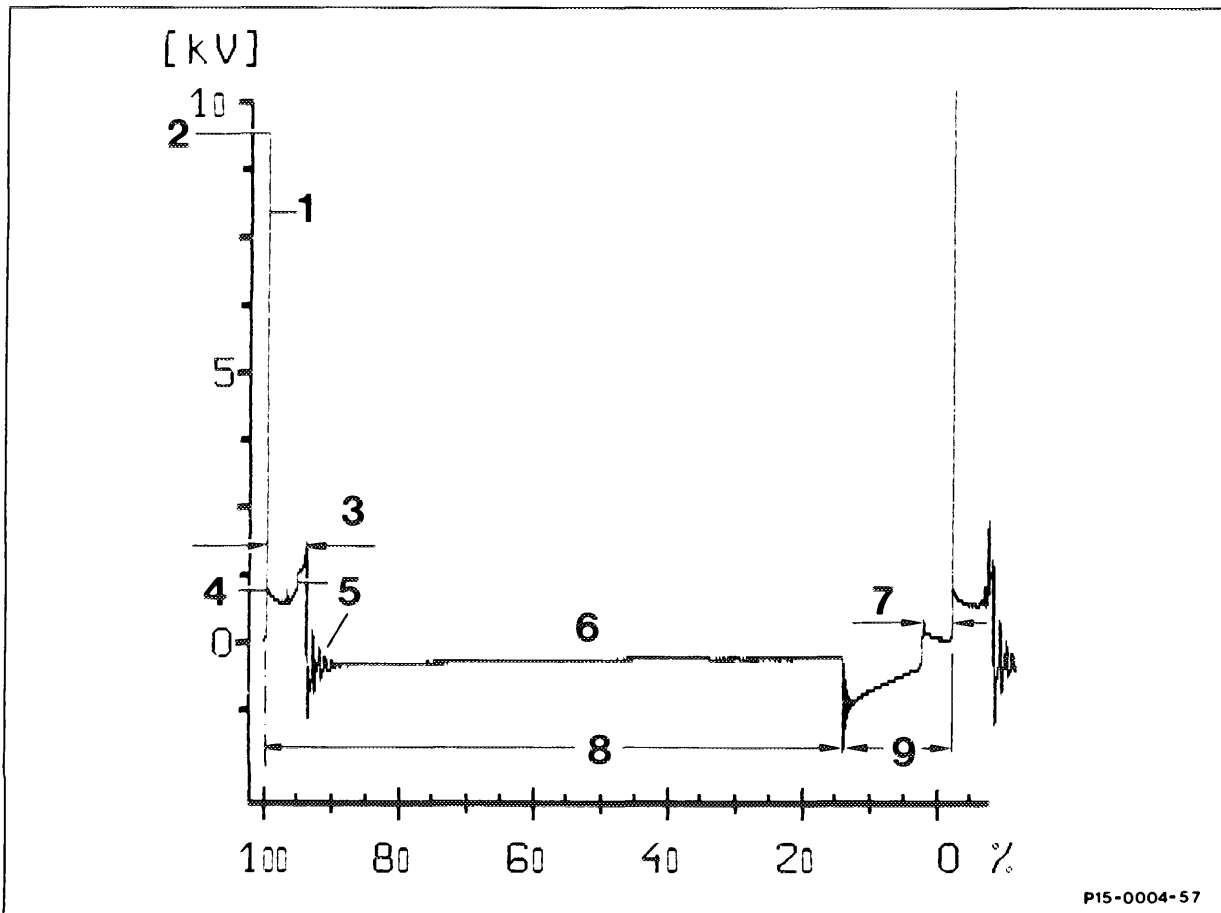


Description of oscilloscope images

Good image

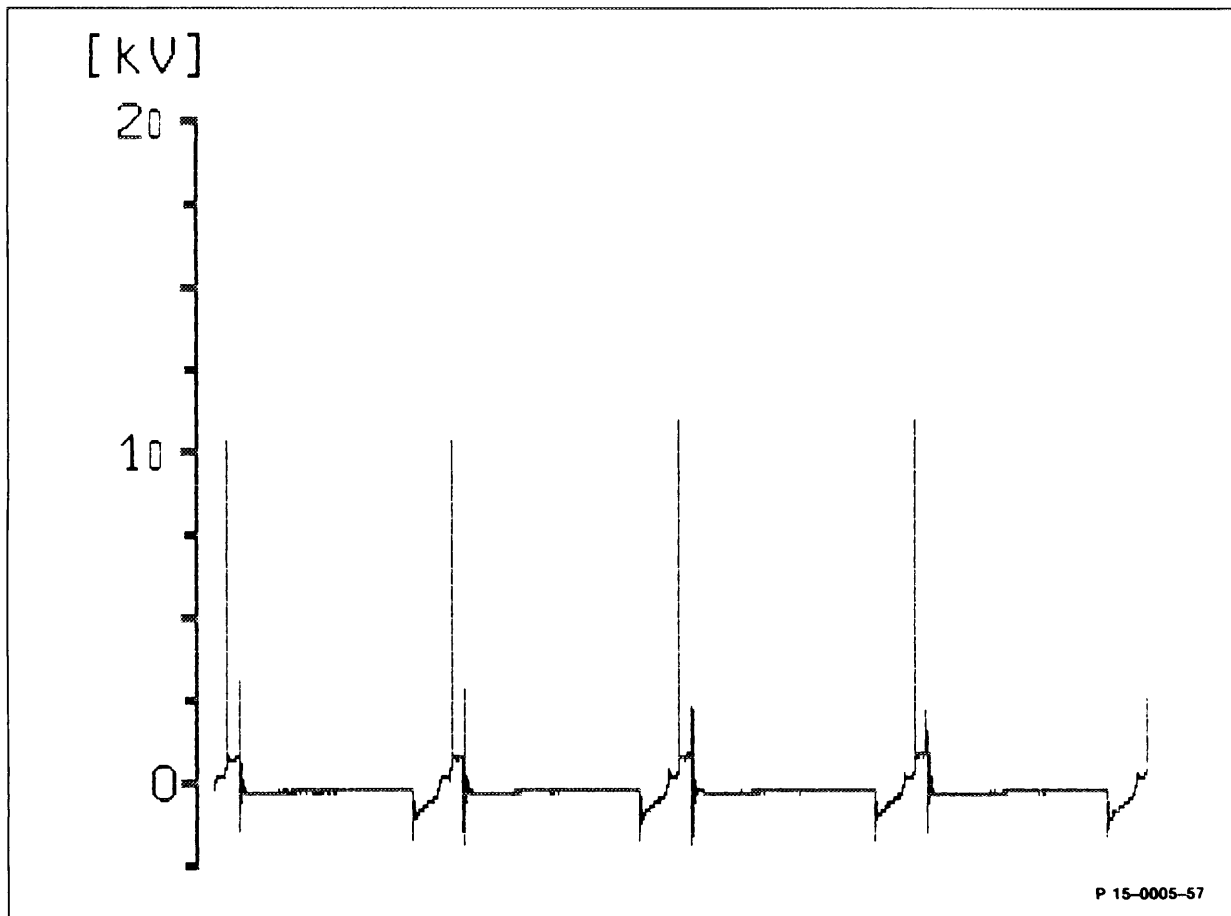
Note

Primary current limiting is only effective up to approx. 2000 rpm.



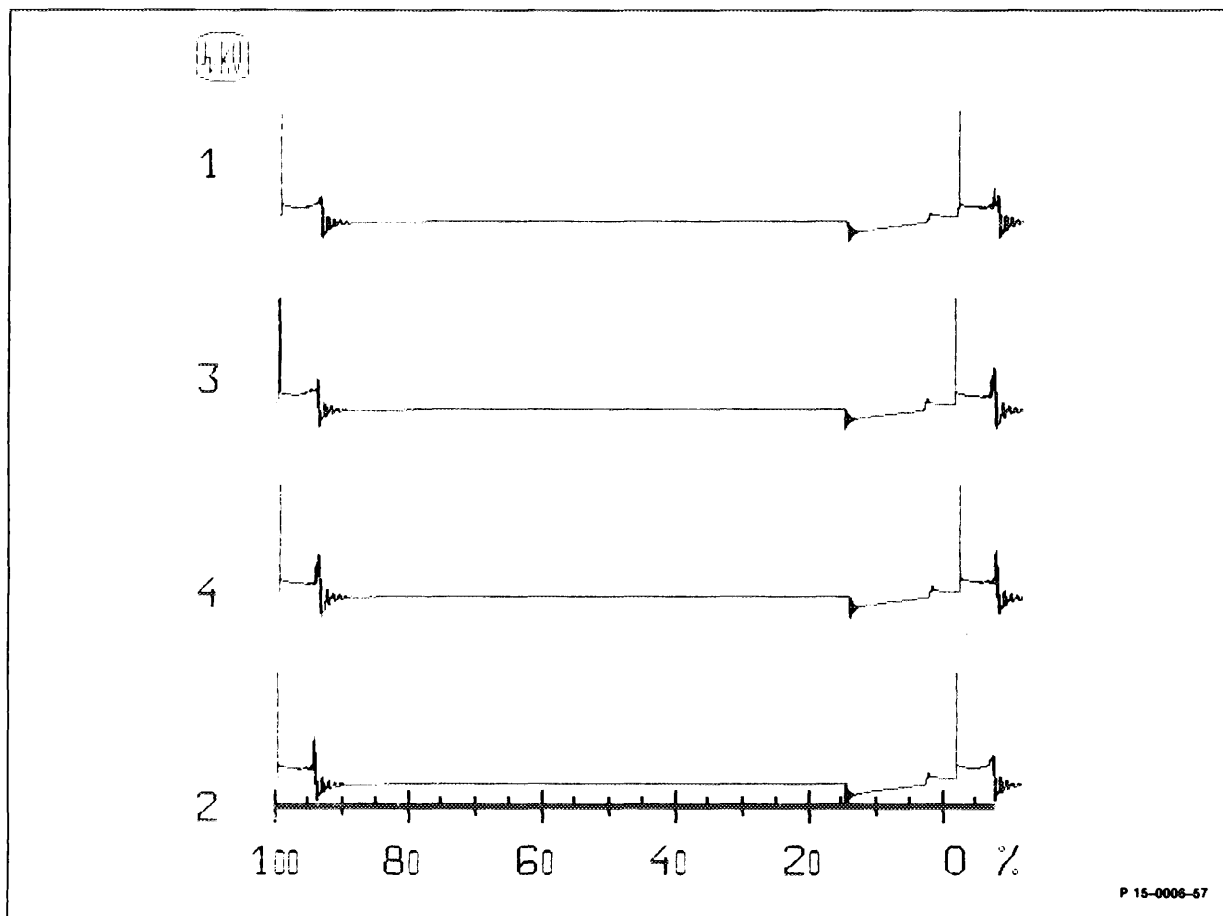
Good image

1. Secondary parade



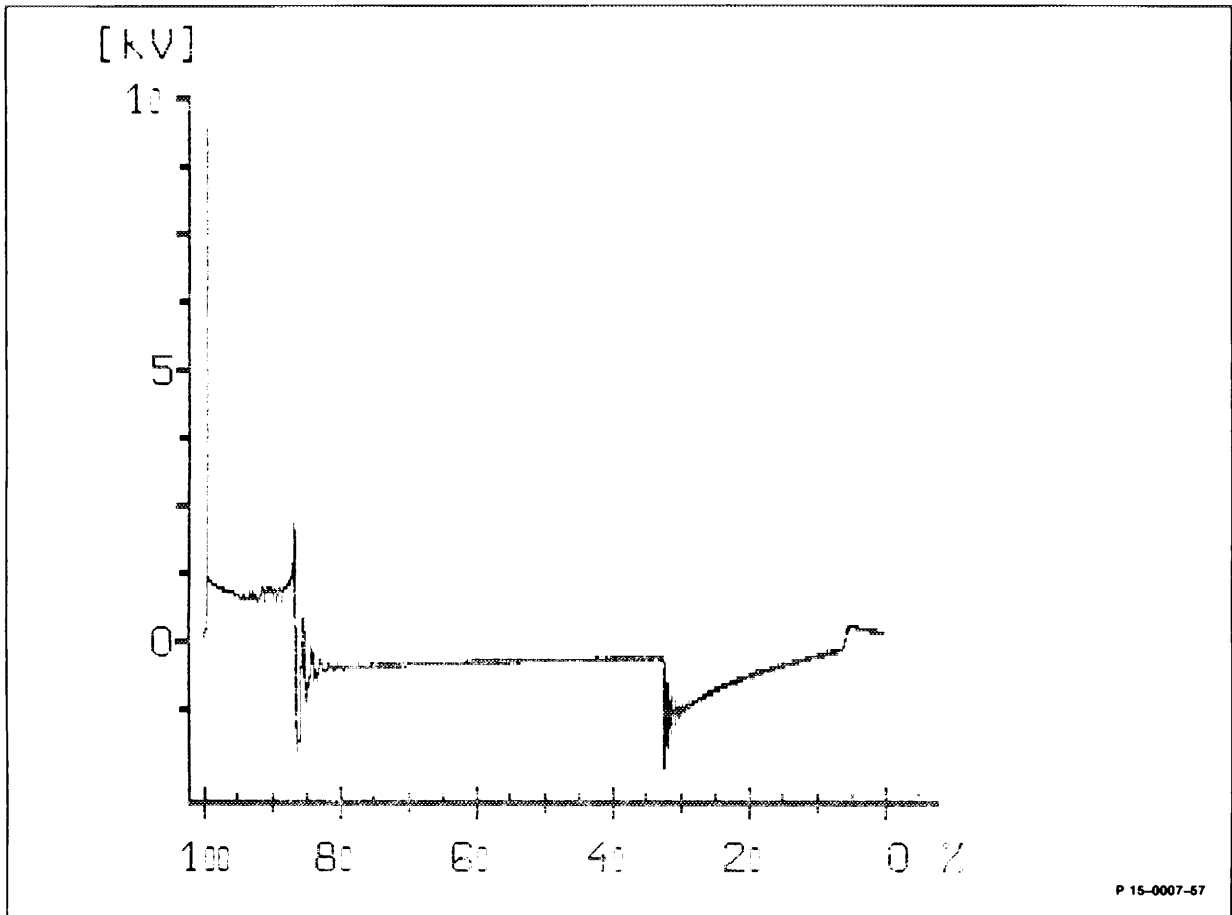
Good image

2. Secondary raster



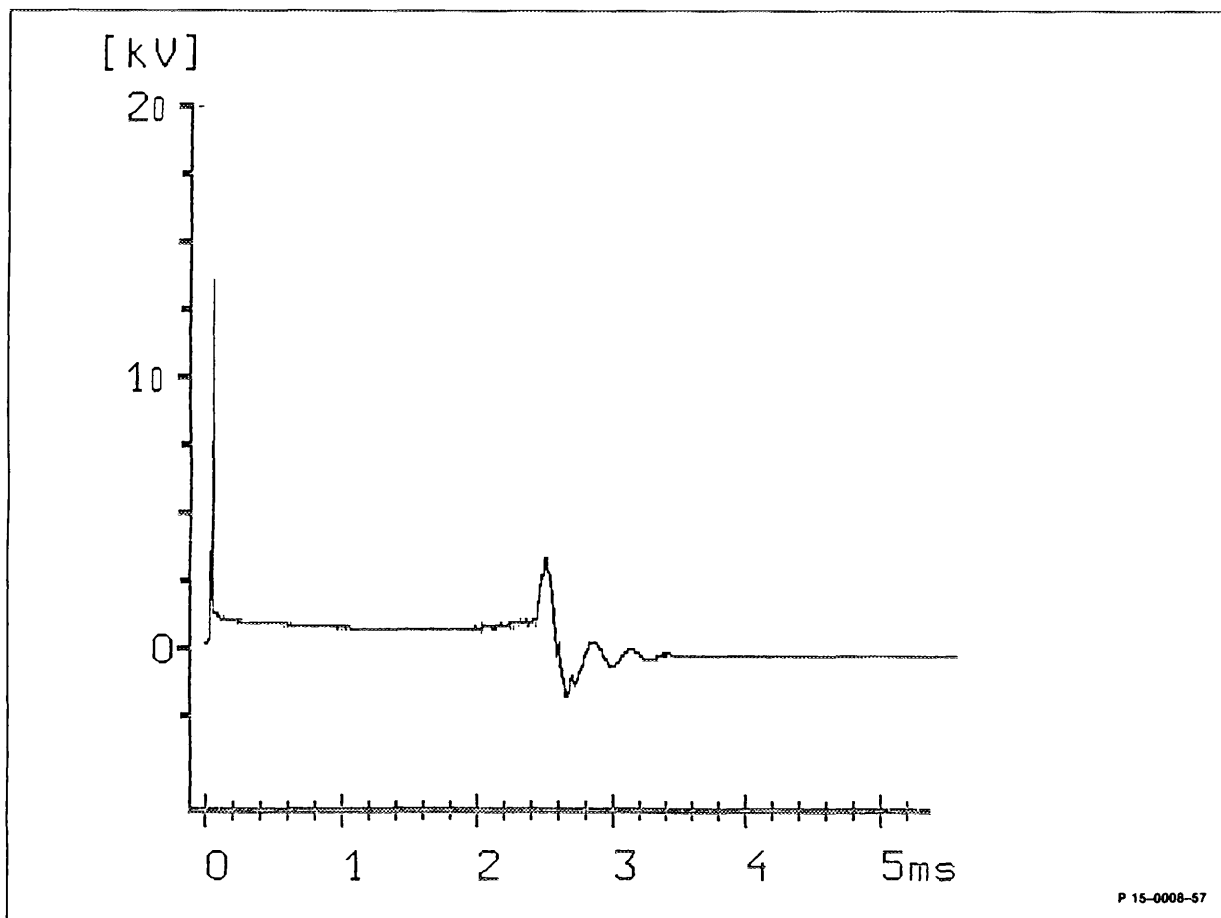
Good image

3. Secondary single image



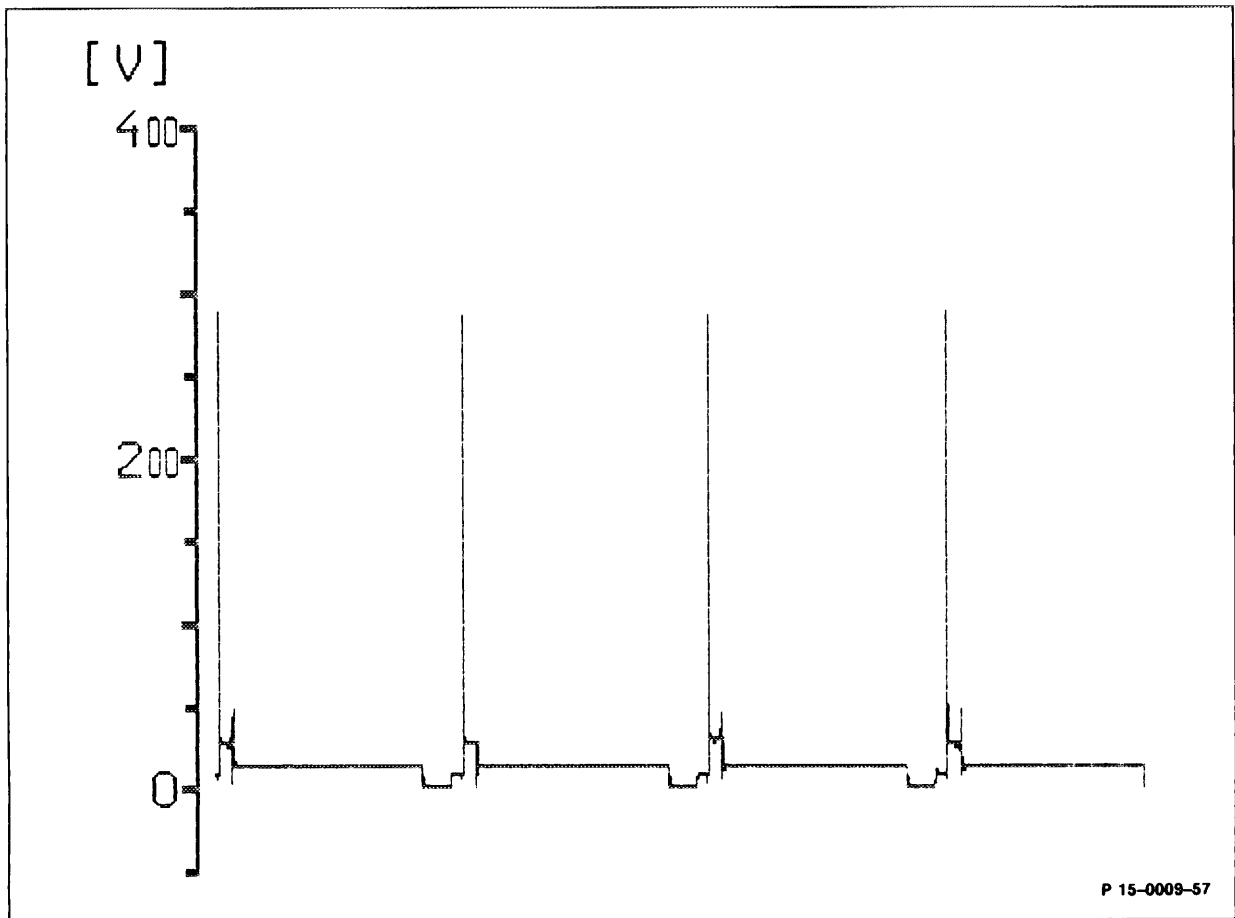
Good image

4. Secondary single image



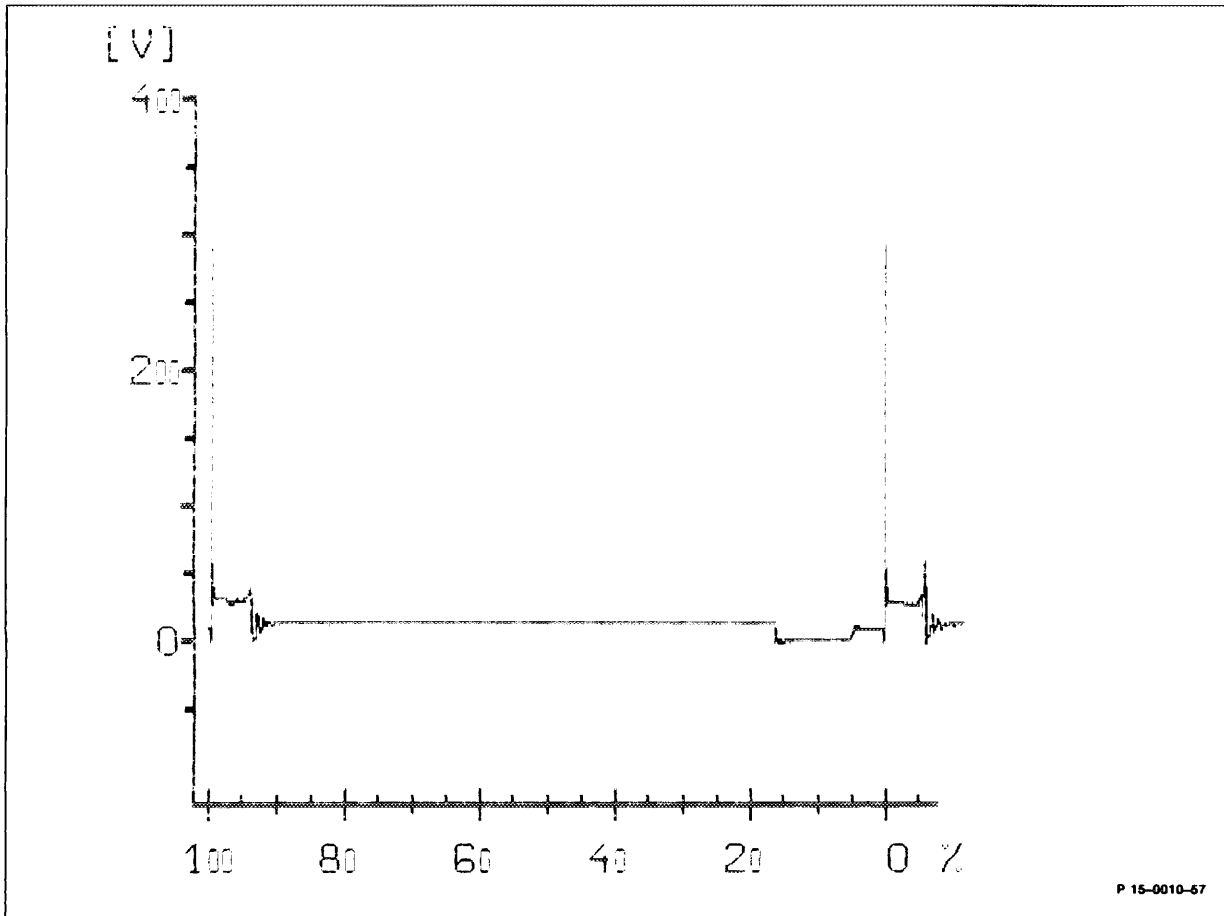
Good image

5. Primary parade



Good image

6. Primary single image



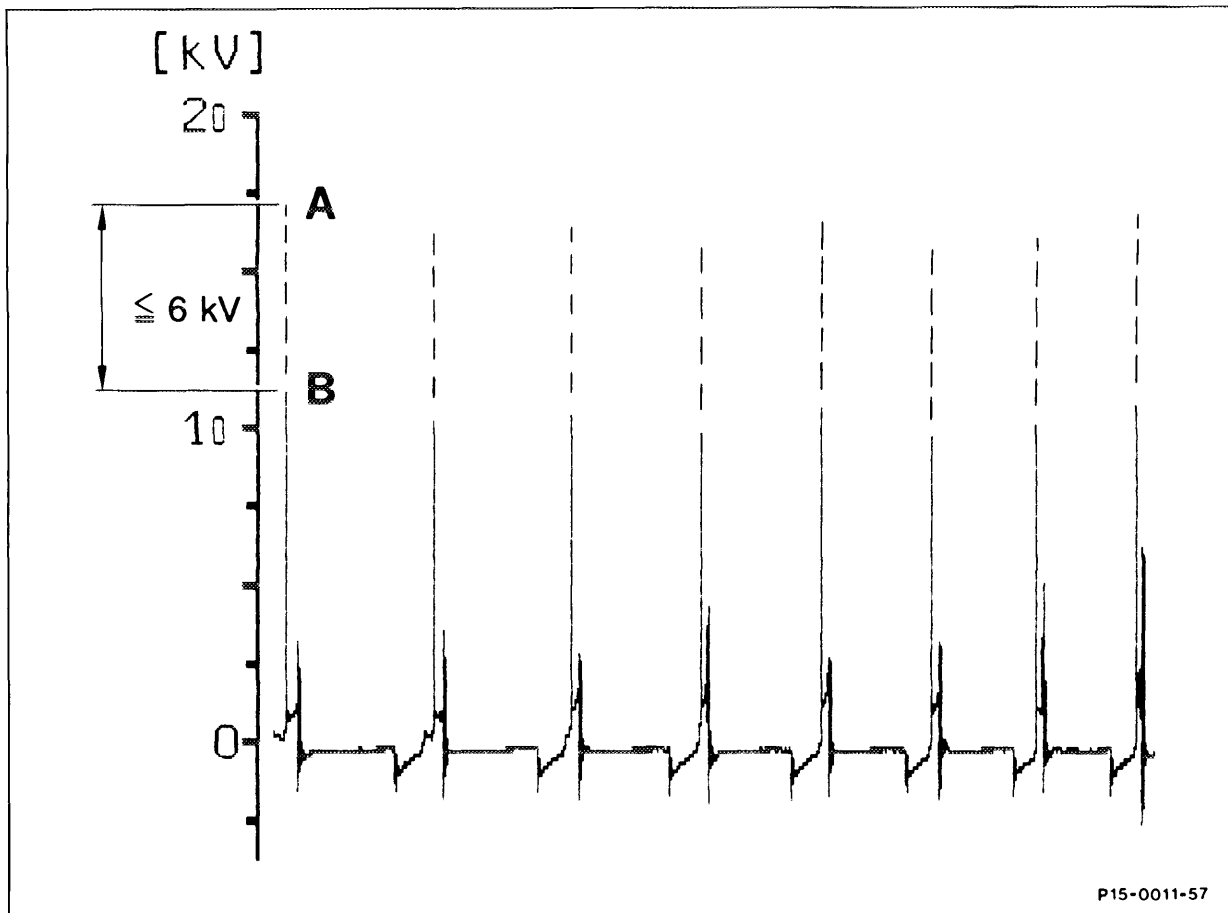
Good image

7. Blipping throttle

Test requirement: accelerate engine repeatedly to approx. 3000 rpm by blipping throttle.

Note

- As a result of the acceleration operation, several cylinders are recorded in turn according to the firing sequence, e.g. image example (1st, 3rd, 4th, 2nd, 1st, 3rd, 4th, 2nd etc.).
- The ignition voltage rises evenly at all cylinders during the acceleration phase. The rise in ignition voltage must not exceed 6 kV.

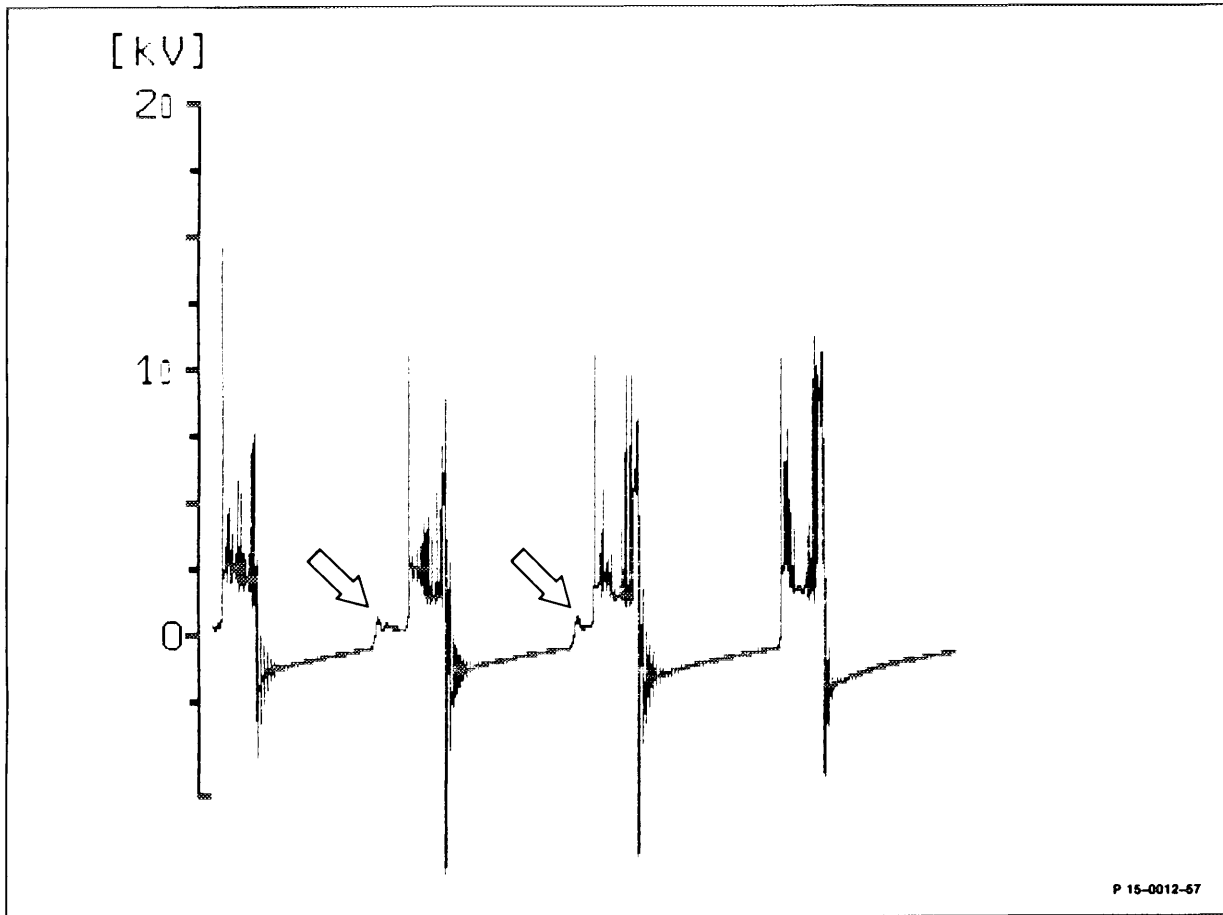


Good image

8. Primary current limiting

Note

Primary current limiting may occur at speeds above 2000 rpm with and without load temporarily at individual or at all cylinders.



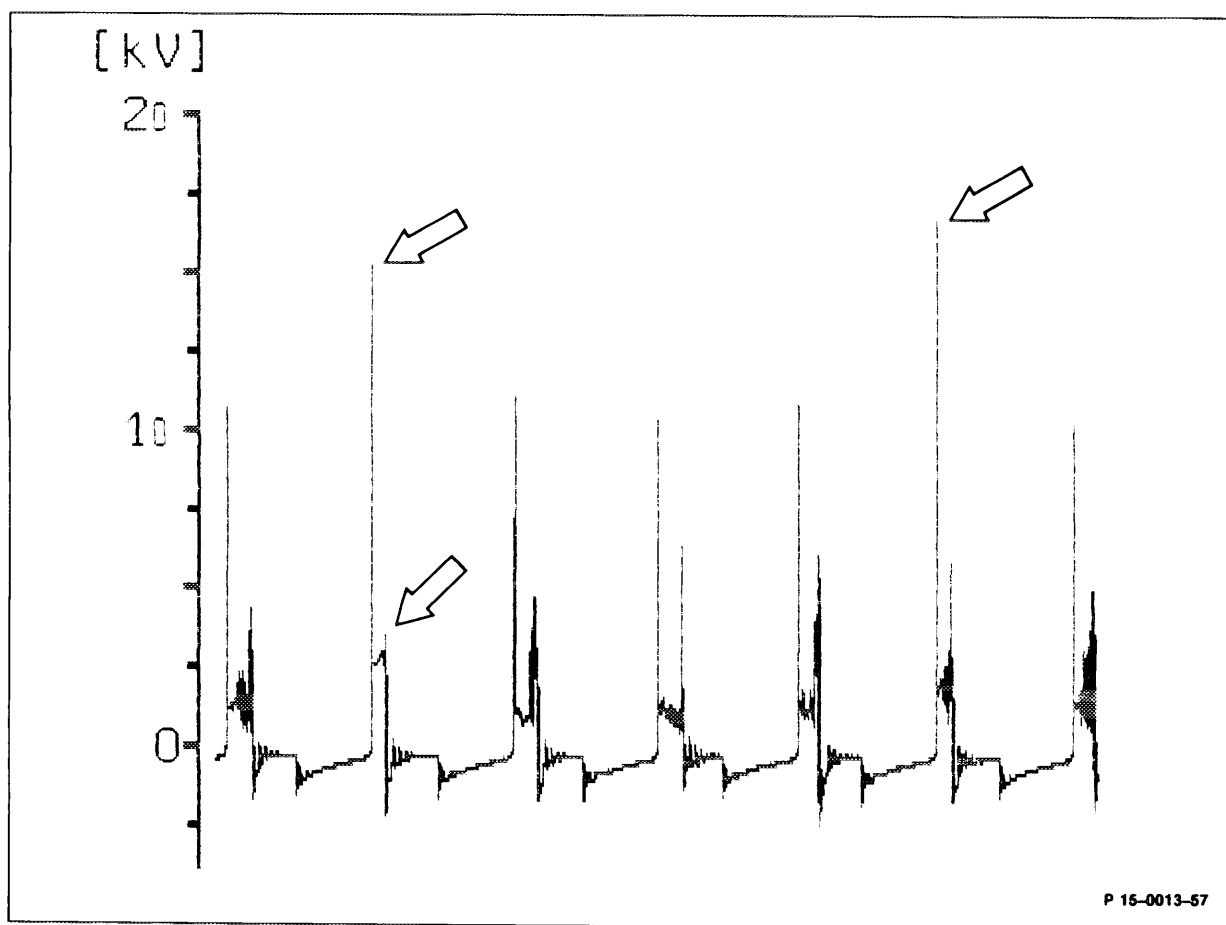
Fault image

9. Ignition voltage too high/combustion period shorter

Test requirement: may occur at any speed with or without load.

Cause

Spark plug electrode gap too large;
additional spark gap at secondary side;
fuel-air mixture too lean.



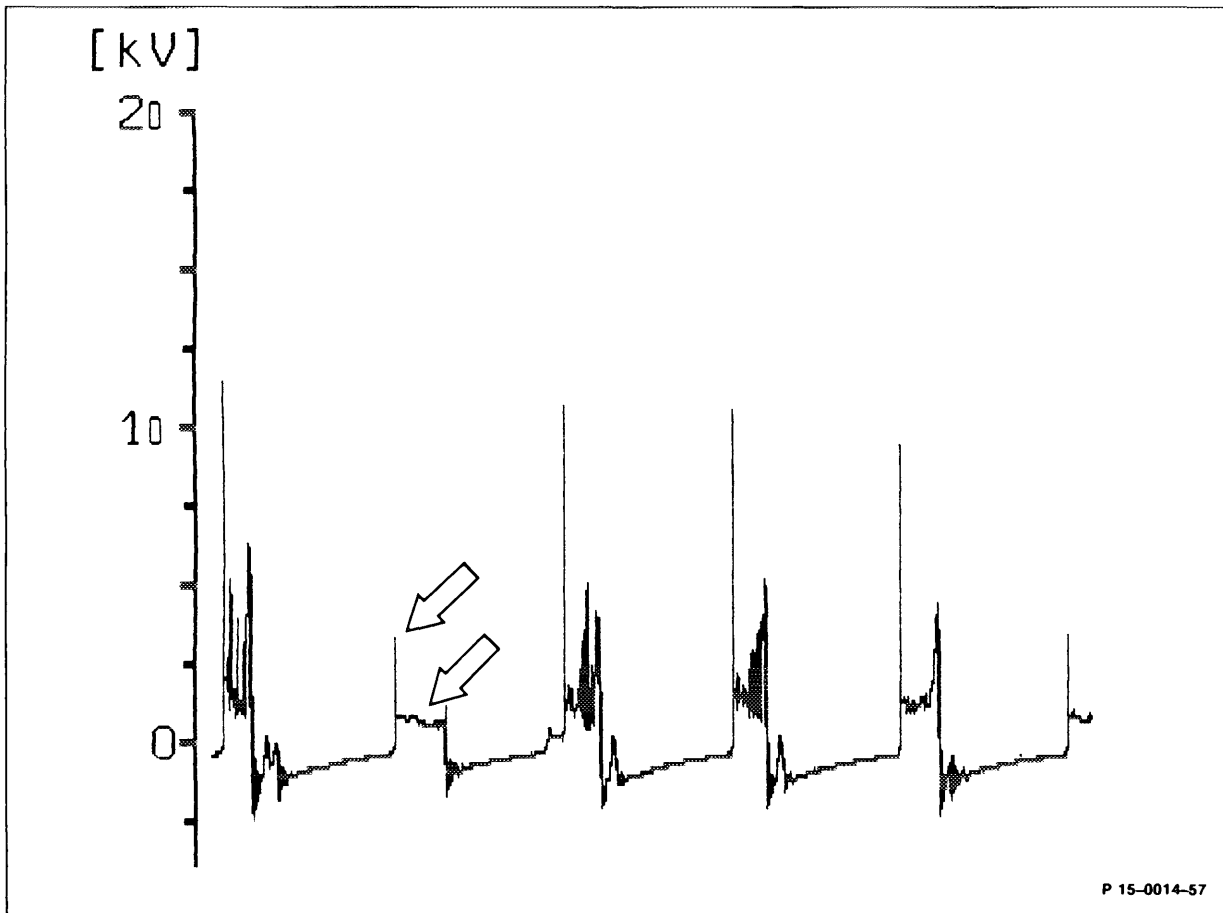
Fault image

10. Ignition voltage too low/combustion duration longer

Test requirement: may occur at any speed with or without load.

Cause

Spark plug electrode gap too small;
fuel-air mixture too rich;
loss of compression.



Fault image

11. Decay process too high

Test requirement: accelerate engine repeatedly to approx. 3000 rpm by blipping throttle or run engine under load on roller dynamometer.

Cause

Fuel-air mixture at one cylinder too lean.

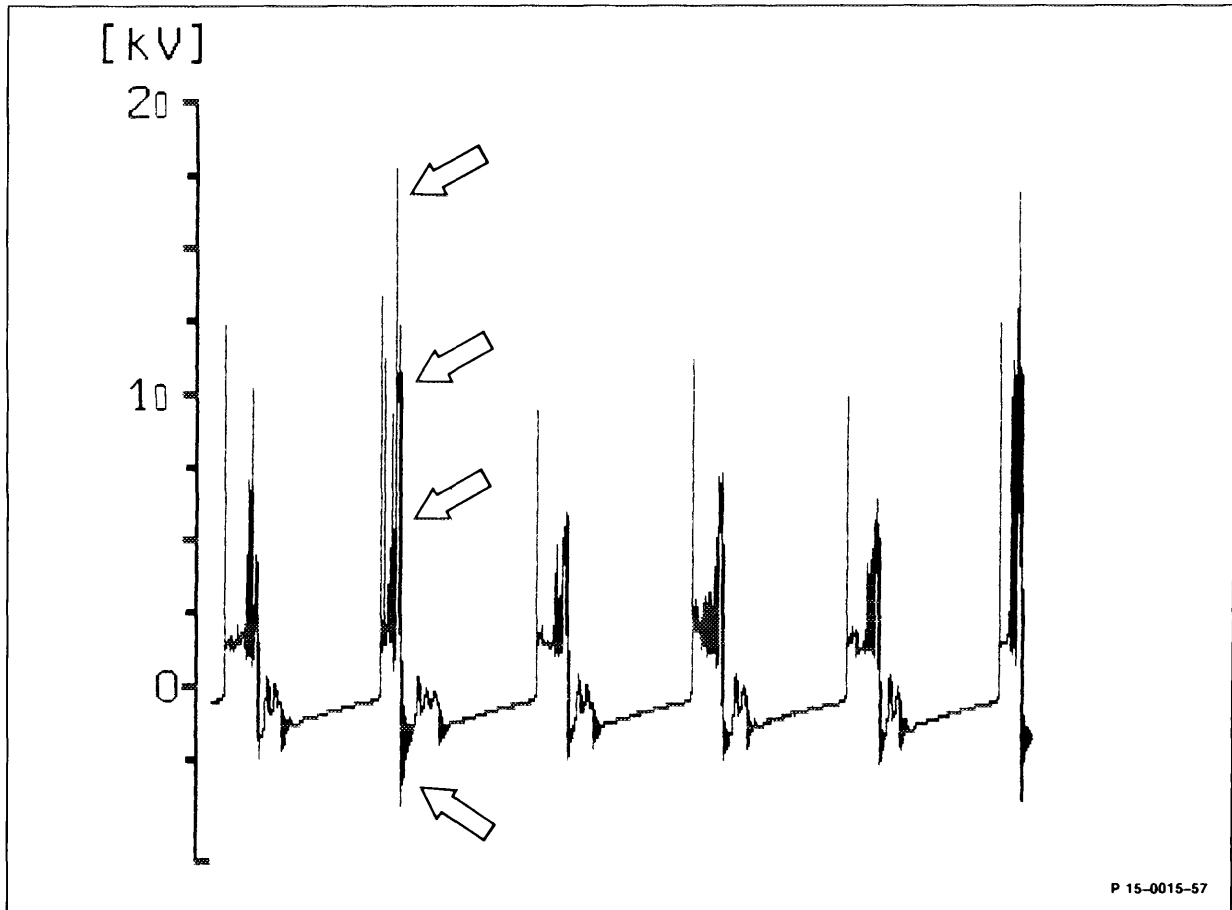
Note

If engine does not run smoothly (not running on all cylinders) after starting, switch off the engine at normal operating temperature and wait a lengthy period (approx. 30 min) before starting to obtain a better diagnosis.

When again starting engine, strictly observe test requirement.



Fault may only occur intermittently.



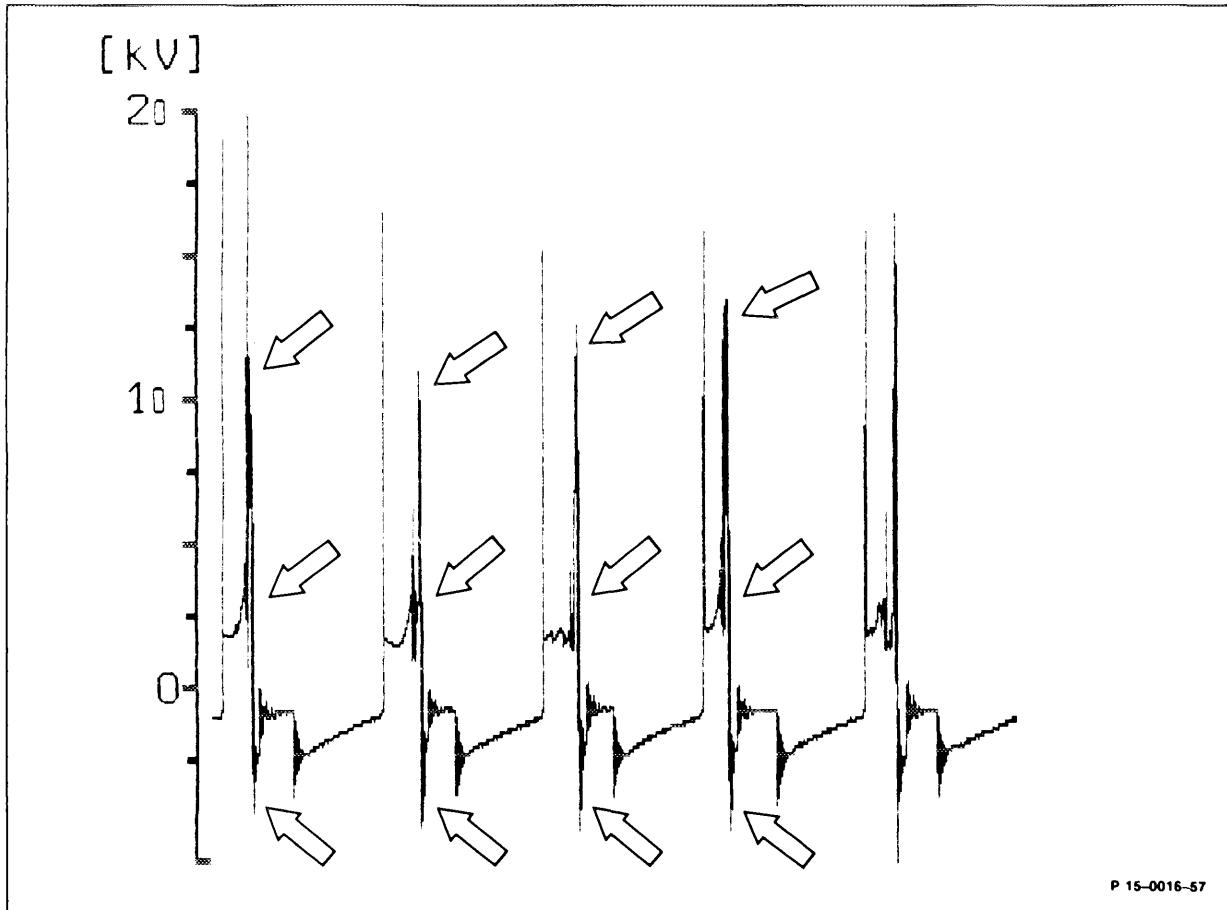
Fault image

12. Decay processes too high

Test requirement: accelerate engine repeatedly to approx. 3000 rpm by blipping throttle or run engine under load on roller dynamometer.

Cause

Fuel-air mixture at all cylinders too lean.



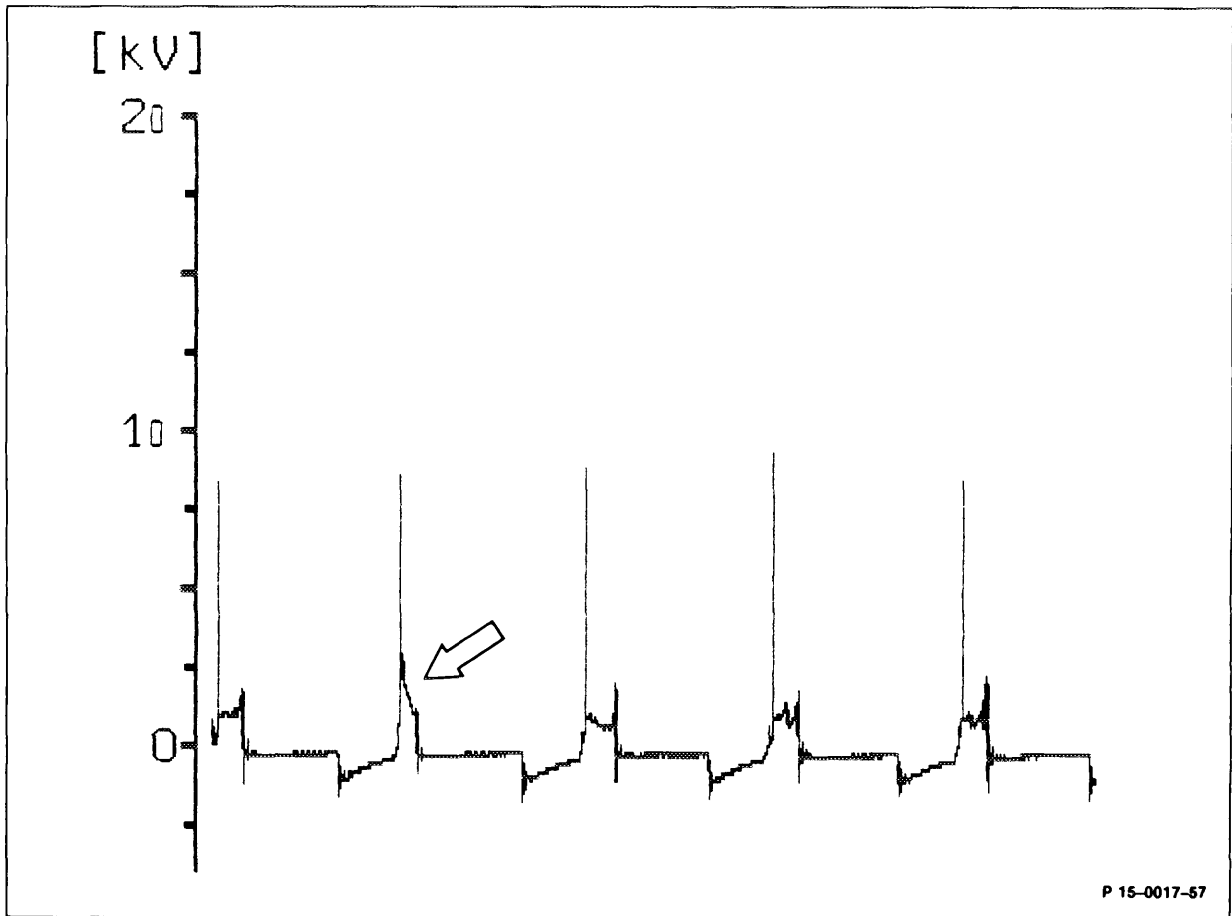
Fault image

13. Higher spark voltage > 1.5 kV at single cylinder

Test requirement: may occur at any speed with or without load.

Cause

Spark plug coated with soot, oil, lead. Too high Ohmic resistance at secondary side.



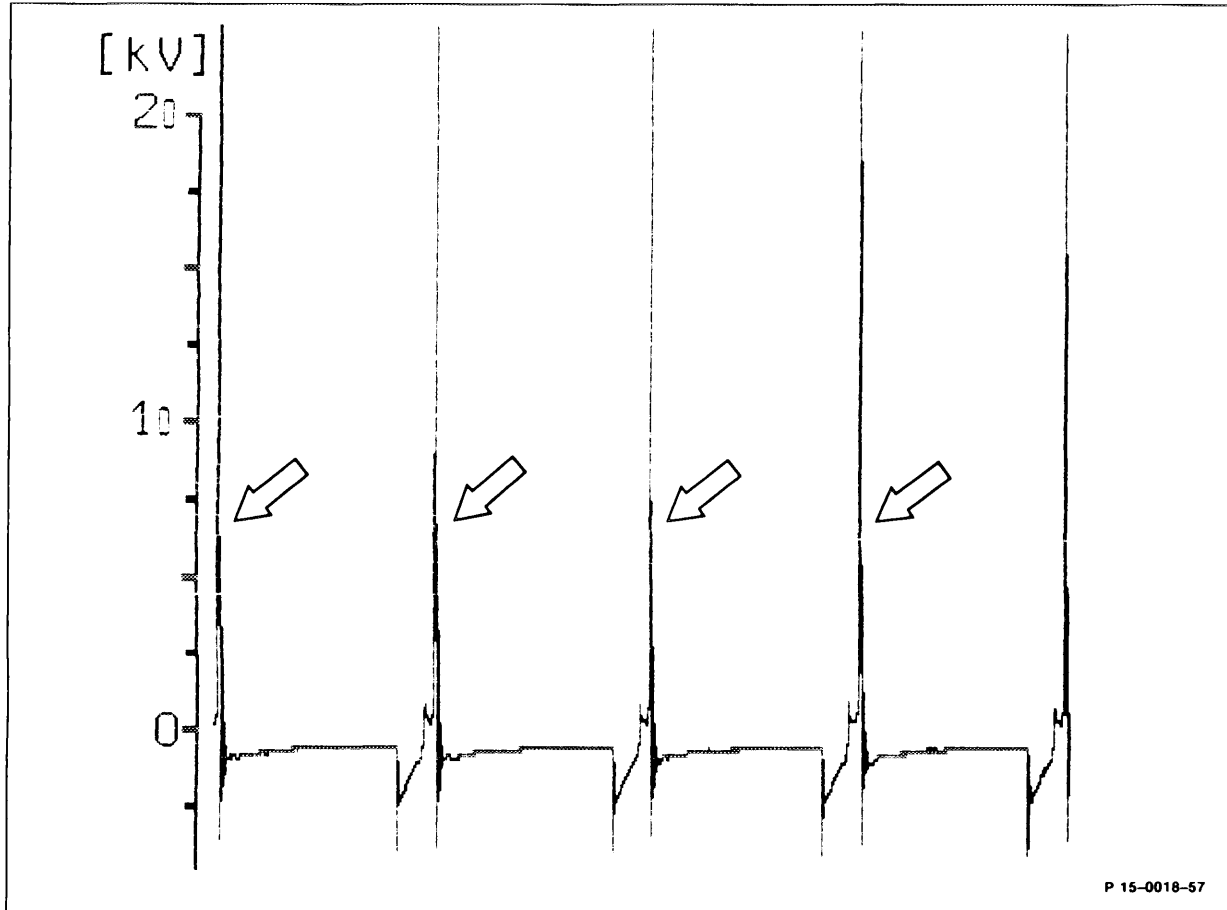
Fault image

14. Higher spark voltage > 1.5 kV at all cylinders

Test requirement: may occur at any speed with or without load.

Cause

Too high Ohmic resistance at secondary side.



Fault image

15. Ignition voltage < 8 kV at terminal 4

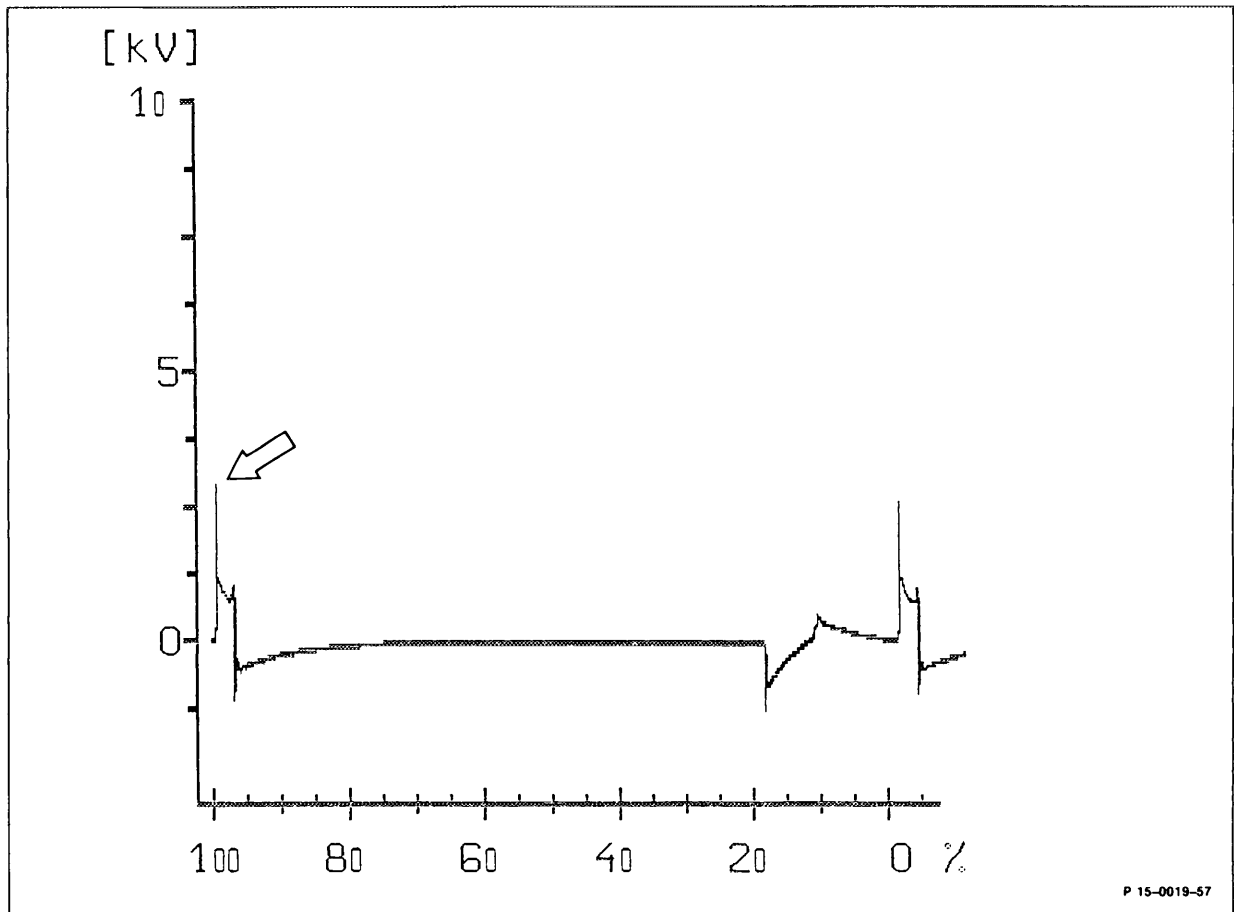
Test requirement: starting speed

Cause

Ignition coil

Note

Engine does not start.



Fault image

16. Ignition voltage < 6 kV at single cylinder.

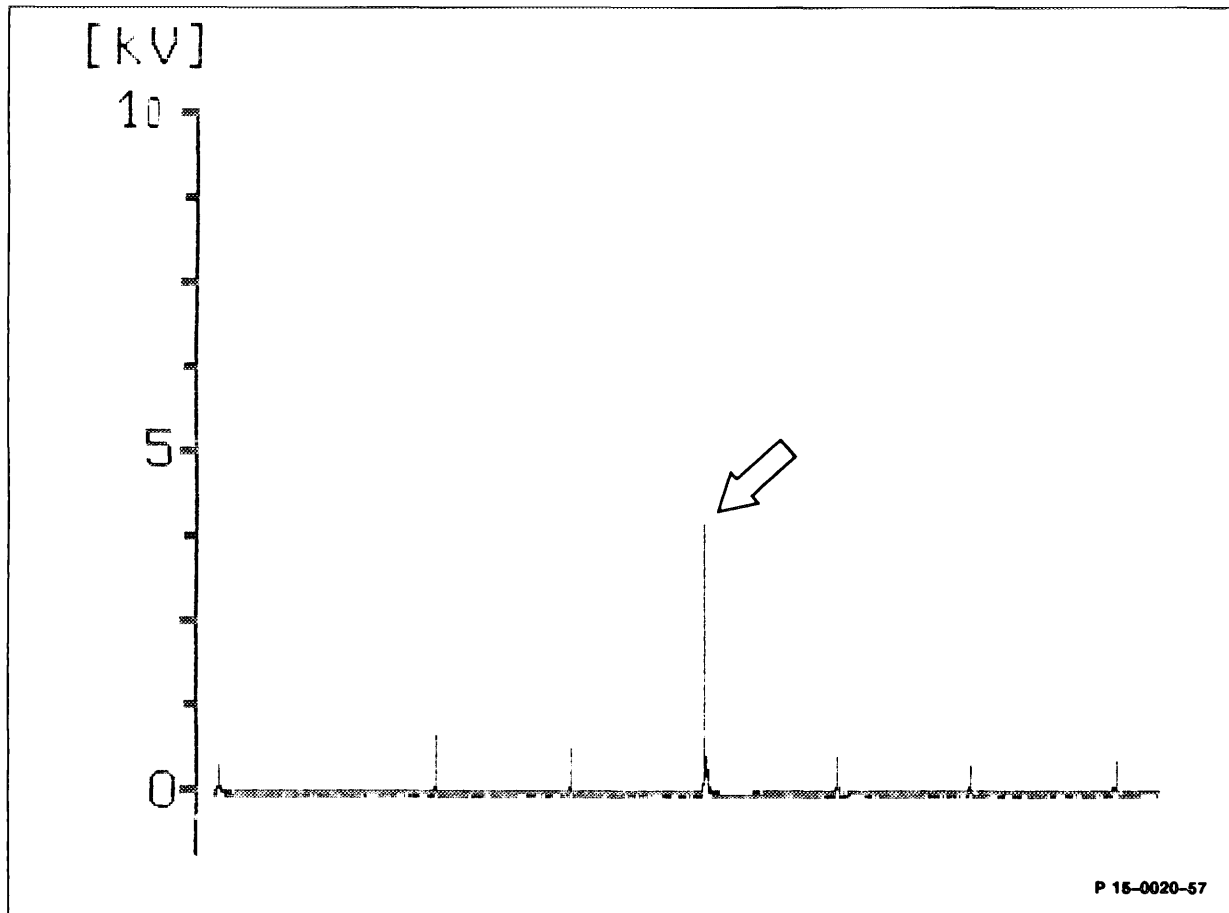
Test requirement: starting speed.

Cause

Ignition coil

Note

Engine does not start.



Fault image

17. No decay process.

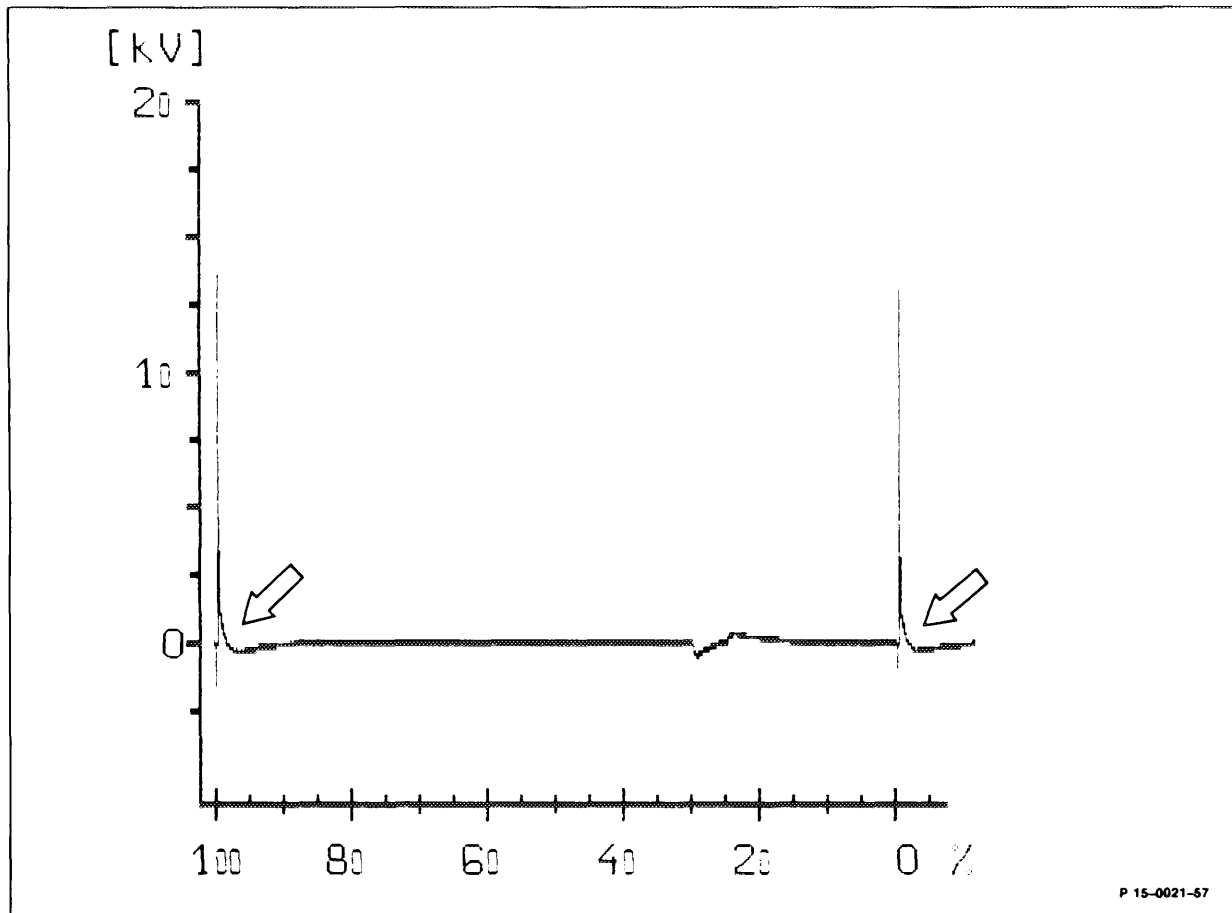
Test requirement: starting speed.

Cause

Ignition coil or ignition control unit.

Note

Engine does not start.



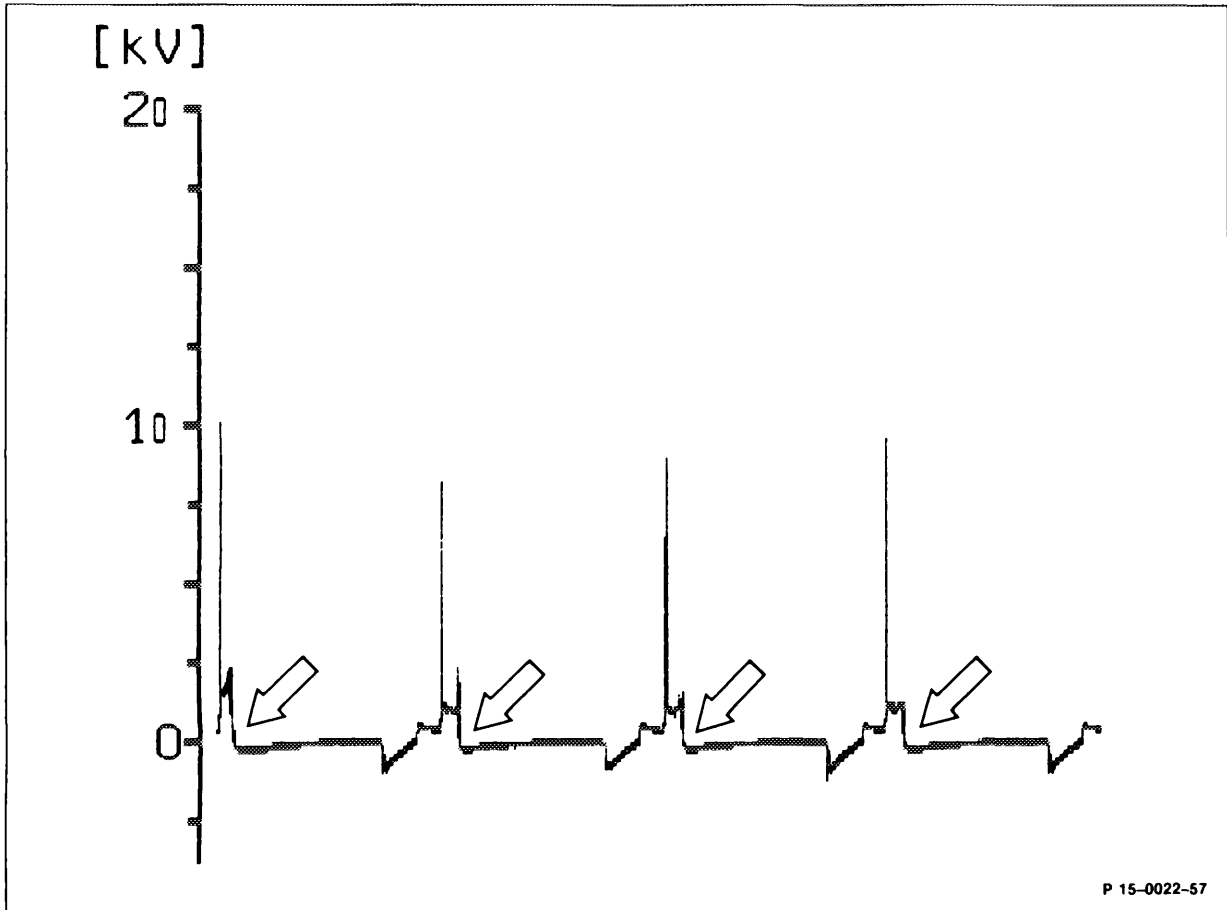
Fault image

18. Insufficient decay processes.

Test requirement: may occur at any speed with and without load.

Cause

Ignition coil or ignition control unit.



Fault image

19. Insufficient decay processes.

Test requirement: may occur at any speed with and without load.

Cause

Ignition coil or ignition control unit.

