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(1/5)

Subject :  Specification of Piston Ring	Application	UEC Diesel Engine
	Type	UEC (refer to table)
	No.	USI-24508E Rev.4
<b>If necessary</b>		

The piston rings for UEC diesel engine have plural specifications for some kinds of engine type. It confirmed that the piston rings which able to supply for the after-sales service shall be settled in the following table as the latest specifications.

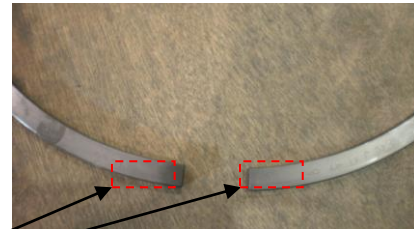
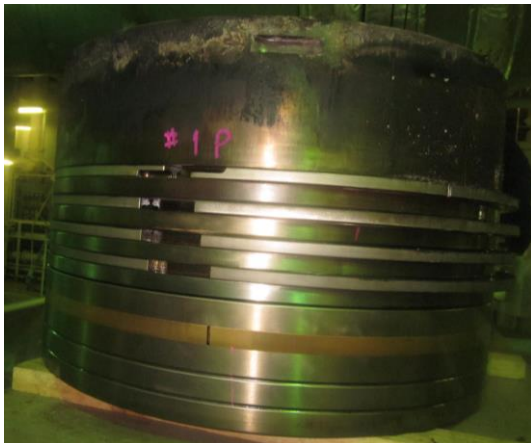
The three manufacturers' piston rings ("Maker A", "Maker B" and "Maker C") are applied. The applicable engine type of the piston rings is defined by stamp mark on attached table.

And the piston ring of each maker can be mixed and used in same cylinder unit.

Furthermore, the piston rings which are on board as stock parts, can be used continuously.

And it is also able to be used together with different combination of cylinder specification.

There is no change for the related parts like as a piston head.



Stamp position on the top of the ring

Notice :

Mo : Molybdenum

Cr : Chromium plating

N.C. : No Coating

C.C. : Chromium ceramic

### The latest specification of the piston ring (1/3) Mitsubishi Heavy Industries, Ltd

Engine type		Mounting Position	Stamp			Specification		
			Maker : A		Maker : B	Gap	Ring height (mm)	Coating
LSC	85	Top	R9VMD M J169	or	-	Straight	16.9	Mo
		2 <sup>nd</sup>	R7 M J 17		-		17	Mo
		3 <sup>rd</sup> ~4 <sup>th</sup>	R7 N 17		-			N.C.

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Plan record	Newly issued 18th Sep.2018 ( <i>T.Y, N.N, M.H</i> ) MSI-0173E Rev.8 (3rd Dec.2015)/No.0331(30th Jun.2016)	Approved	<i>K. Yoshida</i>	SERVICE ENGINEERING DEPARTMENT
	Rev.1 5th Apr,2019 Updated italic part. Rev.2 14th Jul,2020 Updated italic part(No.227rev4)	Checked	<i>N.Nakashima</i>	ENGINEERING DEPARTMENT
	Rev.3 5 <sup>th</sup> Mar,2021 Updated italic part Rev.4 26 <sup>th</sup> Jul,2021 Updated italic part	Designed	<i>M.Higuchi</i>	DATE OF REVISED : 26 <sup>th</sup> Jul. 2021

**The latest specification of the piston ring (2/3) Mitsubishi Heavy Industries, Ltd**

Engine type		Mounting Position	Stamp			Specification					
			Maker : A		Maker : B	Gap	Ring height (mm)	Coating			
LA LS	52	A	Top	C/R7	or	-	Angle	10	Cr		
			2 <sup>rd</sup> ~4 <sup>th</sup>	R7		-		10	N.C.		
		B	Top	-	or	USC10E	Straight	10	Cr		
			2 <sup>rd</sup> ~4 <sup>th</sup>	-		US10		10	N.C.		
LS	60	A	Top	13 / R9	or		Angle	13	Cr		
			2 <sup>nd</sup>	11 / R7		US 11		11	N.C.		
			3 <sup>rd</sup> ~4 <sup>th</sup>	11 / R		US 11			N.C.		
		B	Top	R7 C 11 TOP	or	TG C 11 E	Straight	11	Cr		
			2 <sup>nd</sup>	R7 C 11		US C 11			Cr		
			3 <sup>rd</sup>	R7 N 11		US 11			N.C.		
			4 <sup>th</sup>	R7 C 11 4TH		US C 11 E			Cr		
		C	Top	R9VMD C 11	or	TG C 11 E	Straight	11	Cr		
			2 <sup>nd</sup>	R7 C 11		US C 11			Cr		
			3 <sup>rd</sup>	R7 N 11		US 11			N.C.		
			4 <sup>th</sup>	R7 C 11 4TH		US C 11 E			Cr		
		D	Top~2 <sup>nd</sup>	C / R7	or	US C 11	Angle	11	Cr		
			3 <sup>rd</sup>	R7		US 11			N.C.		
			4 <sup>th</sup>	R7 C 11 4TH		US C 11 E	Straight		Cr		
		E	Top~2 <sup>nd</sup>	C / R7	or	US C 11	Angle	11	Cr		
			3 <sup>rd</sup> ~4 <sup>th</sup>	R7		US 11			N.C.		
		F	Top	C / R7	or	US C 11	Angle	11	Cr		
			2 <sup>nd</sup> ~4 <sup>th</sup>	R7		US 11			N.C.		
		G	Top	R7 C 11 TOP	or	TG C 11 E	Straight	11	Cr		
			2 <sup>nd</sup>	R7 C 11		US C 11			Cr		
			3 <sup>rd</sup> ~4 <sup>th</sup>	R7 N 11		US 11			N.C.		
		LS II	75 *1	A	Top	14 <sup>93</sup> / R9	or	-	Angle	14.9	Cr
						13 / R9		-		13	Cr
					2 <sup>nd</sup>	R7		-		N.C.	
3 <sup>rd</sup> ~4 <sup>th</sup>	13 / R				-	N.C.					
B	Top			14 <sup>93</sup> / R9	or	-	Angle	14.9	Cr		
	2 <sup>nd</sup>			R7		-			N.C.		
	3 <sup>rd</sup>			13 / R		-		N.C.			
	4 <sup>th</sup>			RTC		-		Cr			
60 *2	A		Top	R9VMD C 12	or	TG C 12 E	Straight	12	Cr		
			2 <sup>nd</sup>	R7 C 12		US C 12			Cr		
			3 <sup>rd</sup>	R7 N 12		US 12			N.C.		
			4 <sup>th</sup>	R7 C 12 4TH		US C 12 E			Cr		
	B	Top	R9VMD C 12	or	TG C 12 E	Straight	12	Cr			
		2 <sup>nd</sup>	R7 C 12		US C 12			Cr			
		3 <sup>rd</sup> ~4 <sup>th</sup>	R7 N 12		US 12			N.C.			
	C	Top	R9VMD C 12	or	TG C 12 E	Straight	12	Cr			
2 <sup>nd</sup> ~4 <sup>th</sup>		R7 N 12	US 12		N.C.						

\*1 : In the case of using hardened cylinder liner of special specification, please kindly ask us about the specification of the piston ring separately.

\*2 : The standard specifications for 60LS II are B. When specifications of A or C are applied since delivery, it can be used continually.

In the case of unclear whether to apply the any specifications, please kindly ask us about the specification of the piston ring.

## UE SERVICE INFORMATION

### The latest specification of the piston ring (3/3) Mitsubishi Heavy Industries,Ltd

Engine type		Mounting Position	Stamp				Specification				
			Maker : A	or	Maker : B	or	Maker : C	Gap	Ring height (mm)	Coating	
LS II	50	Top	R9VMD C 10	or	TG C 10 E	or	-	Straight	10	Cr	
		2 <sup>nd</sup> ~4 <sup>th</sup>	R7 N 10	or	US 10	or	-			N.C.	
	43	A	Top	9 / R9V	or	-	or	-	Angle	9	Cr
			2 <sup>nd</sup> ~4 <sup>th</sup>	9 / R7	or	-	or	-			N.C.
		B	Top	R9V C 9	or	-	or	-	Straight	9	Cr
			2 <sup>nd</sup> ~4 <sup>th</sup>	R7 N 9	or	-	or	-			N.C.
	33	Top	6 <sup>5</sup> / RA	or	-	or	-	Angle	6.5	Cr	
			6 <sup>5</sup> / R9		-		-			Cr	
		2 <sup>nd</sup>	6 <sup>5</sup> / R6	-	-	N.C.					
		3 <sup>rd</sup> ~4 <sup>th</sup>	6 <sup>5</sup> / R	-	-	N.C.					
	LSE	80	Top	R9VMD RM JGT20	or	-	or	-	Gastight	20	Mo
			2 <sup>nd</sup> ~4 <sup>th</sup>	R7 RM J 16	or	-	or	-			Straight
68		Top	14/R9V	or	-	or	-	Straight	14	Cr	
		2 <sup>nd</sup> ~4 <sup>th</sup>	14/R7	or	-	or	-			N.C.	
60		Top	R9VMD C 12	or	-	or	-	Straight	12	Cr	
		2 <sup>nd</sup>	R7 C 12		-		Cr				
		3 <sup>rd</sup> ~4 <sup>th</sup>	R7 N 12		-		N.C.				
52		Top	R9VMD C 10	or	TG C 10 E	or	-	Straight	10	Cr	
		2 <sup>nd</sup> ~4 <sup>th</sup>	R7 N 10	or	US 10	or	-			N.C.	
50		A	Top	50 CC J 11 E R9VMD CPB	or	-	or	50 CC J 11 E-G50 CKS37 *	Straight	11	Mo
			2 <sup>nd</sup> ~4 <sup>th</sup>	50 CC J 11 R7 CPB	or	-	or	50 CC J 11 -G17 CKS37 *			N.C.
		B	Top	50 CC J GT 15 E R9VMD CPB	or	-	or	50 CC J GT 15 E-G50 CKS37 *	Gastight	15	Mo
			2 <sup>nd</sup> ~3 <sup>rd</sup>	50 CC J 11 R7 CPB	or	-	or	50 CC J 11 -G17 CKS37 *	Straight	11	Mo
		C *3	Top	R9VMD RM1 JGT15	or	-	or	-	Gastight	15	Mo
			2 <sup>nd</sup> ~3 <sup>rd</sup>	R7 RM1 J 11	or	-	or	-	Straight	11	Mo
35		Top	-	or	-	or	35GTP1CC13	Gastight	13	C.C.	
		2 <sup>nd</sup> ~3 <sup>rd</sup>	-	or	-	or	35SCP2CC08	Straight	8	C.C.	
LSH *4		50	Top	50 CC J GT 15 E R9VMD CPB	or	-	or	50 CC J GT 15 E-G50 CKS37 *	Gastight	15	C.C.
	2 <sup>nd</sup> ~3 <sup>rd</sup>		50 CC J 11 R7 CPB	or	-	or	50 CC J 11 -G17 CKS37 *	Straight	11	C.C.	

\*3: Type C for 50LSE will be changed to type B as soon as our stock is lost.

\*4: This is the piston ring specification of Kobe Diesel Engine.

The mark at the end of Company C marks the revision number (1, 2...) will be stamp.

In the case of unclear whether to apply the any specifications, please kindly ask us about the specification of the piston ring.

**The latest specification of the piston ring(1/2) Japan Engine Corporation (Kobe Diesel,Co.,Ltd)**

Engine type			Mounting Position	Stamp						Specification		
				Maker : A	or	Maker : B	or	Maker : C	Gap	Ring height (mm)	Coating	
LA LS	37	A	Top~2 <sup>nd</sup>	R7 KD	or	KD USR	or	-	Angle	8	Cr	
			3 <sup>rd</sup> ~4 <sup>th</sup>	R5 KD	or	KD UR	or	-	Straight	8	N.C.	
	45	A	Top~2 <sup>nd</sup>	R7 KD	or	KD USR	or	-	Angle	9	Cr	
			3 <sup>rd</sup> ~4 <sup>th</sup>	R5 KD	or	KD UR	or	-	Straight	9	N.C.	
	52	A	Top~2 <sup>nd</sup>	R7 KD	or	KD USR	or	-	Straight	10	Cr	
			3 <sup>rd</sup> ~4 <sup>th</sup>	R5 KD	or	KD UR	or	-	Straight	10	N.C.	
	60	A	Top~2 <sup>nd</sup>	R7 C 11 TOP	or	KD USR	or	TG C 11E	Straight	11	Cr	
			3 <sup>rd</sup> ~4 <sup>th</sup>	R7 N 11	or	KD UR	or	US 11	Straight	11	N.C.	
		B	Top,4 <sup>th</sup>	R7 C 11 TOP	or	-	or	-	Straight	11	Cr	
			-	-	or	KD USR	or	-	Angle		Cr	
		2 <sup>nd</sup> ~3 <sup>rd</sup>	-	-	or	KD USR	or	-	Angle	11	N.C.	
			R7 N 11	-	or	-	or	-	Straight		N.C.	
LSII	50	A	Top	R9 KD	or	KD GR	or	-	Angle	10	Cr	
			2 <sup>nd</sup>	R7 KD	or	KD USR	or	-			N.C.	
			3 <sup>rd</sup> ~4 <sup>th</sup>	R5 KD	or	KD UR or KD USR	or	-			N.C.	
		B	Top	-	or	NPR-US-R 10	or	-	Angle	10	Cr	
			2 <sup>nd</sup>	-	or	NPR-US-R 10	or	-			N.C.	
			3 <sup>rd</sup> ~4 <sup>th</sup>	-	or	NPR-U-R 10	or	-			N.C.	
	C	Top~2 <sup>nd</sup>	-	or	NPR-US-R 10	or	-	Angle	10	Cr		
		3 <sup>rd</sup> ~4 <sup>th</sup>	-	or	NPR-U-R 10	or	-			N.C.		
	D	Top~2 <sup>nd</sup>	R9VMD C 10	or	-	or	-	Straight	10	Cr		
		3 <sup>rd</sup> ~4 <sup>th</sup>	R7 N 10	or	-	or	-			N.C.		
	60	A	Top~2 <sup>nd</sup>	R9 KD	or	KD GR	or	-	Angle	12	Cr	
			3 <sup>rd</sup> ~4 <sup>th</sup>	R5 KD	or	KD UR	or	-			N.C.	
		B	Top~2 <sup>nd</sup>	R9VMD KD	or	KD GR	or	-	Straight	12	Cr	
			3 <sup>rd</sup> ~4 <sup>th</sup>	R7 KD	or	KD USR	or	-			N.C.	
		C	Top~2 <sup>nd</sup>	R9VMD C 12	or	-	or	-	Straight	12	Cr	
			3 <sup>rd</sup> ~4 <sup>th</sup>	R7 N 12	or	-	or	-			N.C.	
	LSE	45 -1	A	Top~2 <sup>nd</sup>	R9VMD KD	or	KD GR	or	-	Straight	9.5	Cr
				3 <sup>rd</sup> ~4 <sup>th</sup>	R7 KD	or	KD USR	or	-			N.C.
45 -B2		A	Top	R9NMD RM1 JGT 13 KD	or	-	or	-	Gastight	13	Mo	
			2 <sup>nd</sup> ~3 <sup>rd</sup>	R7 RM1 J 11 KD	or	-	or	-	Straight	11	Mo	
50 -B1		A	Top	50 CC J GT 15 E R9VMD CPB	or	-	or	50 CC J GT 15 E-G50 CKS37 *	Gastight	15	C.C	
			2 <sup>nd</sup> ~3 <sup>rd</sup>	50 CC J 11 R7 CPB	or	-	or	50 CC J 11 -G17 CKS37 *	Straight	11	C.C	
		B *	Top	R9VMD RM1 JGT 15	or	-	or	-	Gastight	15	Mo	
			2 <sup>nd</sup> ~3 <sup>rd</sup>	R7 RM1 J 11	or	-	or	-	Straight	11	Mo	
52		A	Top	R9 KD	or	KD GR	or	-	Angle	10	Cr	
			2 <sup>nd</sup> ~4 <sup>th</sup>	R7	or	KD USR	or	-			N.C.	
		B	Top	R9VMD KD	or	-	or	-	Straight	10	Cr	
			2 <sup>nd</sup> ~4 <sup>th</sup>	R7 KD	or	-	or	-			N.C.	
		C	Top	R9VMD C 10	or	-	or	-	Straight	10	Cr	
			2 <sup>nd</sup> ~4 <sup>th</sup>	R7 N 10	or	-	or	-			N.C.	
60 -A2		A	Top	60 RM J GT 17E	or	-	or	-	Gastight	17	Mo	
			2 <sup>nd</sup> ~3 <sup>rd</sup>	R7 RM1 J 12	or	-	or	-	Straight	12	Mo	

**The latest specification of the piston ring(2/2) Japan Engine Corporation (Kobe Diesel,Co.,Ltd)**

Engine type			Mounting Position	Stamp				Specification			
				Maker : A		Maker : B		Maker : C	Gap	Ring height (mm)	Coating
LSH	50	A	Top	50 CC J GT 15 E R9VMD CPB		-		50 CC J GT 15 E-G50 CKS37 *	Gastight	15	C.C
			2 <sup>nd</sup> ~3 <sup>rd</sup>	50 CC J 11 R7 CPB	or	-	or	50 CC J 11 -G17 CKS37 *	Straight	11	C.C

\*5: Type B for 50LSE will be changed to type A as soon as our stock is lost.

The mark at the end of Company C marks the revision number (1, 2...) will be stamp.

In the case of unclear whether to apply the any specifications, please kindly ask us about the specification of the piston ring.