



Disc Brake Maintenance Update

Product: Workman® Series and MultiPro® 1750

January 5, 2016

Models:

07266/07266TC/07279/07299/07299TC/07273/07273TC/
07359/07359TC/07366/07367/07367TC/07368/07368TC/
07369/07370/07370TC/07371/07371TC/07383/07384/
07384H/07384TC/07385/07385H/07385TC/07386/07386H/
07386TC/07387/07387H/07387TC/07390/07390H/
07390TC/41188

Serial Numbers:

290000101-315009999

Situation: Disc brakes have been used on Toro Commercial products for several years, these brakes offer superior braking power to control of the machine; however, the design possesses different maintenance requirements when compared with drum type brakes. This bulletin provides updated Toro recommendations for brake assembly inspection, cleaning and brake system bleeding.

Instructions:

The disc brake design is more exposed to the environment than drum brakes. Because of this fact, functional surface cleanliness can be an issue. Workman and MultiPro vehicles are operated in environments where many corrosive compounds are used. These materials can affect disc brake function if basic inspection and cleaning processes are not followed. Routine maintenance will enable reliable long-term operation. An audit of 2015 Operator's manuals for the three product lines indicate some difference in the maintenance points and intervals for those items. This document will supersede those recommendations, 2016 manuals for these products will align with these common recommendations:

- Daily – Check brake fluid level
- Every 200 hrs. – Check/adjust parking brake lever; Check/adjust service brake pedal;
Inspect service and parking brake calipers
- Every 400 hrs. – Inspect/replace service and parking brake pads
- Every 1000 hrs. – Inspect/replace brake fluid

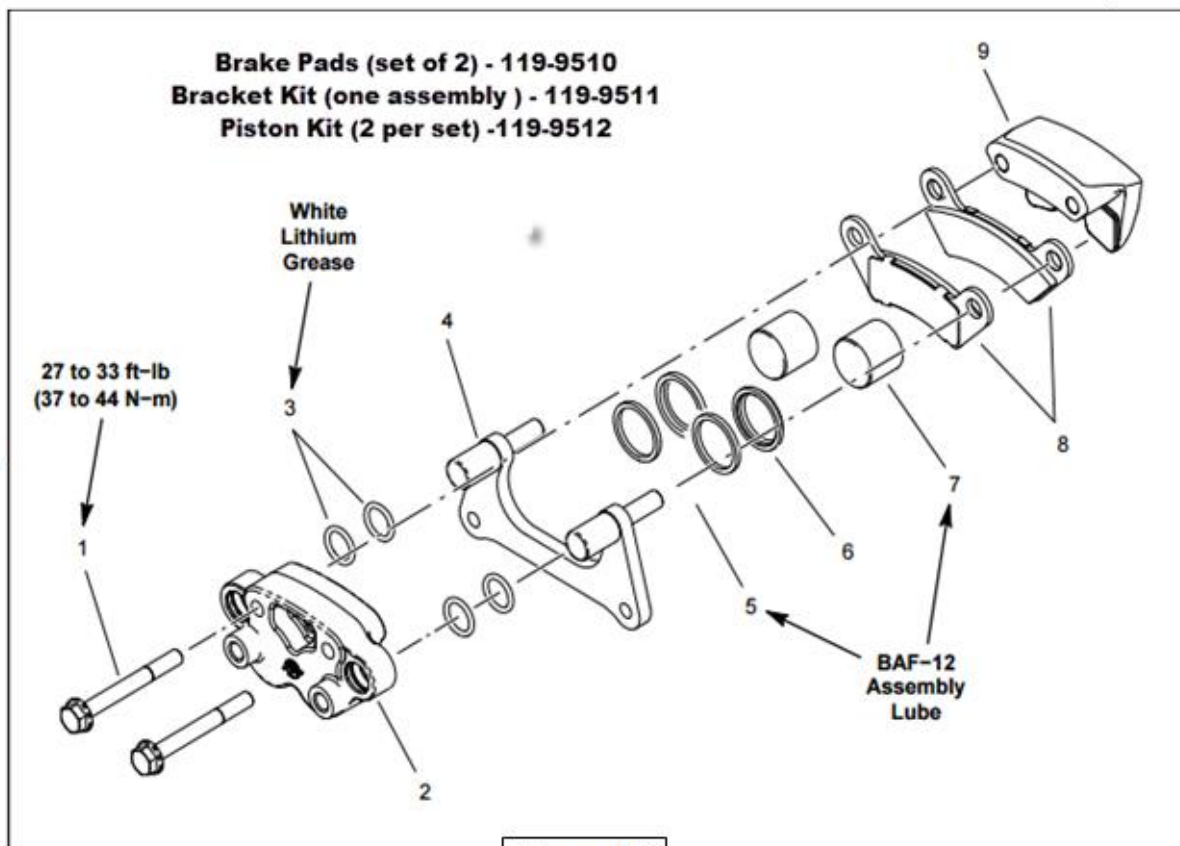
Brake Assembly Inspection: (Every 200 hours)

Every 200 hours of machine operation, Toro recommends the four tire and rim assemblies be removed to allow close visual inspection of the brake caliper assemblies. The inspection should include confirmation that the caliper assembly pistons are free moving. If they are not free to move within the brake caliper housing, brake pad drag would be evident when rotating the wheel hub. Accumulations of dirt, debris or corrosion on the pistons and/or on the guide pins could be root cause of the drag. (See Figure 1)

Inspection Procedure:

1. Check brake pads for uneven wear that would indicate binding in the caliper assembly. Replace the brake pads if the friction material is worn to less than 1.6 mm (1/16"). Also, if pads are contaminated with grease or oil, they must be replaced.
2. Inspect brake pistons and piston bores in caliper body for damage or wear. Replace brake pistons or complete brake caliper assembly if necessary.
3. Check that pins on caliper bracket are not worn or damaged. Wear on the pins will prevent smooth brake operation.

Brake Caliper Service Part Number 127-7424



1. Bolt (2)
2. Caliper body
3. O-ring (4)

4. Caliper bracket
5. Square seal (2)
6. Dust seal (2)

7. Piston (2)
8. Brake pad (2)
9. Caliper anvil

Brake Caliper Assembly Inspection/Cleaning: (Every 400 Hours)

Caliper disassembly will be required if piston or guide pin bind is found. The Caliper assembly may be very warm if bind is present. Follow this process to disassemble the caliper assembly.

1. Remove two (2) bolts that secure brake caliper assembly to the suspension.
2. Remove caliper anvil and then slide brake pads from pins on caliper bracket.
3. Slide caliper body assembly from caliper bracket.
4. If necessary, remove remaining components from caliper body:
 - a) Carefully remove pistons from caliper body making sure that outer surface of pistons are not damaged during removal.
 - b) Carefully, remove and discard O-rings, dust seals and square seals from caliper body. Make sure that caliper body is not damaged during removal of O-rings and seals.
5. Clean caliper components with brake cleaner.

Assembly:

1. If caliper body was disassembled, install components in caliper body:
 - a) Apply hydraulic brake cylinder assembly lube (BAF-12 or equivalent) to square seals and pistons before installation.
 - b) Fit lubricated square seals into grooves of caliper body. Make sure that seals are not twisted in groove after installation.
 - c) Install lubricated pistons into caliper body bores. Pistons should slide into bores with light resistance.
 - d) Install dust seals into caliper body.
 - e) Lubricate O-rings with white Dialectic or Brake Caliper grease and install into grooves in caliper body.
 - f) Slide caliper body assembly onto pins on caliper bracket.

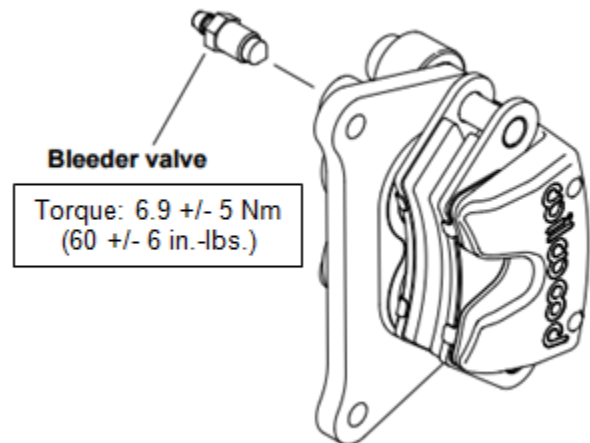
NOTE: If brake pads are being replaced, it will be necessary to push caliper pistons back into the caliper bore before installing new pads.

2. Slide brake pads onto pins on caliper bracket. Make sure that friction material on pads is toward brake rotor position.
3. Fit caliper anvil to assembly and secure caliper components with two (2) bolts. Torque bolts from 37 to 44 Nm (27 to 33 ft-lb).

Replace Brake Fluid (Perform every 1000 hours or annually)

Bleed Brake System

1. Access the brake master cylinder. Make sure that brake fluid level is correct.
2. Connect a suitable transparent hose to bleeder valve on left rear wheel caliper and submerge other end of hose in a clean glass container partially filled with clean brake fluid
3. Have a second person pump brake pedal several times, then hold pedal down firmly.
4. With pedal firmly depressed, open bleeder valve of left rear brake until pedal fades to floor, then close bleeder valve.
5. Repeat procedure until a continuous flow of clear brake fluid, with no air bubbles, is released from bleeder valve. Make sure fluid level is maintained in brake fluid reservoir at all times.
6. Torque bleeder valve from 6.2 to 7.4 Nm (54 to 66 in-lb). **Do not over-torque.**
7. Complete steps 2 through 6 for right rear, left front and then right front brake calipers until clear, clean fluid is purging from all bleeder fittings.
8. Install the hood. (as required)



CAUTION- After servicing the brakes, always test brake function in a wide open, level area that is free of other persons and obstructions.

9. After bleeding of brakes is completed, test vehicle to make sure brakes are operating correctly and brake pedal is firm.