

Bramley Model 26E Electric/Hydraulic Pipe Bender

The Bramley 026E Electric/Hydraulic Pipe Bender uses a variable speed motor to drive a cam onto a plunger. This drives the primary piston, sending hydraulic oil to the main ram driving it out.

When the control valve is released the main ram will retract via its internal spring.



Electrical Fault

If the motor does not run check that:

- There is power to the unit.
- The plug and lead are not damaged.

The power lead, if not kept clear of the top hinging frame or pipe being bent, can become damaged or pulled (If the lead has been pulled, damage may not be obvious).

The electric motor is fitted with carbon brushes. These will wear over time and require replacement.

When replacing the brushes ensure the unit is unplugged from the power source. The brushes are located on both sides of the motor.

To install, unscrew the plastic retaining screw on both sides of the motor, remove the old brushes and replace.

- Replacement Carbon Brush Set - part number 26-35

If these measures do not work, other possible motor faults could include:

- The variable speed unit inside the handle of the motor, or
- The armature.

These repairs should be carried out by a suitably qualified technician.



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Hydraulic Fault #1

Check there is oil in the reservoir.

If there is oil in the reservoir and the unit is not pumping, it may have been stored standing up which can result in the unit losing its prime.

Re-prime the unit.

Hydraulic Fault #2

If the ram still fails to extend, or if the ram extends without load but fails to extend under load (bending pipe) all or part of the hydraulic unit will need to be dismantled.

Remove the 2x nuts holding the gearbox/motor unit and separate from the hydraulic unit.

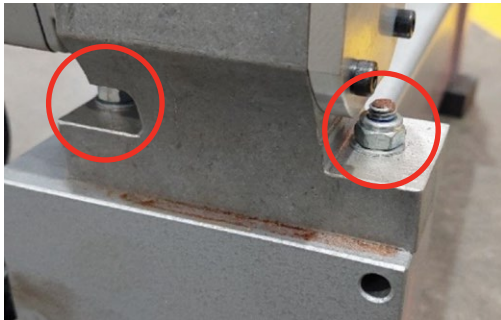


Figure 1: 2x M8 nuts retaining the motor / gearbox unit.

Undo the filler plug and drain the oil from the hydraulic unit by tipping unit upside down.

You will see the primary cylinder/piston assembly under the gearbox you have just removed.

The primary piston in these units reciprocates at very high speeds with a relatively short stroke.

The primary piston pulls a fresh charge of oil from the reservoir and pushes it out against the main ram (when the control valve is closed).

This primary seal operates under high demand. Wear to this seal may result in the unit losing its prime, performing in a sluggish manner or in extreme cases failing to operate.

To re-prime the hydraulic unit.

1. Ensure the unit is horizontal.
2. Open the control valve half to one full turn. (No more than one turn).
3. Using a small G-clamp (or similar) slowly pull the main ram out 150mm approx.
4. Allow the ram to fully retract on its own. This will fill a charge of oil under the primary piston
5. Close control valve and test.



Figure 2: The primary cylinder assembly fitted.

Unscrew this primary cylinder assembly. Remove the piston and inspect the seal, replace as necessary.

- Replacement seal is part of Complete Seal Kit – part number 26-30

Under the cylinder piston assembly is a spring, filter plate and steel ball.

Check the filter plate is flat, they can deform over time with heavy use. If the filter plate is deformed it can be reformed simply by placing between two pieces of steel and hammering. Note: it does not require a lot of force to reform.

Remove the steel ball and check there is no debris around the ball seating area.

Refit the ball and re-seat. Use a pin punch and lightly tap the ball onto the seat.

Refit the filter plate and spring.

Check O-ring on outside of primary cylinder (replace if necessary) and refit primary cylinder piston assembly.

- Replacement O-ring is part of Complete Seal Kit – part number 26-30

Checking unit is working manually.

Refill the reservoir with oil and prime the unit as detailed earlier. Close the control valve and test by manually pushing primary piston with a screwdriver.

CAUTION! Do not push primary piston down too far or apply too much force as you may dome the filter plate. The filter plate retains the ball and controls the stroke limits of the ball.

Hydraulic Fault #3

The main ram should move forward with every stroke of the primary piston.

If the problem has not been resolved at this point, the next step is to check the control valve.



Figure 3: Control valve with retaining screw removed

Loosen the control valve and then undo the retainer screw as shown in Figure 3. This will then allow the control valve to be removed completely.

Underneath the control valve you will find a large steel ball, a spring then a small steel ball at the bottom. Note the spring has one end slightly curled inside. This end must go back in against small steel ball.

Check for debris and re-seat balls if necessary.

Reassemble, prime and test as described earlier.



Figure 4: Control valve removed. Note large ball visible in control valve port.



Figure 5: Control Spring removed. Note: in this picture, the right end of the spring is slightly curled in. This end must go against the small ball Figure 6.



Figure 6: Second smaller ball which locates on the bottom removed

If there are no issues found in the primary cylinder/piston assembly or control valve the ram seal may need replacing.

To do this it is necessary to disassemble the main ram.

First, remove the Retaining Cap at the front of the unit. These have a 85mm spanner/socket flat on them.

The Retaining Cap nut will be very tight. They are installed to a torque of approx. 2400Nm (1800ft/lb) to resist the pull force against them when the unit is in operation, and to maintain a preload tension to prevent oil leaks from the tank seals.

Once the Retaining Cap is removed, the tank will come away.

Between the Retaining Cap and End Collar there will either be an aluminium washer or a O-ring in a groove on the end of the nut (subject to age of the machine – both available as spare parts in the Complete Seal Kit – part number 26-30).

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Figure 7: Retaining cap undone

Next release the Main Ram from its Return Spring.

Using a vice grip or G-clamp etc, rotate the end of the Ram counter clockwise. Turn until you can feel no resistance to the end of the ram, this should take between 7 to 10 turns to free.

The Ram can now be extracted from the Cylinder.



Figure 8: This pic shows the ram and collar with seals removed.

Check the ram seal and replace if any damage is visible.



Figure 9: Collar and ram glide seal with its energising O-ring.

Remove the circlip off the end of the ram, slide the piston/collar off the end of the ram.

Check O-ring condition, replace if necessary. Refit collar, ensuring correct orientation as shown in Figure 8.

- Replacement O-ring is part of Complete Seal Kit – part number 26-30

To re install ram, push the ram all the way into the cylinder and rotate the ram clockwise until you feel spring resistance by hand. Caution: overwinding the ram into the cylinder may cause spring damage!

Ensure the tank seals are in their slots and the aluminium washer (if fitted) is free from blemishes.

Wind nut on and tighten to specified torque.

Fill with the reservoir with oil and prime.

Check unit is working manually as described earlier before fitting the gearbox/motor unit.

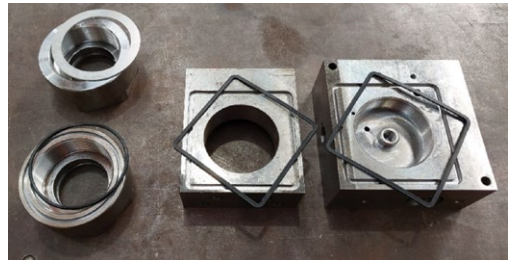


Figure 10: Retaining cap with alley washer, retaining cap with O-ring. Front nose and body with tank seals. (Note: body does not have cylinder fitted).

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