

Trailer Axles

Installation & Maintenance

For Your Trailer Axle Suspension Needs Call York :

Head Office

Singapore

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Service Information and Warranty

This warranty is applicable to new goods for a period up to thirty-six (36) months from the date when the goods are delivered. YORK Warranty Features:

3 years or 300,000km warranty, whichever comes first

On complete beam weld assembly comprising finished axle beam, and all welded brackets on all axles supplied with suspension fitted by YORK.

1 year or 100,000km warranty, whichever comes first

On axle end fixings, hub and conventional assemblies, drum brake, disc brake rotor (mechanical failure only), disc calliper assembly (excludes damage due to off-road usage), camshaft, camshaft bearings, cam rollers, brake anchor pins, hubcaps, dust covers and screws, brake shoe, ABS sensor with brackets, brake retaining and return springs, oil and grease seals.

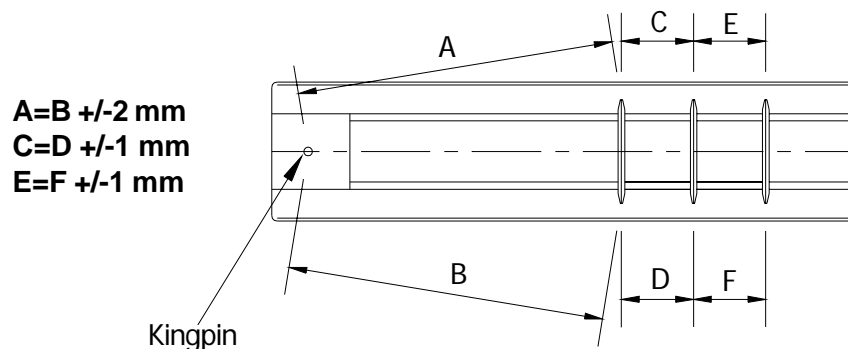
However attention to the following is crucial to the warranty:

- i) No YORK axle should be loaded to more than the rated load or the design load agreed to by YORK (in writing) for any particular application.
- ii) All welding to YORK axle beams should be carried out strictly in accordance with YORK's technical specifications.
- iii) At point of manufacture, YORK have adjusted the wheel bearings in accordance with YORK's technical specification. This must be checked at the first 5,000km service and readjusted, if necessary, to be within this range.
- iv) When the bearings have been readjusted because of the "settling in" during the initial service period, the locknut would no longer be at the original position. The locknut must be re-torqued to 340 to 400 Nm each time the bearings are rechecked.
- v) Operation of YORK axles in correctly specified applications, with regular inspection adjustment and lubrication is vital to ensure maximum life of all components and to comply with YORK's warranty conditions.

Axle Alignment and Adjustment

Measure from the centre of the kingpin to the centre of each end of the front axle and adjust as necessary until the dimensions are equal.

Alignment of the rear axle (axles) is then made by checking the distance between the centre of the front axle and rear axle (axles) at both sides of the trailer. Adjust as necessary until the dimensions are equal.



Preventive Maintenance

First 500 Kilometres.

- Check tightness of all wheel nuts
- On delivery.
 - After wheel changes.
 - Monthly during operation
- (Or twice a month for off-road operation)

Note : Recommended torque settings, dry threads (the use of power tools for torque settings is not recommended. 1ft/lb = 1.36Nm).

a. Wheel Nut :

ISO M22 studs	- 570/630 Nm (up to 12 Ton)
	- 760/850 Nm (up to 16 Ton)
ISO M24 studs	- 840/930 Nm (up to 20 Ton)
BSF 7/8" BSF studs (L & R)	- 450/500 Nm (up to 12 Ton)
	- 570/630 Nm (up to 14 Ton)
DIN 22mm studs	- 450/500 Nm (up to 12 Ton)
	- 570/630 Nm (up to 14 Ton)
JAP M20 studs (L & R)	- 425/475 Nm (up to 10 Ton)
JAP M24 studs (L & R)	- 500/660 Nm (up to 12 Ton)
Spider Hubs (M20 Bolt)	- 320/350 Nm (up to 16 Ton)

b. Camshaft Bracket Set Screws :

M12	- 90/100 Nm
M10	- 30/35 Nm

Lubricate camshaft grease nipples using EP2 grease.

- 1st Service / 5,000 km** - Full bearing adjustment.
- 1st & every 5,000 km** - Check and adjust brakes and check brake linings for wear.
- Every 25,000 km** - Lubricate slack adjuster and camshafts using EP2 grease or equivalent. (Don't over grease). Rotate wheels and check wheel bearings to ascertain if there is excessive bearing movement. Re-adjust as necessary.
- Every 100,000 km** - Remove hubcaps, inspect bearings and lubrication. Re-adjust and re-torque the outer nut, re-secure lock tabs.
- Visually check the axle and ancillary components for cracking, damage and wear. Repair or replace as necessary.
- Every 300,000 km** - Remove, wash and inspect wheel bearings, replace if necessary. When re-assembling, bearings must be properly lubricated and adjusted to York's specifications.

Important : If the operating service conditions are severe, this procedure may be required at more frequent intervals.

Bearing Lubricants :

Grease	- Mobil HP222 or equivalent.
Oil	- Mobil 85W/140 or equivalent.

Wheel Bearing Adjustment (2.5" nut)

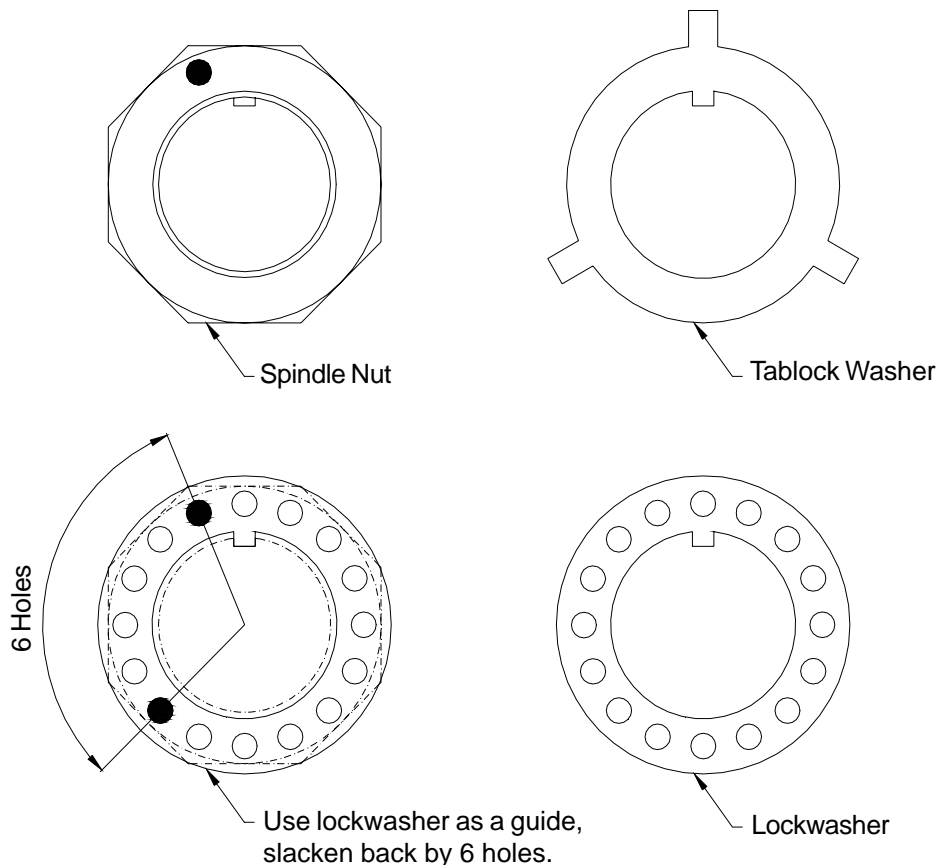
We recommend that all axles should have the wheel bearings adjusted initially after the first 5,000 km and then at 100,000 km intervals. This does not preclude the need for inspection and adjustment as necessary every 25,000 km if service conditions require this.

The recommended wheel bearing adjustment procedure is:-

- i) Make sure that the hub revolves freely and if necessary temporarily slacken off the brake adjustment to ensure complete freedom from brake binding (drag).
- ii) Rotate the hub in both directions at the same time tightening the bearing adjusting nut. Continue until a binding is felt and a torque setting of 200 Nm is reached.
- iii) Using the lockwasher as a guide, slacken the adjusting nut back 6 holes and refit the lockwasher. Fit the lock-tab washer. Taking care that the adjustment is not disturbed, fit and tighten the axle locknut to 340/400 Nm.

Important : Check end float is 0.08mm to 0.20mm. If not re-adjust.

Check that the hub and drum rotates freely. Bend the tabs on the lock-tab washer over to prevent the locknut coming loose in service.



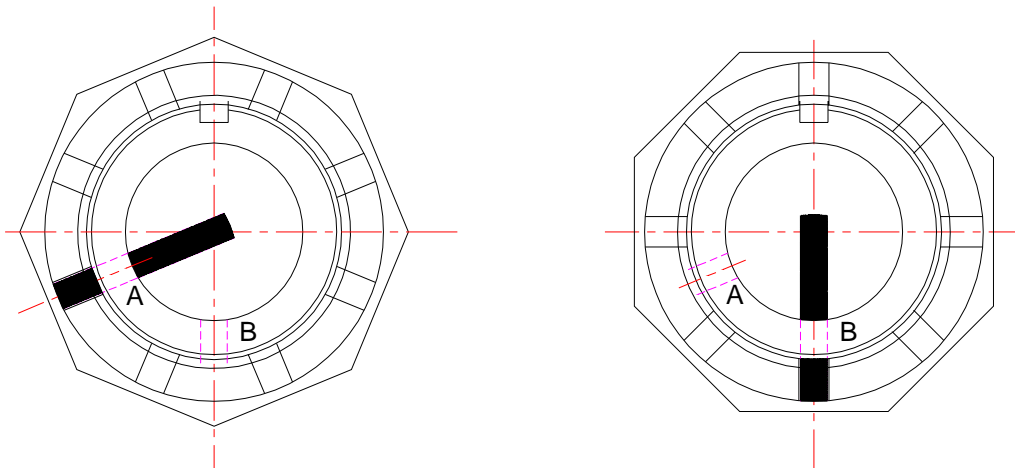
Important : Check end float is 0.08mm to 0.20mm. If not, re-adjust.

Wheel Bearing Adjustment (3.5" Castellated Nut).

We recommend that all axles should have the wheel bearings adjusted initially after the first 5,000 km and then at 100,000 km intervals. This does not preclude the need for inspection and adjustment as necessary every 25,000 km if service conditions require this.

The recommended wheel bearing adjustment procedure is:-

- i) Make sure that the hub revolves freely and if necessary temporarily slacken off the brake adjustment to ensure complete freedom from brake binding (drag).
- ii) Rotate the hub in both directions at the same time tightening the bearing adjusting nut. Continue until a binding is felt and a torque setting of 340-380 Nm is reached.
- iii) Slacken the nut back by ONE slot (or by 45°). If there is no slot line up with any pin hole ("A" or "B", the angle between "A" & "B" is 67.5°), loose the nut slightly until nearest pin hole is reached. Insert split pin through the hole and bend the pin.
- iv) After adjustment, bearing end play is 0.025-0.13mm. Make sure the end is not too small or bigger than 0.13mm.



Important : If too tight or too loose, re-adjust.

a. Slack Adjuster's Set Up and Adjustment

Manual Slack Adjuster

Part Number:	730101/3
Spline:	SAE 10
Arm length:	5, 6" & 7" (127, 152 & 176mm)
Clevis Pin Size:	1/2" (12.7mm)

Manual Slack Adjuster" Set Up (Dim 'L' With Brake Released)

- Fig. A: Dia. 311& 335mm brake, 5" round axle beam
 Fig. B: Dia. 420mm brake, 5" and 6" round axle beam
 Fig. C: Dia. 420mm brake, 6" square axle beam

Refer to Page 9 for brake adjustment procedure.

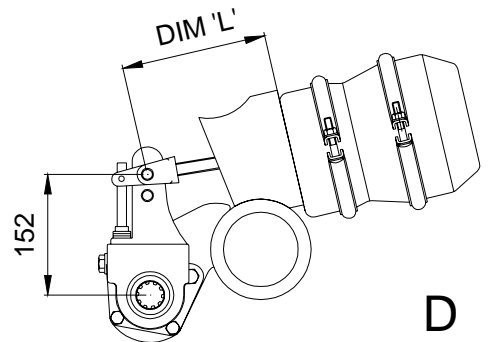
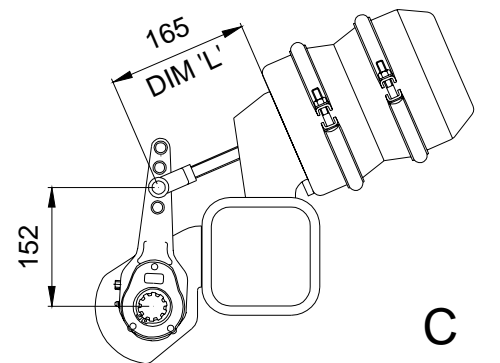
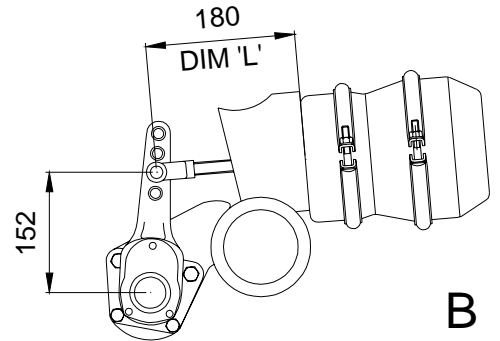
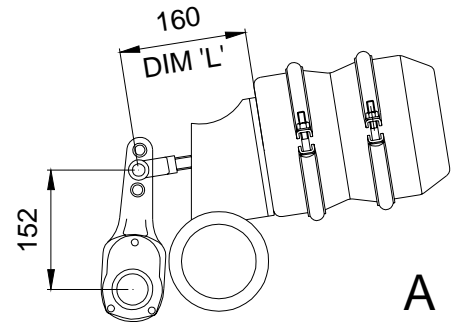
AutoSlack Adjuster

Brake Size	Dia.311&335mm	Dia. 420mm
Part Number	YB21153	YB21103
Spline	SAE 10	SAE 10
Arm length	5" & 6"	5" & 6"
Clevis Pin Size	1/2"	1/2"

Note: Above two AutoSlack Adjuster can only be used with 5/8"-18 TPI (UNF) push rod of air brake chamber. Air brake chamber with metric size M16x1.5 cannot be fitted.

AutoSlack Adjuster" Set Up (Fig. D)

- Refer to "Installation Procedures" packed together with AutoSlacker.
- AutoSlack adjuster must be installed with original clevis and template. Dim 'L' will be decided by following "Installation procedure".
- No manual adjustment is required except for initial installation and brake relines. **By constantly manually readjusting the Autoslack Adjuster, the internal clutch life can be shortened.**
- Refer to page 8 and 9 for detailed inspection procedure

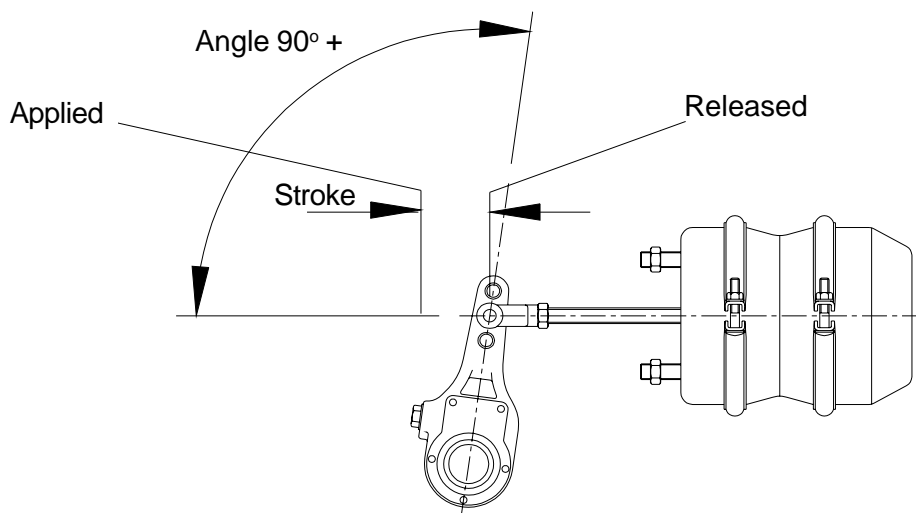


Brake Adjustment (Manual Slack Adjuster)

'S' cam type brakes are adjusted by means of the slack adjusters fitted to the axles camshafts. (see Note A).

- i) With the brakes released adjust the slack adjuster until the brake shoes contact the brake drum.
- ii) Back off the slack adjuster one quarter of a turn to provide brake shoe to brake drum clearance. Check that the brake drum rotates freely without any brake lining drag. If there is brake lining drag readjust the brakes until no lining drag is evident.
- iii) Check that the angle between the brake chamber push rod and the slack adjuster is greater than 90° both with the brakes released and applied. When lining wear causes the travel to increase to the stroke limits listed below, readjust the brakes.

Chamber size	Stroke limit
Type 20	44mm
Type 24	44mm
Type 30	50mm



Note:

- A. Before adjusting the brakes make sure that the vehicle is adequately chocked and parked in a safe position so that it cannot move when the brakes are released to perform the brake adjustment.
- B. There are two common types of slack adjuster adjustment mechanisms. One type has a hexagonal nut with a locking sleeve around it which has to be depressed to fit the adjusting spanner onto the hexagonal head of the adjuster to adjust the brakes, care must be taken to ensure that this locking sleeve is back in the locked position after brake adjustment is completed. The second type has a 19mm hexagonal head and no locking sleeve, the adjuster has a positive locking mechanism within it which retains the adjustment as the hexagonal nut is rotated when adjusting the brakes.

Autoslack Field Inspection

No Autoslack can compensate for braking System Deficiencies. The brakes should be in good operating condition and be well maintained. Crewson Brunner Autoslacks should not require manual adjustment except for initial installation and brake relines. The Autoslack unit must be installed with a Crewson brunner clevis and template.

By constantly manually readjusting the Autoslack Adjuster, the internal clutch life can be shortened.

Autoslack on the Vehicle

i) Free Stroke

Free stroke is the distance the slack arm moves in order to make the brake shoes contact the drum. Move the slack arm with a small pry bar and measure the movement distance. This distance should be 10mm to 16mm.

If free stroke is greater than 16mm, check the foundation brake components. Repair and replace as needed.

ii) Push Rod Power Stroke

Measure the power stroke (the difference between when the brake is off and when air is fully applied) at 80 to 90 PSI (5.5-6 bar) application pressure.

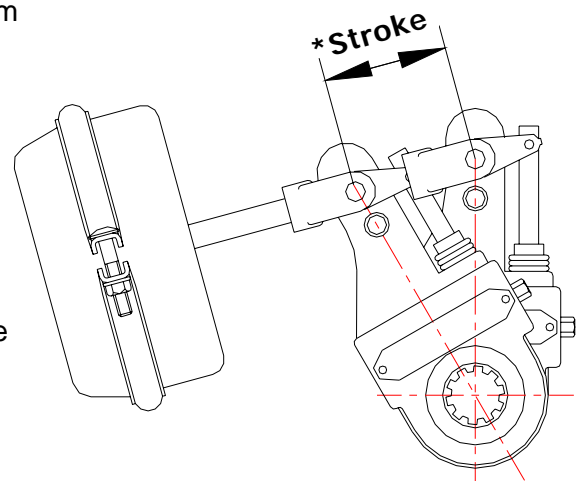
*** This distance (stroke) must be less than or equal to the maximum in the chart below.**

Chamber Types

16, 20, 24
30
36

Adjusted stroke

less than or equal to 44mm.
less than or equal to 51mm.
less than or equal to 57mm.



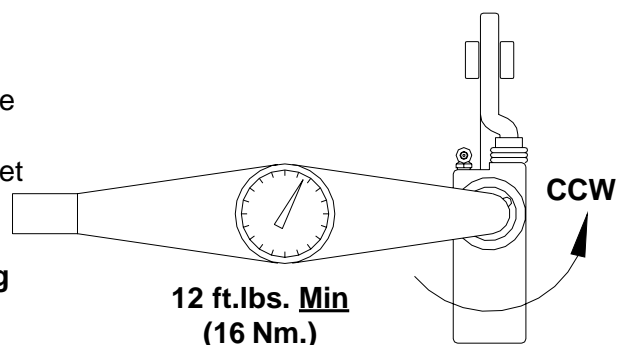
*** If the stroke is correct the Autoslack is operating properly. No other tests are necessary.**

iii) Back Torque

With the Autoslack correctly installed on the axle, Back Torque (CCW Rotation) can be measured. Using a torque wrench, turn the Adjusting Hex CCW. Back Torque will increase to a peak value, then return to zero as the ratchet clutch disengages.

Replace Autoslack if the Back (CCW) Torque reading is less than 12 ft.lbs. (16 Nm.)

Rotate the Hex shaft a maximum of 5 clicks (ratchet teeth) while taking torque readings.

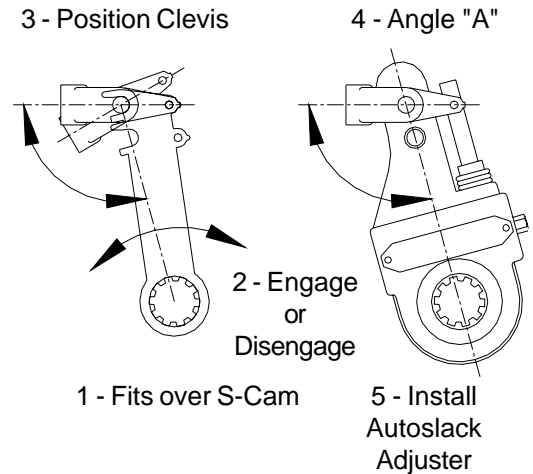


Autoslack Removed From Vehicle

Crewson Brunner Autoslacks are fully lubricated at the factory. A grease fitting is provided for normal maintenance. Crewson Brunner Autoslacks can not be dis-assembled in the field. Never tamper with the units factory settings.

i) Verify Autoslacks Set Up

1. Select the correct template for the spline size and armhole location.
2. Fit Installation Template over S-Cam and put 1/2" pin into clevis.
3. Swing Template to engage 1/2" pin.
4. Screw clevis CW or CCW on push rod until 1/4" holes in clevis and template line up.
5. Template now indicates correct set up angle "A".
6. Remove template and 1/2" pin. Install Autoslack adjuster on S-Cam and turn the Hex nut CW until 1/2" and 1/4" holes line up with the clevis.
7. Install and secure clevis pins. Turn nut CW until shoes contact the brake drum.
8. Back off Hex nut one half turn CCW to complete setup.

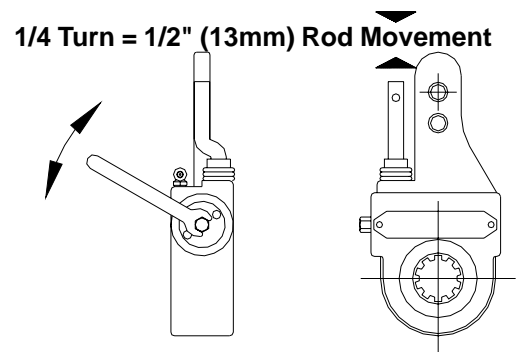


ii) Actuation Rod Movement

The Actuation rod will move as a slight force is used to turn the adjusting Shaft hex. 1/4 of a turn will cause full movement of the Actuation Rod. Full movement of the Actuation rod is about 1/2".

- * **Clockwise (CW) movement of the Adjusting Shaft Hex will move the Actuation Rod into the Slack Body.**
- * **Counter Clockwise (CCW) movement of the Adjusting Shaft Hex will move the Actuation Rod out of the Slack Body.**

Replace Autoslack if Actuation rod does not move.

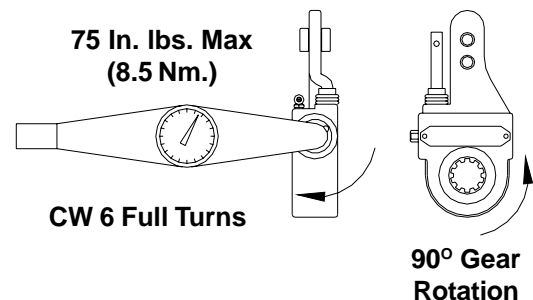


iii) Gear Movement & Front Torque

Using a torque wrench, rotate Adjusting hex nut through 6 full revolutions. Front Torque will increase to a peak value then return to zero several times on each revolution.

- * The spline should rotate about 90 degrees.
- * The Front (CW) Torque should be less than 75 in.lbs. (8.5 Nm.)

Replace Autoslack if spline does not rotate or if torque readings are greater than 75 in.lbs. (8.5Nm.)



iv) Back Torque

Assemble a crewson brunner clevis to the Autoslack Body and the Actuation Rod with the clevis pins. Using a torque wrench, turn the adjusting Shaft Hex CCW. Back torque will increase to a peak value, then return to zero as the ratchet clutch disengages.

Replace Autoslack if the Back (CCW) Torque reading is less than 12 ft.lbs. (16 Nm.)

Rotate the Hex shaft a maximum of 5 clicks (ratchet teeth) while taking torque readings.

