

INSTALLATION INSTRUCTIONS FOR STUCKI® HS-7-100 HYDRAULIC STABILIZERS

I. INTRODUCTION

The Stuck HS-7-100 stabilizer is a single-acting hydraulic damper that fits into the freight car spring nest and operates as the truck springs are compressed. One unit is installed in each spring group in the space normally occupied by the center position truck spring when applied with a typical D-5 spring group. This stabilizer is designed to function only under a loaded car condition, no damping occurs when the car is empty.

The Stucki HS-7-100 center position unit should not be confused with the Stucki HS-7, which is designed to fit in an outboard spring position only. Figure 1 clearly illustrates the distinctive features of each unit. Note particularly that the body springs are not interchangeable between the two models.



Figure 1. Comparison of HS-7-100 (left) & HS-7 (right)

Standard HS-7-100's are designed for use on 100-ton freight cars. They can be used with either D-5 or D-7 truck spring groups. Units having damping characteristics suitable for 70-ton cars are designated as HS-7-100-B's.

The model is identified on the unit serial number tag as shown in Figure 2. Whenever a Stucki stabilizer is to be replaced, it is important that it be replaced by a unit of equal capacity rating. Factory rebuilt units will have the letters "RB" and the date they were rebuilt stamped on the model identification tag.

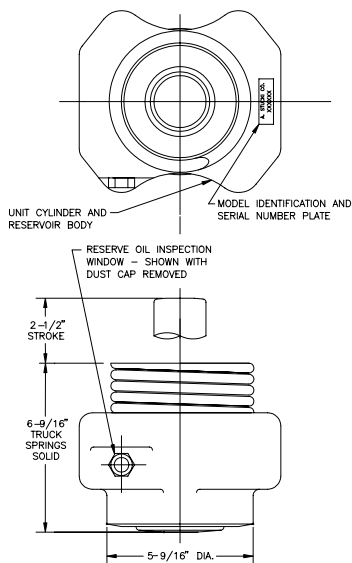


Figure 2. HS-7-100 Identification

II. STORAGE PRECAUTIONS

Each HS-7-100 stabilizer is packaged in a manner that under normal circumstances will prevent corrosion of the piston rod while in storage. Units should not be stored outdoors any longer than necessary. Incoming stock should be rotated, and units held in long-term storage should be protected from moisture. Units which have been stored for long periods should be inspected for any signs of rust on the chrome surface of the piston rods before using.

III. SPRING GROUPS

For optimum performance the HS-7-100 must be applied with the proper combination of truck springs. A. Stucki company's general HS-7-100 truck arrangement drawings list recommended groups for conventional applications. In special cases where cars are to be used in assigned service for loads which will consistently be significantly greater or less than their rated capacity, Stucki Company should be contacted for a compatible spring group recommendation.

When stabilizers are applied on a retrofit basis to older cars the existing truck springs if re-used, should be load or height checked according to AAR Specifications.

IV. INSTALLATION OF THE HS-7-100 INTO TRUCK

Figure 4 shows an HS-7-100 in a conventional combination type 7-position spring nest. Note how the stabilizer reservoir utilizes the free space between the center spring position and the side coil positions. With some rare exceptions (which should be approved by A. Stucki Company), this is the only spring arrangement that permits the use of the HS-7-100.

In most cases installation of the HS-7-100 requires no modification of the truck bolster or side frame. However, some Barber or S-2 type bolsters will have a spring centering boss at the center position which must be removed as indicated in Figure 3.

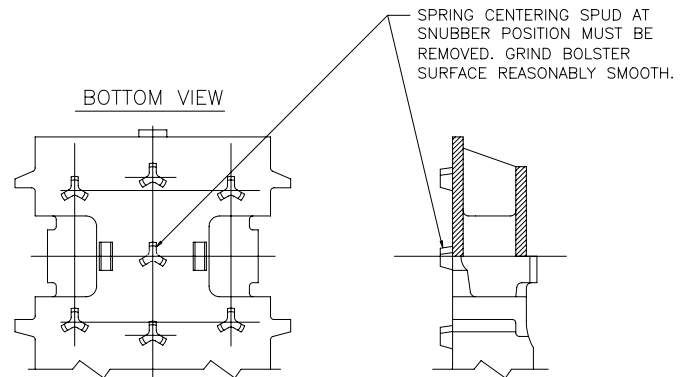


Figure 3. Removal of Spring Centering Spud

Once the installer has checked that there are no projections on the side frame or bolster that will interfere with the flush seating of the stabilizer, the unit can be placed into position as follows:

1. Install all but outboard row of truck springs in their respective positions (see "spring groups").
2. Remove HS-7-100 from shipping bag and remove cardboard sleeve from the piston rod (in all cases where unit exchange is being made, sleeve should be installed over piston rod of unit being removed from car, to protect it during shipping).
3. Place body spring on unit as illustrated in Figure 1.
4. Position unit, piston rod up, in truck as illustrated in Figure 4. Make certain sight window is facing outward (toward installer).
5. Install remaining truck springs

V. REMOVAL / REPLACEMENT OF HS-7-100

If it becomes necessary to remove and replace an HS-7-100 see Section VI: Field Inspection of the HS-7-100. The unit can be easily removed after removing the two outboard truck springs, and the replacement unit installed in its place. Please note that units removed due to a low reserve oil level condition can be returned to A. Stucki Company to be rebuilt. It is advisable to mark on the returned unit the car number and date removed if warranty credit is applicable. It is also important that the cardboard sleeve taken from the piston rod of the new unit be placed on the rod of the used unit to protect it from damage during shipping.

If units are being removed and returned to A. Stucki Company as part of a normal rebuild cycle, the body springs may be re-used but should be checked for wear or damage.

*Note that the damping characteristics of the Stucki HS-7-100 are identical to those of the HS-7 and its predecessor, the Stucki HS-6, within a given capacity rating. Thus, on the basis of performance they are interchangeable. However, the installer must insure that the retention requirements specified in the installation instructions for the particular design are fulfilled. Also, to alleviate future logistics problems, it is advisable not to mix various models on a given car.

VI. FIELD INSPECTION OF THE HS-7-100

The HS-7-100 incorporates a low pressure seal on the piston rod which characteristically will pass slight amounts of oil under normal operating conditions. This oil will gradually accumulate on the body of the unit and on the side frame spring seat, and will attract considerable dirt. A dirty, oily appearance does not in itself constitute a defective unit. Lost fluid is compensated for by reserve oil in the unit which comprises about 45 percent of the total oil volume of 1350ml (46 ounces). The availability of reserve oil can be checked by visual inspection of the oil level sight glass on the reservoir (see Figure 2). The gage consists of a plug with a glass window, located such that the presence of oil in the window is an indication of a functioning unit.

Figure 5 illustrates the conditions that can be encountered on visual inspection of the sight glass. When the oil level is above the window, the entire glass area will appear dark, as in illustration "A". Once the oil level has dropped into the window area as in "B", the portion of two rings on the inside of the glass above the oil level will reflect light back to the viewer and appear shiny as shown. When the oil level recedes below the window, these "shiny" rings will be totally visible as complete circles as in "B".

to A. Stucki Company to be rebuilt. When the oil level is in the window area, as in "B", the unit should be scheduled for replacement when the car is next shopped. As long as the window shows full, as in "A", the unit should be left in service, regardless of any external oil sludge accumulation.

We strongly recommend units not be opened for refilling in the field. This can lead to dirt contamination or overfilling with excess oil. Either condition will result in damage to the seal and so will void the warranty.



Figure 5. Oil Level Sight Glass Conditions

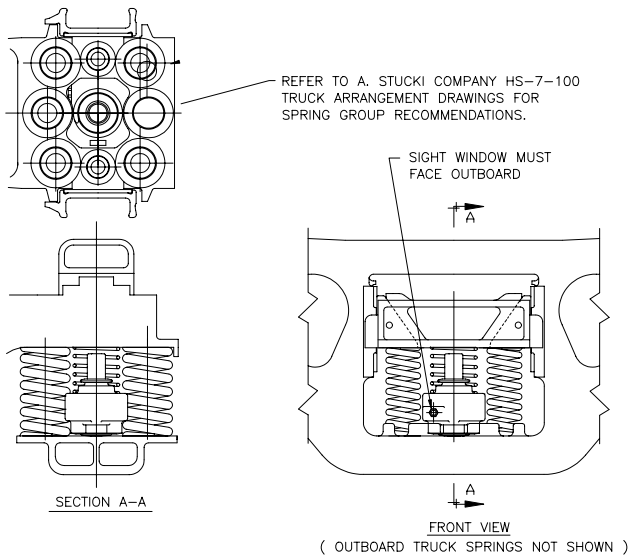


Figure 4. Arrangement of HS-7-100 in Conventional Freight Car Truck

When inspecting the sight glass, the unit must be sitting in its normal operating, upright position.

If the inspection of the oil level sight glass reveals condition "C" the unit should be scheduled for replacement as soon as practical and returned