



# ***TRAIL-BREAKER.***

**AUTOMATIC  
Mk IV**

**OPERATION AND MAINTENANCE**

**MANUFACTURED BY:**

**Rokon, Inc.**

**160 Emerald St.**

**Keene, N. H. 03431**



## INTRODUCTION

This manual contains instructions for operation and maintenance service. The operation of the Trail-Breaker is very simple and requires a minimum period of instruction and familiarization. The operator has maximum control of the vehicle over all terrain through engineered features designed specifically in the Trail-Breaker for this purpose.

The parts were designed under the simplified modular replacement concept. This concept offers the operator the ease of replacing components, thereby reducing field repair time. An absolute minimum of field maintenance and service is achieved through the elimination of grease fittings and the incorporation of sealed bearings. This feature is important in using the Trail-Breaker as an "off-the-road", "off-the-trail" vehicle operating in remote regions.

## WARRANTY

Rokon, Inc. warrants each new Trail-Breaker vehicle to be free from defects in material and workmanship when under normal use. Our obligation under this warranty is limited to making good at our plant in Keene, New Hampshire and at no other place, any part or parts thereof of our manufacture which shall, within ninety days after delivery of each new Trail-Breaker to the original purchaser for use, be returned to us with transportation charges prepaid, and which our examination shall disclose to have been defective.

It is the constant endeavor of Rokon, Inc. to improve Trail-Breaker products and, therefore, we reserve the right to make changes and improvements from time to time without being under obligation to make such changes gratis on machines previously built, and to add, change or omit equipment at our discretion and without notice.

Any parts sent to us for replacement or servicing must have transportation charges prepaid and should have a tag attached showing engine and serial number, length of operation and other pertinent data. A warranty and owner registration card is provided with each Trail-Breaker. This card must be filled out and returned to Rokon, Inc. within one day after sale to make this warranty valid.

This warranty is in lieu of all other warranties and except as herein contained there are no other warranties express or implied.

Rokon, Inc.  
Keene, New Hampshire

## OPERATING INSTRUCTIONS

This section describes and locates the various controls provided for the proper operation of the vehicle.

### CONTROLS

Starter - The Trail-Breaker is equipped with a rope type rewind starter located on the engine cowling. IMPORTANT - When starting your Trail-Breaker, the accelerator should be open very slightly (1/8 turn) while engine is being cranked. Failure to follow this rule will result in the machine taking off immediately when started.

Brake - The two wheel brakes are operated by a hand brake lever. The lever is located on the left handlebar. To slow or stop the forward movement of the machine, release the throttle and squeeze the brake lever.

Operation of the Trail-Breaker on steep slopes - Always descend steep grades at a slow speed. The Trail-Breaker will descend any grade that it will climb. Both wheels are stopped equally by the front wheel brake when the machine is moving forward and the front wheel is straight.

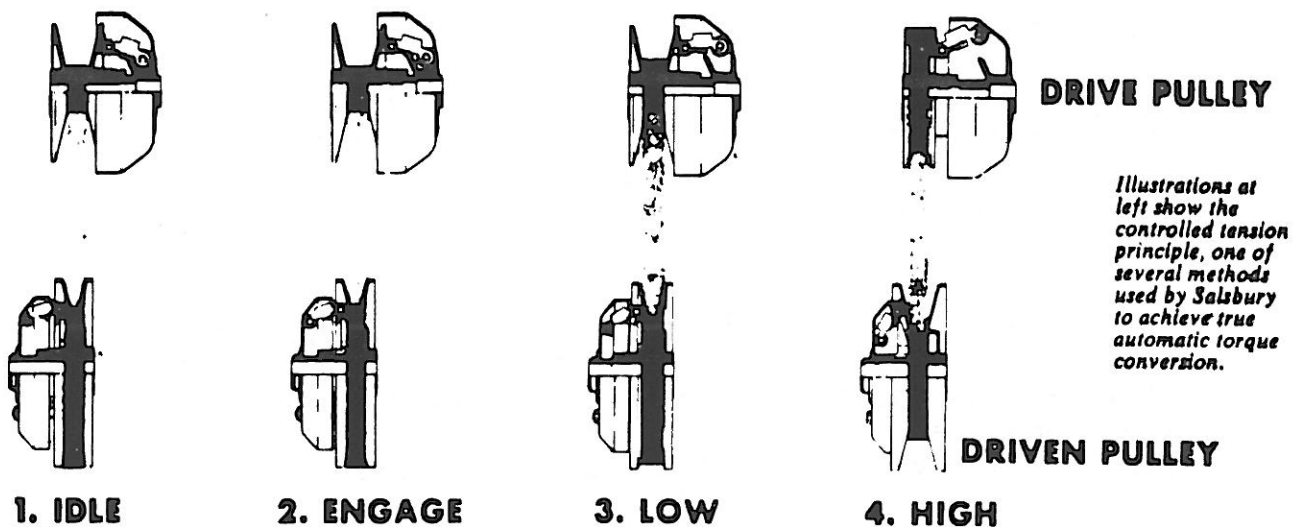
Due to the action of the overriding clutch in the drive line, power will be momentarily disconnected from the front wheel when turning. Likewise, braking force will also be released from the rear wheel when turning and braking. It is, therefore, advisable to descend steep slopes in a straight line whenever possible.

Throttle - The engine is accelerated by twisting the throttle grip counter-clockwise. The throttle grip is spring-loaded and it will automatically de-accelerate the engine when released.

Automatic Torque Converter - The Salsbury Model 330 automatic torque converter was designed specifically for light horsepower applications such as light-weight sports vehicles as well as industrial applications. Generally engine driven, this converter is of the torque-sensitive type in which the vehicle or driven load has influence on establishing the ratio between the driver and driven pulleys.

In normal operation, the driver pulley "shifts into high" in response to the engine's increase in speed; the driven pulley follows this speed change as in any variable pitch belt drive. In the torque-sensitive design, a cam actuator in the driven pulley reacts to increased torque demands by downshifting without loss of engine r.p.m. In this way, the engine continues to operate at peak power range for all but the most severe loads when it will shift into peak torque range.

### AUTOMATIC TORQUE CONVERTER



How it works - At rest, the faces of the driven pulley are forced to a closed position by spring pressure and leverage in the control mechanism, thus forcing the belt to maximum pitch diameter while faces on the drive pulley are held open with the belt at minimum pitch diameter. As the drive pulley is rotated, centrifugal force acting on the actuating mechanism forces the pulley faces closed thus forcing the belt to a greater pitch diameter.

As speed is increased tension on the belt resulting from pressure from the drive pulley faces overcomes spring tension on the driven faces and the belt moves to a lesser pitch diameter. By this means, maximum speed reduction is provided at relatively low r.p.m. shifting to lesser reduction at higher speeds. Usually the ratio is from 3:1 in "low" to 1:1 in "high".

Operation - The Salsbury automatic torque converter is essentially a constant torque unit which automatically selects speed ratio by variation of input speed and load transmitted.

The capacity of such a torque converter is governed by the ability of the belt to transmit power which would normally be the same regardless of speed. Variation in pitch diameters and amount of "wrap" on the pulleys, however, have a direct bearing on the belt capacity. Torque arm variation with varying pitch diameter and allowance for "wrap" is taken into consideration in relating the capacity of the torque converter through the speed range.

#### GENERAL MAINTENANCE

Air Cleaner - Under ordinary operating conditions the air cleaner should be cleaned monthly. Under extremely dusty conditions, more frequent cleaning is absolutely necessary. The repair of an engine damaged by dirt is not covered by the warranty.

To clean the element, remove it from the machine and wash it in a solvent or gasoline. Then force air through the element from the inside out until dry. When in the field, it is possible to service the element by removing the fuel line from the carburetor and allowing fuel to flow through the element from the inside out. Shake until dry. When installing the element, fasten the right clip first when facing the front of the machine.

#### FRONT WHEEL DRIVE - DESCRIPTION AND SERVICE

The power for the front wheel is by means of a driveshaft running through the upper frame tube.

At the front end of the rear miter box, between the driveshaft and the miter box, there is an overriding sprag type clutch. This mechanism will allow power to be transmitted in one direction only. The purpose of this overriding clutch is to allow the front wheel of the machine to be turned or run in a larger diameter circle than the rear wheel, as in making a "U" turn. In making a sharp turn with this vehicle, the power is disconnected from the front wheel.

### DRIVE BELT MAINTENANCE

There is no maintenance of the belt on the automatic torque converter. If it looks frayed or worn, replace it with an exact replacement. It is a special belt. Pulley center distance is set at 7 inches and the belt is 28 inches long outside.. The belt can be installed by putting it over the front pulley and running it around onto the rear, or the front pulley can be removed, the belt put onto both pulleys and the pulley put back on.

### PRIMARY CHAIN ADJUSTMENT AND MAINTENANCE

The short chain under the seat, the primary chain, is a hard working component and requires frequent lubrication and occasional adjustment.

Frequent lubrication, every hour or so when new, is essential. As the chain wears and loosens up, less frequent oiling will do. Stiffness in or brown rust at the joints is a sign of overdue lubrication. Oil the joints with a penetrating chain oil that thickens after application as not to fly off. This is available from Rokon.

Primary chain tension is adjustable by loosening the two 3/8 bolts holding the jackshaft and moving the jackshaft up and down. Leave some looseness - this short chain will not come off. Tighten the bolts well.

### FINAL DRIVE CHAIN ADJUSTMENTS

The drive chains require adjustment at intervals, depending upon the mileage and the care which the operator has given the chains. Initial stretch must be taken out by adjustment after the first four hours of use. Total deflection should be one-half to three-quarters of an inch when measured halfway between the two sprockets.

To adjust the chains, loosen the axle bolts and the adjusting bolt lock nuts, and turn the adjusting bolt in or out as required to give the chain the proper setting. After adjusting the chain, rotate the wheel and check to make sure the chain has no tight spots. Before locking the adjusting nuts, make sure the wheel is centered in the frame or fork, and the chain is not touching the tire, but as close as possible.



Periodically, the chains should be removed from the machine and cleaned in solvent or gasoline. After installing the chains on the machine, they should be lubricated with one of the chain lubricants on the market which can be applied to the chain in a liquid form and will penetrate to the inner parts of the rollers. This type of chain lubricant evaporates to a non-drip, non-hardening form and does not fly off like oil.

#### MITER BOXES

The miter boxes should not require service other than checking the oil level or replacing oil seals.

The miter boxes are assembled with special tooling to determine the correct tooth engagement and backlash. It is, therefore, advisable not to attempt to dismantle the units.

The correct oil level is flush with the top edge of the sprocket shaft when the machine is in a vertical position. Use EP 90 gear lube.

#### TIRE REMOVAL AND REPLACEMENT

1. Remove the valve core.
2. Break the tire beads loose from the rim by placing the wheel on the floor and applying foot pressure next to tire bead.
3. Remove the tire from the sprocket side of the wheel.
4. To replace the tire, reverse the above procedure.
5. Inflate the tire to 40-50 pounds to insure the tire beads are out on the rim, then deflate to three and one-half pounds.

#### SUPPLEMENTARY SERVICING

1. Engine life and performance is directly proportional to the cleanliness of the air filter. Clean monthly or more often if needed.
2. The fuel filter is designed so that one can see when dirt particles have accumulated. When this accumulation appears in small deposit form, the fuel filter should be flushed or replaced if necessary.

3. The primary, secondary and final drive chains should be readjusted after the first four hours of use to take up any initial stretch.
4. After the Trail-Breaker has been run in deep mud, wash all drive chains and sprockets to keep the machine from freezing up when the mud solidifies. Re-lubricate.
5. Caution: To avoid breakage, tighten the carburetor elbow retaining screws evenly. Alternate from one screw to the other and do not overtighten. The four fibrous gaskets between the engine and carburetor elbow insulate the heat of the engine from the carburetor.
6. You can always keep in mind that a machine is only as good as the man who owns it. Frequently check visible fuel filter and air cleaner for excess dirt. Correct tire pressure of three and one-half pounds is another performance factor. Tests prove that intensive care adds years of life to your Trail-Breaker.

#### ENGINE OPERATING INSTRUCTIONS

##### Starting Procedure -

1. Fill fuel tank with fuel prepared as defined under "Specifications". Wipe up all spilled gasoline.
2. Open fuel shut-off valve.
3. Move choke to closed position.
4. Open throttle and crank engine. When engine starts, move choke to open position.
5. Perform the steps outlined under "Carburetor Adjustment" if necessary.

##### Carburetor Adjustment -

1. Turn both adjustment needles clockwise until completely closed. Caution: Do not force needles tightly closed as the seats will be damaged.
2. Open both needles by turning counter-clockwise  $1 \frac{3}{4}$  turns. This will be a rich setting and operation under load will determine the best setting.