

## Landrover V8 Series III

# Ignition Distributor Adjustments Miscellaneous Instruction

### Introduction

1. Faults of pre-ignition, detonation and poor engine performance may be evident after basic timing adjustments. These faults can be a result of faulty centrifugal or vacuum advance mechanisms.
2. In order to identify the fault both mechanisms need to be tested in isolation.
3. All specifications are detailed at the end of this instruction.
4. **Centrifugal advance checks:**
  - a. Disconnect and seal off the vacuum advance line at the distributor end.
  - b. Fit a timing light and adjust engine timing to 12° ATDC. This is to provide a means of checking engine timing versus RPM.
  - c. Connect tachometer to engine.
  - d. Start and warm up the engine.
  - e. The engine should advance and retard smoothly, within tolerances, throughout the entire speed range. **See specifications.**
  - f. If results are outside the specifications conduct the following procedure.
5. **Centrifugal advance adjustment procedure:**
  - a. Turn off the engine and key.
  - b. Remove the distributor cap and rotor.
  - c. Loosen the distributor and rotate to expose the screws on the vacuum advance unit.
  - d. Remove the two screws and circlip securing the vacuum advance unit.
  - e. Remove the vacuum advance unit.
  - f. Remove optical switch and clamp from the vacuum advance plate.
  - g. Loosen the two allen screws holding the vacuum advance plate enough to clear for removal.
  - h. Remove the vacuum advance plate from the distributor.
  - i. Remove circlip and washer (Item A, Fig 1) from the centrifugal advance plate (Item B, Fig 1).
  - j. Remove the centrifugal advance plate (Item B, Fig 1) from the distributor.

### Note

Check position of both the heavy and light centrifugal advance springs to aid further adjustments.

- k. Inspect springs and weights for serviceability.
- l. Insert degree key into advance slot to indicate 28° centrifugal advance (advance shown on degree key is in crankshaft degrees advance as shown in Fig 2) to set maximum advance.
- m. If adjustment is required loosen screws (Item D, Fig 1) so advance control arms (Item C, Fig 1) can be moved.
- n. Push control arms (Item C, Fig 1 or 2) tight against advance key and tighten screws (Item D, Fig 1 or 2) using Loctite 262.

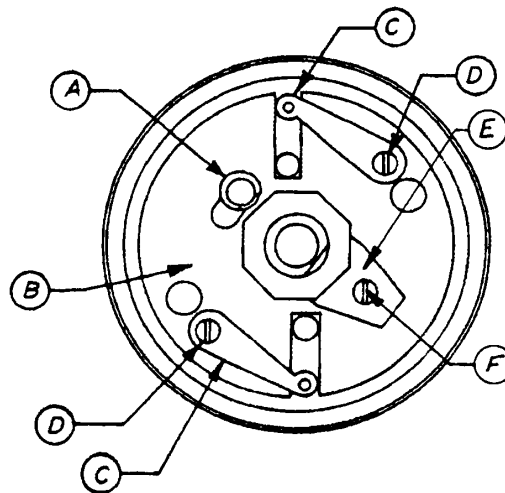


Figure 1 – Distributor Bowl

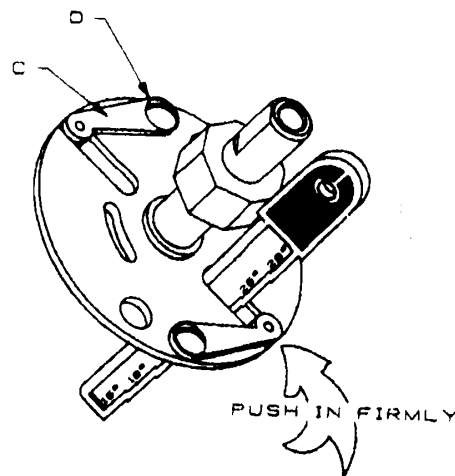


Figure 2 – Centrifugal Advance Adjustment

- o. Adjust other control arm to 28°.
- p. Reassemble distributor.

#### NOTES

1. There is a small shim washer on the distributor shaft which may come off the shaft when advance plate and cam are removed. Ensure this shim washer is installed on the shaft before re-installing advance plate and cam assembly.
2. The advance weights will have to be moved out so advance pins fit into advance plate slots correctly.

- q. Retest the centrifugal advance to ensure it is adjusted to specifications.
- r. If fault is still present after this procedure conduct the following additional adjustments.

6. **Spring Mount Adjustment Procedure:**

- a. Carefully adjust the distributor shaft spring mounts through their adjustment holes using a flat tip screwdriver as indicated below. Move the spring pivots a maximum of ½ mm each time:
  - (1) **Advance begins too early.** Move the small spring pivot out.
  - (2) **Advance begins too late.** Move the small spring pivot inwards.
  - (3) **Intermediate advance over 19°.** Move the large spring pivot outwards.
  - (4) **Intermediate advance under 19°.** Move the small spring pivot inwards
  - (5) **Maximum advance is under 28°.** Move the large spring pivot inwards.
- b. It may be required to adjust both springs if faults still occur within the mid range (intermediate advance). If so make minor adjustments to both spring pivots and recheck entire centrifugal advance, on completion of adjustments.
- c. Retest the centrifugal advance to ensure it is adjusted to specifications.
- d. Readjust engine timing to 6° BTDC.

7. **Vacuum advance checks:**

- a. Conduct visual inspection:
  - (1) Turn off engine and key.
  - (2) Ensure vacuum line is serviceable.
  - (3) The optical switch cable is secure and can move freely with the vacuum advance plate unrestricted.
- b. **Function Tests:**
  - (1) Disconnect the vacuum advance tube at the distributor.
  - (2) Fit Mityvac tester to the vacuum advance tube.
  - (3) Fit Tachometer and Timing Light to the engine.
  - (4) Start/warm up the engine and check no vacuum is found at the vacuum port on the RH carburettor at idle speeds.

**Note**

If any vacuum is found at the vacuum port adjust throttle synchronisation of carburettors, or check for restrictions in the inlet tracts.

- (5) Increase speed to 1500-2000 rpm and note vacuum increasing to around 20" ±2" Hg.
- (6) Adjust engine timing to TDC:
- (7) Reposition Mityvac to the vacuum advance unit and seal off the vacuum advance line.

- (8) Start engine and allow it to warm up at idle speed (750  $\pm$ 50 rpm).
- (9) Pump the Mityvac tester up to 25" Hg and note maximum vacuum advance using the timing light.
- (10) Ensure no more than 12° engine advance is obtained at any stage of testing.

8. **Vacuum Advance Adjustment Procedure:**

- a. Remove the Mityvac tester from vacuum advance unit.
- b. Fit a 3/32 Allen key into the tube end of the vacuum advance unit:
- c. Turn anti clockwise to reduce vacuum advance.
- d. Turn clockwise to increase vacuum advance.
- e. Recheck engine advance is no more than 12° using the Mityvac tester and timing light, at idle.
- f. Reset timing to 6° BTDC.
- g. Remove Tachometer and Mityvac tester and refit vacuum advance line.

9. **Specifications:**

a. **Centrifugal Advance:**

- (1) Up to 1200 rpm - no centrifugal advance.
- (2) 2500 rpm - 19° Intermediate centrifugal advance.
- (3) 3200 rpm 24° maximum centrifugal advance.

b. **Centrifugal Advance Tolerances:**

- (1) Up to 1500 rpm -  $\pm 1/2$  degree.
- (2) 1500 - 3700 rpm -  $\pm 1$  degree.

c. **Weight Spring Tensions:**

- (1) Small - 1 lb at 30 mm.
- (2) Large - 2 lb at 30 mm.

10. **Degree Keys:**

- a. Replacement degree keys are available from:

W.L. White  
36A Vernon Terrace  
St Martins  
CHRISTCHURCH  
Phone: (03) 3321546  
Fax: (03) 3321546  
Cell Phone: (021) 335568