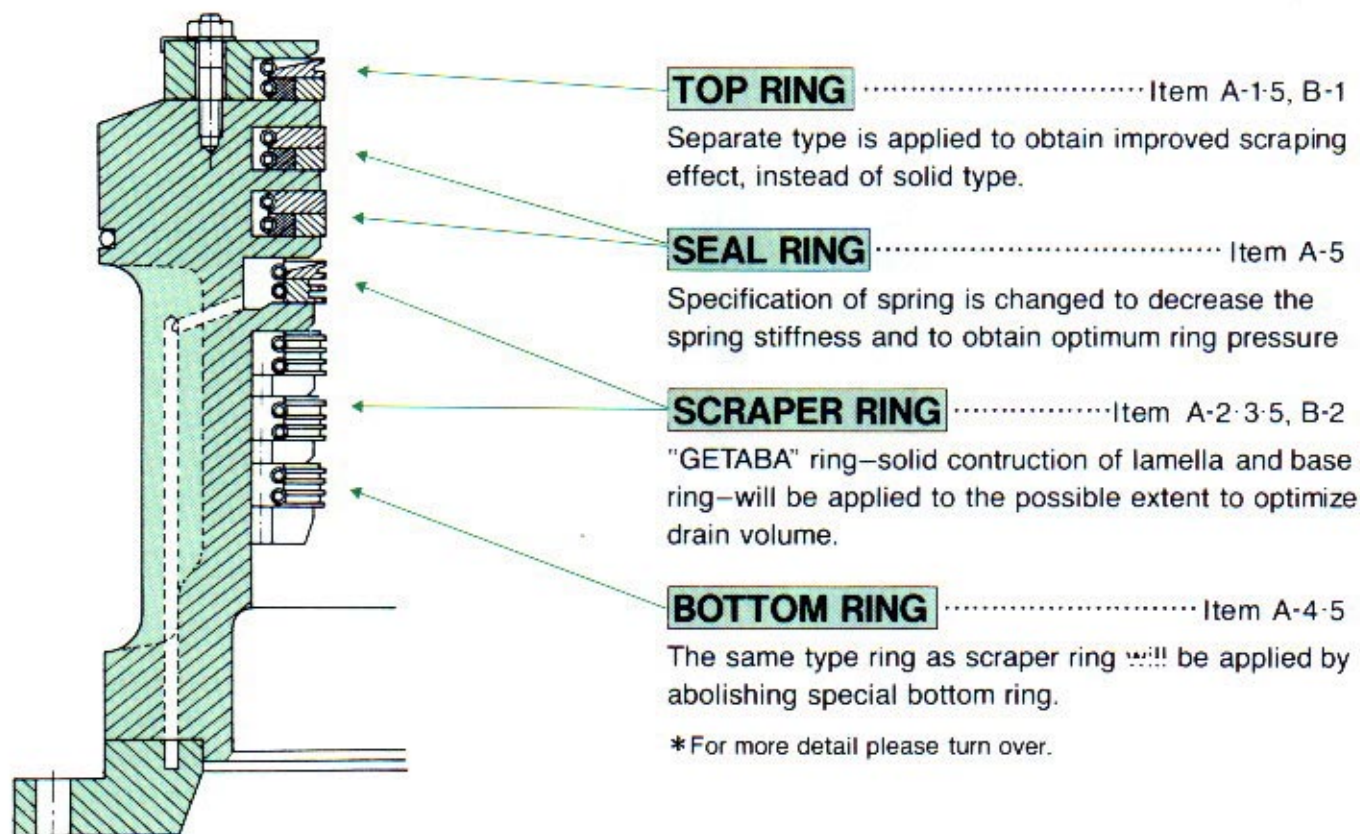


Modification & Standardization of Piston Rod Stuffing Box Rings [PART1]

Engine Type:K / L55 · 67 · 80 · 90GF / GFC / GFCA / GA / GB(E)

We have introduced following new standard on the stuffing box rings, for the purpose of unification and improvement based on our accumulated experiences in many years, as there have been used many kinds and application of stuffing box rings in accordance with the different development stage. The new standard will contribute to our efficient stock control and thus to our improved service to our client for the quick delivery. Our supply of stuffing box rings in future will be based on category A in the new standard and, in this connection, we appreciate our client's good understanding and support.



For detail specification please refer to the last page.

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FUNCTION OF STUFFING BOX RING

As well known, the function of stuffing box rings is:

To seal scavenging air from crankcase.

To separate drain made from mixture of combustion residue and cylinder oil, from the system oil in crankcase.

So the stuffing box rings have their respective function as follows:

TOP RING

scrapes up drain which adheres on piston rod during piston's downward stroke, in order to prevent the drain from coming into crankcase.

SEAL RING

seals scavenging air not to leak into crankcase.

SCRAPER RING:

The first stage ring

scrapes drain coming through sealing ring and discharge it through cofferdam. (or through groove on the ring) during piston's downward stroke.

The second and lower rings

scrape down system oil which adheres on piston rod, during piston's upward stroke.

MODIFICATION FOR NEW STANDARD

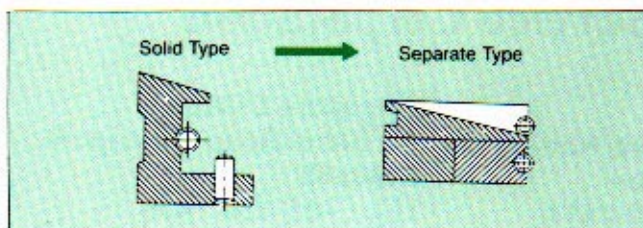
A. STANDARD MODIFICATION

Now the modification has been introduced as our new standard as follows, all of which have, however interchangeability with the existing parts and application.

1. TOP RING

[Item A-1] SOLID TYPE ⇨ SEPARATE TYPE

Existing solid type ring will be replaced by separate type, to have improved matching with piston rod and to obtain also better stability than solid type by means of horizontal tightening.



2. SCRAPER RING

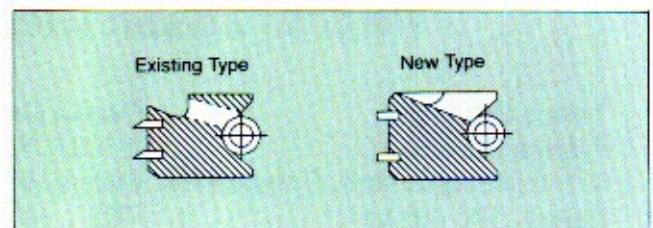
There are HECO type scraper ring in which lamella and base ring are separate construction and so called "GETABA" type scraper ring developed by HITACHI ZOSEN, in which lamella and base ring is solid construction.

Modification has been introduced for both cases as follows:

[Item A-2] HECO Type scraper ring

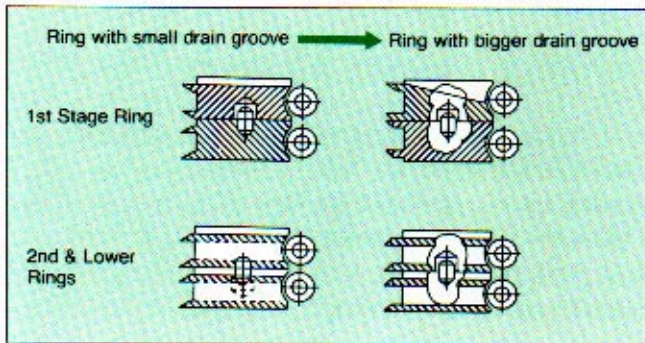
Engine with HECO type ring will be unified with HECO type ring with bigger drain discharge groove.

Note: Engine with mixed arrangement with HECO and GETABA type rings will be unified with new HECO type rings.



[Item A-3] "GETABA" type scraper ring

Engine with GETABA type ring will be standardized for the 1st stage scraper ring by GETABA type with bigger oil drain discharge groove.



3. BOTTOM RING

[Item A-4] Exchange with scraper ring

Bottom ring applied on some engine generation will be abolished and replaced with scraper ring, thus increasing one more stage of scraper rings.

4. SPRING

[Item A-5] Change of specification of springs

Springs for respective ring has been restandardized to decrease the spring stiffness and to obtain optimum ring pressure.

For detailed application per respective engine, you will refer in the last page.

B.OPTIONAL MODIFICATION

Followings are recommended for your optional modifications.

1. TOP RING

[Item B-1] Newly fitted top ring

Engine without top ring is recommended to newly install top ring by modifying stuffing box housing for perfect sealing of combustion sludge, so that contamination of system oil could be minimized.

2. SCRAPER RING

[Item B-2] HECO type ⇔ GETABA type

Engine with HECO type scraper rings is recommended to be replaced with GETABA type scraper rings, so as to obtain following advantages:

- * Double scraping effect on account of double number of scraping teeth.
- * Better touching with piston rod due to two stage construction of base ring.
- * Easier maintenance because no grinding with piston rod is necessary at the time of replacement as normally done for HECO type ring.

Note: Some stuffing box with cofferdam may be necessary to be remachined to fit with GETABA type scraper ring.

