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# IH: Engine Mechanicals - Sub-03F

## 1983 Valve Guide Changes

- In 1983, the Moco raised the compression ratio (8.8-1) with a new piston design (.040" higher crown surface) <sup>1)</sup> and the use of the earlier style thinner head gasket. This higher compression ratio along with a new two stage ignition system (VOES), provided increased performance while allowing the use of leaded regular grade gasoline. <sup>2)</sup>
- Part of this performance upgrade, (beginning with crankcase number 783101037), was the introduction of new style intake and exhaust valve guides for XL 1000cc engines along with new (flat) lower spring collars and longer inner and outer springs. <sup>3) 4)</sup>
  - The longer springs provide increased spring tension. But, the new lower spring collars (18220-83) and longer springs can only be used with the new style valve guides. The new springs were identified as having red or orange paint on several springs.
  - The new style (shoulder-less) valve guides were also used for service replacement of the old style guides on all 1000cc engines and do allow the use of all old valve train components. Because the new style valve guides do not have a shoulder as the old ones did, a special valve guide driver (HD-33871) must be used to control the guide installed height.
    - New intake valve guides (should protrude .594"-.604" above the head casting.
    - New exhaust valve guides should protrude .640"-.650" above the head casting.
- Outer Spring (18204-83) Load:
  - Valve Closed, 52-67 lbs. @ 1-3/8"
  - Valve Open, 171.6 - 194.4 lbs. @ 3/32"
- Inner Spring (18204-83) Load:
  - Valve Closed, 20.9 - 29.1 lbs. @ 1-13/64"
  - Valve Open, 79.7 - 90.3 lbs. @ 25/32"
- Spring Free Length:
  - Outer Spring, 1-9/16"
  - Inner Spring, 1-11/32"

The new lower spring collars, inner and outer springs can be used only with the new style shoulder-less valve guides. The new lower collars and new valve springs must be used together to properly locate the valve springs and prevent the possibility of coil bind. If replacement valve springs or lower spring collars are needed on models with old style, shouldered guides, the old springs or spring collars should be used.

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<sup>1)</sup> , <sup>2)</sup>

HD Service Bulletin #M-856 dated August 6, 1982

3)

HD Service Bulletin #M-870 dated April 15, 1983

4)

HD Service Bulletin #M-870A dated May 10, 1983

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