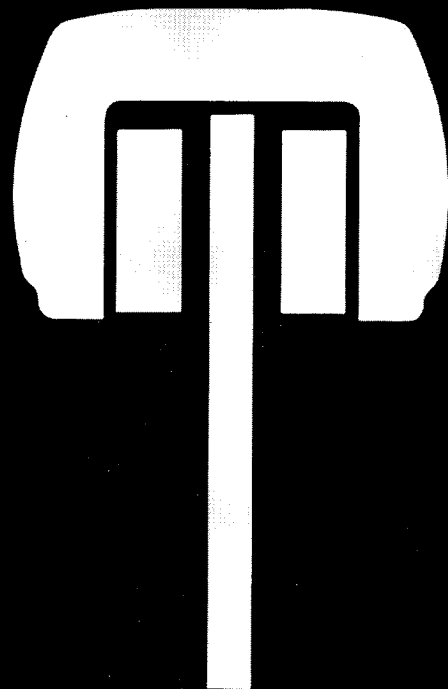


**CALIPER
DISC BRAKE**

**SHOP
MANUAL**



CLARK

Construction Machinery

CLARK

**CALIPER
DISC BRAKE**

**SHOP
MANUAL**

**PUBLICATION
NO. 3236**

SPECIFICATION

5293500
(Goodyear)

FOREWORD

This manual has been prepared to provide the customer and the maintenance personnel with information and instructions on the maintenance and repair of the Caliper Disc Brake Assembly.

In order to become familiar with the various parts of the brake assembly, its principle of operation, service diagnosis and maintenance, it is urged that the mechanic study the instructions in this manual carefully and use it as a reference when performing maintenance and repair operations.

Whenever repair or replacement of component parts is required, only Clark-Approved Parts as listed in the applicable parts manual should be used. Use of "will-fit" or non-approved parts may endanger proper operation and performance of the equipment. The Clark Equipment Company does not warrant repair or replacement parts, nor failures resulting from the use thereof, which are not supplied by or approved by the Clark Equipment Company.

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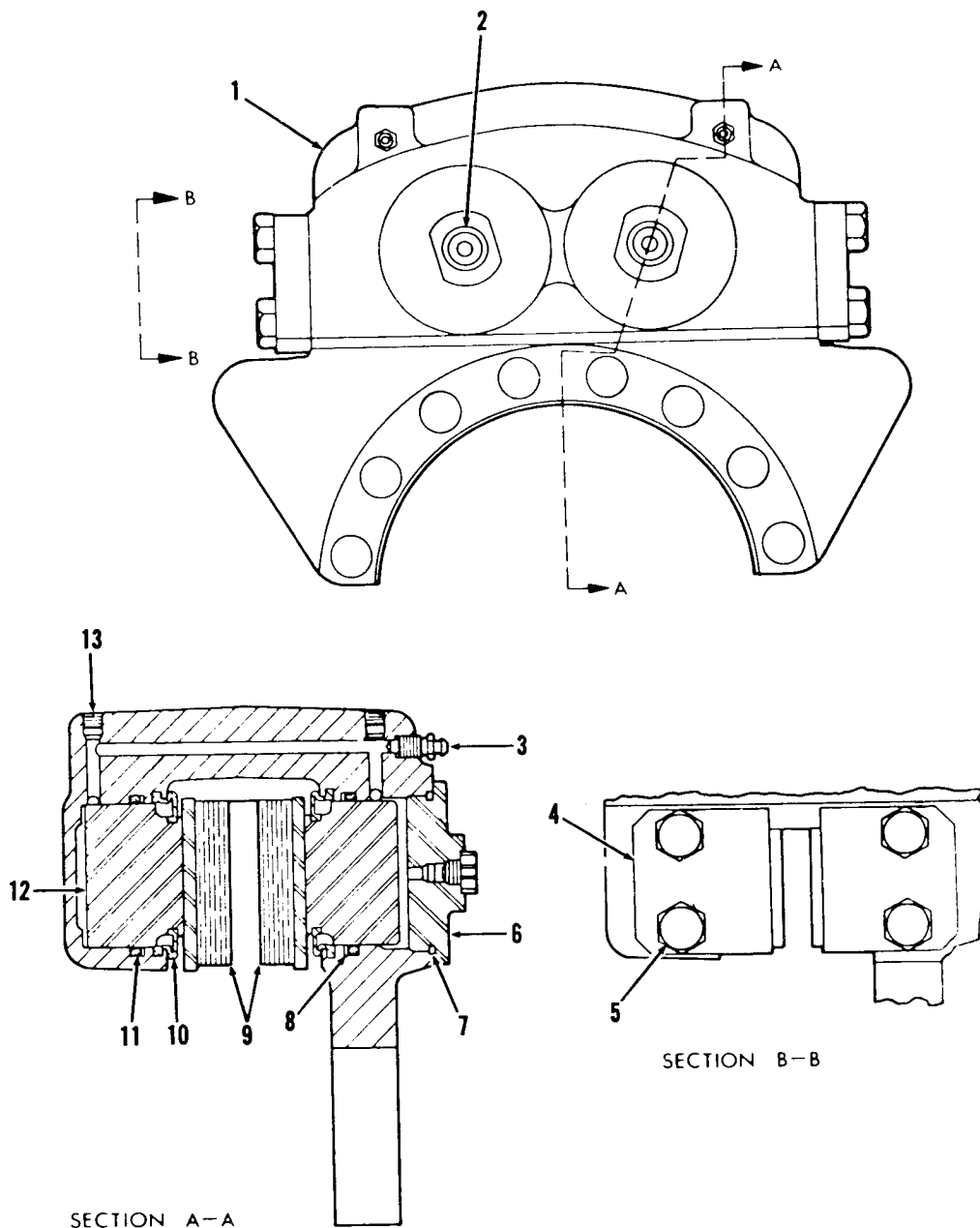
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PARTS DESCRIPTION AND OPERATION



TS-15207

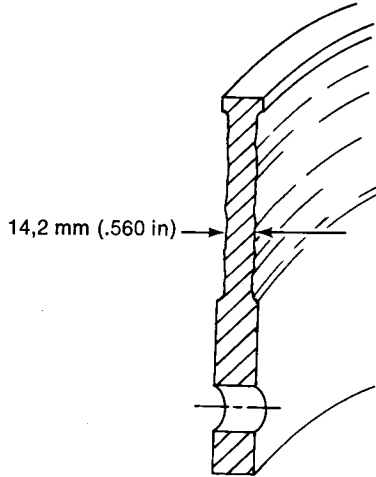
5293500 Brake Head Assembly

No.	Description	Quantity	No.	Description	Quantity
A.	1961931 Service Kit	1	7.	O-ring, cylinder head	2
1.	Brake Head Assembly	1	8.	Ring, back-up	4
2.	Plug	1	9.	Lining, brake	2
3.	Valve, bleeder	2	10.	Dust seal	4
4.	Plate, retainer	4	11.	O-ring, piston	4
5.	Bolt	8	12.	Piston	4
6.	Head, cylinder	2	13.	Plugs	4

1Inc. 7, 8, 10, 11

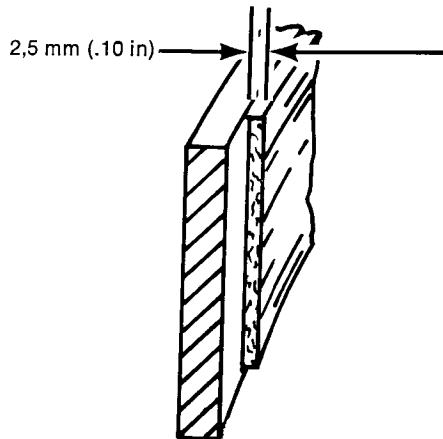
MAINTENANCE

Inspect the brake assemblies daily to make sure that all bolts are tight and that there are no leaks.



TS-31942

Check the service brake disc thickness where the brake linings make contact. The minimum disc thickness is 14,2 mm (.560 in). Replace as needed.



TS-31941

Check the service brake lining thickness. The minimum lining thickness is 2,5 mm (.10 in). Replace as needed in a set.

IMPORTANT: When replacing brake linings, do not use new and used linings together in a brake assembly. Do not install used pads unless the lining is the same thickness on both pads.

REPLACEMENT OF THE BRAKE LINING

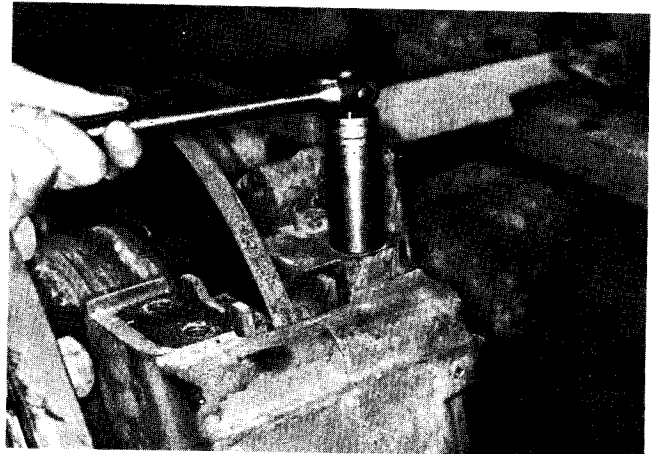
Replacement of the front brake lining is shown, rear is similar.

Note: Brake lining replacement is shown with the wheel removed.



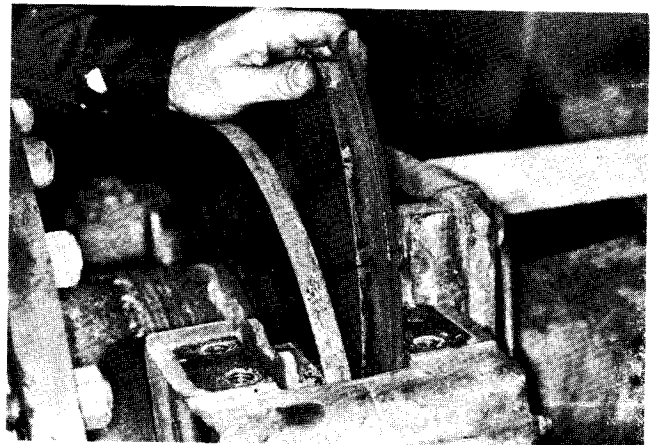
To replace the front brake pads with the wheels installed: Raise the boom. Put a block under the boom so it cannot come down. If the wheels are removed, make sure that the axle is blocked securely.

Clean the brake heads thoroughly before disassembling the brake head.



TS-33969

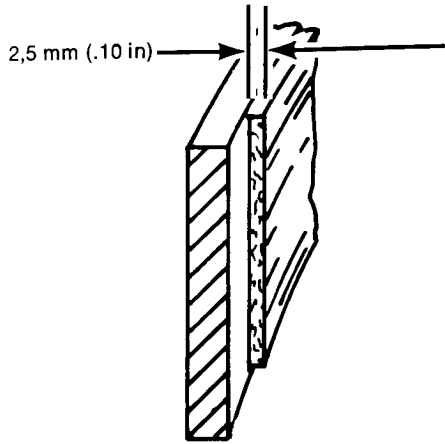
Remove the bolts from one pad retaining plate on each pad. Remove the retaining plates.



TS-33970

Remove the brake pads. Loosen the bleeder screws. Push the pistons in the brake head until they stop. Tighten the bleeder screws.

Inspect the housing at this time for signs of fluid leakage. If present, brake assembly must be removed for disassembly, inspection or overhaul.



TS-31941

Do not install used pads if the lining is 2,5 mm (.10 in) or less. Do not install used pads unless the lining thickness is the same on both pads. Do not mix new and used pads.



TS-33971

Install the brake pads.

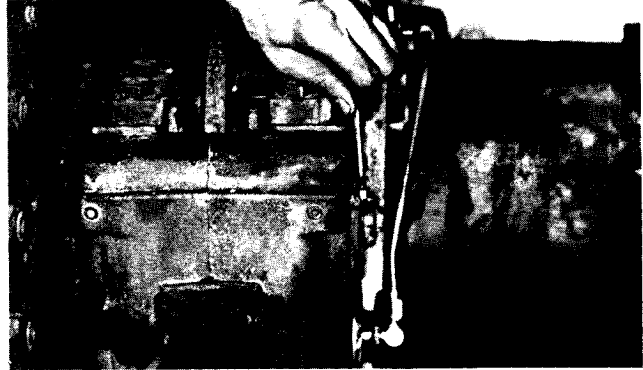


TS-33972

Apply Loctite No. 271 to the threads of the pad retaining plate bolts. Install the pad retaining plates. Install the bolts. Tighten the bolts to a torque of 271,2 N·m (200 lbf·ft) (27,7 kgf·m).

Check linings for freedom to slide back and forth in the retaining plates between the pistons and the brake disc. If lining is not free, remove the lining and find the cause of binding.

Apply and release brakes several times. Linings should be free after release.

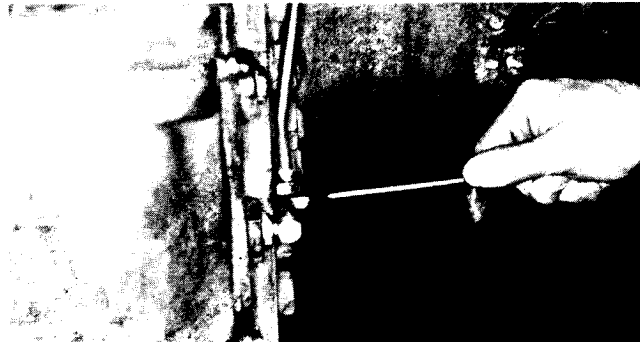


TS-33973

Open bleeder screw and check for air in the hydraulic system. If air is present bleed brakes and check master cylinder fluid level.

REMOVAL OF THE BRAKE HEAD ASSEMBLY

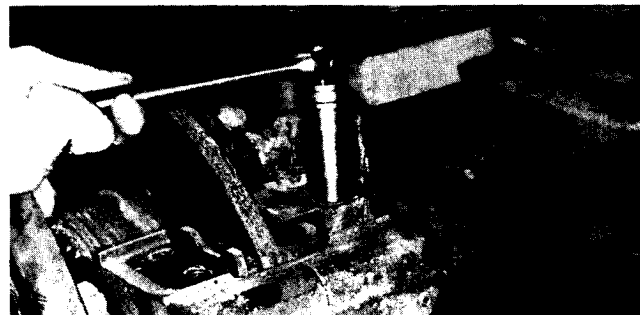
1. Raise the machine and securely block the axle.
2. Remove the lug nuts from the wheel. Remove the wheel.



TS-33974

Disconnect the brake line from the housing. (Front shown, rear similar).

Install a cap on the brake line.



TS-33969

Remove the bolts from one pad retaining plate on each pad. Remove the retaining plates.

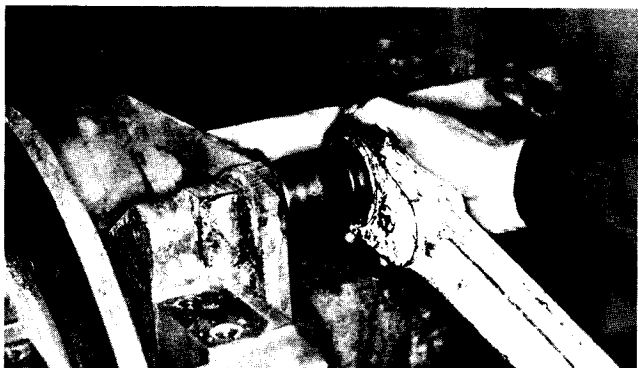
DISASSEMBLY OF THE BRAKE HEAD

The following instructions show the disassembly of one piston. Use the same procedure to disassemble the other pistons. **DO NOT** disassemble one piston without giving the brake head a complete overhaul.



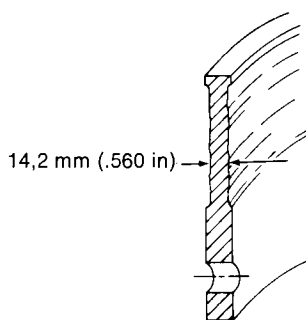
TS-33970

Remove the brake pads. Mark the location of the pads if they are to be reinstalled. Loosen the bleeder screws. Push the pistons in the brake head until they stop. Tighten the bleeder screws.



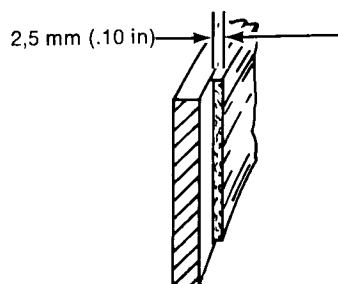
TS-33975

Remove the brake head mounting bolts. Remove the brake head. (Front shown, rear similar).



TS-31942

Check the brake disc thickness where the brake linings make contact. The minimum disc thickness is 14,2 mm (.560 in). Replace as needed.



TS-31941

Check the brake lining thickness. The minimum lining thickness is 2,5 mm (.10 in). Replace as needed in a set.



TS-33976

Remove the cylinder head.



TS-33977

Remove the o-ring from the cylinder head.



TS-33978

Pull the piston dust seal out of the groove in the piston. Push the piston in until the dust seal can be removed from the housing. Remove the dust seal.

ASSEMBLY OF THE BRAKE HEAD

The following instructions show the assembly of one piston. Use the same procedure to assemble the other pistons.



TS-33979

Remove the piston.



TS-33980

Lubricate the cylinder walls with the same fluid that is used in the system. Install a new o-ring and back-up ring in the groove in the housing. The back-up ring must be on the brake lining side of the o-ring.



TS-33980

Remove the back-up ring and the o-ring from the housing.

Check the o-ring grooves and the cylinder walls for damage. Small nicks and burrs or a small amount of rust can be removed with emery cloth. Check the sealing surface of the pistons. Small nicks and burrs or a small amount of rust can be removed with emery cloth. Clean all of the parts.

Apply hydraulic fluid to the inside of the housing, the pistons and the cylinder heads.

Discard all old seals and o-rings. Replace all seals and o-rings with new. Replace any parts which have damage as needed.



TS-33981

Apply brake fluid to the o-ring and back-up ring. Install the piston in the housing from the lining side.

Note: Do not cause damage to the back-up ring or o-ring.



TS-33982

Install a new o-ring on the cylinder head. **Note:** Do not cause damage to the o-ring while installing it over the threads.



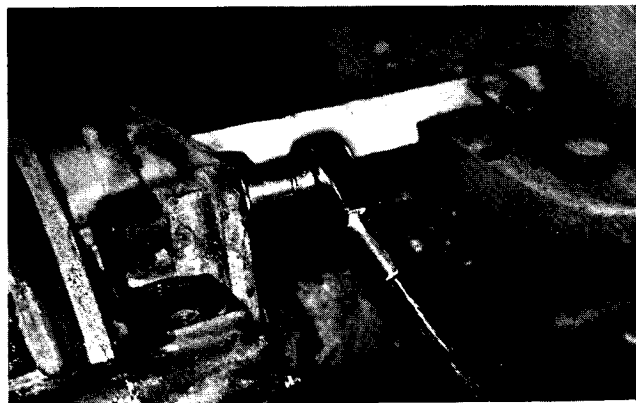
TS-33983

Install the cylinder head and o-ring in the housing. Tighten the cylinder head to a torque of 75 lbf·ft (517 N·m) (10,4 kgf·m).



TS-33984

Push the piston in until the dust seal can be installed in the groove in the housing. Install the dust seal in the groove which is in the housing. Put the dust seal in the groove in the piston.



TS-33985

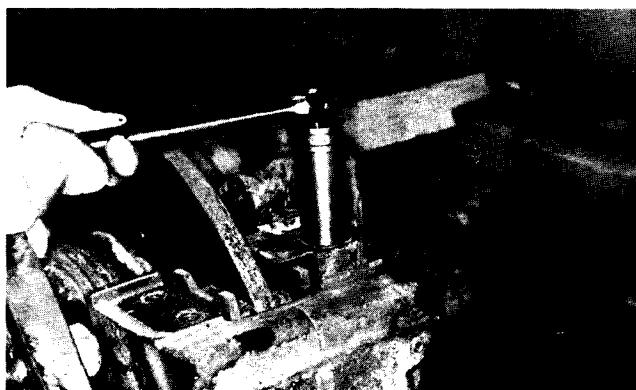
Install the brake head assembly on the axle. Tighten the bolts to a torque of 300-330 lbf·ft (410-450 N·m) (56,7-62,2 kgf·m).



TS-33971

Install the brake pads in the brake head.

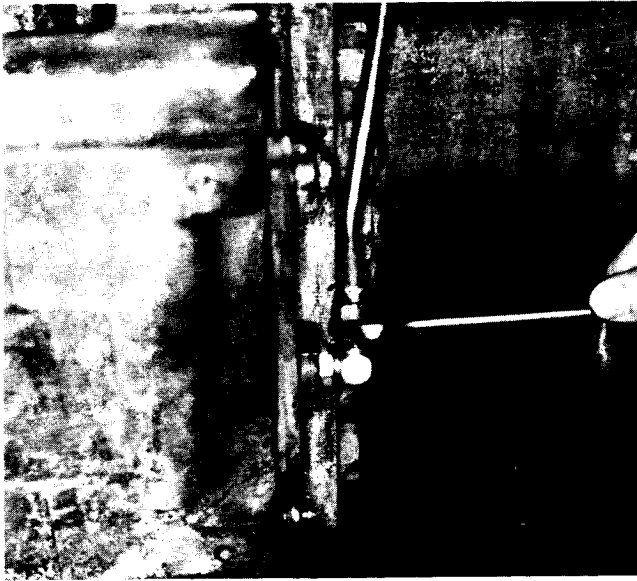
Note: Do not mix new and used linings in the brake head. Do not install used pads unless the lining is the same thickness on both pads.



TS-33969

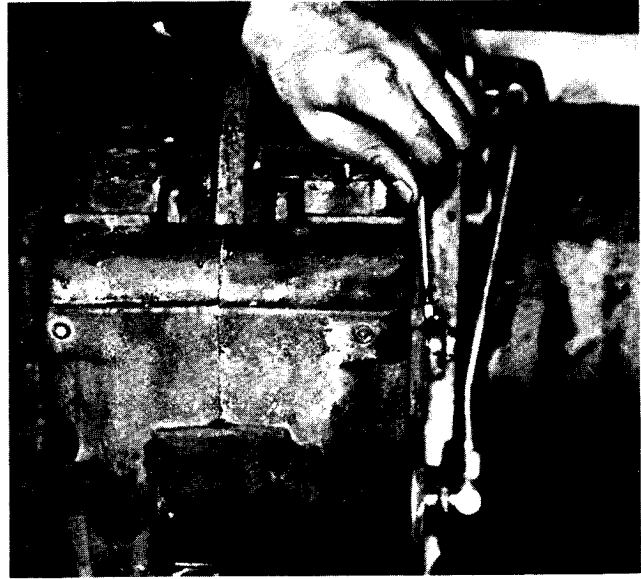
Apply Loctite No. 271 to the threads of the retaining plate bolts. Install the retaining plate. Install the bolts in the plate. Tighten the bolts to a torque of 200 lbf·ft (271,2 N·m) (27,7 kgf·m).

Check linings for freedom to slide back and forth in the retaining plates between the pistons and the brake disc. If lining is not free, remove the lining and find the cause of binding.



TS-33974

Remove the cap from the brake line. Install the brake line into the brake head.



TS-33973

Fill the brake system with type SAE J1703 (70R3) (Clark 850487) Brake Fluid. Bleed each brake separately by loosening the bleeders.

Check the brake fluid in the reservoirs while bleeding the brakes. Make sure the reservoirs stay full.

Actuate the brakes until all air has been removed from the brake system. Tighten the bleeders.