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Coding Information

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Title: Hard to Crank Condition on ProStar and LoneStar Vehicle

Applies To: ProStar and LoneStar Vehicles with Hydraulic Clutch Linkage and Solo Clutch

Description

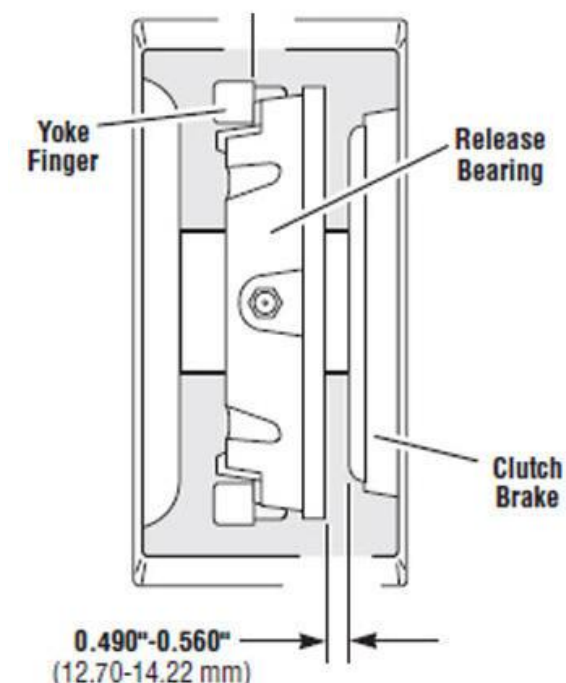
ProStar and LoneStar model trucks built with Eaton Solo Clutches may experience a condition in which it is hard to get the vehicle to crank. This is caused by the clutch bearing contacting the clutch brake prior to the clutch release pedal passing the magnetic clutch safety switch, which closes the switch allowing the vehicle to crank. This may cause increased or unattainable pedal efforts to allow the vehicle to crank. The Eaton Solo clutch has been found to be operating lower than the clutch specification of 0.490" - 0.560" bearing to brake, causing the decrease in clutch release pedal movement.

Inspection

Remove the clutch inspection cover, and measure the bearing to brake position. Inserting a bar that is about 0.500" is NOT an acceptable procedure for checking the clutch bearing to brake measurement.

- Preferred Procedure- Use a telescoping gage or inside caliper capable of a 0.400" - 0.600" range, and insert it between the clutch bearing and the clutch brake aligned with the center of the brake and the center of the bearing. Then measure the gage using a micrometer or a dial/digital caliper.
- Alternate Procedure- Use a feeler gage set (shim stack), and stack the correct number and size feeler gages to allow the feeler gage stack to fit snugly between the clutch bearing and brake. Then measure the feeler gage stack using a micrometer or a dial/digital caliper.

Rotate the engine over by hand until the clutch serial number is visible, and record the clutch serial number.



Or

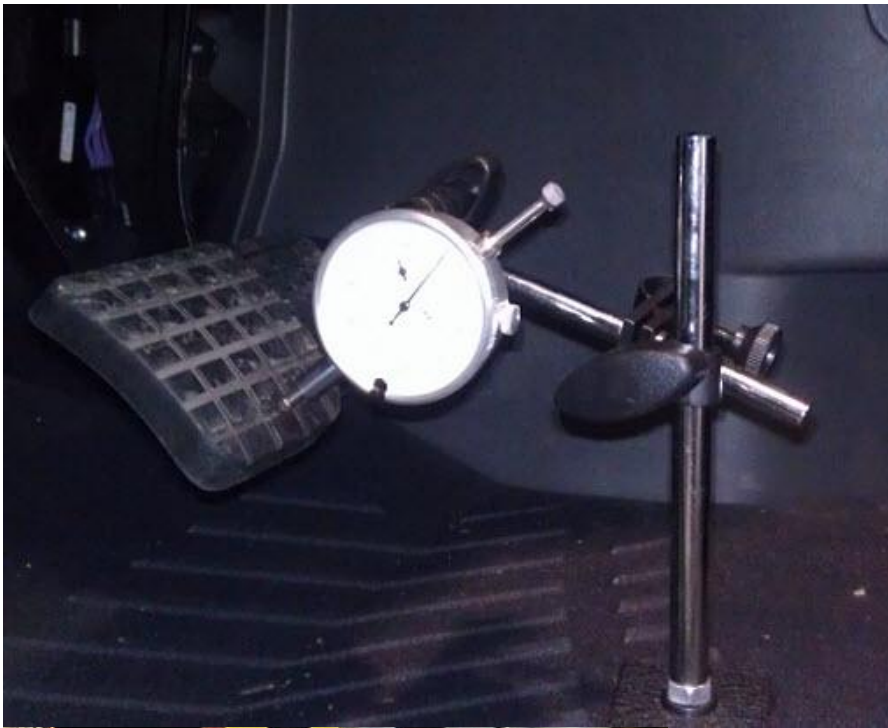


Clutch Release Bearing Free Travel Adjustment

If the clutch release pedal requires excessive effort to allow the vehicle to crank, then adjust the clutch release pedal free travel to 0.700"-0.800" from the factory setting of 0.400"-0.600". This allows the pedal to travel up to an extra 2-3 degrees, allowing the vehicle to crank with reduced pedal effort force. Do not exceed 0.800", or the clutch brake operation may be compromised.

- Preferred Procedure- Use a dial indicator to measure the free play adjustment. When setting up the dial indicator, adjust the indicator so the needle does not slide across the pedal, but follows the pedal. This is the most accurate way to measure the clutch release pedal free play, and will allow the final adjustment point to be set accurately.
- Alternate Procedure- This should only be done if a dial indicator is not available. Using the tilt function on the steering column, align the steering wheel to the clutch release bearing travel position. Use a piece of masking tape and wrap the steering wheel in line with the clutch release pedal. Mark a line on the masking tape and measure from the pedal to the line at the top of the pedal range and at the bottom of the free play range. Using the tape measure, adjust the clutch

- release pedal free play to 3/4".



Post Adjustment Evaluation

After making the clutch pedal free play adjustment, depress the clutch pedal to crank the vehicle. The starter should engage in a range from a little before to just after clutch brake contact, which is indicated by the pedal coming to a stop with the same amount of effort being applied to the clutch release pedal

as was used to stroke the clutch release pedal.

- If the clutch internal bearing to brake measurement is less than 0.490", and the clutch release pedal free travel is adjusted to 0.700"-0.800" the vehicle does not crank, then the clutch will need to be replaced.
- Resetting the clutch will not affect the static bearing position.
- The clutch bearing to brake measurement as taken when the clutch is installed in the vehicle must be recorded on the pressure plate, and the warranty claim to ensure there are no charge backs.

Compatible Replacement Clutches

Please see the below photos to identify a replacement clutch. These are clutches that must be used on all ProStar and LoneStar vehicles. Vehicles with a mechanical linkage system can continue to use clutches without the markings. All these clutches are certified to have a bearing gap above 0.530" at the Eaton end of line tester. These clutches can be identified by the following witness marks:

- A blue dot placed on the corner of the part label on the box
- A green line on the pressure plate ear nearest the cam tab



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