SI Onboard

Trojan Installation Instructions

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1. Introduction

1.1. Truck operators who need consistent and accurate monitoring of their load weights for safe and legal operation can depend on equipment from SI Onboard. The Trojan Transducer developed by our team of engineers will provide years of dependable service, but it must be properly installed in appropriate locations. While the installation is relatively simple, all instructions must be faithfully followed to insure not only system accuracy, but also durability for all components.

1.2. The basic component of this system is a deflection sensor- also known as a Trojan Transducer. The Trojan is bolted to mounting blocks which are welded in place on a truck's front steer axle and a specially designed J-Bracket that is welded to the rear drive axle housing. As a load is added or removed, the truck's suspension is strained and bends ever so slightly. This bending is also felt by the Trojan Transducer and an electrical signal is then sent from the Trojan Transducer to a meter in the truck's cab. The strength of this signal is determined by the amount of strain sensed by the Trojan Transducer.

1.3. Because the transducers are mounted to the side of the "L" shaped mounting blocks, they are referred to as "Side Mount." This term does not refer to the mounting position of the blocks themselves. In fact, all mounting blocks for this system are installed in top of walking beams, thru-Trunnion, axles and front axles. The locations of the mounting block / transducer combination is very important. Adequate clearance above the transducer installation is also crucial. Detailed instructions about location are provided in this installation manual.

2. Front Axle Installation

2.1. Measure and mark the center of the axle, both side to side and front to back. [see Figure 1].

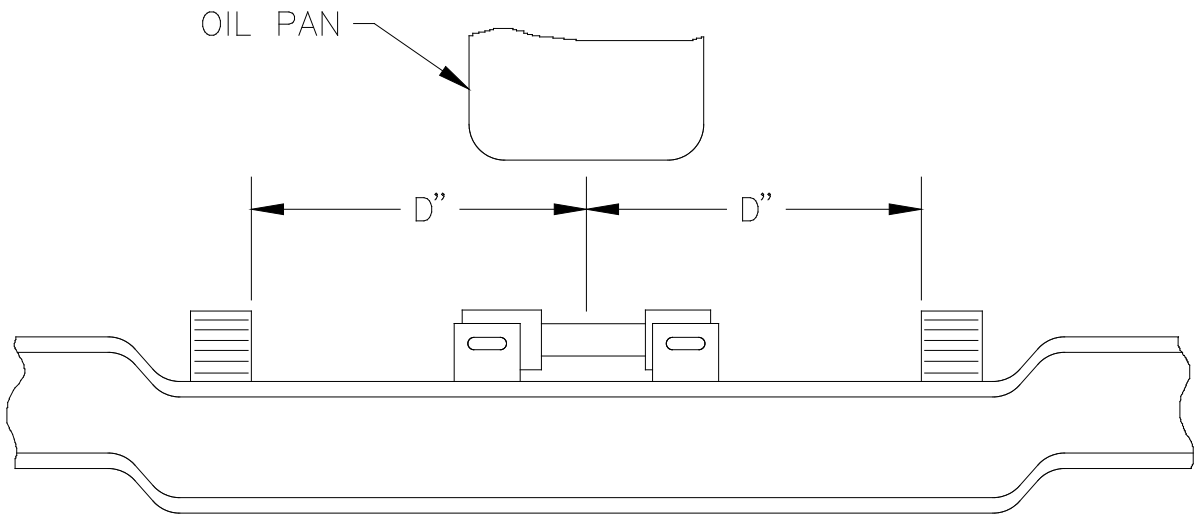

Figure 1

2.2. Check for adequate clearance between transducer assembly and oil pan. To do so, measure the suspension travel distance between top of spring and stop. Since the transducer assembly, including cover, requires 3", the measurement from the oil pan to the axle must be at least the distance of suspension travel plus 3". If there is not enough space, call the factory for additional information.

2.3. Clean a 12" space in the center of the axle. Remove all paint, dirt and grease, exposing bare metal. Use solvent and a wire brush as necessary.

2.4. Using two cap screws from the installation kit, bolt spacer bar to mounting blocks, with width determined by the load limit of the axle. Note that the mounting block holes are elongated. This allows adjustment of the space between the inside edges of the mounting blocks from 2 ½" to 3 ½". The load rating of the axle determines the spacing of the blocks, See Table 1.

Load Rating	Space Between Mounting Block
12,000 lbs.	2 ½"
14,000 lbs.	2 ½"
18,000 lbs.	2 ½"
20,000 lbs.	3"

Table 1

2.5. Position the mounting blocks/spacer bar on the axle and clamp in place. The blocks should sit flat without rocking or without gaps under them. Light grinding may be required. The groove on the bottoms of the blocks should be directly over the web of the axle.

2.6. Weld the mounting block/spacer bar unit to the axle along two edges of each mounting block, see Figure 2**.** Do not weld all around the mounting block and do not weld on the sides with the "V" groove, see Figure 2. Use low hydrogen rod such as AWS E 7016.

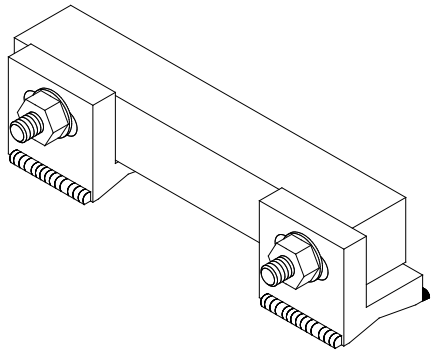

Figure 2

2.7. Unbolt and remove spacer bar.

2.8. Clean blocks and transducer mounting surfaces with alcohol or other solvent.

2.9. Bolt the transducer to the mounting blocks with the bolt heads and washers on the transducer side and the nuts and washers on the mounting block side. Use the two 3/8"-24 cap screws and four washers. Be

sure that the top of the transducer is up. If the transducer has a rib running along its length, the rib side goes up. If the transducer has a threaded pigtail connector, the connector should come out of the bottom at the end of the transducer. Also position the transducer so that the pigtail can be connected to the cable coming from the meter in the cab. This is usually the drivers side. ***Hand tighten only.***

4. Tightening Transducer Bolts

4.1. Make sure the transducer mounting bolts are hand tightened only.

4.2. Connect cabling to meter and transducers. The meter and cables may be placed on the shop floor temporarily and hooked to the transducers.

4.3. Connect power to the meter and make sure the meter is programmed and the system is working property. (See owner's manual).

4.4. "Zero out" the meter. With the 9100 series meters, set tare 1 and tare 2 to zero and cal 1 and cal 2 to 100,000.

4.5. While watching the meter, torque the mounting bolts to 25 ft. lbs. This will cause the meter to show a load. The readings should be 0 to 2500 lbs. If the meter exceeds this amount, loosen the bolts and carefully retighten them in sequence until the 0 to 2500 lb range is met. The amount of change varies depending on whether you tighten by turning the head of the bolt or by turning the nut.

5. Installing Plastic Transducer Cover

5.1. Clean welding residue with a clean wire brush.

5.2. Mask off the area around the transducer installation.

5.3. Paint the transducer, mounting blocks and the area under the transducer. Use a high quality rust preventative paint such as Rustoleum or Tremclad.

5.4. If the transducers are being installed on Hendrickson walking beams, attach the two warning labels supplied. The smaller warning label should be placed on top of the walking beam between the mounting blocks. The larger label should be attached in the web of the walking beam directly below the transducer installation.

5.5. Clean the bottom flange of the cover.

5.6. Apply a bead of silicon sealant to the bottom of the flange.

5.7. Install the cover over the transducer.

5.8. Seal the holes at the end of the cover and around the cable from the transducer.

6. Installation Checklist

6.1. Make sure that adequate clearance is available above all transducers before installation. This will prevent damage to the transducer from the oil pan, suspension or drive shaft.

6.2. Use only aluminum or steel mounting blocks with aluminum or steel suspension parts.

6.3. Make sure that all electrical connectors are tight.

6.4. Provide proper slack in pigtails or cables. This will prevent cable damage from suspension travel.

6.5. Use care when tightening bolts. Watch that meter doesn't exceed +/- 5000 lbs. Improper-tightening of the bolts preloads the transducer and shortens its life.

6.6. Keep everything clean, both before and after transducer installation.

6.7. Paint transducer, mounting blocks and surrounding area with high quality rust preventative paint.

6.8. Attach warning labels to Hendrickson walking beam installations.

6.9. Note that the transducer must be removed from the front axle when the axle is straightened or aligned.

6.10. Completely seal the transducer cover around the bottom flange and holes in the ends.

7. Assembling the J-Bracket and Setup Bracket

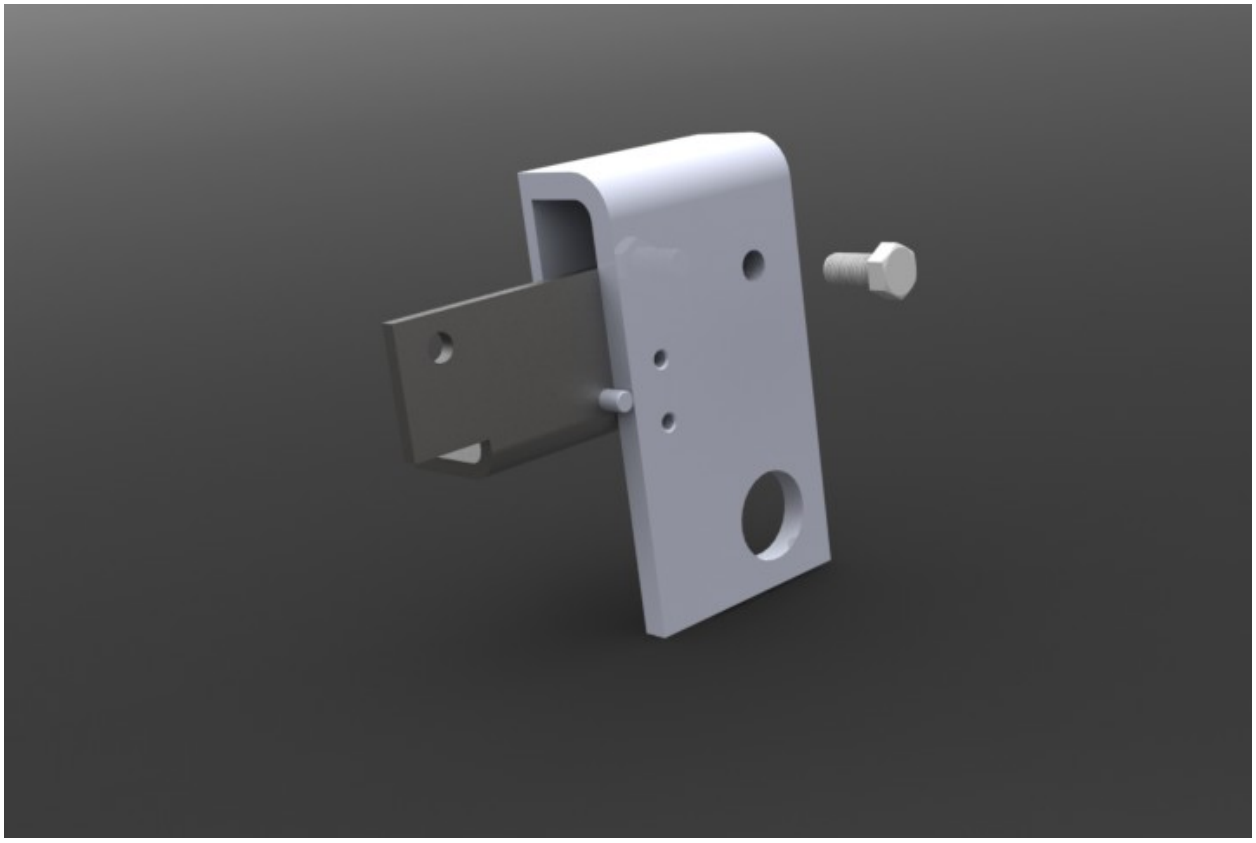

Figure 3: Assemble the Setup Bracket

7.1. Ensure the alignment pin of the Setup Bracket (P/N 1400114) is flush and is touching the Right Side J-Bracket (P/N 1400103R).

7.2. Securely tighten the supplied 3/8-24 x ¾ Grade 5 bolt (P/N 2801091).

7.3. Using the Left Side J-Bracket (P/N 1400103L), repeat Steps 1 and 2. Make sure all edges are parallel and at the same height. See Figure 2.

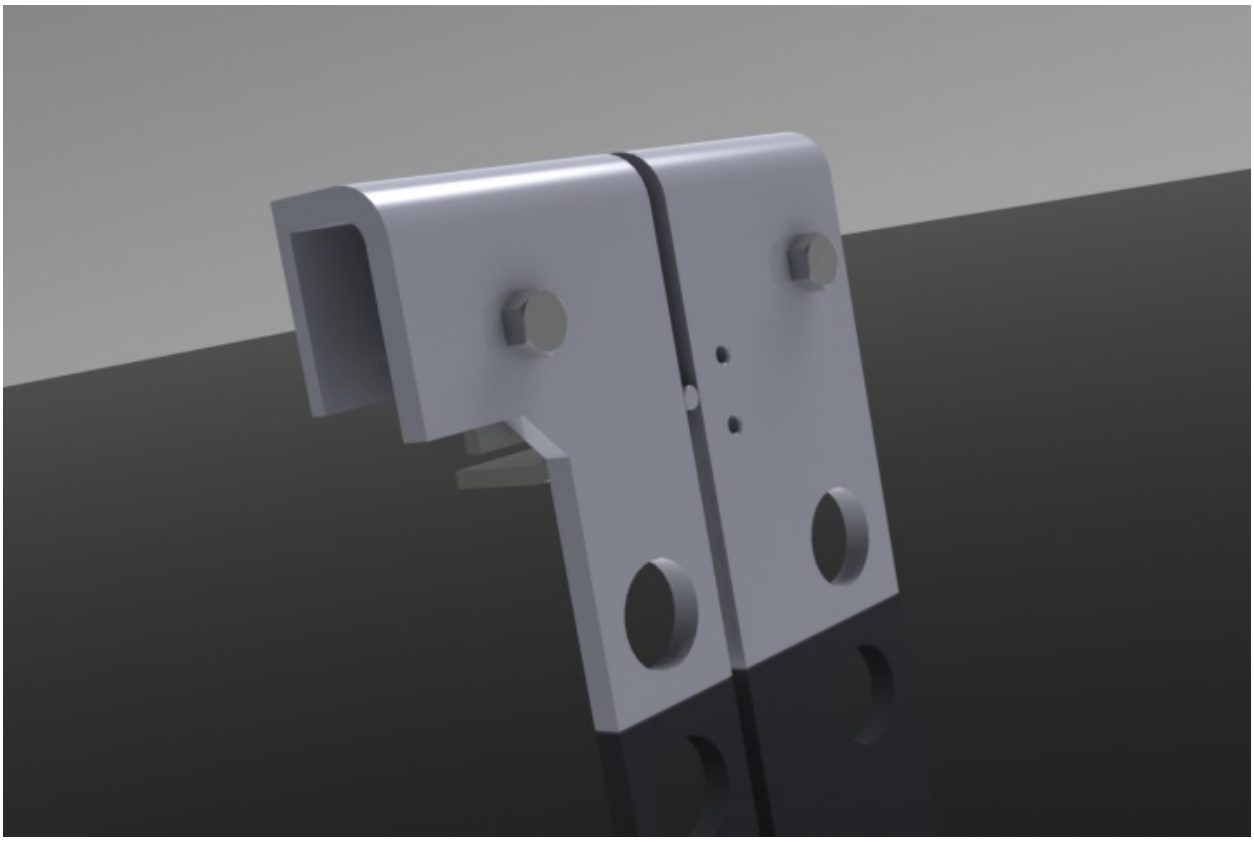

Figure 4: Completing the Setup Bracket Assembly

8. Surface Preparation

8.1. Hold the J-Bracket Setup Assembly firmly on the top of the axle housing and mark the area inside the two (2) large weld holes on the bottom of each J-Bracket.

8.2. Remove the J-Bracket Setup Assembly and set it aside.

8.3. Using a sander or grinder, fitted with 40 grit sandpaper, clean the area that were previously marked. Clean down to bare metal.

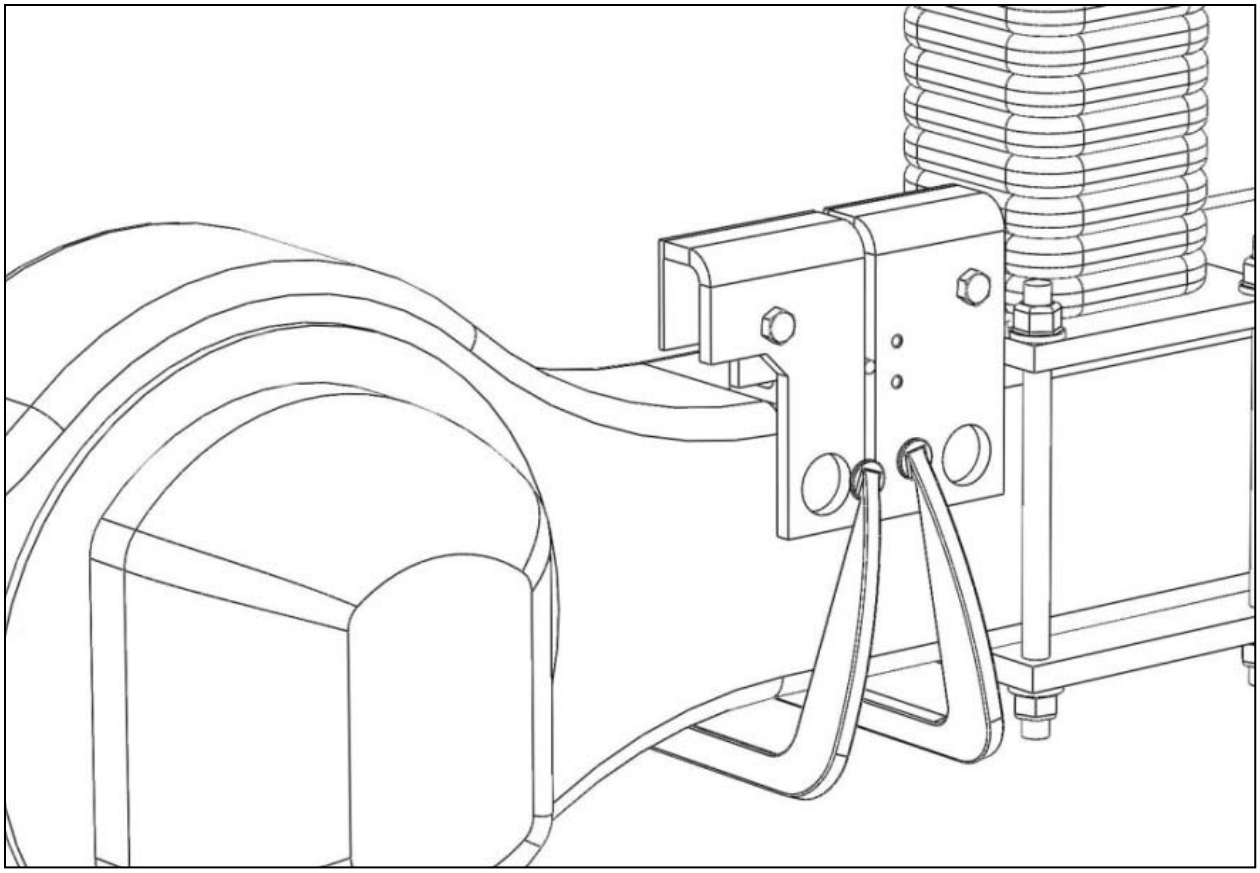

Figure 5: Clamping the J-Bracket Assembly to the Axle Housing

9. Weld the J-Bracket Assembly

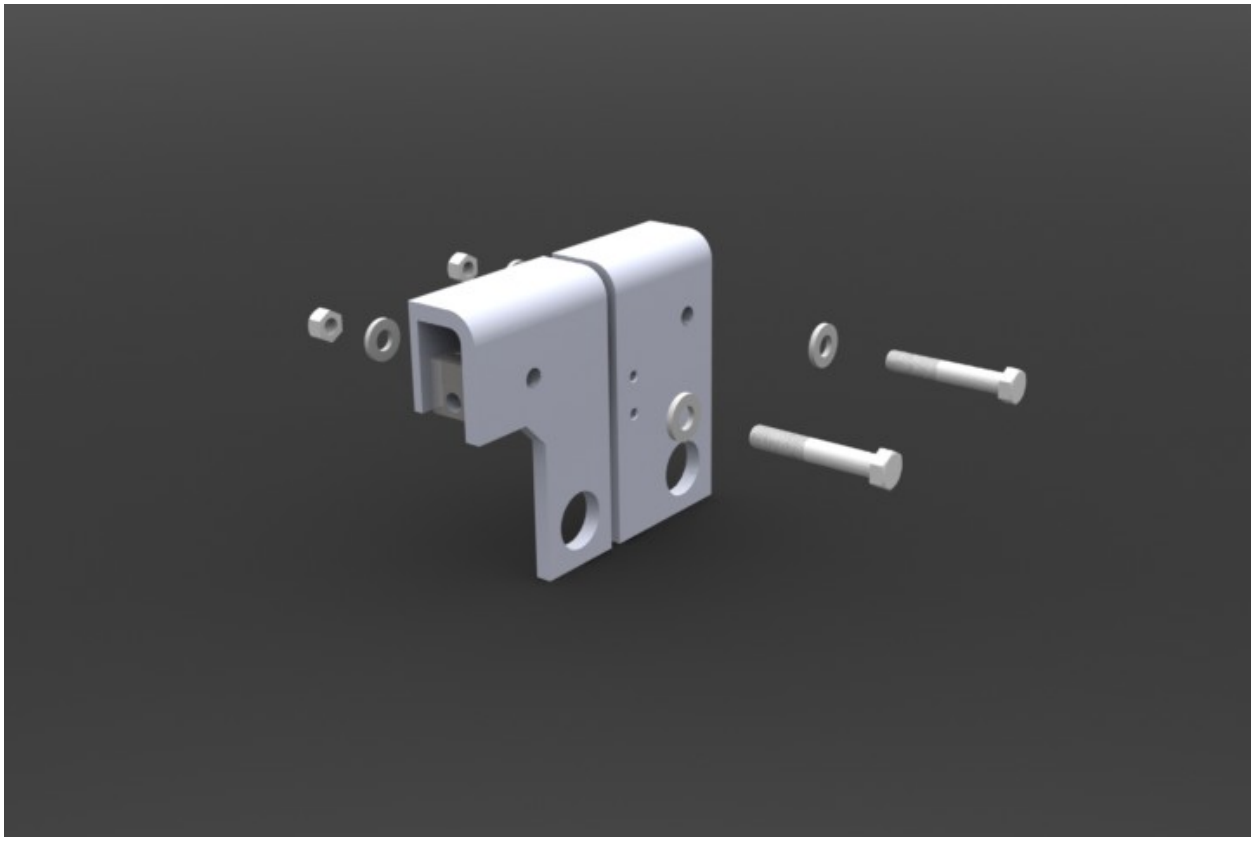

Figure 6: Install the Deflection Sensor

10. Install the Deflection Sensor

10.1. The Deflection Sensor (P/N 8300370-10) is now ready to be installed into the welded J-Brackets.

10.2. Thoroughly clean the mounting surfaces with Brakleen. Ensure there is no paint on any mating surfaces.

10.3. Attach the Trojan Deflection Sensor (P/N 8300370-10) with the cable exiting towards the center of the Axle Housing.

10.4. Ensure the word “TOP” is facing up.

10.5. Install the Trojan Deflection Sensor (P/N 8300370-10) using the supplied two (2) Grade 8 Mount Bolts (P/N 2800363), four (4) Grade 8 Washers (P/N 2800905) and two (2) Grade 8 Hex Head Nuts (P/N 2800220).

10.6. Hand Tighten the Hex Head Grade 8 Nuts (P/N 2800220).

11.Tightening J-Bracket Transducer Bolts

11.1. Make sure the transducer mounting bolts are hand tightened only.

11.2. Connect cabling to meter and transducers. The meter and cables may be placed on the shop floor temporarily and hooked to the transducers.

11.3. Connect power to the meter and make sure the meter is programmed and the system is working property. (See owner's manual).

11.4. "Zero out" the meter. With the 9100 series meters, set tare 1 and tare 2 to zero and cal 1 and cal 2 to 100,000.

11.5. While watching the meter, torque the mounting bolts to 25 ft. lbs. This will cause the meter to show a load. The readings should be 0 to 2500 lbs. If the meter exceeds this amount, loosen the bolts and carefully retighten them in sequence until the 0 to 2500 lb range is met. The amount of change varies depending on whether you tighten by turning the head of the bolt or by turning the nut.