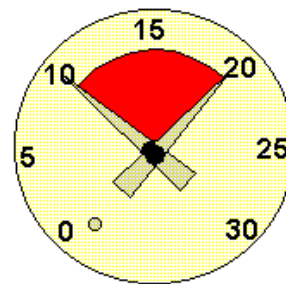


### Normal engine

Steady gauge 18"-20" at all speeds. Throttle is released and engine quickly drops from over 2000 RPM to idle. Needle jumps 2" - 5" above normal, then drops to normal without pause or hesitation.

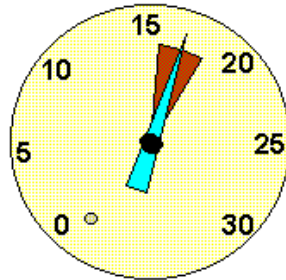


### Needle wavers rapidly

between 10"-20" at idle, becomes worse at higher RPM. Weak or broken valve spring causing valve to open slowly.

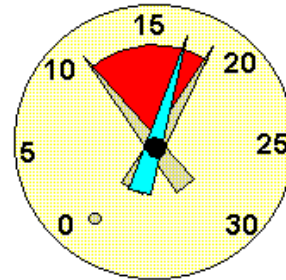
### Needle wavers irregularly

Needle wavers at idle, fluctuates rapidly in smaller range at higher RPM. Manifold leak at intake port.



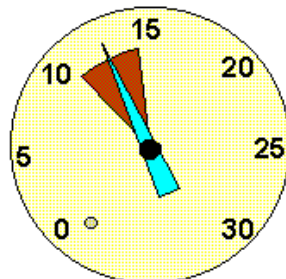
### Steady low

Less than 2" down from normal. Retarded Ignition timing.



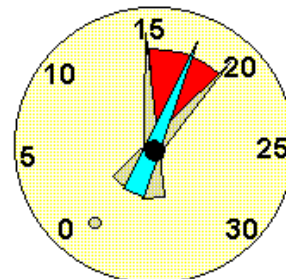
### Drifts at idle, stabilizes at higher RPM

Burnt valve; combustion chamber leak.



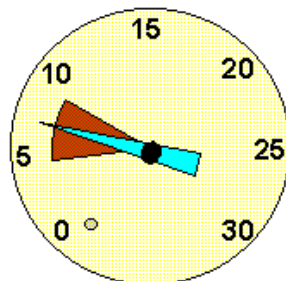
### Steady very low

Late valve timing



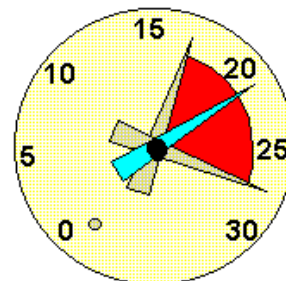
### Wavers irregularly in one range despite engine speed.

Unbalanced carburetion; improper spark plug gap; Ignition timing; poor valve seating.



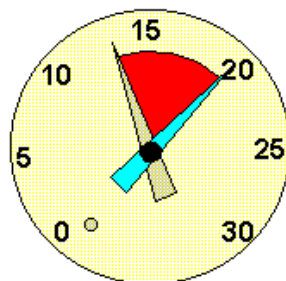
### Steady Extremely low

Up to 15" drop. Warped or cracked intake manifold. Bad carburetor-to-manifold gasket.



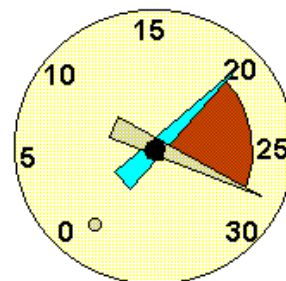
### Vacuum averages lower than normal at idle,

needle fluctuates almost 3" on both sides of normal. Worn valve guides admitting air, and upsetting carburetion.



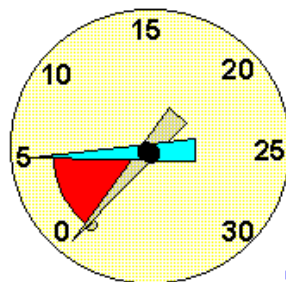
### Needle rhythmically drops

1"-7" below normal. Leaking combustion chamber or valve; ignition or plug failure affecting one cylinder. Needle drops rapidly but intermittently and then recovers. Valve sticking at times, or won't close properly.



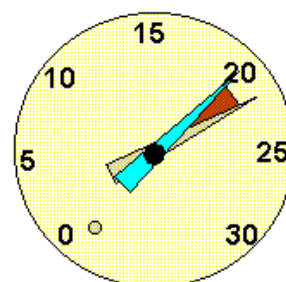
### Needle jumps 2"- 5" above normal

upon quick deceleration, but hesitates at a higher pressure before returning to normal. Restricted exhaust system causing back pressure.



### Drops to 0" then rises

under full throttle with increased RPM. Dirty air cleaner; Undersized carburetor; restriction in exhaust system.



### Needle does not jump much beyond normal

when throttle is quickly closed, and engine speed is cut from above 2000RPM to idle. Piston rings may be worn and allowing blow-by into the crankcase.