

# IMPORTANT NOTICE

Read this carefully before starting to install your

## DO THIS FIRST

To be sure tube holding liquid and ball is O.K. (not cracked or broken) turn instrument upside down with air bubble at zero. The air bubble should fit easily between figures on scale as follows:

(see right panel)

# SLOPE METER

Slope-Meter No. 1 — between 8s  
Slope-Meter No. 2NS — between 5s  
Safe Curve-Speed Indicator — between 7s  
Steep Slope-Meter — between 12s  
Please contact your dealer if air bubble is significantly larger than noted above.

## BE SURE TO FOLLOW THESE STEPS:

1. Select a spot on your machine for the Slope-Meter that is solid, flat, straight, rigid — that does **not have any twist or strain during operation.**
2. The Slope-Meter comes bolted to an aluminum mounting plate with 2 bolts. Remove the 2 bolts and lift Slope-Meter off of mounting plate. Note that the side of the mounting plate next to the Slope-Meter has **raised flanges or rims** around the bolt holes, and the Slope-Meter must be re-mounted on this same side. This is done for 2 reasons:
  - 1 — To prevent accidental damage or breakage of the Slope-Meter while bolting mounting plate to machine, and —
  - 2 — because it is easier to level mounting plate without the Slope-Meter on it.
3. Bolt the mounting plate to a **flat, straight, rigid** part of the machine, or to an angle iron to be attached to the machine, and level it carefully. **Be sure** the plate is mounted so the Slope-Meter can again be fastened to the side with the **raised flanges** around bolt holes — in its original position. This permits better cooling of instrument under hot operating conditions.
4. Now bolt the Slope-Meter back in its **original position** on the mounting plate. Do this exactly as outlined in paragraph 3 on instruction sheet inside and give it a final leveling check.

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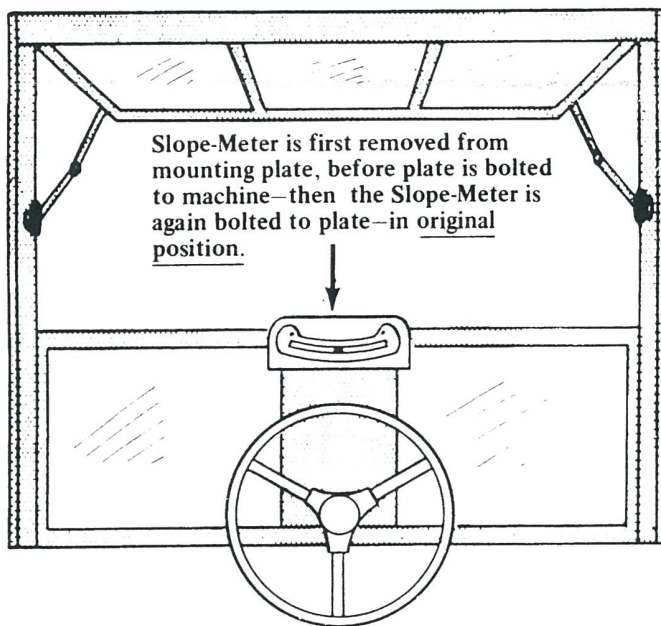
INSTRUMENTS THAT HELP YOU "MAKE THE GRADE"

**INSTALLATION INSTRUCTIONS — READ CAREFULLY**

The SLOPE-METER is a precision instrument and it must be installed correctly if it is to give accurate slope readings when mounted on your machine. When the SLOPE-METER is installed according to directions it will accurately and continuously indicate the

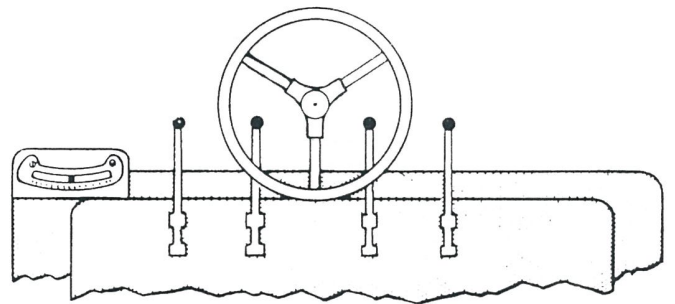
slope of the ground that the machine is grading. This accurate indication of slopes between surveyor's stakes is very helpful as it enables the operators to construct true slopes without waves.

**The SLOPE-METER can easily be read in either of these locations, and still afford full visibility of work.**



*(Left) SLOPE-METER mounted rigidly in cab of machine.*

*(Below) SLOPE-METER bolted on frame of machine.*

**MACHINE MUST BE LEVEL**

1. If the machine has pneumatic tires, first be sure that the tires are properly inflated, then run the machine on to level ground. It is advisable to check the level with a carpenter's spirit level placed on a rugged part of the machine which is parallel to the ground when the machine is on a flat surface. Be sure there are no particles of dirt or rough spots beneath the level.

**BOLT ON MOUNTING PLATE**

2. After the machine is leveled, securely bolt the plate, which is furnished with the instrument, either to an angle iron (to be attached to machine) or directly to the frame of the machine with the top edge of the plate lined up approximately level. The lock washers provided must be used or the plate will shake loose. It is **VERY IMPORTANT** that mounting plate is flat, so instrument will not be subject to twists or stresses.

**FASTEN SLOPE-METER TO MOUNTING PLATE**

3. Fasten SLOPE-METER to mounting plate by passing a  $\frac{1}{4}$  inch bolt through the left side of the instrument. Tighten this bolt with the fingers — do not use a wrench. Then pass another  $\frac{1}{4}$  inch bolt through the right side of instrument and through the  $\frac{5}{16}$  inch hole in the plate. Next slide the right side of the instrument either up or down until the ball indicator is directly over the "0" mark on the SLOPE-METER scale. Then draw both bolts up evenly so that the instrument will be held securely.

**CAREFUL INSTALLATION INSURES  
LONG ACCURATE SERVICE.**

## Suggestions for long life of your SLOPE-METER

### DON'T LEAVE IT IN DIRECT OR HOT SUN

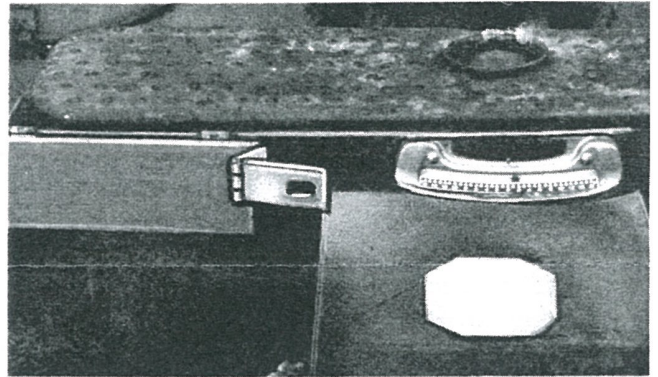
The Slope-Meter will give accurate readings in the hottest weather (and cold) as it is heat-tested to stand high temperatures — but if left where the direct rays of the sun hit the glass tube, the tube may break. So do not lay it down on a shelf or on top of a dashboard where it will be in direct sunlight. When mounted in a vertical position on your machine, the tube is sufficiently protected from direct sunlight. Some Slope-Meter users make a little overhead visor or shield for it, to give it maximum weather protection. Such a shield can be fastened to the backplate of the Slope-Meter, and can easily be made in your shop.

### KEEP IT CLEAN

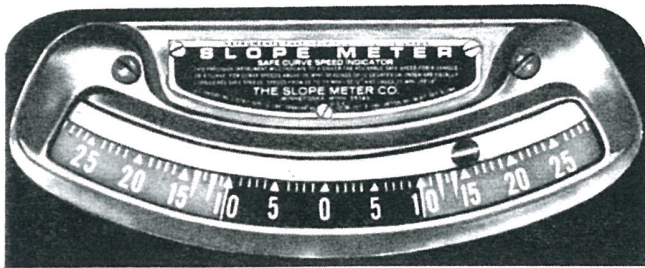
With the Slope-Meter in use on your equipment in all kinds of weather, it is bound to collect a dirt film from blowing dust, rain, etc. Clean it up carefully when needed with a soft damp cloth — the ball in the tube and the scale will be much easier to read at a quick glance.

### SOME MAKE A COVER, TO PREVENT THEFT OR VANDALISM

To prevent theft, vandalism or accidental breakage, some operators make a cover for the Slope-Meter which can be padlocked when not in use. The illustration shows a sliding steel cover with hasp for padlock, mounted on an automatic asphalt paver.



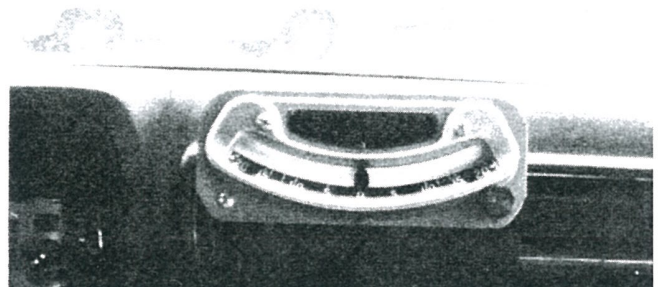
## The SAFE "CURVE-SPEED" INDICATOR may be mounted either of 2 ways in car or truck.



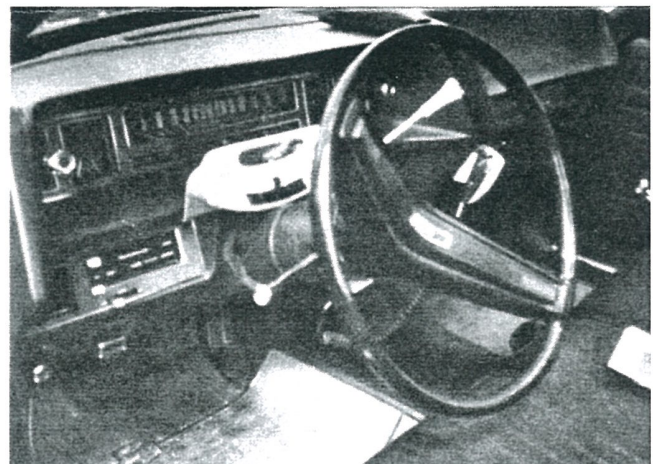
The car must be level and tires evenly inflated. If driver and a passenger will be in car when test speed runs are made on curves, then mount SAFE "CURVE-SPEED" INDICATOR on right side of dash for passenger to read. If driver is to be alone, then mount SAFE "CURVE-SPEED" INDICATOR above steering column, as it would be difficult for driver to make accurate readings from right side of dash, while driving.

The safe driving speed for any curve is quickly and accurately determined with the Safe "Curve-Speed" Indicator mounted in the engineer's car. The scale reads zero when the car is level, and shows "tilt" up to 25° each side. The scale is red beyond 10° each way, to denote danger zones.

Designed by Slope-Meter to the specifications of the Minnesota Highway Dept. Traffic Division and the Arizona Dept. of Transportation, Highways Division. Used nation-wide by highway and traffic engineers.



Mounted on Dash



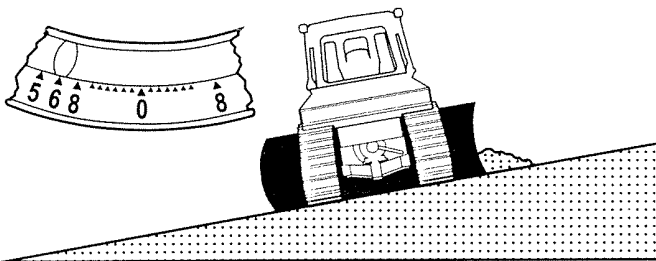
Mounted above Steering Column

# FASTER, BETTER WORK ON CROWNS AND SLOPES

## With Motor Grader

A motor grader working on a "6-to-1" back slope may be used either to true or finish the slope, or to spread topsoil in a uniform layer.

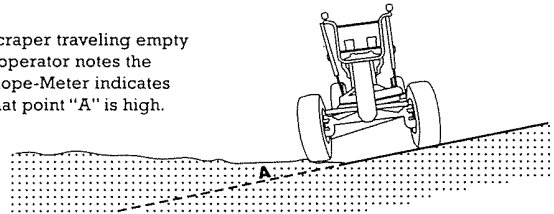
The Slope-Meter will indicate true slope as long as the blade clears the entire surface on which the back wheels travel. When the windrow is between the back wheels, or when the back wheels are rolling on the windrow, a Slope-Meter mounted in the cab or on the frame will not be able to indicate the slope the blade is cutting.



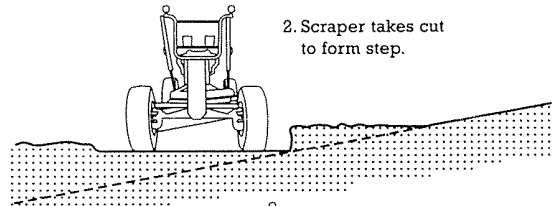
## Scraper Cutting Back Slopes

The Slope-Meter can be mounted any convenient place on a scraper, that maintains a fixed "side-tilt" relationship with the cutting edge.

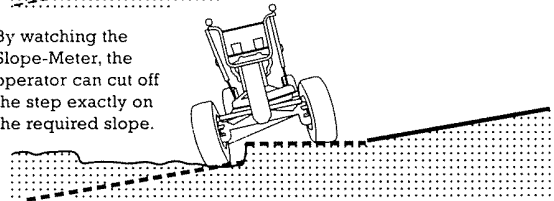
1. Scraper traveling empty - operator notes the Slope-Meter indicates that point "A" is high.



2. Scraper takes cut to form step.



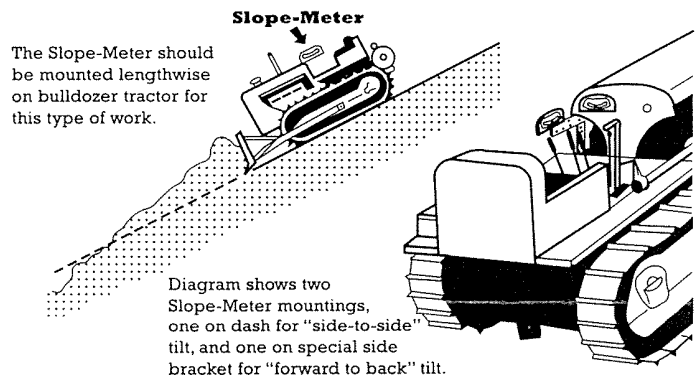
3. By watching the Slope-Meter, the operator can cut off the step exactly on the required slope.



# ACCURATE BACK SLOPES - FINISHED QUICKER

Back slopes as well as shoulder slopes can easily and accurately be finished with Slope-Meter equipped scrapers.

Large scrapers take a cut down fast. With a Slope-Meter to guide him, the operator will know where to cut, spread or finish all slopes. You will never be docked for leaving dirt on a long slope. The Slope-Meter reduces operator fatigue and aids him in maintaining quality work in overtime, etc.



The Slope-Meter should be mounted lengthwise on bulldozer tractor for this type of work.

Diagram shows two Slope-Meter mountings, one on dash for "side-to-side" tilt, and one on special side bracket for "forward to back" tilt.

# CONSTRUCTING HIGHWAY CROWNS

The Slope-Meter helps to produce uniform crown slopes - low and flat spots are eliminated. This means water cannot settle in low spots and cause trouble.

READINGS FOR SLOPE-METER NO.1  
For road widths, centerline to shoulder slope

	5" crown	6" crown	7" crown
15 feet	1-1/2	2	2-1/4
16 feet	1-1/2	1-3/4	2
18 feet	1-1/4	1-1/2	2
20 feet	1	1-1/2	1-3/4

EXAMPLE: For a 20-foot road width, center line to shoulder slope, with 7" crown (see table) the Slope-Meter indicator ball should be 1-3/4 triangle points (right or left) from center zero mark.

