AD0339 Rev C
Applies to machines built from:
September, 2011

TR and TRT - Gas-Spring Counterbalance - Replacement

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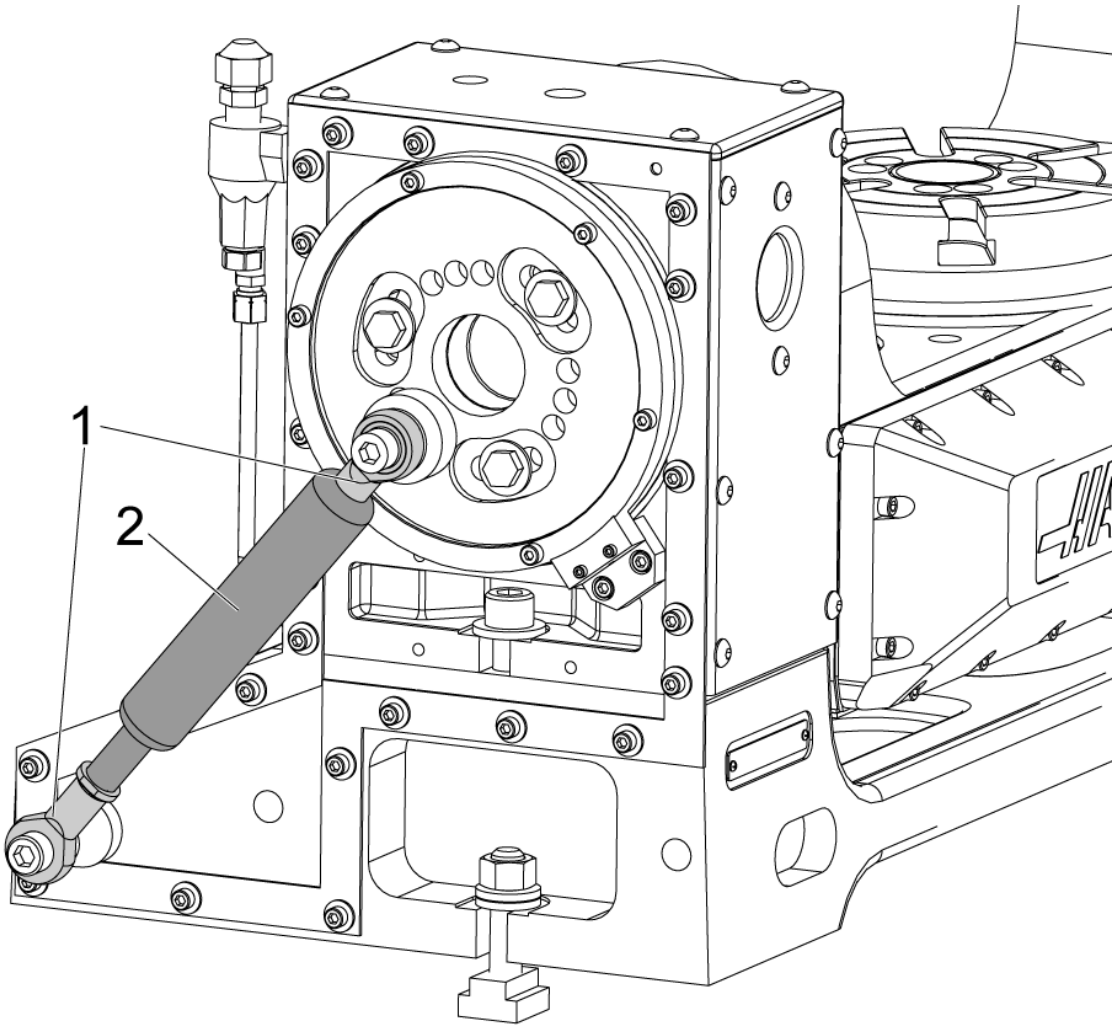
Translation Available

TR and TRT - Gas-Spring Counterbalance - Replacement - Introduction

This procedure tells you how to replace the gas-spring counterbalance on a TR and TRT. The gas-spring counterbalance has a gas-spring [2] and (2) rod ends [1]. Replace these parts every (4) years.



Machine Compatibility

Do this procedure for these rotaries:

- All TR and TRT rotaries with counterbalances.

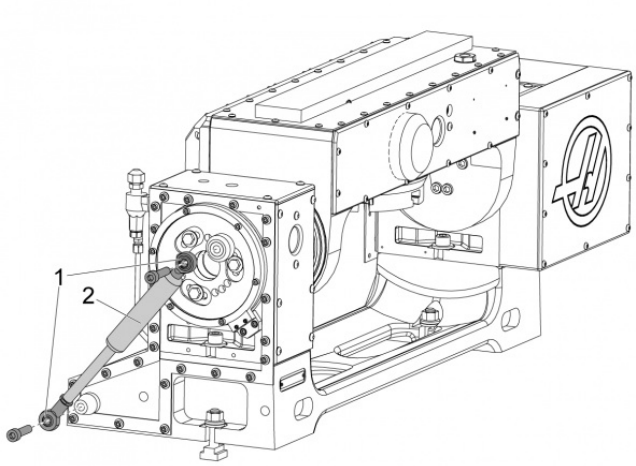
TR and TRT - Gas-Spring Counterbalance - Replacement

STEP 1

Go to ***Setting 7***. Set the ***PARAMETER*** to **OFF**.

Go to ***PARAMETER 43 Bit 20***. Set the ***CK TRAVEL LIM*** to **0**.

STEP 2



Jog the **A Axis** in the positive direction to **+180 degrees** . This puts the table upside down. This fully extends the gas-spring.

Press **[EMERGENCY STOP]**.

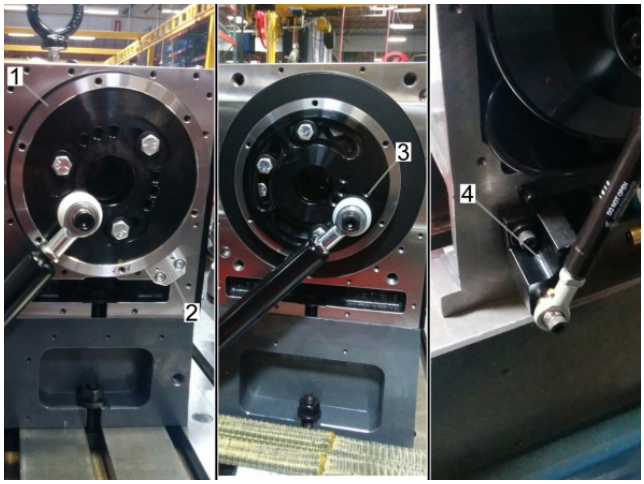
Remove the cover from the side of the rotary that does not have a motor.

Make sure the gas-spring [2] is fully extended. Remove the gas-spring.

Remove both of the rod ends [1] from the removed gas-spring. Install the rod ends on the new gas-spring [2].

Install the gas-spring.

STEP 3



If necessary adjust the counterbalance length to fully extend over the center of the bore hole.

- For TR160: Loosen the plate bolts. Adjust the plate and use one of the outer mounting holes for the top counterbalance mount to set the correct length. If you rotate the plate you will need to indicate the scale [1] and remove the scale reader [2]. Go to Step 4.
- For TR210: Loosen the plate bolts. Adjust the plate and use one of the outer mounting holes [3] for the top counterbalance mount to set the correct length.
- For TR310: Tighten the top mounting bolt to automatically set the correct length.
- For TRT100: Loosen and adjust the foot mounting block [4] to set the correct length.

Torque the plate bolts.

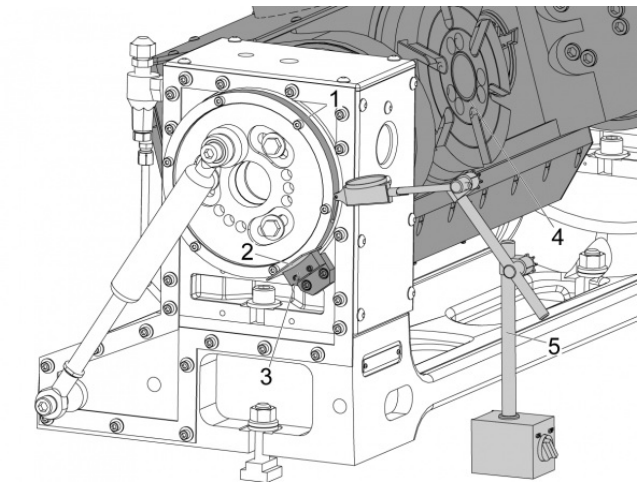
- For TR210: 45 ft-lbs (61 nm).
- For TR310: 80 ft-lbs (108 nm).
- For TRT100: 13 ft-lbs (17 nm).

Torque the gas-spring Socket Head Cap Screws (SHCS).

- For TR160/210: 50 ft-lbs (68 nm).
- For TR310: 110 ft-lbs (149 nm).
- For TRT100: 13 ft-lbs (17 nm).

Go to Step 6.

STEP 4



Do this step only if you adjust the plate on a TR160.

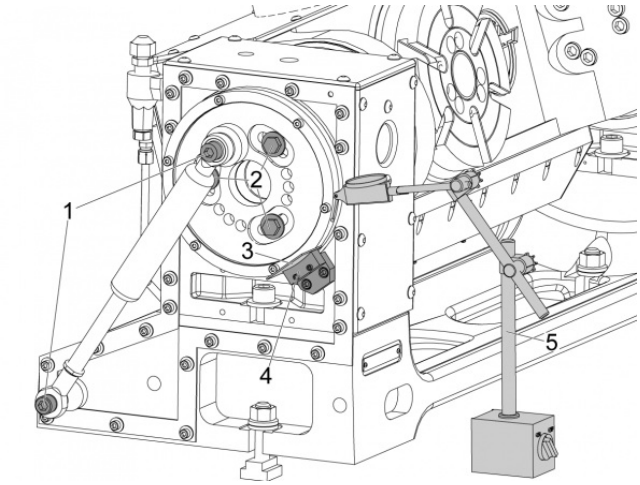
Install an indicator on the table near the rotary scale ring [1]. Make sure the tip of the indicator [5] touches the side of the scale ring. Loosen the scale reader [3]. Put a 0.006" (0.1524 mm) shim [2] between the scale ring and the read head.

Release **[EMERGENCY STOP]**. Clear alarms.

If the error is more than 0.0005" (0.0127mm) make adjustments to center the scale ring. Tap on the inner diameter of the bore hole with a mallet. Do not tap on the scale.

Jog **A Axis** in the negative direction from **+180 degrees** to **-180 degrees**. Jog the **A Axis** in the positive direction back to **+180 degrees**. This avoids damage to the cables in the rotary [4]. Repeat this until the error is not more than 0.0005" (0.0127mm).

STEP 5



Do this step only if you adjust the plate on a TR160.

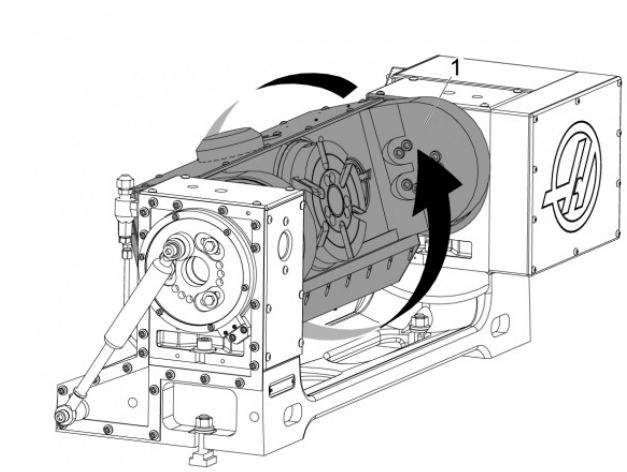
Tighten the read head [4]. Remove the shim [3] and make sure there is a 0.006" (0.1524 nm) gap between the read head and the scale ring.

Press **[EMERGENCY STOP]**.

Torque the plate bolts [2] to 45 ft-lbs (61 nm).

Use the indicator [5] to make sure the scale ring is still aligned. If it is not aligned loosen the plate bolts and repeat this step. If it is remove the indicator and torque the gas-spring Socket Head Cap Screws [1] (SHCS) to 50 ft-lbs (30 nm).

STEP 6



Release **[EMERGENCY STOP]**. Clear alarms.

Jog **A Axis** in the negative direction to **0 degrees**. This avoids damage to the cables in the rotary.

Go to ***PARAMETER 43 Bit 20***. Set the ***CK TRAVEL LIM*** to **1**.

Go to ***Setting 7***. Set the ***PARAMETER*** to **ON**.

Handle jog the rotary [1] in the positive and the negative direction.

Make sure the rotation does not move past 120 degrees in each direction and that the rotary does not make "squeaking" noises. If the rotary make squeaking noises, torque the plate bolts and the gas spring SHCS again.

If the rotary moves past 120 degrees or the "squeaking" noises do not stop, speak to your Haas Factory Outlet (HFO).

Install the cover on the TR or TRT.