



KT-EBS User Manual

(KT-EBS-001)



Table of Contents

1.	Introduction to KT-EBS1
2.	System and Function Description 2
	2.1 Main Components of KT-EBS2
	2.2 Power Supply3
	2.3 Solenoid Valve3
	2.4 Electronically Controlled Relay Valve
	2.5 Pressure Sensor
3.	System Installation 4
	3.1 Installation of ECU/Valve Assembly4
	3.2 Installation of KT-EBS Relay Valve and Air Circuit6
	3.3 Speed Sensor 6
4.	How to Use KT-EBS7
	4.1 Maintenance7
	4.2 How to Determine if EBS is Operating Normally8
	4.3 Performance of KT-EBS in Case of Failure
	4.4 Notes on Using KT-EBS 8
5.	Fault Diagnosis



1. Introduction to KT-EBS

EBS (Electronic Braking System) is an electronically controlled braking system. Simply put, it uses electrical control for the pneumatic braking system, unlike ABS, which relies on pneumatic control for braking. To distinguish between the EBS systems of a tractor and a trailer, the tractor's system is referred to as EBS, while the trailer's system is called TEBS (Trailer Electronic Braking System). It consists of sensors, an electronic control unit (ECU), actuators, and other auxiliary components. By utilizing electronic control technology, the system works collaboratively through these components to achieve precise control of the vehicle's braking system.

Traditional ABS (Anti-lock Braking System) mainly works by monitoring wheel speed data to determine whether to intervene and adjust braking pressure quickly and continuously to prevent wheel lock-up. In contrast, EBS incorporates an electronic control system to replace traditional mechanical systems. As a result, the EBS system not only includes all the functions of ABS but also achieves higher precision and faster response through electronic control.

The advantages of the EBS system over the ABS system are as follows:

- 1. **Shorter Brake Response Time:** Enhances braking reaction speed and reduces braking distance.
- 2. **Improved Braking Stability and Comfort:** Offers smoother and more stable braking performance.
- 3. Brake System Monitoring and Assessment: Enables real-time monitoring and diagnostics of the braking system.

2. Description of KT-EBS System and Functions

2.1 The main components of KT-EBS System

KT-EBS System included:



No.	Product Name	Image	Qty	Remark
1	TEBS Assembly		1	
2	TEBS Electronic Controlled Relay Valve		1	
3	Dual One-way Valve	IN MICHAESE	1	
4	Pressure Sensor		2	
5	TEBS Power Cable	/	1	
6	TEBS Electronic Control Cable	/	1	
7	Wheel Speed Sensor Extension Cable	/	4	
8	Trailer TEBS Label	/	1	



2.2 Power Supply

The KT-EBS system operates on a 24V power supply. KT provides a 7-pin power connector as the standard power interface. It is important to ensure that the power cable harness for both the tractor and trailer also uses a 7-pin power connector.

The power for the electronically controlled relay valve is supplied by the TEBS assembly and should use the corresponding power cable harness.

2.3 Solenoid Valve

In the EBS system configuration, "4S2M" or "2S2M" denotes the "M" as the solenoid relay valve, which acts as a regulator. The solenoid valve controls the intake and exhaust valves to increase, maintain, or reduce pressure, thereby regulating the braking pressure of the trailer during the EBS cycle.

2.4 Electronically Controlled Relay Valve

The electronically controlled relay value is the key component in the EBS system responsible for processing electronic control signals. When the ECU receives an electronic signal from the tractor, it performs logical processing and sends the signal to the electronically controlled relay value, enabling the EBS system's electronic braking functionality.

2.5 Pressure Sensor

The pressure sensor is used to detect pressure changes in the air circuit. It transmits these readings to the ECU, which monitors the air circuit pressure in real time.

3. System Installation

3.1 Installation of ECU/Valve Assembly

Secure the ECU assembly and the electronically controlled relay valve in an appropriate position on the vehicle frame. Use bolts (with spring washers) to ensure a firm connection. Plan the routing of the ECU's air pipes and electrical wires carefully to avoid tangling or sharp bends.



The two-way three-way valve and air pressure detection devices connected to the air pipes should also be firmly fixed to prevent movement or impacts caused by vehicle vibrations.

Note: External dimensional drawings for some valve components are attached for reference.











3.2 Installation of the KT-EBS Relay Valve and Air Circuit

To ensure the proper functionality of the KT-EBS system, it must be installed on the vehicle frame and not on the axle. The air circuit from the KT-EBS to the brake chamber must allow for smooth airflow.

All installations should aim for symmetry, including the length and diameter of the air pipes.



3.3 Speed Sensor

Wheel speed sensors are typically provided and installed by the axle manufacturer. For axles without pre-installed speed sensors, first determine the sensor's installation position. Insert one end of the sensor into the sensor holder and connect the other end to the ECU.

To prevent dust and water from entering the connector, use a protective cover to safeguard the connection.

When inserting the sensor into the holder, the sensor must be paired with a bushing, and both the sensor and the bushing should be coated with special lubricant. This will prevent the sensor and bushing from sticking together. The gap between the sensor and the gear ring should be less than 0.7mm. When adjusting the sensor (if the gap is too large), do not apply excessive force or use inappropriate tools, such as objects with sharp angles or edges, to avoid damaging the sensor.



4. How to Use KT-EBS

Vehicles equipped with KT-EBS operate the same way as conventional vehicles. However, during braking, if the wheels are about to lock, the KT-EBS system will automatically activate, adjusting the braking force to prevent wheel lock.

4.1 Maintenance and Inspection

- Check the condition of the trailer's air pipes. To better protect the braking components, it is recommended to install a pipeline filter at the front of the trailer and clean it regularly (suggested every three months) to prevent debris from damaging the KT-EBS system.
- If any air pipes or electrical wires are significantly bent, adjust them promptly to prevent damage.
- Keep the sensor probe and gear ring clean to prevent mud, oil, or especially ferromagnetic substances from adhering to their surfaces. Contaminants could cause the sensor to malfunction or send incorrect signals to the computer, affecting the normal operation of the EBS system. If wheel removal is required, ensure the surface of the gear ring is not damaged.

4.2 How to Determine if EBS is Functioning Properly

To check if the KT-EBS system is working correctly, observe the self-test function. When the ignition is turned on, listen for two "puff" exhaust sounds. This indicates that the trailer's EBS self-test is complete, and the system is functioning normally.

4.3 KT-EBS Performance After a Fault

In the event of a fault, even if the system is completely shut down, the vehicle's conventional braking system will remain operational. The safety circuit integrated within the ECU continuously monitors the system. When the KT-EBS system detects a fault, the fault code and frequency will be stored in the ECU's fault memory for an extended period. Diagnostic tools can be used to retrieve this information, allowing for quick fault diagnosis and troubleshooting.

4.4 KT-EBS Usage Precautions

- Do not wash the ECU with water.
- Turn off the power when disassembling system components.
- Disconnect the KT-EBS system before performing high-voltage battery charging or welding on the vehicle.
- If the KT-EBS is damaged or displays a fault, promptly contact KT's after-sales service station or check the fault codes for further inspection.



5. Fault Diagnosis

If a fault occurs, the dashboard fault light will illuminate.

- For electrical faults, check if the power lines, sensors, and connections have short circuits or open circuits.
- If a solenoid valve fault is displayed, check for short circuits or open circuits in the solenoid valve, and ensure proper contact between the ECU and solenoid valve pins.
- A power supply fault indicates that the system's supply voltage is either too high or too low.
- For signal faults, check if the sensor gap is too large, the gear ring installation is even, the gear ring is damaged or too dirty, or if the sensor is securely installed. After adjustments or repairs, the system needs to be powered on again. Drive the vehicle at a speed greater than 10 km/h. If the indicator light turns off, the system has returned to normal. If the light remains on, the fault persists, which may indicate an issue with the signal or ECU.

Note:

If the KT-EBS installed in your vehicle experiences faults or you have any concerns, you can directly contact our after-sales service.