Issues With the Service Brakes May Be Caused By the Shuttle Valve On Some Backhoe Loader Models

Backhoe Loader:

- **420E (S/N: HLS1-UP; KMW1-UP)**
- **430E (S/N: DDT1-UP; EAT1-UP)**
- **432E (S/N: BXE1-2200)**
- **434E (S/N: FSH1-900)**
- **442E (S/N: GKZ1-600)**
- **444E (S/N: LBE1-600)**

Introduction

The shuttle valve ball guide on the inlet manifold for the backhoe valve may come loose. The loose shuttle valve ball guide can cause a loss of pilot pressure. The loss of pilot pressure may cause braking issues and a loss of implement and pilot functions.

Problem

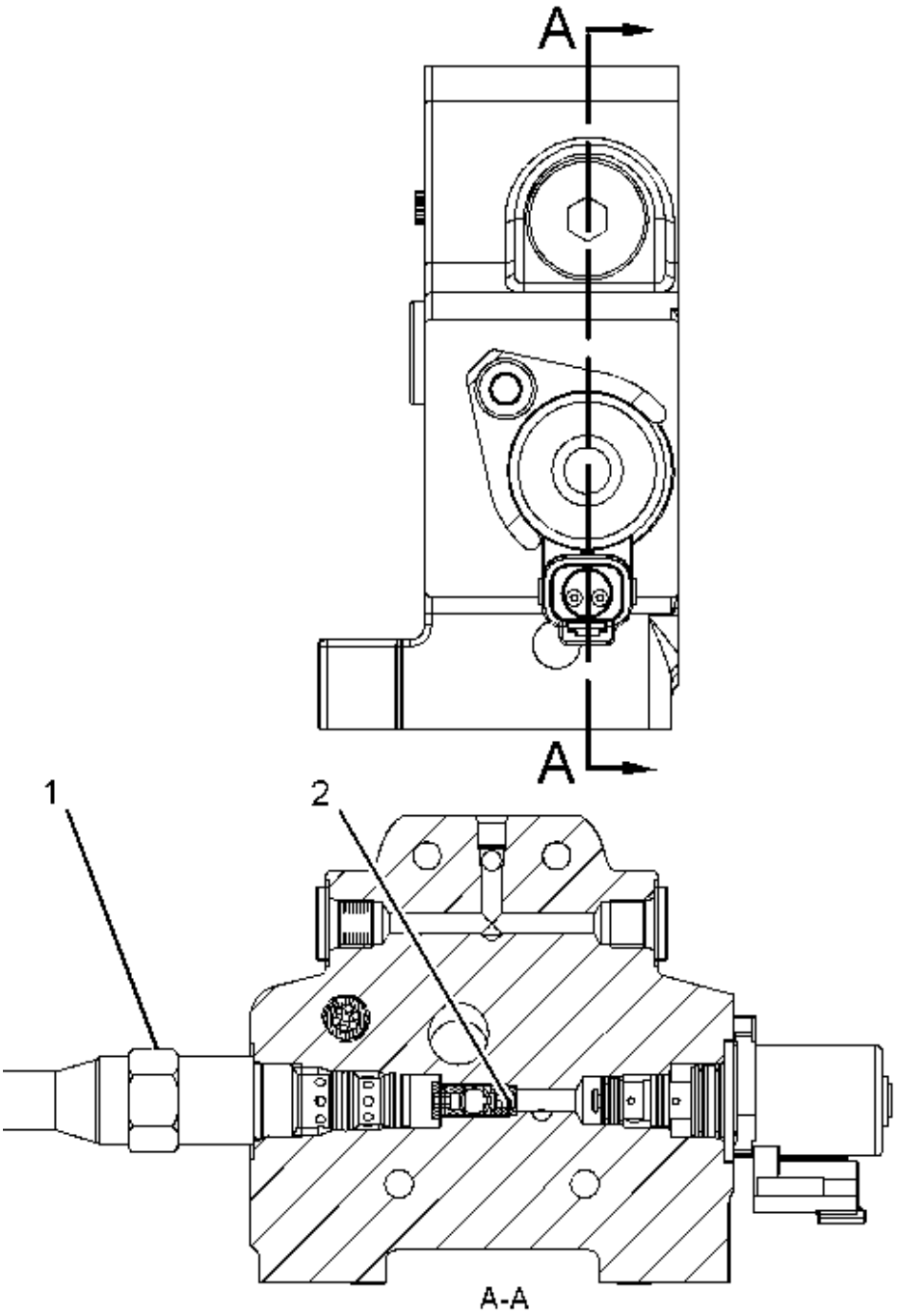

Illustration 1 g01766555

(1) 257-0464 Pressure Reducing Valve

(2) 257-0440 Control Manifold Gp

The shuttle valve ball guide on the inlet manifold for the backhoe valve may come loose. The loose shuttle valve ball guide can cause a loss of pilot pressure. The loss of pilot pressure may cause issues with the service brakes and a loss of implement and pilot functions. Thread Lock has not been applied to the threads on the kit for the shuttle valve. This may cause the kit for the shuttle valve to come loose.

Solution

Perform Step 1 through Step 3 in order to confirm that the service braking system pressure is low.

1. Check the pilot operated backhoe implement functions. Confirm that the pilot operated backhoe implement functions are not working or that the pilot operated backhoe implement functions are working slowly.

2. Check the pilot operated loader functions. Confirm that the pilot operated loader functions are not working or that the pilot operated loader functions are working slowly.

   Note: The steering functions will not be affected by this problem. Your machine may be equipped with a mechanical operated loader. The mechanical operated loader will not be affected by this problem.

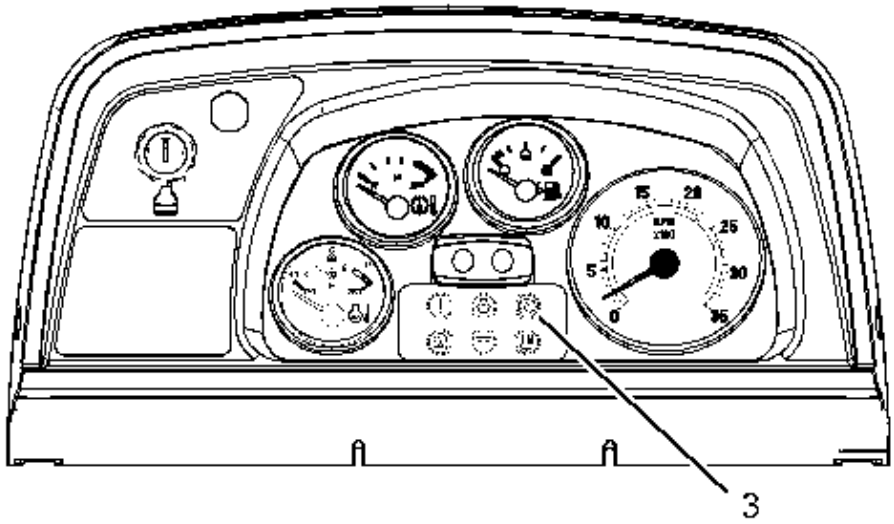

Illustration 2 g01766776
Right side console

3. Check the status of the light for the service brake system pressure (3) .

   Note: If any function does not work to full capacity and the light for the service brake system pressure (3) is illuminated, then proceed with the following steps.

4. Stop the engine. Release the pressure in the hydraulic system.

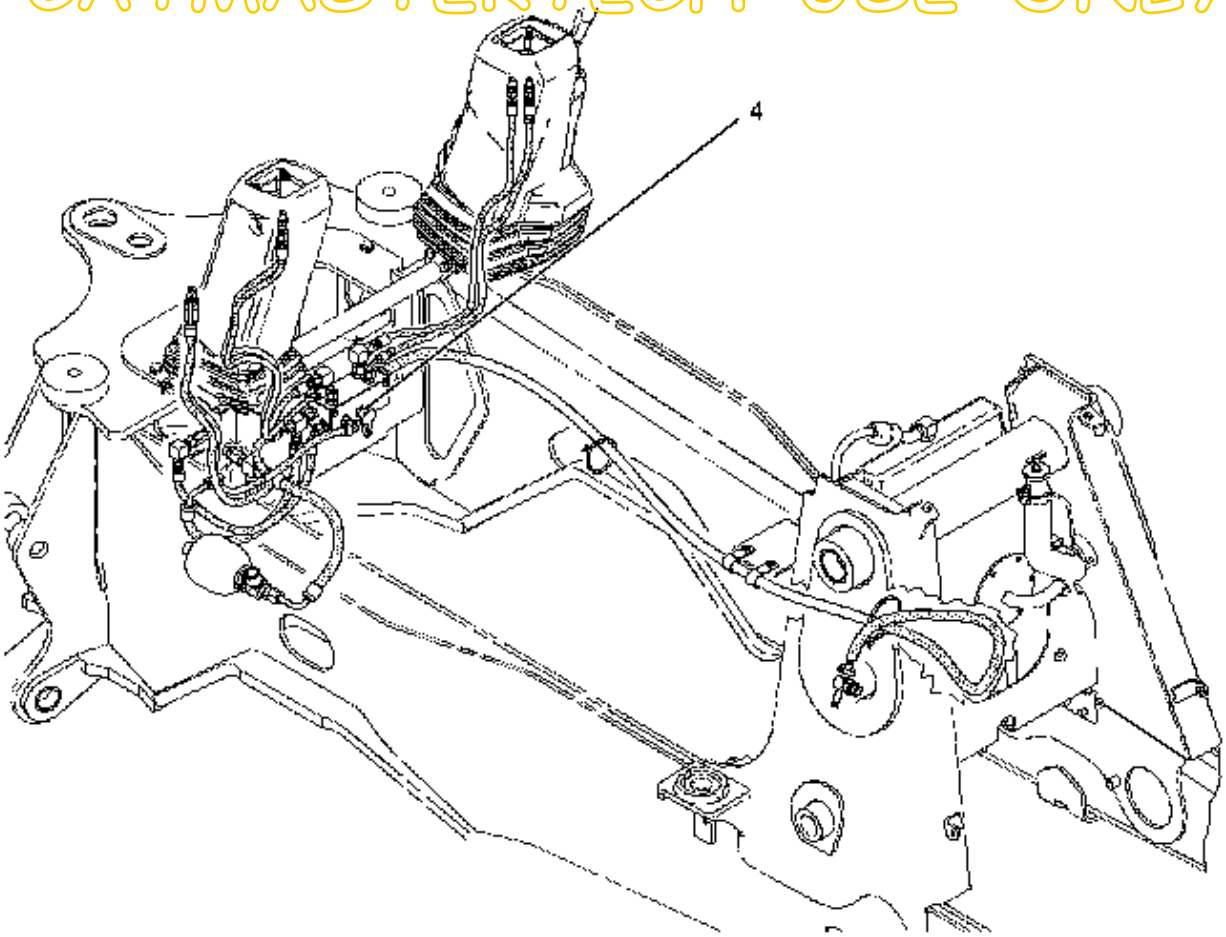

Illustration 3 g01771353

5. Install a **8T-0856** Pressure Gauge on a **177-7860** Hose As . Install the other end of the hose to test port (4) for the pilot oil pressure.

   Note: Prior to testing the pilot system pressure, make sure that the piston pump is at the optimum pressure.

6. Start the engine and run the engine at HIGH idle. Stall a cylinder in the loader circuit or the backhoe circuit. The pressure reading must be 3400 ± 500 kPa (500 ± 73 psi).

   Note: If pilot oil pressure is within the specification, the shuttle valve is operating correctly and no further work is required.

7. Stop the engine and engage the parking brake.

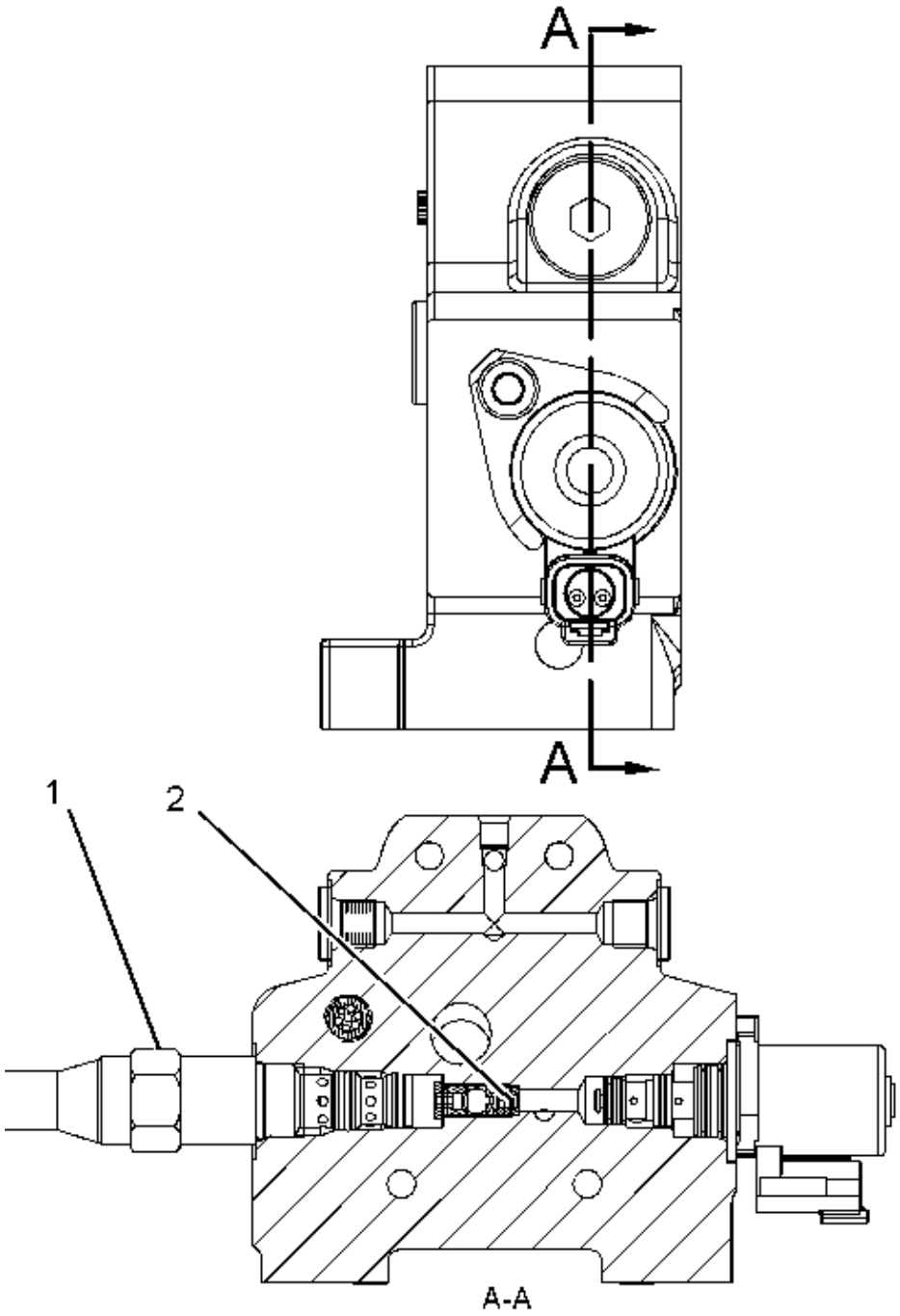

Illustration 4 g01771355

8. When the pilot oil pressure is lower than the specification, remove pressure reducing valve (1) .
9. Remove the lower seat for the shuttle valve and the ball for the shuttle valve from the inlet manifold.
10. Tighten the upper guide for the ball on the shuttle valve to a torque of 21 ± 1 N·m (15 ± 1 lb ft).
11. Reinstall the ball for the shuttle check valve. Reinstall the seat for the shuttle check valve and tighten to a torque of 21 ± 1 N·m (15 ± 1 lb ft). Reinstall pressure reducing valve (1) with a torque of 55 ± 5 N·m (41 ± 4 lb ft).
12. Repeat Step 1 through Step 6 in order to check if the pilot operated functions are working properly. The light for the service brake system pressure (3) must not be illuminated. Check the pilot oil pressure. Make sure that the pressure is within the specification.