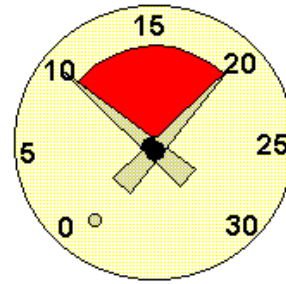


**Normal engine**

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.

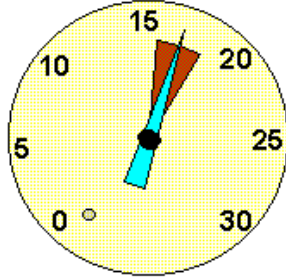


**Needle wavers rapidly**

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

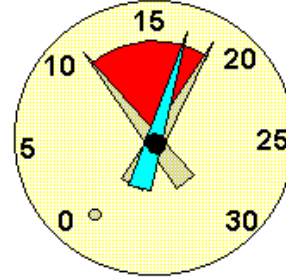
**Needle wavers irregularly**

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



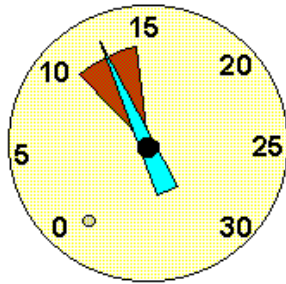
**Steady low**

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



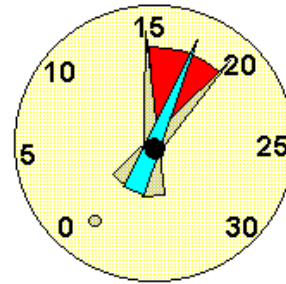
**Drifts at idle, stabilizes at higher RPM**

Burnt valve; combustion chamber leak.



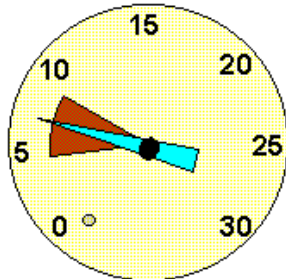
**Steady very low**

Late valve timing



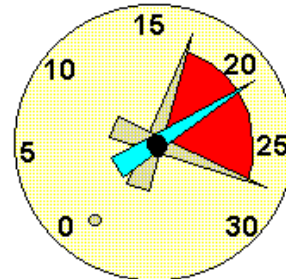
**Wavers irregularly in one range despite engine speed.**

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



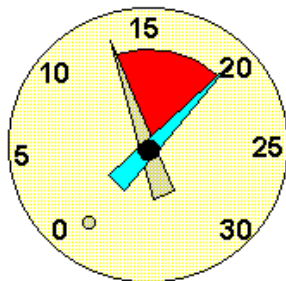
**Steady Extremely low**

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



**Vacuum averages lower than normal at idle,**

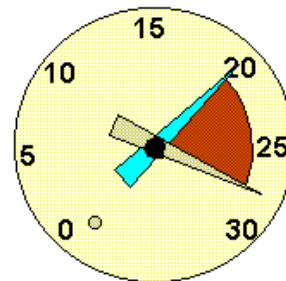
needle fluctuates almost 3" on both sides of normal. Worn valve guides admitting air, and upsetting carburetion.



**Needle rhythmically drops**

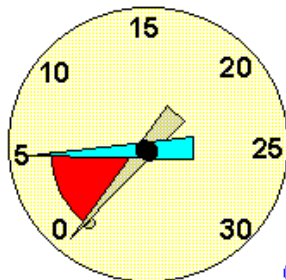
1"-7" below normal. Leaking combustion chamber or valve; ignition or plug failure effecting one cylinder

**Needle drops rapidly** but Intermittently and then recovers. Valve sticking at times, or won't close properly.



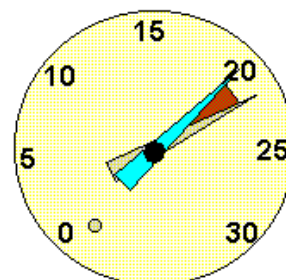
**Needle jumps 2"- 5" above normal**

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.