



# Training Document

HOWO ZZ4257S3241V

## **CHAPTER 12      BRAKING SYSTEM**





- Braking systems of all series of SINOTRUK heavy duty trucks adopt double-circuit air braking system, which is a typical structure system popularly adopted for heavy duty trucks.

## SECTION 1 REQUIREMENTS FOR HEAVY-DUTY TRUCK BRAKING

- For safe and reliable performance, requirements of the braking system operating and implementing mechanism are as follows:
  - 1 . For heavy-duty trucks, three kinds of braking devices shall be equipped, namely, main brake (traveling brake), emergency brake application and parking brake. Besides, auxiliary brake may be equipped. The first 2 brake devices shall be subject to control (adjustable). The parking brake can be unadjustable.
- The so-called main brake is normally referred to as "foot brake"; while the emergency brake is referred to as substitute brake, a back-up brake with the same performance as the main brake, to be used in case the main brake fails.
- Main brake of the SINOTRUK series trucks is equipped with twin circuit air braking system; parking brake and emergency brake are enabled by spring stored energy relieving braking, while the auxiliary braking by exhaust braking. Exhaust braking and engine stalling share the same mechanism.



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- 2. Main brake, emergency brake and parking brake share the same braking actuating mechanism, while the control system of the main brake is independent from parking brake control system, in other words, emergency brake can share a control system either with the main brake, or with the parking brake. Main brake, parking brake and emergency brake are enabled finally through brake shoes and brake drums, while the emergency brake control system and parking brake control system share the same operating mechanism.
- 3. In case of failure by main brake and emergency brake control system, parking brake must be able to furnish 5% of the main braking effect.
- 4. In case of failure by braking media or pressure less than the specified value, a warning signal must be issued. This truck provides two warning indications. In case the air pressure of the whole vehicle air system is less than 6.5 bar, low-pressure warning lamp illumines, at the same time a buzzer sounds. When the air pressure of the parking brake air pipes or the auxiliary air pipe is under 6.5 bar, the parking brake indicator light illuminates to warn against moving the truck.
- 5. Parking brake must enable the operation components to brake and lock up via mechanisms, even in absence of a driver, and to ensure slope-parking reliability. Spring stored energy relieving brake gear can satisfy this requirement.





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- 6. As for a tractor, requirements are also necessitated to enable the trailer braking to be automatically implemented in case unhooking, connected line breakage or serious air leakage happen with the trailer from the tractor.
- 7. Reaction period from the time the braking master valve opens to the time the farthest branch braking chamber pressure reaches the appropriate value shall not be more than 0.6 second.
- Generally speaking, besides the above-mentioned requirements, the truck's brake gear must obtain shortest stopping distance on condition to furnish roadability and maneuverability. That is the unique purpose for braking. The ultimate criterion for an automobile's braking effect is the stopping distance under the same working conditions.

## **SECTION 2      FACTORS AFFECTING THE BRAKING EFFECT**

- The purpose for braking is to obtain shortest stopping distance on condition to furnish driving stability and maneuverability.
- The three major factors affecting the braking effect are: available braking force of the automobile; adhesion of the tire contacting with road surface, and the inertia.

