

INSTALLATION INSTRUCTIONS FOR STUCKI® HS-10 HYDRAULIC STABILIZERS

I. INTRODUCTION

The Stucki HS-10 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. A location other than the center position is also acceptable depending on application and spring group configuration. The stabilizer is designed so that it functions only when the car is loaded, no damping occurs when the car is empty.



Figure 1. HS-10 Hydraulic Stabilizer

Standard HS-10's are designed for use on 70-ton and 100-ton freight cars. They can be used with either D-3, D-5 or D-7 truck spring groups. When used in a D-3 or D-5 group the supplied stabilizer's body spring is approximately 5-7/8" long. The body spring supplied for use in a D-7 group is approximately 6-5/8" long and painted green. It is not advisable to intermix HS-10's with other Stucki hydraulic stabilizer models, (i.e., HS-6, HS-7 or HS-7-100) or with other manufacturers units on a given car. HS-10's with modified damping characteristics can be obtained for special applications.

The model identification and unit serial number can be found on a plate affixed to the reservoir as indicated in Figure 2. Whenever a Stucki stabilizer is to be replaced, it is important that it be replaced with the same model unit.

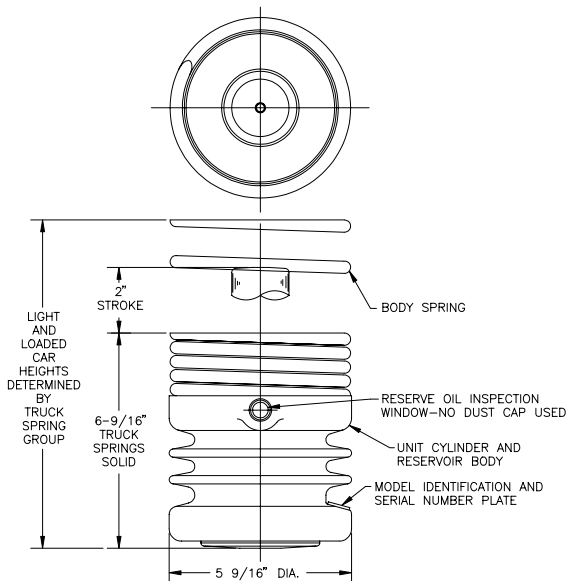


FIGURE 2. HS-10 IDENTIFICATION

II. STORAGE PRECAUTIONS

Each HS-10 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 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-10 must be applied with the proper combination of truck springs. A. Stucki Company's HS-10 truck arrangement drawings list the 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, A. 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 reused, should be load or height checked according to AAR specifications.

IV. INSTALLATION OF THE HS-10 INTO TRUCK

Figure 4 shows an HS-10 in the center position of a conventional type 7-position spring nest.

In most cases, installation of the HS-10 requires no modification of the truck bolster or side frame. However, some barber or S-2 type bolsters may have a spring centering boss at the center position which must be removed as indicated in Figure 3.

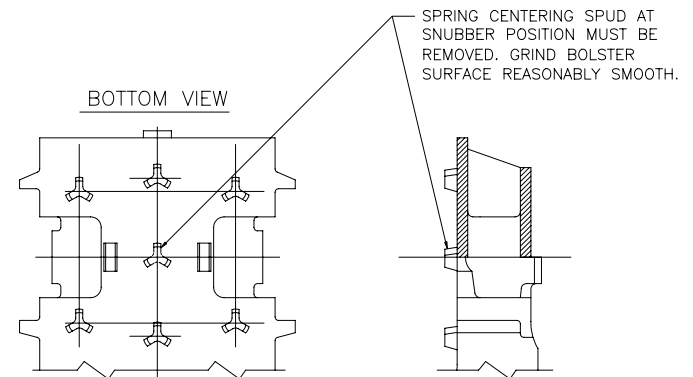


FIGURE 3. BOLSTER MODIFICATION

Once the installer has assured 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 in position as follows:

1. Install all but the outboard row and center position truck springs into their respective positions (see Section III: "Spring Groups").
2. Remove the HS-10 from shipping bag and remove cardboard sleeve from the piston rod. The cardboard sleeve from the new stabilizer should be installed over the old piston rod to protect it during shipping, since the old unit will most likely be returned for exchange.
3. Place body spring on unit as illustrated in Figure 1.
4. Position unit, piston rod up, in truck as illustrated in Figure 4.
5. Install remaining truck springs.

V. REMOVAL/REPLACEMENT OF HS-10

If it becomes necessary to remove and replace an HS-10 (see Section VI: "Field Inspection of the HS-10"), the unit can be readily removed after removal of the outboard truck springs, and the replacement unit installed in its place. Please note that units removed because of low reserve oil can be returned to A. Stucki Company for rebuild. 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 paced on the rod (which should first be wiped clean) of the used unit to protect it from damage during shipping.

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

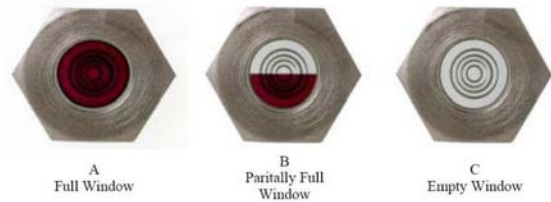
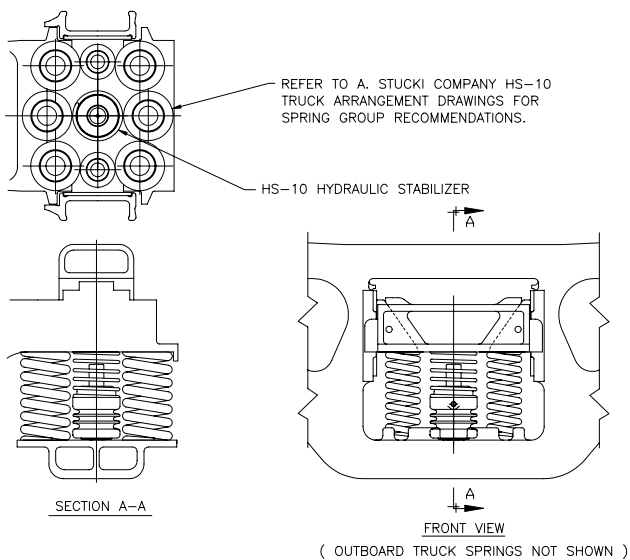


FIGURE 5. OIL SIGHT GLASS CONDITIONS

VI. FIELD INSPECTION OF THE HS-10

The HS-10 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 (please refer to Stucki service bulletin HS8906). Lost fluid is compensated for by reserve oil in the unit which comprises about 30 percent of the total oil volume of 600 ml (20 ounces). The availability of reserve oil can be checked by visual inspection of the oil sight gage (see Figure 2 & 5). 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 4. ARRANGEMENT OF HS-10



IN CONVENTIONAL FREIGHT CAR TRUCK

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 to the window area, as in "B", the portion of the four 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 "C".

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

If sight glass inspection reveals condition "C" the unit should be scheduled for replacement as soon as practical and can be returned for rebuild. 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.