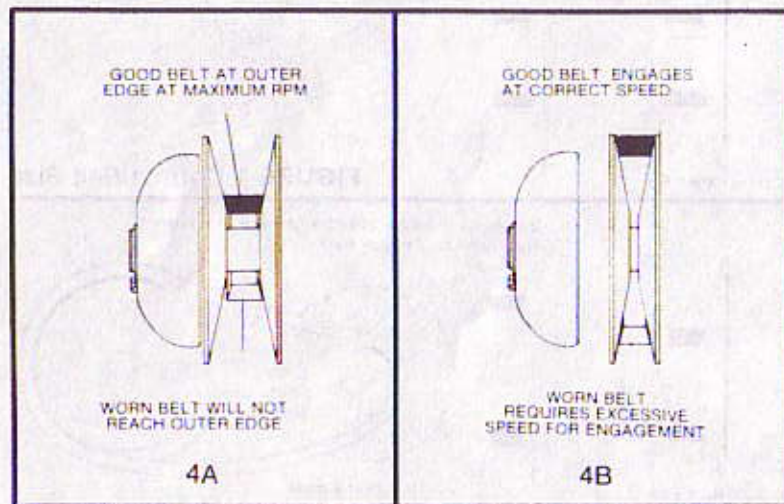


FIGURE 4

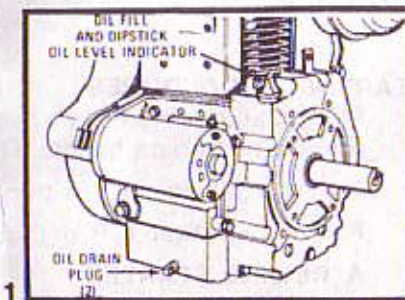
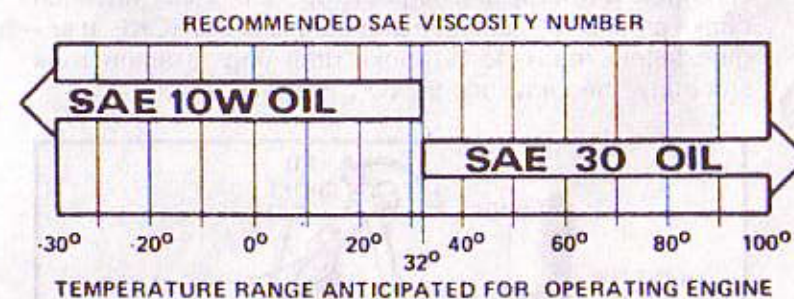


FIG. 1

OIL VISCOSITY as indicated by SAE number refers only to the body or consistency of the oil. Thus low numbers such as SAE 10W, represent light body oils and are recommended for cold weather lubrication. They provide easy starting and instant lubrication to engine bearings. The higher SAE viscosity numbers such as SAE 30 indicate heavier body oils recommended for use at warmer, above 32° temperatures. They deliver improved oil economy and adequate lubrication under higher operating temperatures.



OIL QUALITY. Oils may form sludge and varnish and, under some conditions, corrosive acids unless formulated to avoid oxidation while in service. All of these harmful products damage engines and shorten their useful life.

Only those oils certified as meeting MS, SC, SD and SE service classification are acceptable for use in Tecumseh engines.

STARTING PROCEDURES

1. Place manual choke control in full choke position. Follow arrow direction on handle, Figure 1.
2. Place throttle in run position.
3. Proceed with Step A, B, or C depending upon type of starter.

A. REWIND STARTER

Pull engine through to compression cycle with starter. Then pull starter handle quickly with full arm stroke. Keep firm grip on starter handle and return rope slowly.

B. ELECTRIC STARTER — 12 VOLT

Press starter button or turn ignition switch on powered equipment to actuate starter motor.

C. ROPE STARTER

Insert rope knot in pulley notch, wind rope clockwise around pulley. Pull engine to compression cycle with rope. Pull rope with quick full arm stroke.

4. As engine warms up and begins to operate evenly, advance choke control to 1/2 position and then to NO CHOKE. If engine falters return to 1/2 choke until engine again runs smoothly, then advance to NO CHOKE position.

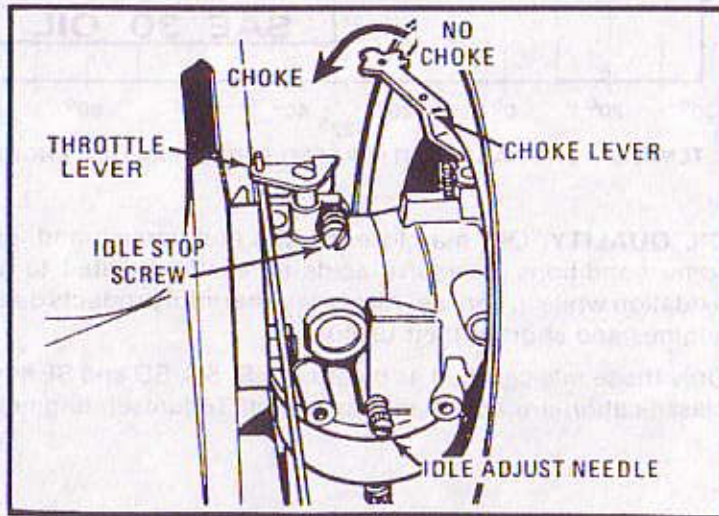
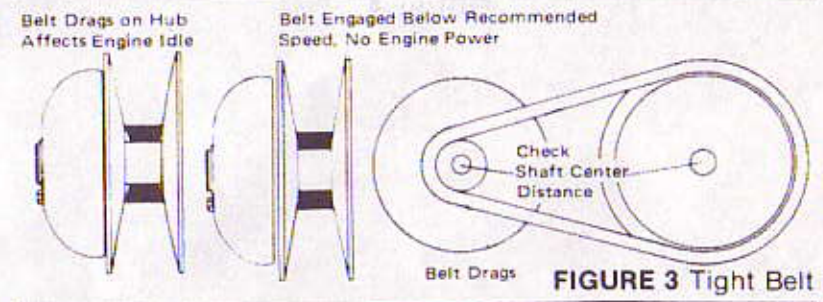
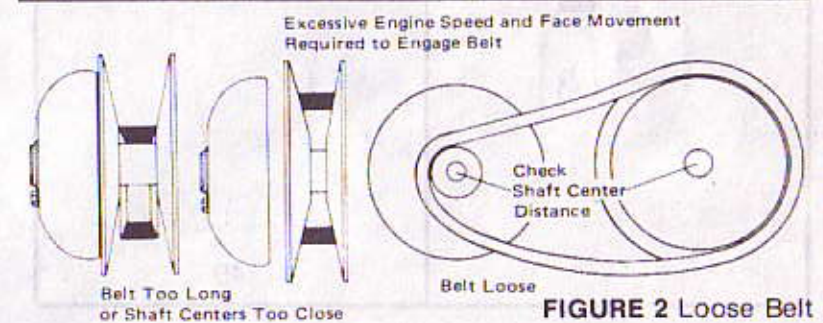
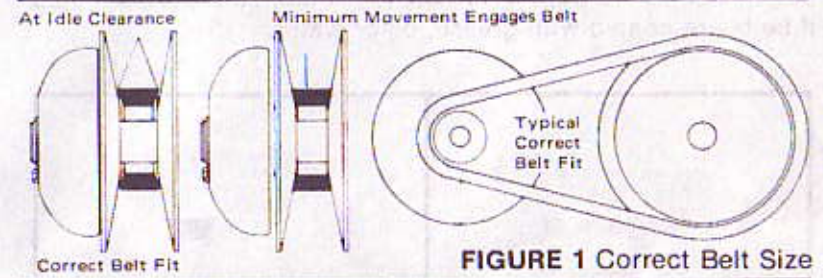


FIGURE 1

DRIVE BELTS

Belts are a very important part of the overall design Torque Converter. Use only the specified belt for each application, (figures 1, 2, 3). A change in shaft center distance will also have the same affect as a loose or tight belt. (figures 2, 3) The proper center to center distance for belts is expressed in maintenance section of this manual, see page 45.



PULLEYS

The torque converter transmission is a simple but unique means of transferring engine power output to drive the vehicle. The torque converter operates much like an automobile automatic transmission, in that the transmission selects the proper driving ratio, depending on the "load conditions" on your vehicle.

(See Figure 1)

- A. In the torque sensitive design, the normal position of the driver pulley at low engine speeds maintains the V-belt in a small diameter. Normal rotational force on cam actuator (C) keeps the driven pulley in "low gear" ratio.
- B. Higher engine speeds cause the roller weights, to close the driver pulley sheaves creating a "high gear" ratio (note position of cam actuator).
- C. If an increased load occurs (such as climbing a hill) after the vehicle is up to speed the cam actuator on the driven pulley takes over and automatically "downshifts" without loss of engine speed. Then engine remains at peak power range for all but the most severe loads, at which time it will shift into peak torque range.

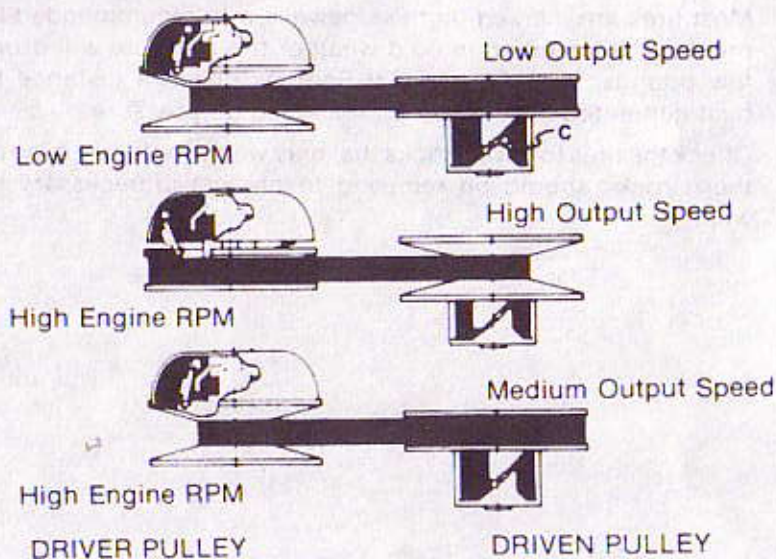


FIGURE 1

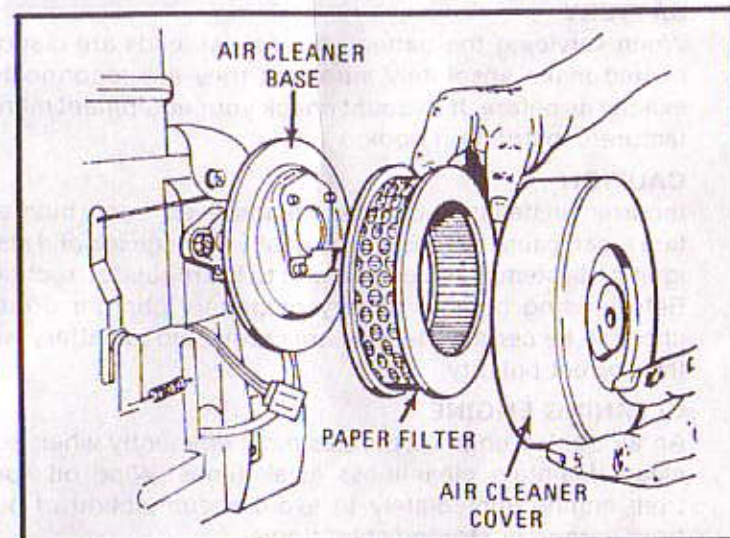


FIGURE 2

5. **AIR CLEANER**

Treated paper type replaceable air filter element. This fine micron filter element should be inspected every ten hours or oftener if engine is operated in extremely dusty conditions.

- A. Remove wing nut and air cleaner cover, Figure 2.
- B. Remove efficient, dry type paper element every ten (10) hrs. or more often if operated in dusty conditions. Tap on flat surface to dislodge clinging dirt or chaff. Low pressure air may assist cleaning, blow carefully from inside. If element is punctured, ruptured, torn or uncleanable — replacement elements are available at your nearby Tecumseh Service Dealer. — Buy an extra and keep it handy for emergencies. **DO NOT WASH IN ANY LIQUID — DO NOT OIL ELEMENT.**
- C. Before replacing element, clean inside of air cleaner base and cover thoroughly.
- D. When replacing filter be sure it is seated correctly in base & cover.

6. BATTERY

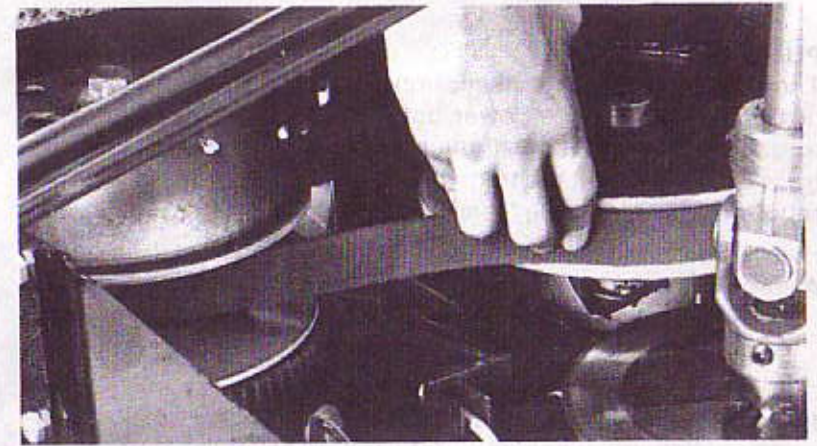
When servicing the battery, if terminal leads are disconnected make absolutely sure that they are reconnected exactly as before. If in doubt check your equipment manufacturer's instruction book.

CAUTION

Incorrect installation of battery leads, even if only momentarily, can cause extensive and costly damage to solid state ignition system of the engine and to the regulator/rectifier. Before using booster battery or battery charger double check to be certain that you are connected to battery with the correct polarity.

7. CLEANING ENGINE

An air cooled engine operates most efficiently when kept clean. Maintain cleanliness at all times. Wipe oil spills from engine immediately to avoid accumulation of dust from garage or storage shed floors.

**FIGURE 2**

This figure illustrates the ease in checking Tri-Sports belt condition and tension.

TIRES

Tires are a very important part of your Tri-Sport and must have occasional attention. Over or underinflation causes unnecessary tire wear and decreased control in handling of your Tri-Sport. Most tires are marked on the sidewalls with recommended tire pressure. **Remember**, in cold weather tire pressure will drop a few pounds, but after the Tri-Sport is driven a distance the heat generated in tires will increase the air pressure.

Check the tires for small rocks that may wedge between grooves, these rocks should be removed to prevent unnecessary tire wear.

preventative maintenance

Steering

Tri-Sports utilize precision ball bearings in the steering crown. These bearings must be lubricated annually or more often if operated in extremely dirty environments. The single "king pin" bolt can be removed and the bearings will be exposed for greasing with a conventional automotive pressure grease gun.

Suspension

Suspension components found on Tri-Sports are unique in that the springs and shock absorbers are integral with each other. The shocks are hydraulically dampened and **do not require** lubrication, but must be kept clean to assure smooth operation. The suspension features adjustable spring loading, so as to facilitate extreme operating conditions. The carrying capacity or firmness of ride may be selected by adjusting the shock absorber detent ring. See Figure 1 for detent ring. This ring, when viewed from top of shock may be turned in a clockwise direction, 3 positions to increase spring tension. This action will result in increased firmness of ride or additional load capacity.



FIGURE 1

all models

MANUAL START

To start a Tri-Sport manually, follow the procedure below:

1. Ensure the engine cut-off switch is in the **on** position.
2. Move choke lever to on or closed position on carburetor.
3. Place "Tri-Sport" front wheel against something stable to prevent the unit from moving.
4. Grasp recoil start handle and slowly pull starter rope until back pressure is felt. This is the compression stroke of engine.
5. Pull in short, quick strokes. **DO NOT PULL** recoil rope all the way, until it stops. Damage may result in starter mechanism.

CAUTION: When manually starting the SL model Tri-Sports, be careful not to pull recoil rope against the rope guide in body. Continued pulling will result in abnormal wear and the Tri-Sport body may be damaged. See Figure below.



driving hints

The Tri-Sport product line from the 3 HP mini to the Phase III competition unit, have two things in common— rear engines and 3 wheels. The similarity ends there. All Tri-Sports are uniquely stable and loads of fun if handled properly.

Familiarize yourself with a unit's characteristics prior to running full speed and attempting to set new cross-country records.

A Three Wheeler has inherent stability, but can be upset if improperly driven.

The following paragraphs will prove helpful to you in understanding a Tri-Sport.

All Tri-Sports have automotive type differentials which allows a vehicle to turn in a short radius. The independent rear wheel brakes found on some models are assets when traversing muddy areas. The brakes can be applied and released alternately to rock the vehicle out, much akin to the large tracked earth-movers. Likewise the brakes are beneficial when turning radius must be decreased.

The torque convertor transmissions functions like an automatic transmission in an automobile. The transmission will shift up or down depending on the load conditions on the vehicle, i.e., when climbing a steep hill, the transmission will stay in the lowest gear necessary. These features are completely automatic and require nothing from the operator.

If you are riding in snow, it may be advantageous to lower the rear tire pressure slightly. This will increase the tire effective footprint and provide some increased traction. When riding your Tri-Sport in extremely rough terrain a lower tire pressure normally will make your riding less harsh and save some of the mechanical components of your unit.

The front wheel brake **should not be applied** when turning. The wheel could "lock up" and result in a loss of control. The rear wheel brakes are normally all that is required to stop your vehicle.

driving your tri-sport

A Tri-Sport with optional cargo carrier provides a utility aspect. The carrier will hold heavy loads, but creates a high center of gravity. If loaded, and a quick throttle is applied the Tri-Sport will probably rear-up in front and engine damage may result. It is also not advisable to carry a second passenger on the cargo area. The potential injuries are not worth the chance.

towing a trailer

When using a Tri-Sport around the home or farm, it may be advantageous to pull a small trailer.

Insure the weight is on the trailer axle with a slight amount of weight forward on the tongue of the trailer to prevent it from lifting the Tri-Sport rear wheels.

It is also possible to overload the trailer and lift the Tri-Sport front wheel. A little common sense in driving and handling of a towed vehicle will make your chores a little less difficult.

in case of emergency

Normal Outings

Whenever going out for a Tri-Sport ride always carry emergency material. To avoid being stranded because of minor problems, you should keep a tool kit, a spare spark plug, and a chain master link with you at all times. Alsport offers a vinyl tool bag as an accessory for storage of these and related items.

Group Outings

Tri-Sport fans often organize group rides for club members and friends. Whenever participating in group ride, be sure to have a first-aid kit, ropes, and extra fuel. This should ensure more relaxed and enjoyable riding to everyone.

Towing

If you have to tow another Tri-Sport, remove the drive belt from the drive pulley of the machine. Don't use full throttle; the overload will require more power from the engine. The engine will burn more fuel, but won't give the Tri-Sport more speed. Hold the throttle at $\frac{1}{2}$ and spare the extra torque you may need.