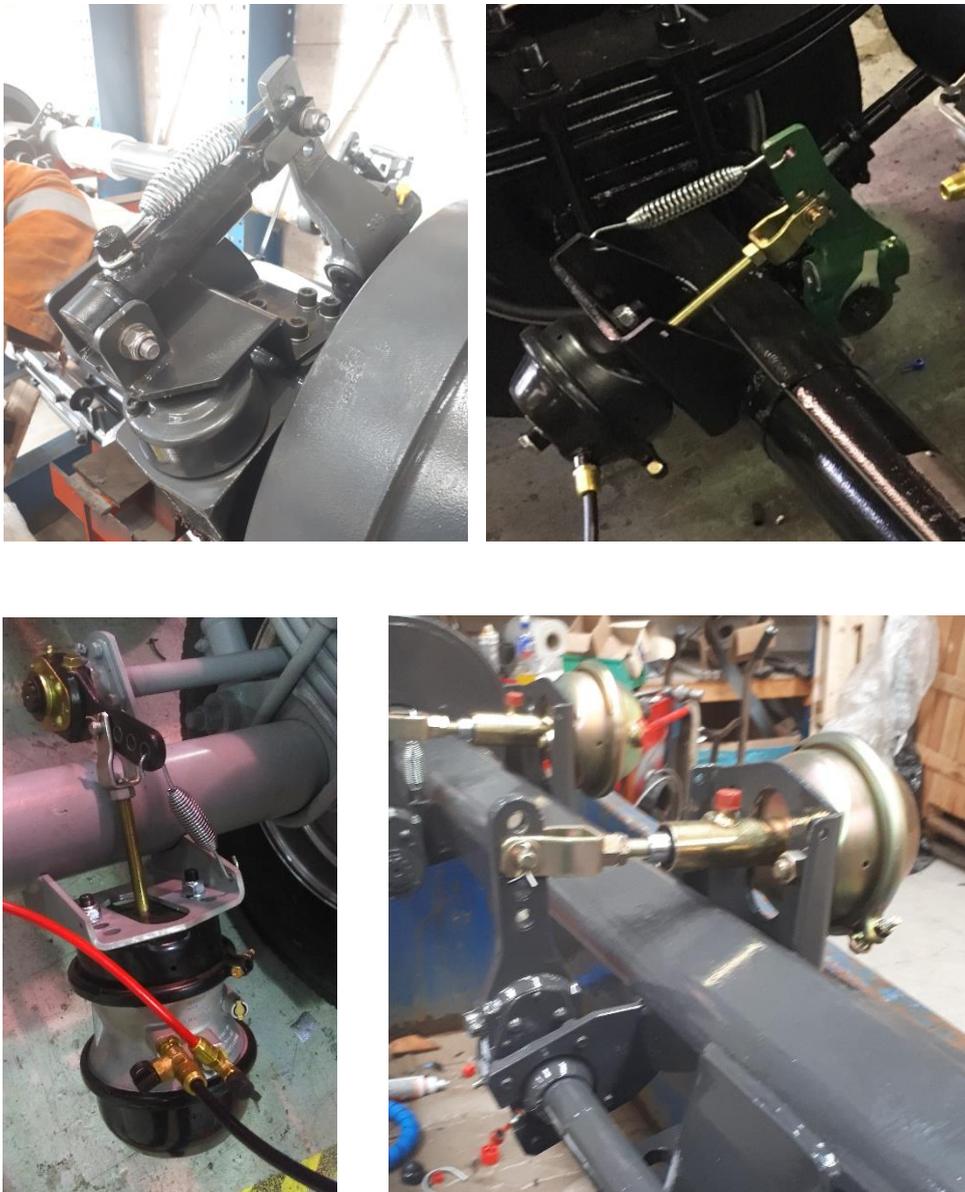


MPA 21.2	Preparing Brake chambers for application
Revision Number	20-1
Revision Date	February 2020

## Trailer Brake Chambers

Generally there are three types of brake chambers used on trailers:

- Hydraulic rams
- Air Brake Chambers
  - Service Chambers
  - Parking brake chambers
- Combination chambers (Air/Hydraulic chambers)

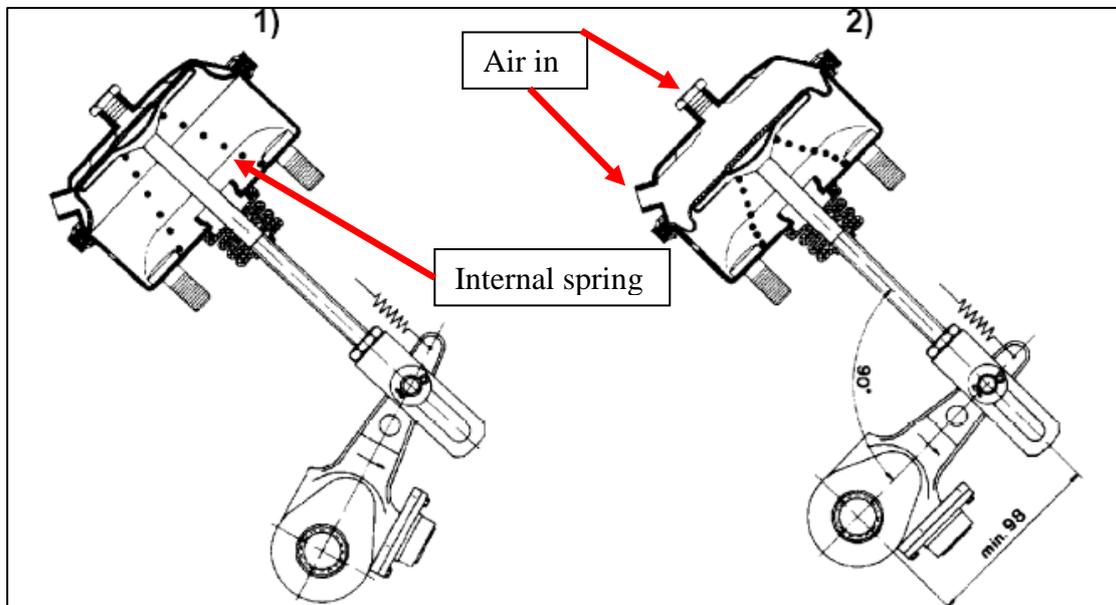


**Figure 1. Hydraulic ram, service, parking, and combination brake chambers shown above.**

## Hydraulic brake rams

Hydraulic brake rams are operated by hydraulic oil applied by the truck/tractor brake pedal. The piston extends under hydraulic pressure and causes the slack adjuster to rotate the camshaft and apply the brakes. A compressed spring in the brake ram helps the piston return when the brake pedal is released. Ensure at least one external return spring is fitted as shown above in Figure 1. Hydraulic brake rams are slow to release the brakes so the inclusion of external return springs will help. Hydraulic brake rams are only permissible up to certain speeds. Ensure to check the trailer braking laws of the final destination of the trailer.

## Service chambers

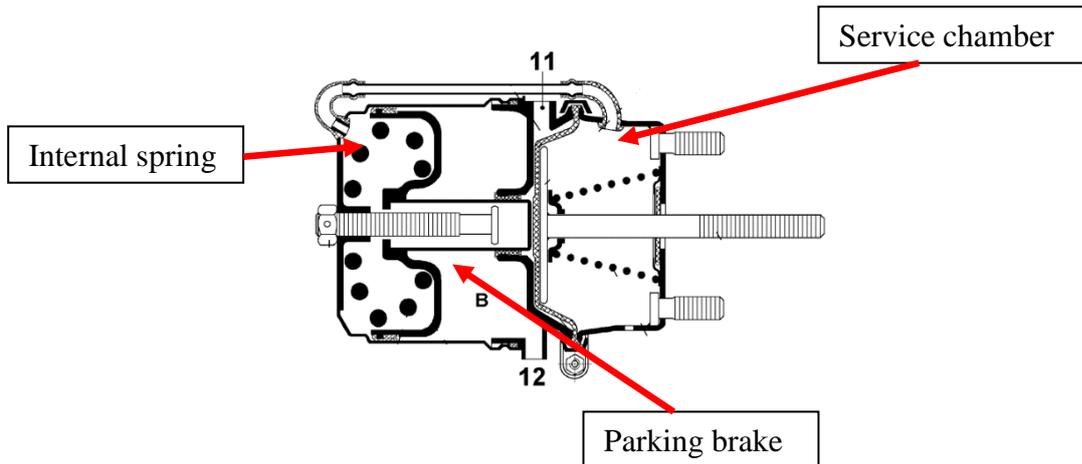


Service brake chambers have a single chamber which when filled with air pushes the push rod out causing the slack adjuster to rotate the camshaft and activate the brakes. When the air supply is removed the internal brake chamber spring and the slack adjuster pull off spring pulls the brake off.

This type of brake chamber is a normally **OFF** brake chamber and requires air for it to be on. It gets air from the air tank. If the trailer is disconnected from a truck or a shop floor air supply the brakes will only work if there is air in the air tank. As soon as this air supply is gone the brakes will start to come off and the vehicle will roll if on an incline. It is very important not to rely on the braking to just a service brake chamber as if the air supply goes the bogie will become un-braked. A mechanical handbrake should be fitted when fitting service chambers

## Parking Brake (Spring) chambers

Spring brake chamber have two chambers each with its own supply. The chamber closest to the push rod works the same as a service chamber. The chamber furthest away is the parking brake chamber. The inclusion of parking brake chambers removes the need for a mechanical handbrake. This chamber has a powerful spring which is always pushing the push rod out, so this chamber is a normally **ON** brake and requires air to release the brakes. When the truck/tractor is switched on the air pressure needs build up first in order to compress the powerful spring to release the brakes



## Combination brake chambers

Combination brake chambers combine the hydraulic brake ram and service brake chamber operation. These are used primarily on agricultural trailers as some older tractors are not equipped to use air brakes. Two separate brake lines are required to be fitted to the trailer. Ensure that only brake line is connected to tractor when in use. A mechanical handbrake should be fitted when fitting combination brake chambers.



**Push rod cut lengths**

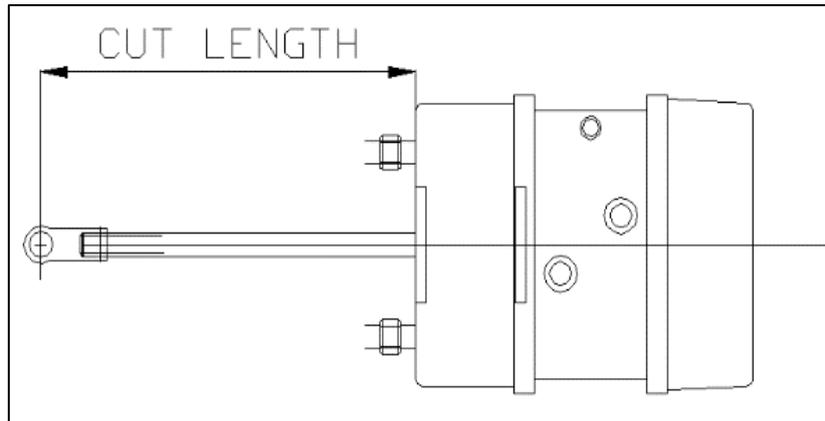
Service and Parking Brake Chambers, (~75mm Full Stroke)

<b>Granning Axles Series</b>							
<b>Slack Adjuster Lever Length (mm)</b>	<b>100 Series (420 x 180) Fixed Axles</b>	<b>100 Series (420 x 180) Steer Axles</b>	<b>300 Series (310 x 190) Fixed Axles</b>	<b>300 Series (310 x 190) Steer Axles</b>	<b>750 Series (300 x 135) Fixed Axles</b>	<b>860 Series (406 x 120) Fixed Axles</b>	<b>860 Series (406 x 120) Steer Axles</b>
<b>115mm</b>	-	-	-	-	-	-	-
<b>127mm</b>	202mm (A-A)	120mm	190mm (A-A)	115mm	140mm (A-A)	186mm (A-A)	270mm
<b>140mm</b>	202mm (A-B)	-	-	-	140mm (A-B)	186mm (A-B)	270mm
<b>152mm</b>	202mm (B-B)	120mm	190mm (B-B)	115mm	140mm (B-B)	186mm (B-B)	270mm
<b>178mm</b>	202mm (C-C)	120mm	190mm (C-C)	115mm	140mm (C-C)	186mm (C-C)	270mm

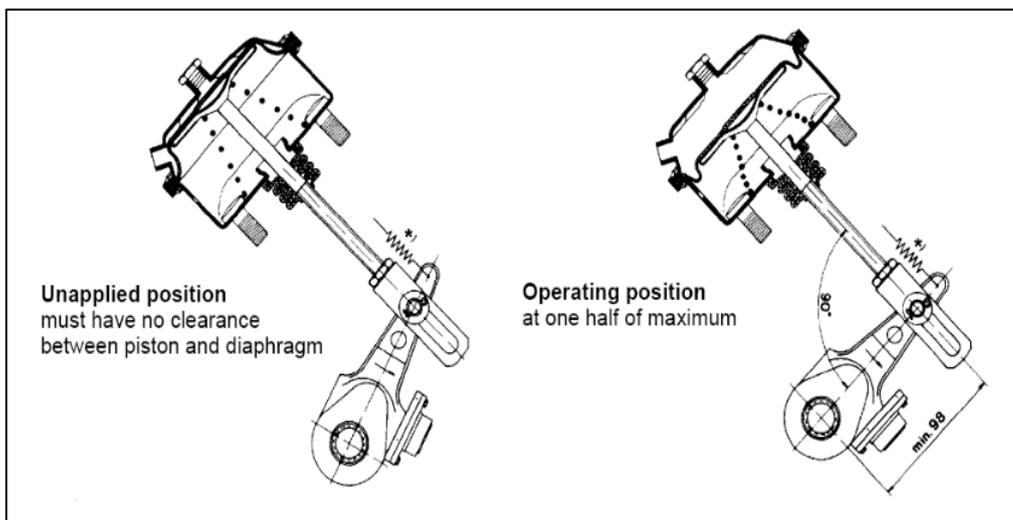
Combination Brake Chambers (~75mm stroke pneumatic, ~80mm stroke hydraulic)

<b>Granning Axles Series</b>							
<b>Slack Adjuster Lever Length (mm)</b>	<b>100 Series (420 x 180) Fixed Axles</b>	<b>100 Series (420 x 180) Steer Axles</b>	<b>300 Series (310 x 190) Fixed Axles</b>	<b>300 Series (310 x 190) Steer Axles</b>	<b>750 Series (300 x 135) Fixed Axles</b>	<b>860 Series (406 x 120) Fixed Axles</b>	<b>860 Series (406 x 120) Steer Axles</b>
<b>115mm</b>	-	-	-	-	-	-	-
<b>127mm</b>	202mm (A-A)	*See note	190mm (A-A)	*See note	140mm (A-A)	186mm (A-A)	270mm
<b>140mm</b>	202mm (A-B)	-	-	-	140mm (A-B)	186mm (A-B)	270mm
<b>152mm</b>	202mm (B-B)	*See note	190mm (B-B)	*See note	140mm (B-B)	186mm (B-B)	270mm
<b>178mm</b>	202mm (C-C)	*See note	190mm (C-C)	*See note	140mm (C-C)	186mm (C-C)	270mm

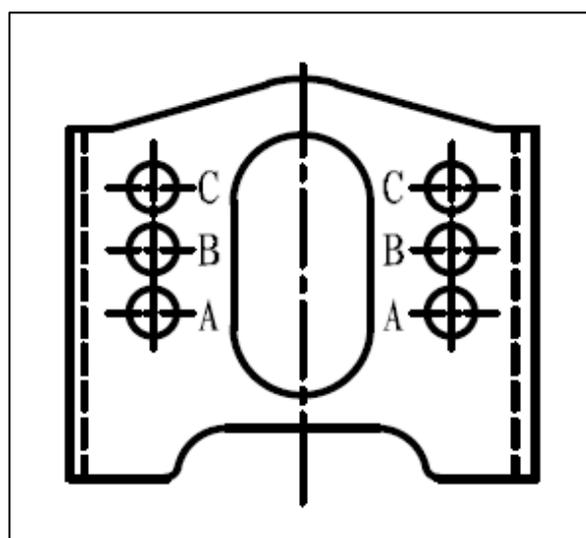
## Push rod cut lengths



Push rod cut length from the centre hole of clevis head and flat face of brake chamber.



Slack adjuster and push rod at 90° when brake chamber at half stroke.



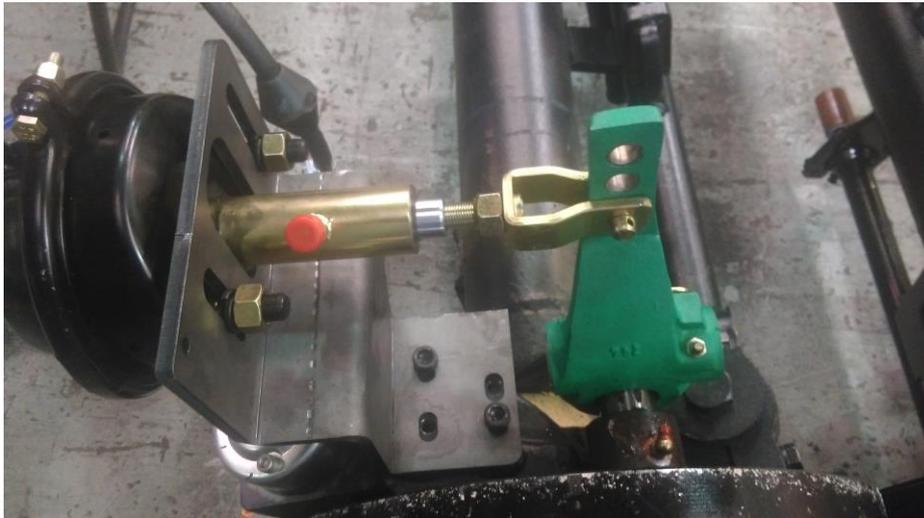
The lettering above in the tables relates to which hole to mount the brake chamber in the ACB as per lever length.

## Notes:

\*Granning Steer axles are supplied as standard with air chamber brackets (ACBs) to fit service or parking brake chambers (air only) which allows short push rod lengths to be cut.

Due to the inclusion of the hydraulic ram element on the combination brake chamber, the minimum push rod cut length can be ~340mm.

Granning Axles have steer axle air chamber brackets (ACB) options available. Please state AIR/HYD chambers and tyre size being used on the request forms.



**Stepped ACB design for AIR/HYD chambers on 100 series steer axles**



**Stepped ACB design for AIR/HYD chambers on 300 series steer axles**