



EQUIPMENT AUTOMATION: PAVER

TOPCON



Paver

System 5 & Smoothtrac®
Operator's Manual

Tracker II



Paver System Five Operator's Manual

Part Number 7010-0341

Rev F

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Table of Contents

Preface	vii
Terms and Conditions	vii
Manual Conventions	x
 What's New... ..	 xi
 Chapter 1	
System Overview	1-1
Getting Acquainted	1-3
Control Box	1-3
Sonic Tracker II	1-4
Slope Sensor	1-5
Smoothtrac Sonic Averaging System (SAS)	1-6
Laser Tracker & Trackerjack	1-7
Care and Preventive Maintenance	1-8
 Chapter 2	
Paving Principles & Control Methods	2-1
Paver Components	2-1
How a Screed Works	2-2
Tow Point Force ("P")	2-5
Truck Exchange, Another Tow Point Force	2-6
Head of Material ("M")	2-7
Reaction of Material Under Screed ("R")	2-9
Gradation Mix Characteristics	2-9
Mix Temperature Characteristics	2-11
Weight of Screed ("W")	2-12
Quality of Base Being Paved	2-13
Rolling Techniques	2-14

Controlling Mat Quality	2-14
Control Methods	2-15
Sonic Control	2-15
Working Window and Sonic “Footprint”	2-16
Sonic Tracker Operation and its Position	2-18
Sonic Tracker and Temperature Changes	2-22
Laser Control	2-24
Slope Control	2-26
Chapter 3	
Stringline Setup	3-1
Setting Surface Stringline	3-2
Setting Elevated Stringline	3-5
Making a Cut/Fill Lath	3-7
Attaching Stringline to the Grade Stake	3-9
Setting Projected Slope Stringline	3-10
Verifying Grade	3-12
Chapter 4	
Operation & Menu Settings	4-1
Control Box	4-2
LCD	4-3
Light Sensor for LED Display	4-3
Power Switch	4-3
Grade Adjustment Knob	4-4
Grade Adjustment Direction Arrows	4-5
Grade Adjustment LEDs	4-5
Function Indicator LEDs	4-6
Set/Menu Button	4-7
Using the Set Mode	4-7
Using the Menu Mode	4-8
Cross Communication Button	4-8
Slope/Elevation Button	4-11
Slope Mode	4-11
Elevation Mode	4-11

Survey/Indicate Button	4-12
Using the Survey Function	4-12
Using the Indicate Function	4-12
Auto/Manual Button	4-13
Using Automatic Mode	4-13
Using Manual Mode	4-13
Making Selections in the Performance Menu	4-14
Jog Button	4-14
Other Control Box Components	4-14
Performance Menu Settings	4-16
Gain (Elevation)	4-20
Gain (Slope Control)	4-21
Valve Offset	4-23
Averaging	4-26
Deadband Elevation	4-27
Deadband Slope	4-29
Beeper Alarm	4-31
Unit	4-32
Test	4-34

Chapter 5

Getting Ready to Pave	5-1
Control Box Setup	5-2
Screed Setup	5-3
Sonic Tracker Setup	5-4
SAS Setup	5-6
Control Box Setup for Elevation	5-7
Control Box Setup for Cross Slope	5-11

Chapter 6

Tracker and SAS Placement	6-1
Sonic Tracker Positioning in Relation to Reference	6-2
L-bar Positioning	6-3
Cub and Gutter Tracking	6-5
Joint Matching and Tracking Sub-grade	6-5
Placement When Using a Temperature Bail	6-6

Placement When Using a Mechanical Ski	6-6
Placement When Using Elevated Stringline	6-7
Placement When Using Surface Stringline	6-8
Sonic Tracker Placement in Relation to Screed	6-8
Smoothtrac SAS Placement and Setup	6-13
Positioning the SAS	6-16
Placement of SAS on Paver	6-19
Chapter 7	
Paving Applications	7-1
Paving City Streets with Sonics	7-1
Paving City Streets with Cross Slope	7-4
Paving Streets Through Intersections	7-7
Method 1 for Paving Intersections	7-7
Method 2 for Paving Intersections	7-9
Paving Intersections with Cross Slope	7-10
Chapter 8	
Maintenance	8-1
Preventative Maintenance & Daily Care	8-1
Sonic Tracker II Transducer Cleaning	8-2
Sonic Tracker II Transducer Replacement	8-3
Chapter 9	
Troubleshooting	9-1
Control Box Symptoms	9-1
Tracker Symptoms	9-11
Slope Sensor Symptoms	9-14
SAS Symptoms	9-17
Appendix A	
Safety Precautions	A-1

Appendix B

Limited Warranty B-1

- Electronic and Mechanical Components B-1
- Return and Repair B-1
- Warranty Disclaimer B-1
- Service Information B-2

Glossary

Index

Preface

This manual has been developed to provide the operator with information necessary to operate and maintain TOPCON products. Proper service and use is important to the reliable operation of the equipment. The procedures described herein are effective methods for performing service and operation of this system.



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Manual Conventions

This manual uses the following conventions:



Supplementary information that can help to configure, maintain, or set up a system.



Supplementary information that can have an affect on system operation, system performance, measurements, personal safety.



Notification that an action has the potential to adversely affect system operation, system performance, data integrity, or personal health.



Notification that an action *will* result in system damage, loss of data, loss of warranty, or personal injury.



UNDER NO CIRCUMSTANCES SHOULD THIS ACTION BE PERFORMED.

What's New...

This manual includes the changes for version 1.7 of the 9256 Control Box code.

In this version:

The range of the following settings has changed:

- Gain (Elevation) range is now 1–200
- Gain (Slope) range is now 1–200

See “Performance Menu Settings” on page 4-16 and Table 4-2 on page 4-16 for more information on menu settings.

System Overview

System Five™ is a complete, non-contacting control system which combines both elevation control and slope control into a simple, easy to use package (Figure 1-1).

The primary function of System Five is to provide screed control so that the paving material is placed into position at the correct elevation and slope.

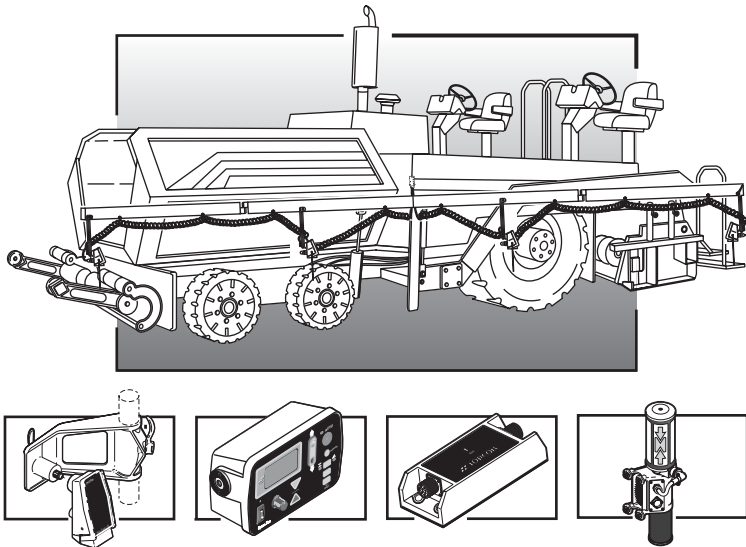


Figure 1-1. Paver System Five Components

Figure 1-2 displays the setup of components on a screed.

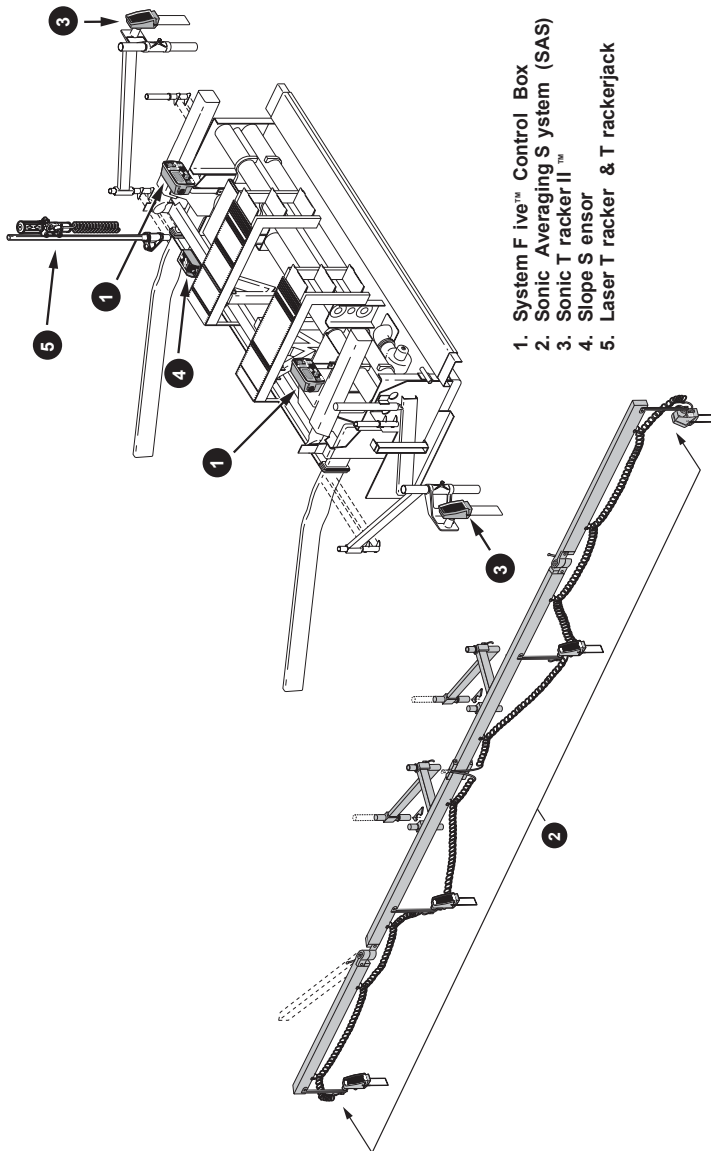


Figure 1-2. Paver System Five Top View

Getting Acquainted

A standard System Five Paver system includes two Control Boxes, two Sonic Trackers and a single Slope Sensor. When setup and connected, the Control Boxes control either the left or right side of the machine for either elevation or slope.

Control Box

The Control Box (Figure 1-3) is the operator's interface to System Five. The Control Box receives signals from the sensors (Sonic Tracker II™, Laser Tracker, and/or Slope Sensor), and uses these signals to determine if grade or slope corrections are necessary. If a change in grade or slope is required, the Control Box sends a signal to the valve controlling the tow point cylinder on the appropriate side of the machine to raise or lower, thus maintaining correct mat thickness.

The Control Box connects to the Sonic Tracker II™, the Slope Sensor, and to the paver through electrical cables. The Control Box easily attaches to its mounting bracket with one clamp, and at the end of the day should be removed for storage.

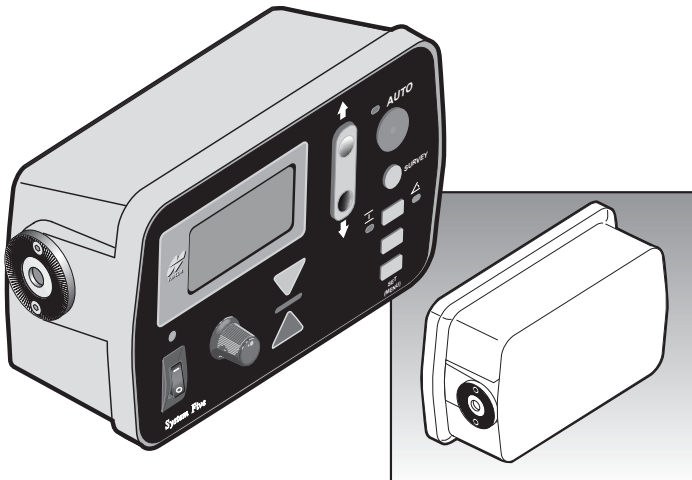


Figure 1-3. Control Box

Sonic Tracker II

The Sonic Tracker II™ (Figure 1-4) measures and controls the elevations of the screed. A transducer, located in the bottom of the Sonic Tracker II™, generates sound pulses like a speaker and listens for returned echoes like a microphone. The Tracker measures the distance, and controls grade from a physical grade reference, such as a curb, stringline, or existing road surface. A bail is used to compensate for rapid air temperature changes. In paving applications a bail should always be used.

The Sonic Tracker II attaches to the system through one quick connect cable and attaches to the machine with a single bolt. At the end of the day, Sonic Tracker II should be removed for proper storage in the carrying case.

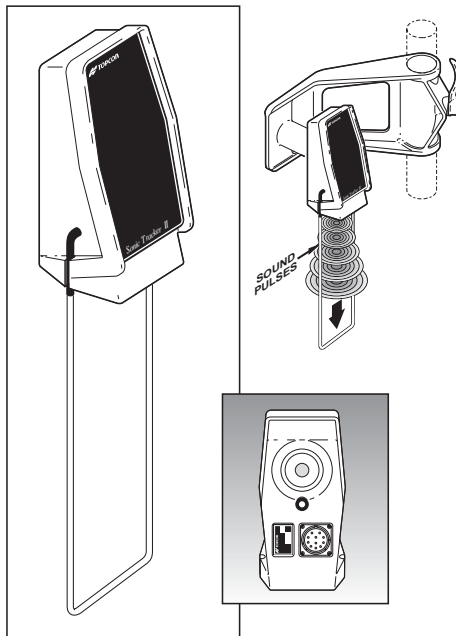


Figure 1-4. Sonic Tracker II

Slope Sensor

The slope sensor (Figure 1-5) is a precision electronic sensor which functions much like a precision carpenter's level. The slope sensor reads the inclination (tilt) of the screed and sends the signal to the Control Box. The slope sensor measures slopes from +20% to -20%.

The slope sensor connects to each Control Box through an electrical cable and requires no adjustments, and is the only component of System Five that can be used to control either side of the paver. The slope sensor is a sealed component, and once attached to the Paver, should not be removed.

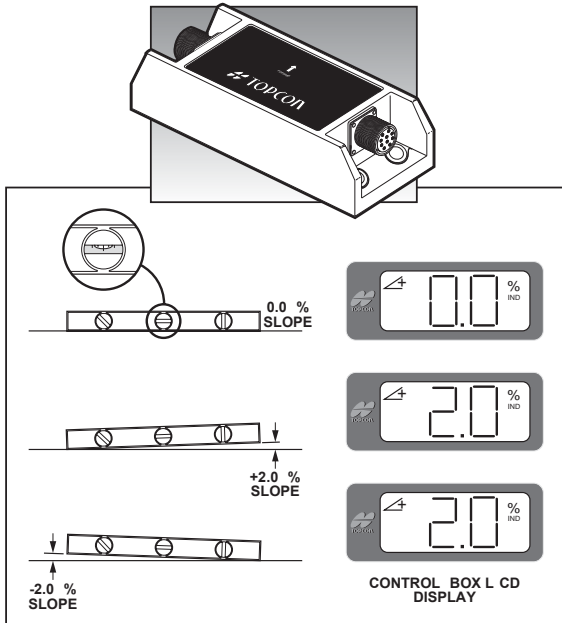


Figure 1-5. Slope Sensor

Smoothtrac Sonic Averaging System (SAS)

The Smoothtrac® SAS (Figure 1-6) is an elevation control system that combines multiple sonic trackers to calculate an average of the physical reference. Each tracker sends its distance measurement to the Control Box which then averages those measurements and sends a correction signal to the tow point cylinder. The Smoothtrac replaces the mechanical ski that drags on the ground.

The Smoothtrac connects to the Control Box through the tracker cable.

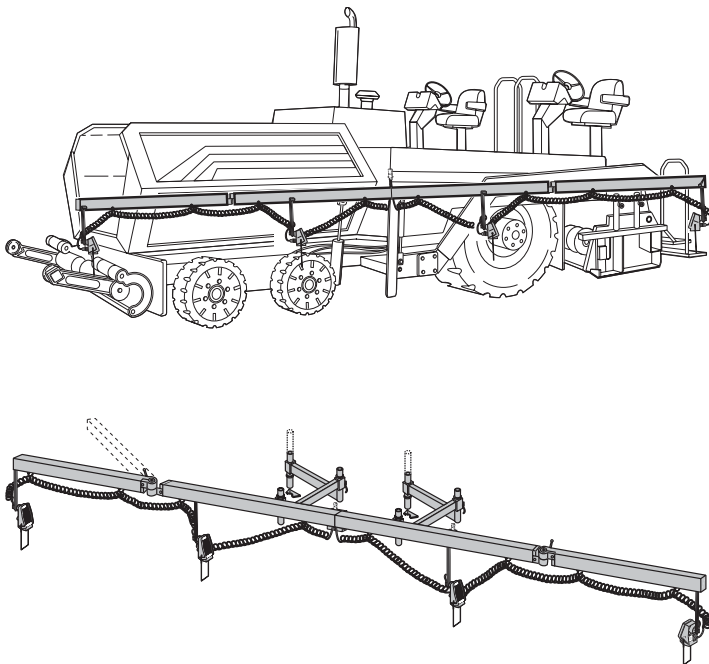


Figure 1-6. Smoothtrac Sonic Averaging System (SAS)

Laser Tracker & Trackerjack

The laser tracker (Figure 1-7) is an elevation control sensor that measures and controls the elevation of the screed. After receiving a signal from a rotating laser, the laser tracker sends a signal to the Control Box, which then sends a raise or lower signal to the tow point cylinder.

The Trackerjack attaches to the laser receiver and then mounts to a vibration pole (Figure 1-7). Use the same cable from the Sonic Tracker II to power the laser tracker/Trackerjack system.

The laser trackerjack should be removed at the end of each day and stored in its carrying case.

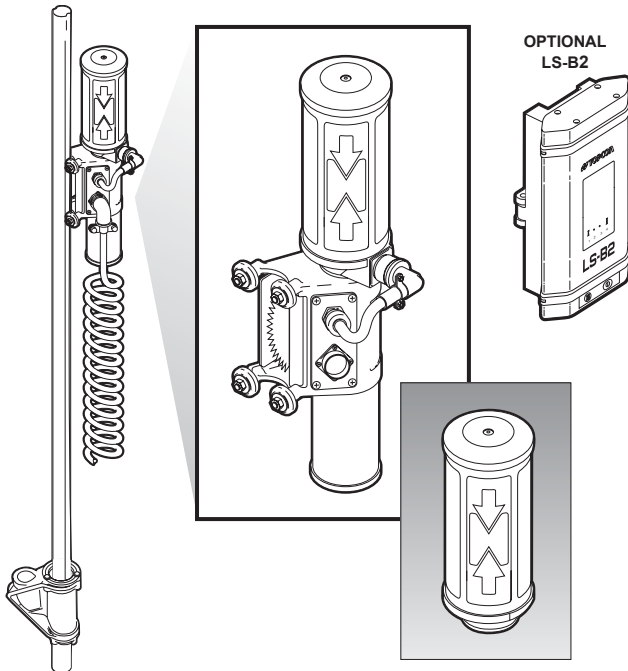


Figure 1-7. Laser Tracker & Trackerjack

Care and Preventive Maintenance

In general, follow these guidelines when using System Five:

- Always clean and thoroughly dry the removable components before storing them in carrying cases. Use a clean, soft cloth moistened with a neutral detergent or water.
- Keep carrying cases clean and dry. Do not leave them open and exposed to the elements.
- Some moisture on the Control Box and its components is acceptable during working conditions. Do not spray water or use high pressure steam cleaner hoses directly on cables and components.
- Use protective connector caps on cables when not using the System Five for a period of time. Water accumulating on the connectors can cause electrical shorts.

At the end of the day, performing general maintenance and storing mobile parts will help to keep the System Five in top condition.

- Remove the Control Box and the Laser Tracker and dust with a dry or damp non-abrasive, soft cloth.
- Insert cables into appropriate storage connectors after removing the Control Box.

A Carrying Case is provided with each System Five. The Carrying Case is lined and includes pre-cut sections for each Sonic Tracker II and the Control Boxes. A cut-out section is also provided for storing coil cords (Figure 1-8 on page 1-9).

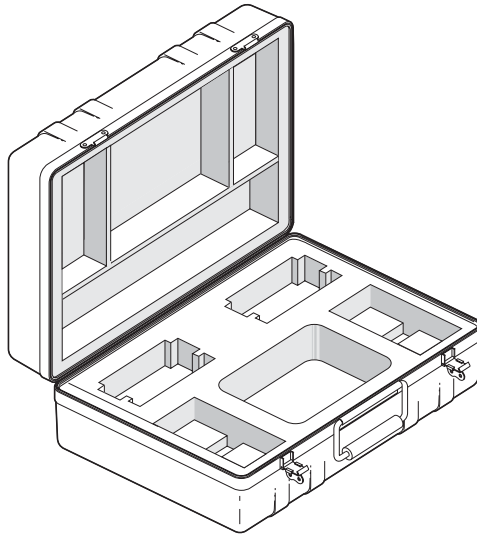


Figure 1-8. Carrying Case



NOTICE

Keep the carrying case dry and store in a dry location. Never let the interior of the carrying case become wet. If the case does become wet, remove the components and let it dry.

