



# CLUTCHTECH



## TSB-165

### Nissan Patrol GU & GQ Clutch Release System Inspection and Adjustment

The Patrol utilises 3 main adjustment points on the hydraulic system that can cause release or slipping issues if adjusted incorrectly.

#### Clutch Vacuum Booster

The first is the vacuum booster that can be a hidden cause of clutch operation issues. If difficulty in changing gears or intermittent slipping is experienced, inspect the adjustment of the pushrod on the master cylinder side of the booster. If the pedal effort is higher than expected the diaphragm in the booster should also be inspected for punctures that may be causing a leak in the vacuum booster.

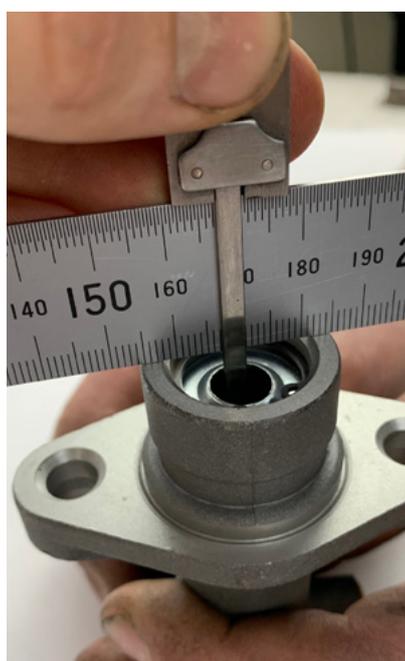
#### Adjusting Booster/ Master Clearance

Check the clearance between the master cylinder and piston and the booster push rod. To do this measure the offset of the end of the piston to the mounting surface and check how far inset or proud the base of the piston is using a vernier and straight edge. Then check the offset of the push rod from the mounting surface of the master. There needs to be between **0.25 and 1mm of clearance** between the piston and pushrod. If not then shorten or lengthen the pushrod.

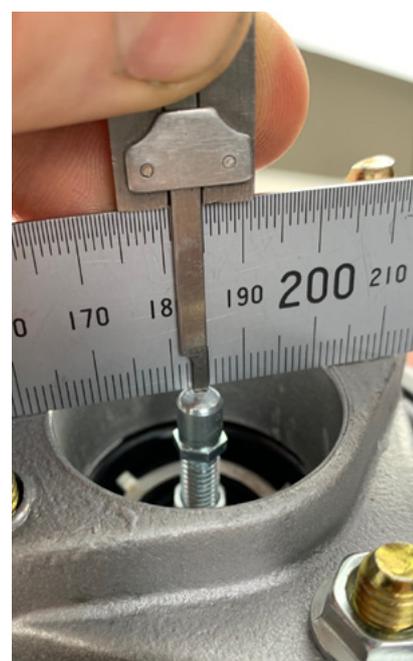
If the rod is too long, then this could restrict fluid flow back to the reservoir and cause the clutch to slip. If there is too much clearance, then this could cause the release point to be too close to the floor.



ZERO VERNIER ON  
MOUNTING FACE



MEASURE OFFSET  
OF PISTON



ZERO VERNIER AND CHECK  
OFFSET OF PUSHROD

## Clutch Pedal & Pushrod Adjustment

When fitting a new clutch, in some cases it is necessary to adjust the clutch pedal to improve the release characteristics or engagement point. The pedal may need to be adjusted when installing a heavy duty clutch that requires more release travel or when the pedal was previously adjusted away from the factory settings.

1. Alter the pedal height by adjusting the bolt behind the clutch pedal.



2. Ensure that the locking nut is tightened back against the bracket to avoid unwanted adjustment when the clutch pedal is used.



- 3) Adjust the pushrod from the master cylinder to the pedal by undoing the locking nut and rotating the pushrod. **This must have a small amount of freeplay when wriggled by hand.** This is to ensure that there is no excess pressure on the master cylinder. Failure to do so could cause the clutch to prematurely slip. Tighten the locking nut to ensure that the pushrod does not adjust as the clutch is operated.

- 4) Underneath the vehicle, make sure that the slave cylinder can be depressed by hand and that it pushes fluid back up to the master cylinder. This ensures that the bearing does not hold on to the clutch diaphragm as the clutch wears.



### Clutch Fork

Often the pivot ball and clutch fork can see significant wear when the vehicle has been used in rough conditions or is high mileage. It is important to clean, inspect and re-lubricate the pivot ball and fork pivot when replacing the clutch.



[youtube.com/watch?v=HzfNatzyz68](https://youtube.com/watch?v=HzfNatzyz68)



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