

Reverse Modulating Valve



Service Instructions

NOTES

It may not be necessary to disconnect and remove the valve from the machine to make this conversion. If the valve is removed, the entire conversion procedure must be done using contamination free methods. Clean the valve and pedal assembly as needed. Be careful to keep contamination and paint chips out of the brake modulating valve. Also be sure all stored energy has been relieved from the hydraulic pressure accumulators. See OEM Service Instructions to relieve stored energy.

The purpose of this conversion is to replace the pedal linkage pivot pins and e-rings with new pivot pins and new retaining rings. This alteration will not noticeably change the function of the brake valve.

MODELS: 03-460-471, 03-460-495
407 101 153 0, 407 101 154 0
407 101 155 0

Disassembly

(Refer to Figure 1)

1. Remove two stud screws (2) from base (1). Loosen or remove set screw (4) to allow pin (7) to be removed. Separate pedal (8) from base (1) and valve assembly. **NOTE: Pedal may appear different than what is shown in Figure 1.**
2. Using a 9/16" open end wrench on clevis (6), rotate 90° as shown in Figure 1a. This will make it easier to remove pin (3) from clevis (6) and to reinstall the new pin (3) and new retaining rings (5).
3. Remove one of the e-rings from pin (3), and remove pin (3) from clevis (6). Discard e-rings and pin.

Assembly

(Refer to Figure 1)

1. Using a retaining ring tool, install a new retaining ring (5) on one end of new pin (3). Install new pin (3) through clevis (6) and valve pull rod hole. Install new retaining ring (5) on the other end of pin (3).
2. Using a 9/16" open end wrench on clevis (6), rotate back 90° so through holes in clevis (6) and pedal (8) are in alignment.
3. Install pin (7) and attach pedal (8) to clevis (6). Be sure to align surface flat on pin (7) with set screw (4). Install set screw (4) and tighten 8.5-9.6 N·m (75-85 lb·in).
4. Attach pedal (8) to base (1) using two stud screws (2). Apply two drops of loctite 242 or equivalent to the threads of screws while assembling. Torque stud screws (2) 47.5-54.2 N·m (35-40 lb·ft).

Repair Kit part number 407 101 928 2 (see Figure 1)

Items	Part Number	Description	Qty
3	810 545 774 4	Pin, 0.31 OD x 0.87 long	1
5	895 226 772 4	Retaining Ring, 0.28 ID x 0.025 thick	2
na	895 226 773 4	Retaining Ring, 0.34 ID x 0.025 thick	4
na	810 545 775 4	Pin, 0.34 OD x 1.81 long	2

na = not used in this pedal design

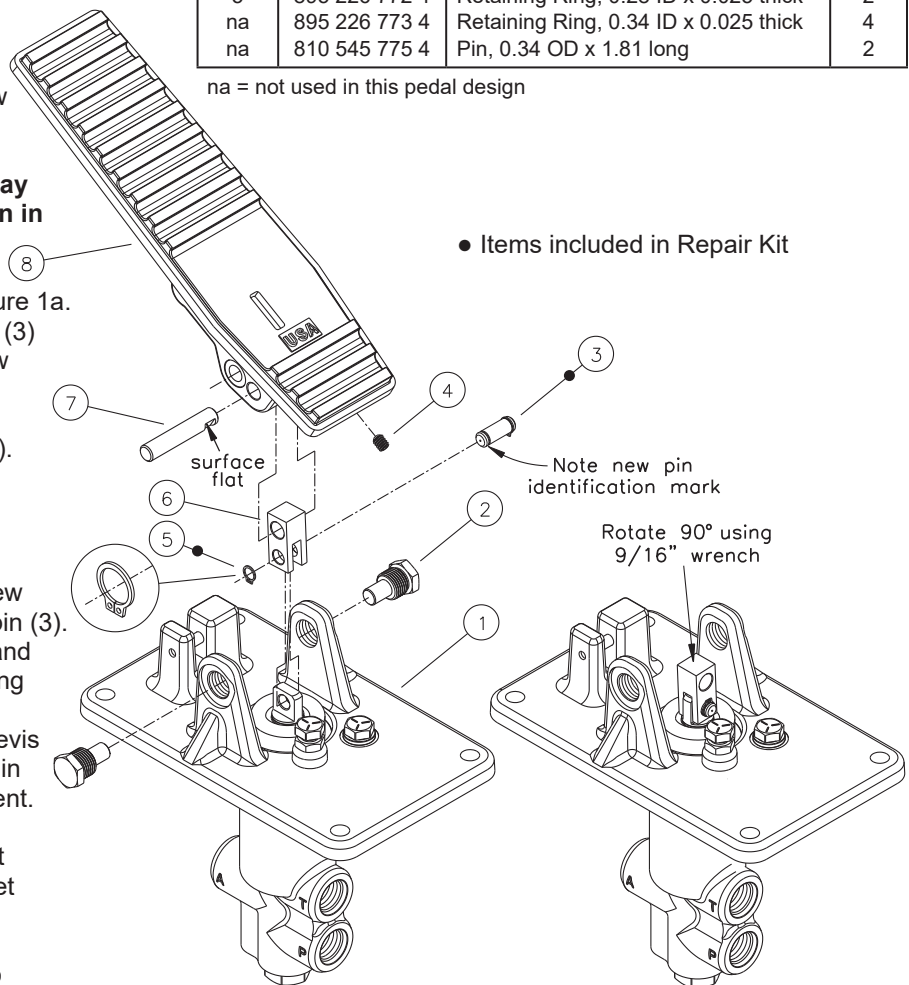


FIGURE 1

Figure 1a

MODELS: 03-460-458, 407 101 152 0

Disassembly

(Refer to Figure 2)

1. Remove two stud screws (6) from base (7). Loosen or remove set screw (3) to allow pin (1) to be removed. Separate pedal (2) from base (7).
2. Remove two cap screws (4) and two lock washers (5). Separate base (7) from housing (13).
3. Remove plug (9) from housing (13) and remove pin (10). Pin (10) should easily slide out.
4. Thoroughly clean and lubricate the end of pull rod (8) with a light coat of oil as shown in Figure 2. This is to aid in removal of pull rod (8) through the rubber boot.
5. Remove two socket head cap screws (12) and two lock washers (11). Separate the valve assembly from housing (13) while working the end of pull rod (8) through the rubber boot.
6. Remove one of the e-rings from the ends of two pins (16) and pin (19). Disassemble the pins from clevis (15) and clevis (17). Discard the e-rings and pins.

Assembly

(Refer to Figure 2)

1. Using a retaining ring tool, install a new retaining ring (18) on one end of new pin (19). Install new retaining rings (14) on one end of two new pins (16).
2. Install new pin (19) through clevis (17) and the valve pull rod hole. Install new retaining ring (18) on the end of pin (19).
3. Install new pin (16) to assemble clevis (15) and clevis (17). Install new retaining ring (14) on the end of pin (16).
4. Install new pin (16) through clevis (15) and pull rod (8). Install new retaining ring (14) on the end of pin (16).
5. Carefully work the end of pull rod (8) through the rubber boot, while aligning the screw holes in the valve assembly with the two socket head cap screws (12) and housing (13). Attach housing (13) and valve assembly using two socket head cap screws (12) and two lock washer (11). Torque socket head cap screws (12) 54.2-61.0 N·m (40-45 lb·ft).
6. Position clevis (15) to allow installation of pin (10) into housing (13) and clevis (15). Install plug (9) in housing (13) and torque 27.1-32.5 N·m (20-24 lb·ft).
7. Attach base (7) to housing (13) using two cap screws (4) and two lock washers (5). Torque cap screws (4) 29.8-36.6 N·m (22-27 lb·ft).
8. Attach pedal (2) to pull rod (8) by aligning the through holes in pedal (2) and pull rod (8). Install pin (1) so the surface flat on pin (1) is in alignment with set screw (3). Tighten set screw (3) 8.5-9.6 N·m (75-85 lb·in).
9. Attach pedal (2) to base (7) using two stud screws (6). Apply two drops of loctite 242 or equivalent to the threads of stud screws while assembling. Torque stud screws (6) 47.5-54.2 N·m (35-40 lb·ft).

Repair Kit part number 407 101 928 2 (see Figure 2)

Items	Part Number	Description	Qty
14	895 226 773 4	Retaining Ring, 0.34 ID x 0.025 thick	4
16	810 545 775 4	Pin, 0.34 OD x 1.81 long	2
18	895 226 772 4	Retaining Ring, 0.28 ID x 0.025 thick	2
19	810 545 774 4	Pin, 0.31 OD x 0.87 long	1

• Items included in Repair Kit

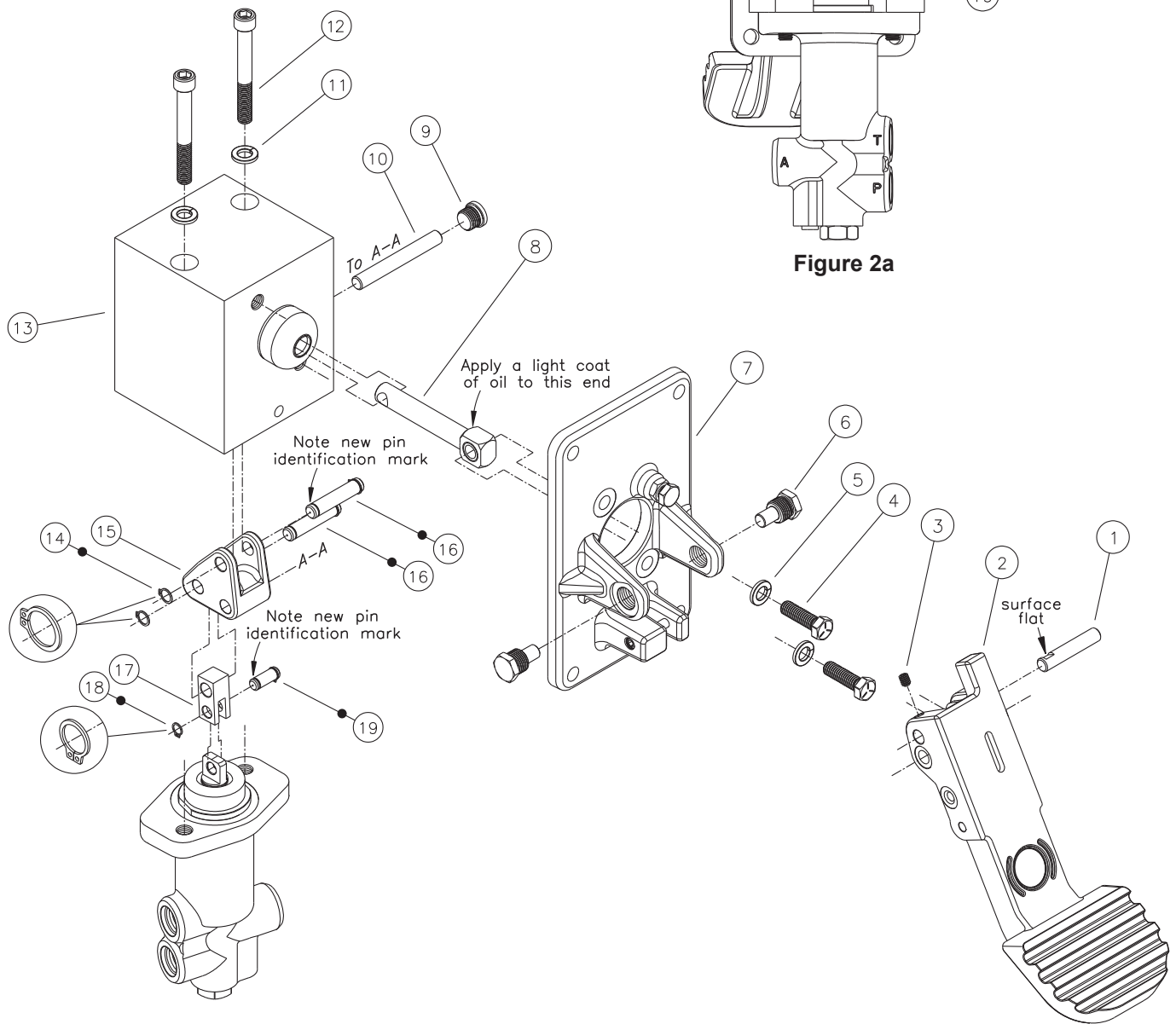


Figure 2a

FIGURE 2

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