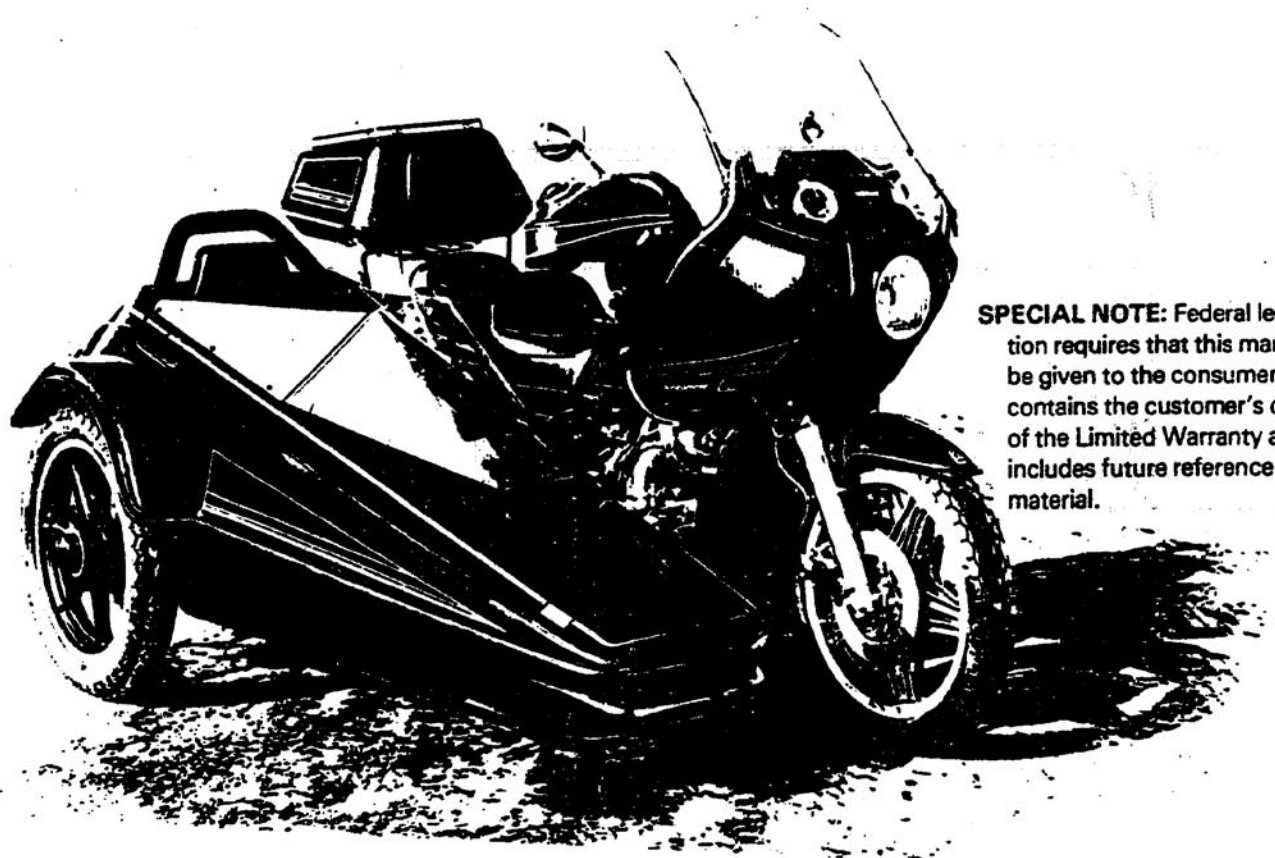


Terraplane

Driver's/Owner's Manual



SPECIAL NOTE: Federal legislation requires that this manual be given to the consumer. It contains the customer's copy of the Limited Warranty and includes future reference material.

Vetter



Vetter Corporation, Rantoul, Illinois 61866 217/893-9300

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Introduction

Regardless of your expertise as a motorcyclist, you are in for a new riding experience, as a motorcycle equipped with a Terraplane handles quite differently than a solo motorcycle. This manual contains important information concerning the safe operation and maintenance of your Terraplane. We urge you to read it thoroughly before operating the Terraplane.

Both in this manual and the hardware mounting instructions, statements preceded by the following words are of special significance:

WARNING: means that there is a possibility of personal injury to yourself and others.

CAUTION: means that there is a possibility of damage to the product.

NOTE: indicates points of particular interest.

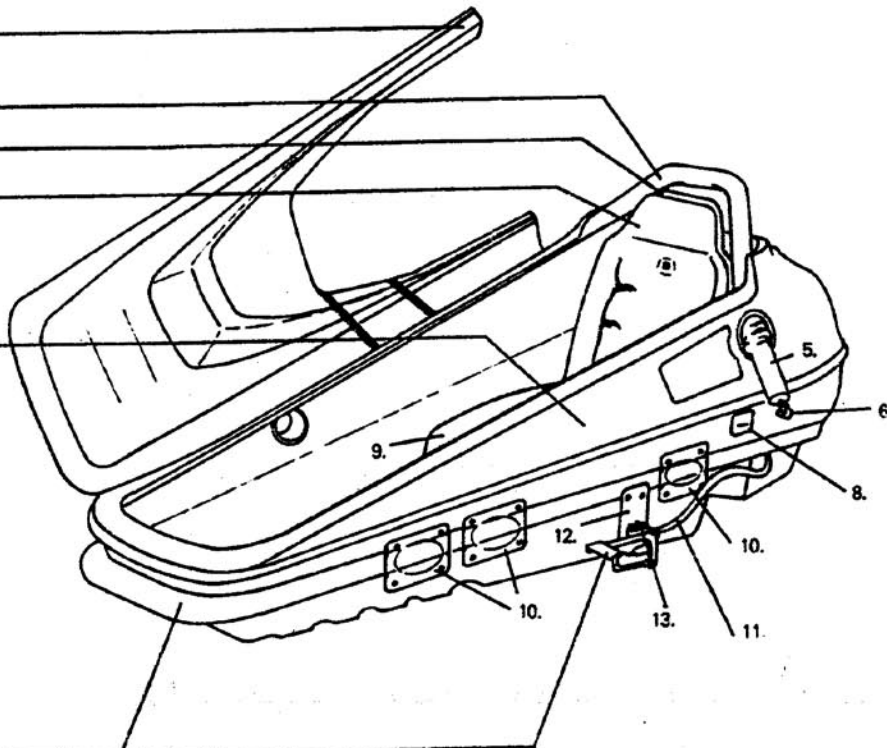
We recommend that you take notice of these items when reading this manual and your mounting instructions. The intent of these instructions is to insure that your Vetter Terraplane is properly installed, and that you have a basic understanding of its handling characteristics prior to operating for your safety and trouble-free enjoyment.

SPECIAL NOTE: Vetter Corporation reserves the right to make changes in design and specifications and/or to make additions to or improvements in its products without imposing any obligation upon itself to add or install them on products previously manufactured or sold.

Terraplane Nomenclature Guide

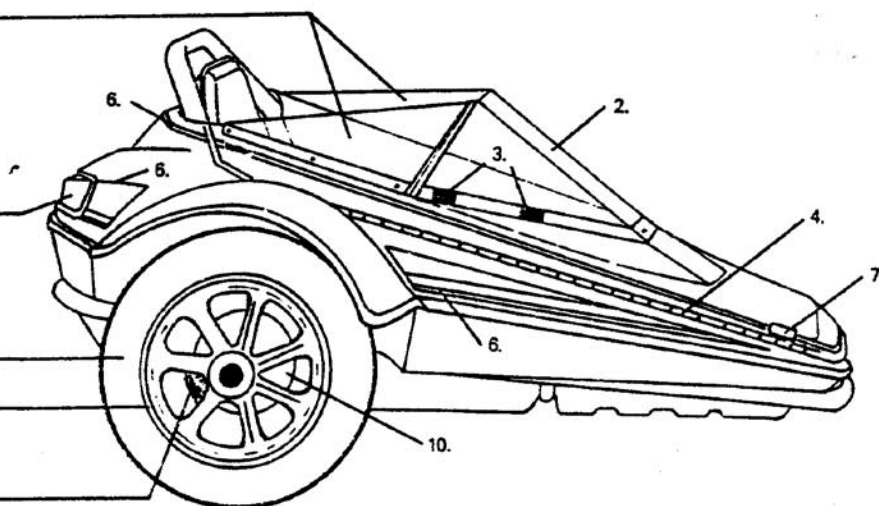
LEFT SIDE

- Canopy 1.
- Upper frame loop assembly 2.
- Seat back panel 3.
- Seat back 4.
- Trim-Grip boot 5.
- Trim-Grip 6.
- Body assembly 7.
- Serial no. plate/
Wiring harness connection 8.
- Seat bottom 9.
- Mounting plates 10.
- Brake line 11.
- Brake pedal mounting plate 12.
- Master brake cylinder assembly 13.
- Brake pedal 14.
- Horizontal loop assembly 15.



RIGHT SIDE

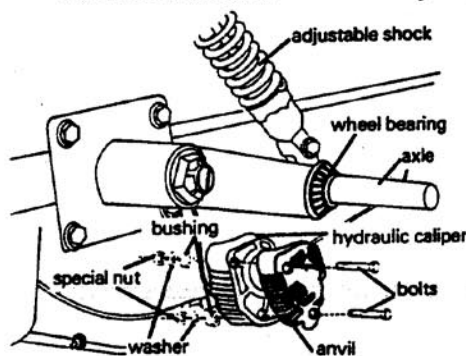
- Windshield side 1.
- Windshield center 2.
- Windshield clips 3.
- Canopy hinge 4.
- Tail light lense 5.
- Standard striping 6.
- Reflector 7.
- Tire 8.
- Rim 9.
- Brake disc 10.
- Brake caliper assembly 11.



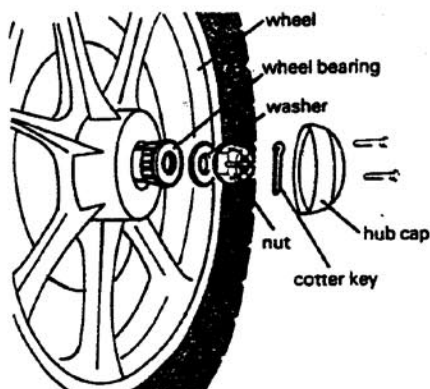
Terraplane Assembly

The Terraplane is shipped with the wheel removed. The wheel bearings will be packed with grease and individually wrapped and the brake caliper will be bolted in place. Follow the procedures step-by-step for assembly.

1. Remove the two bolts securing the brake caliper assembly in place. Leave the hydraulic caliper in place, but remove the anvil.
2. Place one wheel bearing on the axle, sliding it all the way back against the shoulder on the axle.



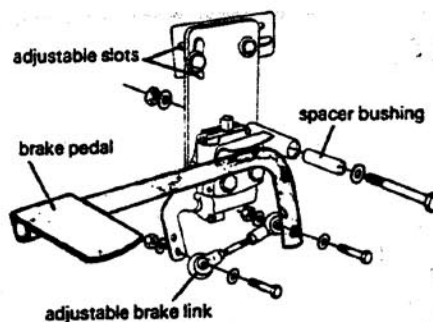
3. Install the wheel on the axle.



4. Install the outer wheel bearing.
5. Install the special washer.
6. Place the nut on the axle. To adjust bearings, tighten the nut slightly more than finger tight, then back off until the cotter key can be installed.
7. Install the cotter key and bend the end over to secure in place.
8. Install the hub cap.
9. Place the outer half of the caliper (anvil) in place. Secure using the special bolts and nuts removed in step 1.

WARNING: Do not substitute other bolts or nuts when installing the caliper. If replacement is necessary, order from an authorized Vetter Dealer.

10. Install the brake pedal per illustration.

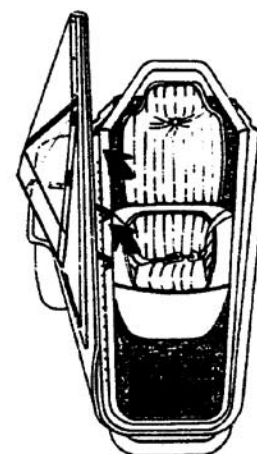
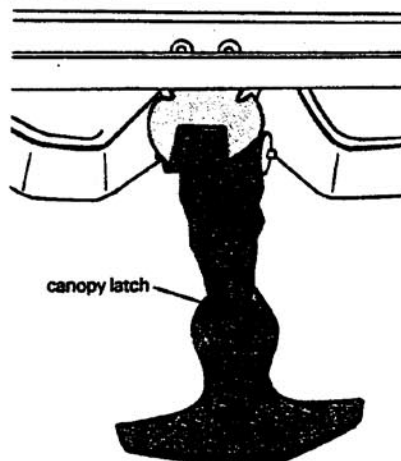


11. Bleed the brake system.

General Information

ENTERING THE TERRAPLANE

Release the latch, tilt the canopy open and step in.



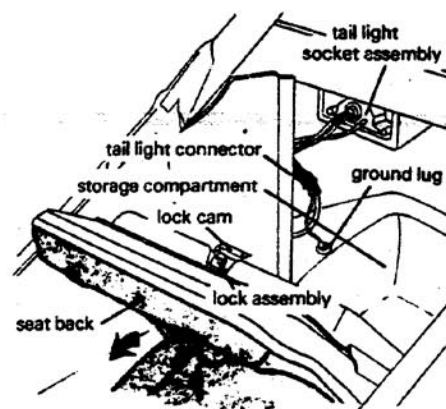
Once seated, adjust the seat belt securely, close the canopy and fasten the latch.

WARNING: Always use your seat belt and wear an approved safety helmet when riding.

LUGGAGE COMPARTMENT

The lock is located in the center of the seat back. Insert the key, turn it a quarter-turn clockwise and pull. The seat will tilt forward allowing access to the storage compartment.

NOTE: The lock used here is the same type found on all Vetter accessories. It is possible to change locks so that a single key will fit all your Vetter products.



SUSPENSION ADJUSTMENT

Riding comfort is controlled by a five way adjustable shock, pre-set in the softest (first) position. This should be satisfactory for most conditions, however, if you

desire a firmer ride it will be necessary to remove the Terraplane brake caliper and wheel for adjustment.

TRIM-GRIP

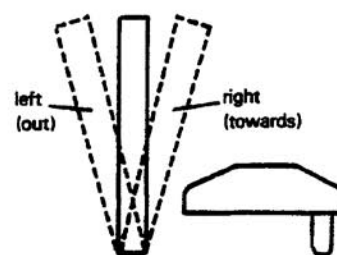
The Trim-Grip is a variable lean angle device used to control the lean of the motorcycle in relation to the Terraplane.

The purpose of this device is to minimize, and in most cases eliminate, the pull to the right caused by the added weight of

the Terraplane. To vary the lean angle, the driver reaches down with his right hand and turns the Trim-Grip counter-clockwise (forward) to increase the lean to the left or clockwise (backward) to decrease the lean angle.

NOTE: Lean angle will rarely need to be adjusted to the right of vertical as the pull on the motorcycle is always to the right, requiring the bike to lean left at varying degrees.

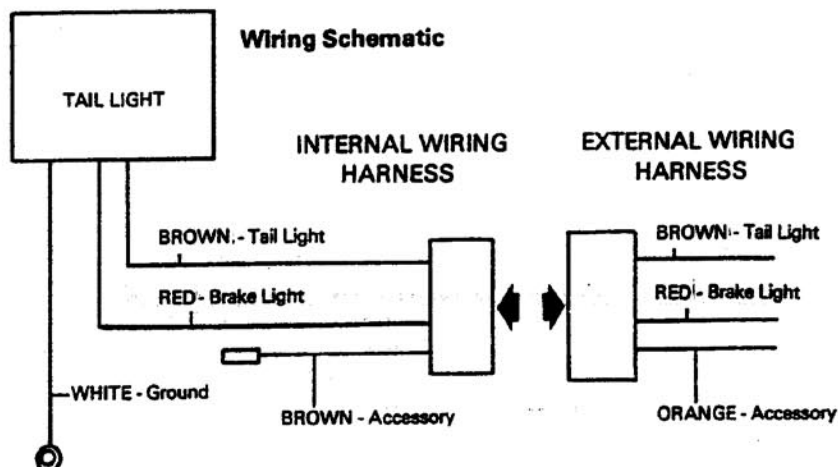
LEAN ANGLE



ELECTRICAL CONNECTIONS

If you encounter an electrical problem, check the color codes against the

schematic; then check for loose connections or blown fuses.



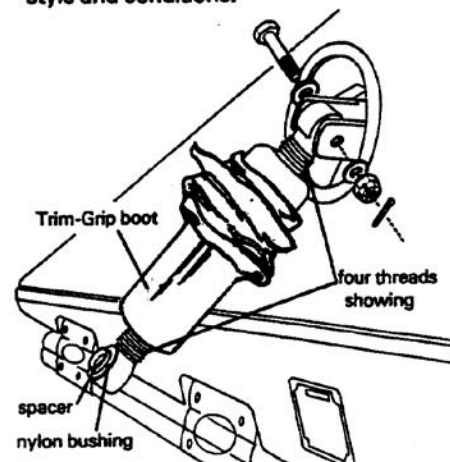
Driving Instructions

It is important that you read the General Information section of this manual before beginning this section to gain insight into the functions and purposes of various Terraplane components.

First, have your dealer or an experienced sidecar driver take your Terraplane to a large, unobstructed parking lot or field that is relatively smooth. Adjust the Trim-Grip so that there are about four (4) threads showing.

This will position the motorcycle vertically. In most cases, this setting will work well and allow for optimum handling at speeds up to 45 mph. Once accustomed to driving the Terraplane, you may wish

to change this setting to suit your driving style and conditions.



Sit on the motorcycle and locate the brake pedals. Practice applying even pressure across both of them.

Now you are ready to begin your first ride. As you start to move, there will be a pull to the right; the faster you accelerate, the greater the pull. Compensate for this by steering to the left. Once under way, the pull will be minimal. When stopping, the opposite will happen - the momentum of the Terraplane will push forward causing it to pull to the left unless both rear brakes are applied simultaneously. After you've mastered the use of the rear brakes, there will be no noticeable pull when coming to a stop.

CAUTION: The front brake of the motorcycle supplies approximately 80% of the stopping power, even with the Terraplane attached, so it should be used along with the rear brakes. Because of the stability present with the third wheel, the front brakes may be used to varying degrees no matter what the road conditions.

NOTE: Prior to attempting turns, it is advisable to add at least 150 pounds ballast to the Terraplane for stability. This can be either a passenger or sandbags.

Turns are accomplished by steering the Terraplane through a corner rather than leaning through it as would be done on a solo motorcycle. This may be somewhat difficult to do at first, especially for the more experienced motorcyclist, because it is the opposite of everything previously learned about cornering. You must steer the Terraplane through a turn much the same as an automobile; the lean will be in the opposite direction of the turn. This opposite lean will not be very noticeable at low speeds, but as speed is increased it will become quite evident. Practice will cure the unnatural feeling first experienced in turning.

Once you are adept in cornering at low speeds (5-10 mph), increase your speed

and decrease the radius of your turns very slowly until you feel confident that you are able to negotiate a right or left intersection turn at 10-15 mph.

You are still not ready to drive in traffic, but are ready to increase your skills. Remove the ballast from the Terraplane and repeat the above cornering practice. Be very cautious of right hand turns now because without the ballast, the Terraplane will want to rise off the ground. It is very important that you learn at what point this will happen. If this occurs in traffic, you must brake and straighten the front wheel simultaneously. For correct driving procedure, speed should be adjusted prior to entering the turn. Know your limitations when driving in traffic.

Once confident in your ability to start, stop and corner, proceed to the town/city streets.

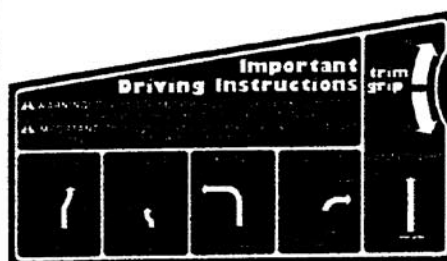
WARNING: Your motorcycle equipped with a Terraplane is approximately six feet wide, so be aware of curbs and parked cars to your right. Remember to allow sufficient room.

Freeway driving is similar to city driving with one exception, speed. To compensate for the wind forces pulling the Terraplane to the right, use your Trim-Grip. As speed increases, the amount of lean angle to the left (away from the Terraplane) needs to be increased accordingly.

The amount of effort necessary to keep a sidecar going straight down the road, especially in a crosswind, has always been a drawback of sidecars. The Trim-Grip overcomes this pulling effect by allowing the driver to change the lean angle of the motorcycle while driving.

NOTE: It is recommended that a cruise control (a throttle locking device) be installed on your motorcycle prior to operating it with a Terraplane.

To adjust the Trim-Grip, lock the throttle, reach down with your right hand and turn the Trim-Grip counter-clockwise (forward) until the Terraplane does not pull right or left.



The number of turns required will depend on your traveling speed, road conditions,

amount of crosswind and the weight carried in the Terraplane.

NOTE: When traveling at freeway speeds the motorcycle may feel uncomfortable at first due to the amount of lean angle to the left, but you will become accustomed to this after a few miles.

WARNING: With the bike leaned out for freeway speeds (as many as 11 threads showing on the Trim-Grip), it is more difficult to negotiate a sharp right turn. Prior to exiting the freeway, turn the Trim-Grip clockwise to bring the motorcycle back to the vertical position.

CLEANING AND WAXING THE TERRAPLANE AND WINDSHIELD

Use a mild detergent and warm water; washing and drying should be done with a clean, soft cloth or sponge.

motor wax will work well. Apply using manufacturer's instructions.

CAUTION: Do not clean with abrasive type cleaners; ethyl or methyl alcohol, gasoline or solvent, as these materials can cause deterioration of both the body and windshield surfaces. Remove oil, grease or tar with isopropyl alcohol or a good grade of naphtha or kerosene.

WARNING: The Terraplane body and windshield are designed to help protect the rider from the elements. They are NOT intended to protect you in an accident. All windshields can break which may result in rider injury.

Scratches in the body can be removed with automotive buffing compound.

The seat bottom can be removed by grasping both edges and lifting. Clean using warm water and a mild detergent or furniture polish/cleaner such as Pledge, Favor or Armorall.

For polishing the body any good auto-

STRUCTURAL REPAIR

Damage to the body portion of the Terraplane can be repaired by any auto-

mobile body shop that repairs fiberglass.

TAIL LIGHT BULB REPLACEMENT

Simply remove the tail light lens by removing the two screws. Remove and

replace the bulb using a standard No. 1157 tail light bulb.

INTERNAL WIRING

There are three wires in the Terraplane. Red is for the tail light; brown is for the brake light. These two wires are pre-connected from the factory and only need to be connected to the motorcycle. (See the instruction manual packaged with your hardware kit.) The third (brown) wire is an accessory lead and is therefore

not connected. It will be found lying loose in the luggage compartment.

The ground wire for any accessory installed in the Terraplane, found in the luggage compartment below the tail light, may be attached to the screw with the white wire under it.

TIRE

The Terraplane is equipped with a 4.30x18 universal tread, tube type tire. Only use tires made for use in conjunction with a tube. Proper air pressure will provide maximum stability, riding comfort and tire life. Check tire pressure frequently and adjust if necessary.

NOTE: Tire pressure should be checked when the tire is "cold," before you ride.

Recommended cold tire pressure setting: 38psi.

WARNING: Improper tire inflation will cause abnormal tread wear

and create a safety hazard. Under-inflation may result in the tire slipping on, or coming off the rim. Operation with an excessively worn tire is hazardous and will adversely affect traction and handling.

Replace tire before tread depth reaches the following limit:

Minimum tread depth: 2.0mm (3/32 in.)
Repair/Replacement: See your authorized Vetter Dealer.

BRAKE SYSTEM

The brake on the Terraplane is a hydraulic disc type.

As the brake pads wear, the brake fluid level drops, automatically compensating for wear. There are no adjustments to perform, but fluid level and pad wear must be inspected periodically. The system must be inspected frequently to insure there are no fluid leaks.

NOTE: If the brake pedal travel becomes excessive and the friction pads are not worn beyond the recommended limit (see Brake Pad Wear Section), there is probably air in the brake system and it must be bled. See your authorized Vetter Dealer.

WARNING: Brake fluid may cause irritation. Avoid contact with skin

or eyes. In case of contact, flush thoroughly with water and call a doctor if your eyes are exposed.

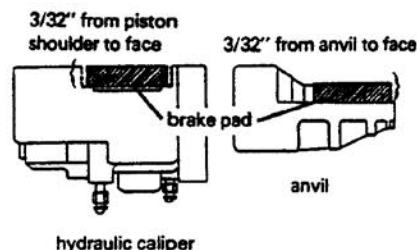
To check the brake fluid level; remove the cap screw from the reservoir. If the level is below the top of the reservoir carefully fill to bottom of the cap screw hole with DOT 3 Brake Fluid. Reinstall the cap screw, tightening it securely.

CAUTION: Use only DOT 3 Brake Fluid from a sealed container. Handle brake fluid with care because it can damage paint and plastics used for instrument lenses and fairings. Never allow contaminants (dirt, water, etc.) to enter the brake fluid reservoir.

BRAKE PAD WEAR

Brake pad wear will depend upon the severity of usage, type of driving and condition of the roads. The pads will wear faster on dirty and wet roads. Inspect the pads visually during all regular service intervals to determine the pad wear.

Remove the upper caliper bolt and loosen the lower caliper bolt until the outer carrier will rotate down exposing both pads for visual inspection. If either of the pads is worn to a thickness of 3/32" or less, replacement of both pads is required.



Other checks: Make sure that there are no fluid leaks. Check for deterioration of hose and fittings.

TRIM-GRIP SERVICE

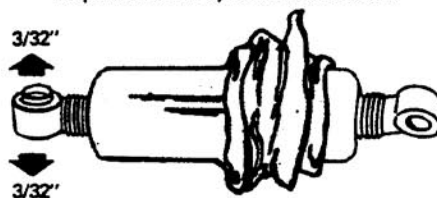
Lubrication: Apply a good quality grease or chain lube to the threads.

Interval: Every 1000 miles.

TRIM-GRIP INSPECTION

1. Place the motorcycle side stand in down position.
2. Remove the Trim-Grip attachment bolt on the bike side allowing the bike to rest on the side stand.
3. Remove Trim-Grip from sidecar.
4. Set Trim-Grip at neutral position (4 threads showing on both ends).
5. Hold Trim-Grip firmly by the body.

6. Measure the play of the threads. If in excess of $3/32''$, replace the Trim-Grip immediately. See illustration.

**CUSTOMER SERVICE**

Any problems concerning installation or modification of the Terraplane should be referred to your dealer or the Customer Service Department, Vetter Corporation, Rantoul, IL 61866. We are here to serve you — (217) 893-9300. In order to provide the maximum amount of service to you and your dealer, it is necessary that you fill out the Owner's Registration

Card and promptly return it to Vetter Corporation. We also suggest you record your Terraplane's serial number here:

so you will have it should you ever need to contact us. It is located on the plate where the wiring harness plugs in.

Maintenance Schedule

ITEM	ODOMETER READING *						
	1,000 mi.	4,000 mi.	8,000 mi.	12,000 mi.	16,000 mi.	20,000 mi.	24,000 mi.
Brake Fluid **	I	I	I	I	I	I	R
Brake Pads	I	I	I	I	I	I	I
Brake System	I	I	I	I	I	I	I
Trim-Grip	I	I	I	I	I	I	R
Mount Pylon Heim Joints	I	I	I	R	I	I	I
Tire	I	I	I	I	I	I	I
Nuts, Bolts, Fasteners	I	I	I	I	I	I	I
Swim Arm Bearings	I	I	I	I	I	I	I
Wheel Bearings	I	I	I	I	I	I	I

* For higher odometer readings, repeat at the service interval established here.

** Regardless of actual mileage, change the brake fluid every two years.

**LIMITED WARRANTY
VETTER CORPORATION
PRODUCTS**

Warranty

This Warranty applies to products manufactured or distributed by Vetter Corporation, Rantoul, IL 61866, (217) 893-9300, and sold by Vetter Corporation or its authorized dealers within the United States, Puerto Rico, and the Virgin Islands. It is given to the first retail purchaser only and is not transferable to subsequent owners.

WARRANTY OBLIGATION: Vetter Corporation warrants that it, or one of its authorized dealers, will repair or, at its option, replace any part proven to be defective in factory material or workmanship within six (6) months (unlimited mileage) of the date of purchase. Parts repaired or replaced under this warranty are warranted only during the balance of the original warranty period.

THIS WARRANTY DOES NOT INCLUDE ANY LABOR CHARGES FOR TROUBLESHOOTING, REMOVAL OR INSTALLATION.

Exclusions from Coverage: 1. Any repairs or replacements of parts necessitated by misuse, negligence, fire, accident, damage caused by exposure to gasoline, brake fluid, harmful solvents and cleaners, paints, or repair material, use of unauthorized accessories, faulty installation, installation upon motorcycles or vehicles not listed in Vetter Corporation's retail and dealer catalog sheets, or improper or unreasonable maintenance are not covered. 2. This warranty does not cover "Totes" rain-boots.

DISCLAIMER OF CONSEQUENTIAL DAMAGES AND LIMITATIONS OF IMPLIED WARRANTIES: TO THE EXTENT THE LAW PERMITS, VETTER CORPORATION SHALL NOT BE LIABLE UNDER ANY CIRCUMSTANCES FOR LOSS OF USE OF THE PRODUCT, CONSEQUENTIAL OR INCIDENTAL DAMAGES. ANY IMPLIED WARRANTY ARISING UNDER LAW, INCLUDING THOSE OF

MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE IS LIMITED TO THE DURATION OF THIS LIMITED WARRANTY.

IMPORTANT: Some states do not allow limitations on how long an implied warranty lasts and/or limitations or exclusions of consequential or incidental damages, so the above limitations may not apply to you.

To Obtain Warranty Service: Information you must provide when filing claim: 1. Name, mailing address and telephone number. 2. Selling dealer's name and address. 3. Serial number on serialized products. 4. Model and year of motorcycle. 5. Date product was purchased. 6. Date and mileage of failure. 7. Description of problem.

Steps to take: 1. Contact or take your product to an authorized Vetter dealer (preferably your selling dealer) at your expense. 2. If you are unable to obtain warranty service, or should your warranty claim be denied for reasons that you consider unjustifiable, contact the owner of your selling dealer. Normally, this should resolve your problem. However, if you require further assistance, write or call the Customer Service Department of Vetter Corporation, Rantoul, IL 61866, (217) 893-9300. At this point, you must be prepared to return the part in question to Vetter Corporation with all freight charges prepaid. The charges will be reimbursed to you if they total over \$5.00 (five dollars) and the warranty claim is honored. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

September 30, 1979
Vetter Corporation

S/N
07-100120