

正确维修保养博世 柴油共轨系统

博世汽车技术服务
李杏林

内容

▶ 柴油系统的发展趋势

-柴油系统的应用

-柴油系统的发展趋势

▶ 正确维修保养博世柴油共轨系统

-共轨系统的精良工艺

-共轨系统保养的安全性和清洁度要求








-车辆常规保养对共轨系统及减排的影响

-共轨泵的正确维修保养与减排

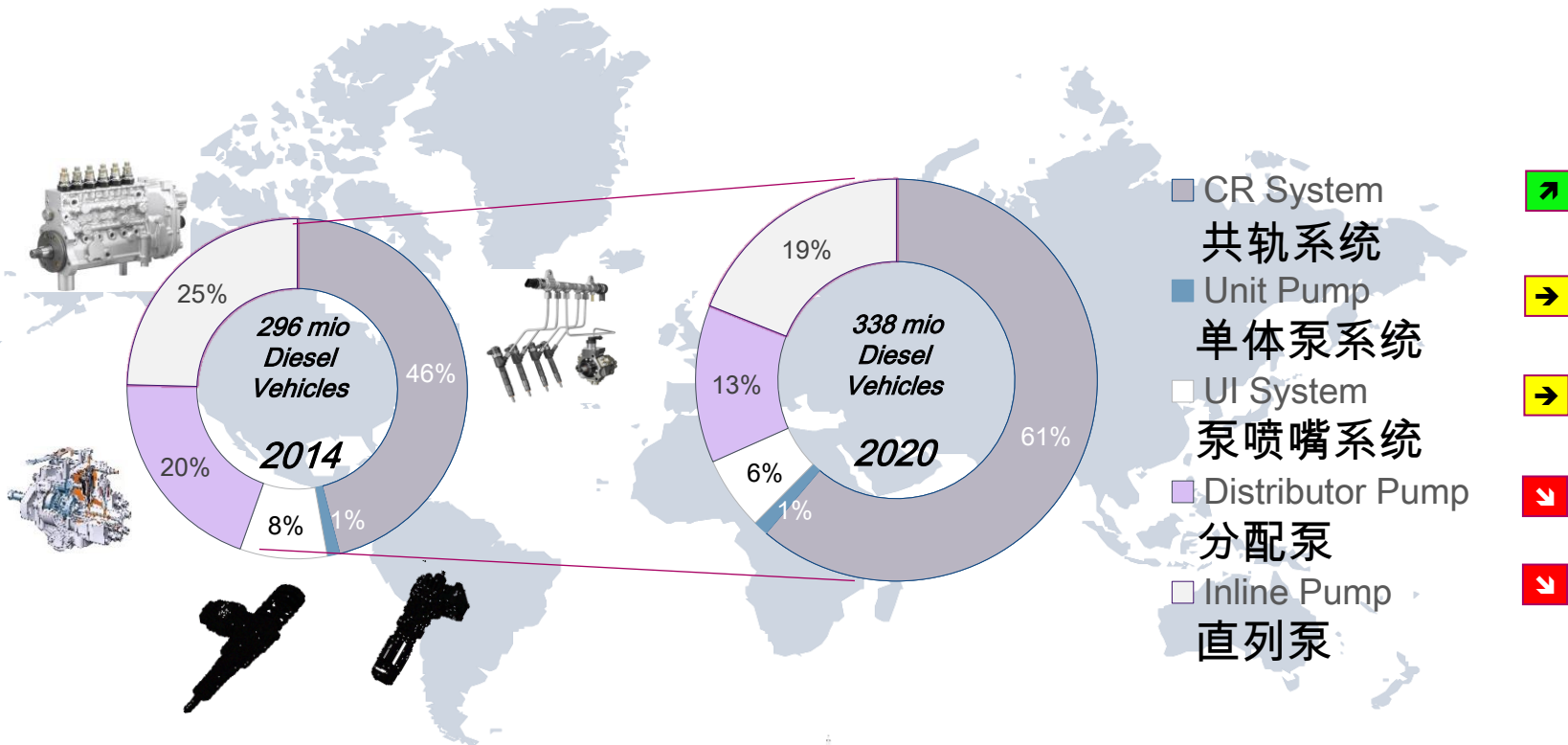
-共轨喷油器的正确维修保养与减排

-只有授权的专业的服务网络才能正确保养核心柴油部件

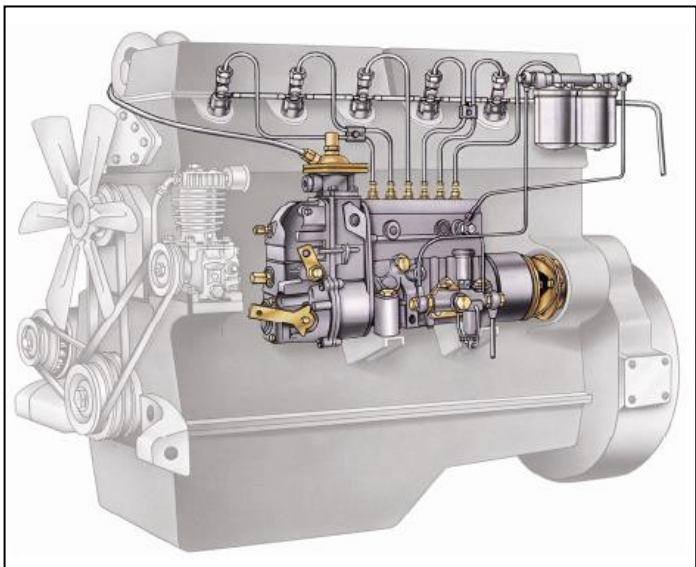
柴油系统的应用 Diesel system application

						
 M	M MW	M MW	A/P MW	P/H MW	ZWM CW	ZWM CW
PF		PF	PF	PF	PF	PF
VE	VE	VE	VE	VE		
VR	VR	VR	VR	VR		
	UIS	UIS	UIS	UIS	UIS	
			UPS	UPS	UPS PF(R)	UPS PF(R)
	CR	CR	CR	CR	CR	CR

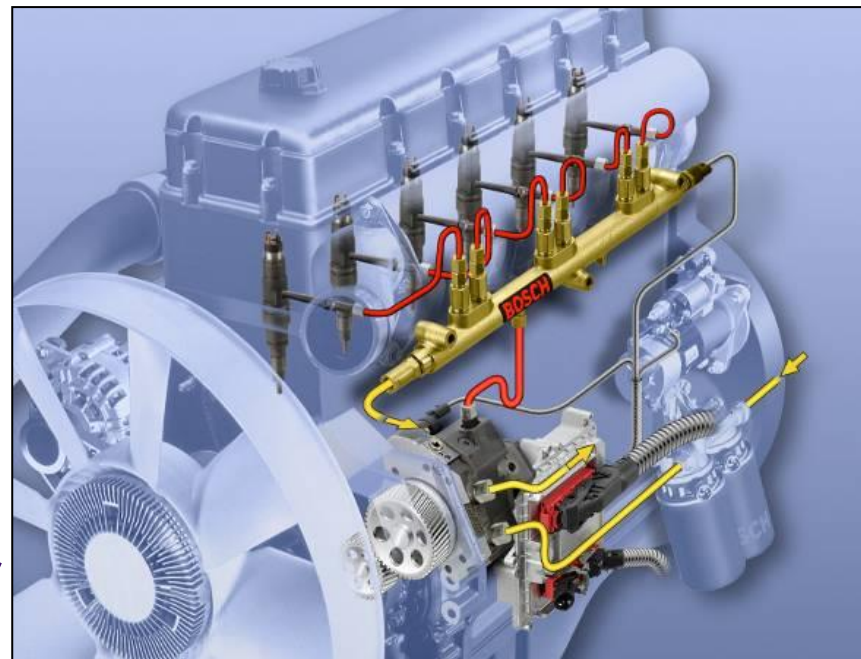
柴油系统的发展趋势 Diesel system trends



柴油系统的发展趋势 Diesel system trends

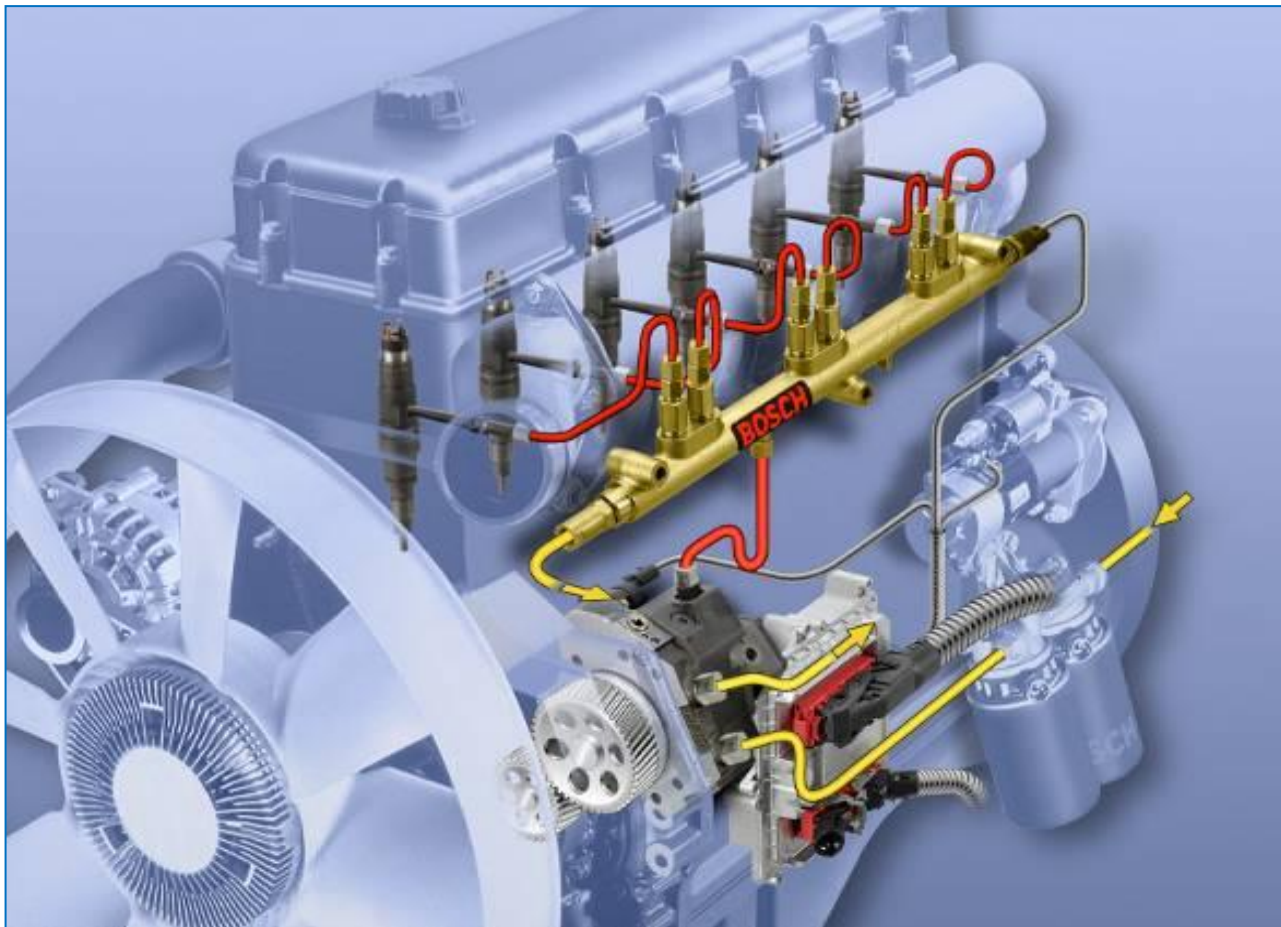


更高的喷射压力控制
更精确的喷油量控制
更精确的喷油时刻控制
更灵活的喷油特性控制



更低的燃油消耗
更良好的驾驶性能
更绿色清洁环境友好

共轨系统的精良工艺 Technologic Excellent



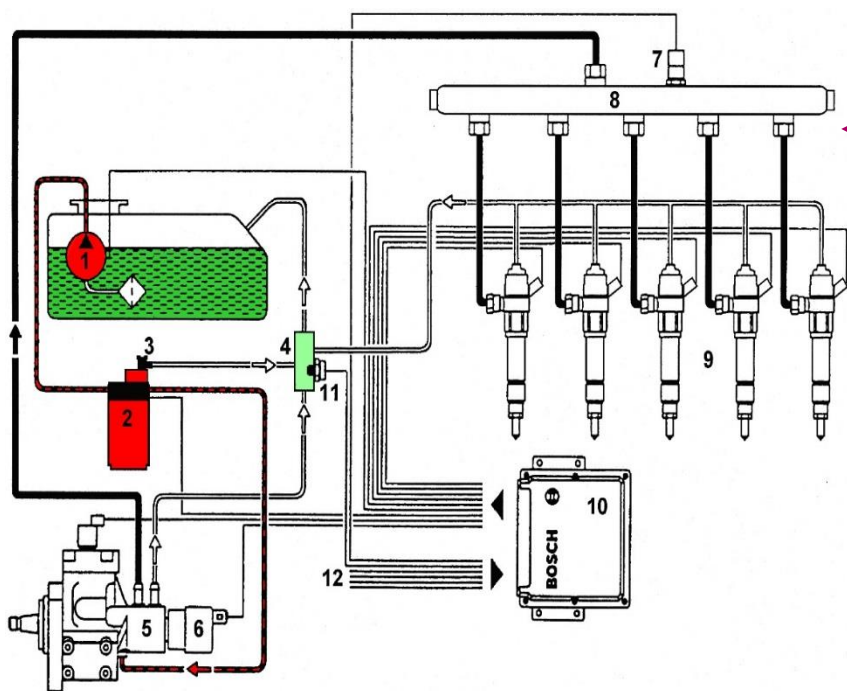
60 μ m 头发丝直径
7 μ m 红细胞直径
1 μ m 共轨喷油器调整尺寸要求

共轨系统可以实现极高喷射压力（目前可达到2500巴），精确可调喷射提前角，灵活多变的喷油策略（多次预喷和后喷），配合增压中冷技术，使得燃油的雾化、混合和燃烧都能达到最高的效率。和传统机械系统相比，大大减少了颗粒物的排放。同时，燃烧噪音更小。另外电控系统的使用使得故障诊断和维修更准确和高效。

共轨系统保养的安全性要求 Safety

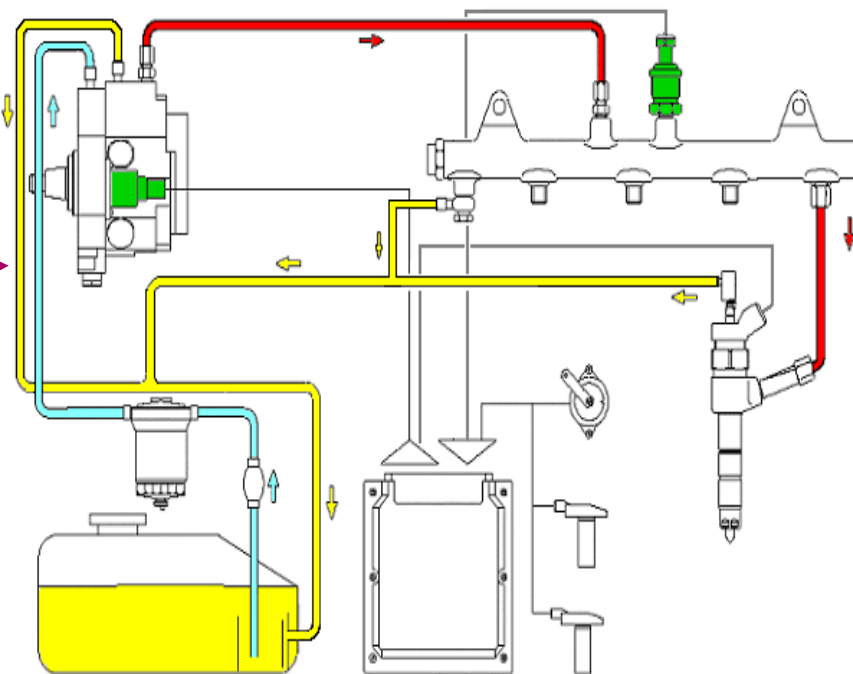
在共轨柴油引擎运转时，严禁从事共轨高压回路的相关拆卸工作，包括油轨、压力控制阀、压力限制阀、轨压传感器、相关线束和高压油管。

No work should be carried out on Common Rail high-pressure circuit when the engine is running.



After 30seconds
停车熄火30秒后

After 5minutes
停车熄火5分钟后



共轨系统保养的安全性要求 Safety



Dangers
危险

High pressure leakage danger of injury to eyes and skin.

高压泄漏对眼睛和皮肤危险伤害。

手要远离高压喷射油雾

When loosening interfaces in high pressure circuit during operation, fuel jets can get ignited on hot engine parts, **risk of fire!**

在引擎运转的情况下松开高压管路时，油束遇到热的引擎零部件可能会着火，**着火的风险！**

The first high-pressure component is to be detached **slowly** according to the corresponding instruction, so that a pressure reduction is ensured.

第一个拆卸的高压部件，应该按照指导文件要求**慢慢地**松开，以便压力安全地降低。

Due to high currents and strong electrical fields, a safety distance of **>0.2 m** should be maintained by the workshop personnel.

共轨柴油引擎运转时有大电流和强磁场，为保证安全，维修站的员工应处于**大于0.2米**的距离外。

共轨系统保养的清洁度要求 Cleanliness

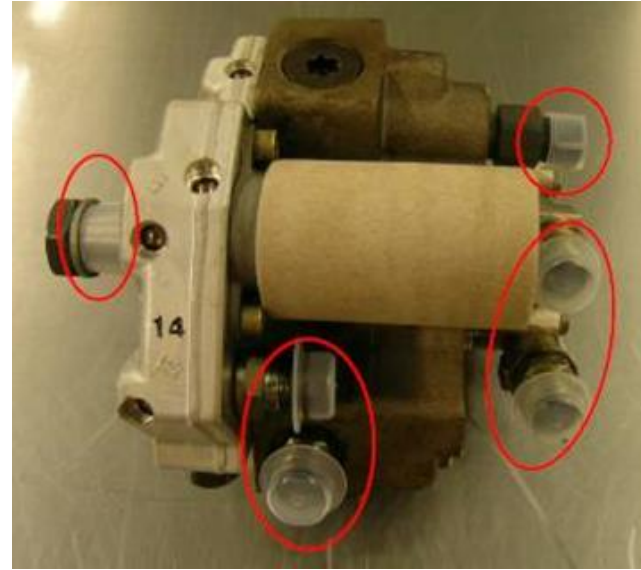
When working on fuel supply/injection, the following **“6 rules” of cleanliness** must be thoroughly observed:
当维修保养燃油供给和喷射系统时，应严格遵守下面**6条清洁度的要求**：

- clean the connecting points and their surroundings thoroughly before unfastening.
- 在从事拆卸工作前，应清洁连接点及其周边区域。
- place the disassembled parts on a clean base and cover them. Do not use cloth having fiber!
- 将拆卸下来的零部件放在一个干净的地方并作外部防尘遮盖。不要使用掉渣的布！



共轨系统保养的清洁度要求 Cleanliness

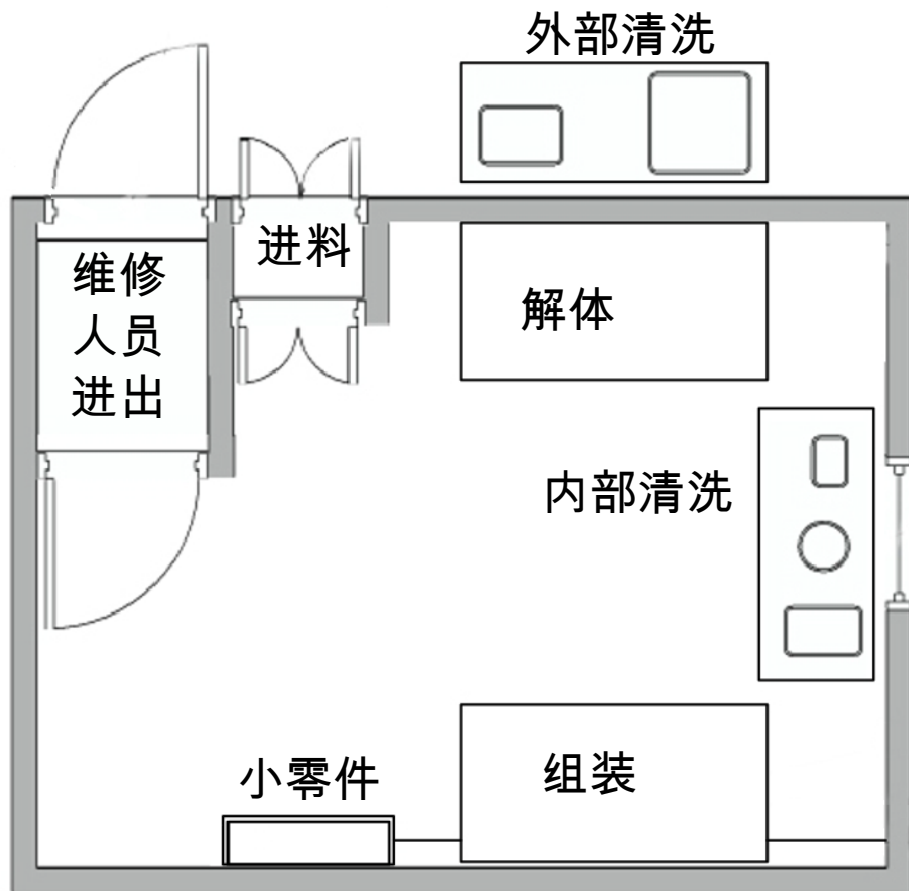
- In case repairs are not done immediately, cover or close the opened components carefully.
- 一旦没有立即完成维修工作，需要仔细地将部件裸露的开口覆盖住。
- Assembly clean parts only: Spare parts must be removed from the packing just before mounting. Do not use parts that were stored without packing (e.g. in tool boxes etc.).
- 仅组装清洁的零部件：新件只有在组装时才从包装中打开。不要使用没有包装存放的零部件（如，放在工具箱中）。



共轨系统保养的清洁度要求 Cleanliness

- After the assembly is opened: Do not use compressed air as far as possible.
Do not move the vehicle as far as possible.
- 当总成件拆开了：尽可能不使用压缩空气。
尽可能不移动车辆。
- In addition, care is to be exercised that diesel does not run on to the coolant pipes.
Should the occasion arise, the hoses must be immediately cleaned again.
Worn-out hoses must be replaced.
- 此外，注意检查柴油不能流入冷却管路里。
一旦发生这种情形，应立即重新清洗该冷却管路。
破损的管路必须更换。

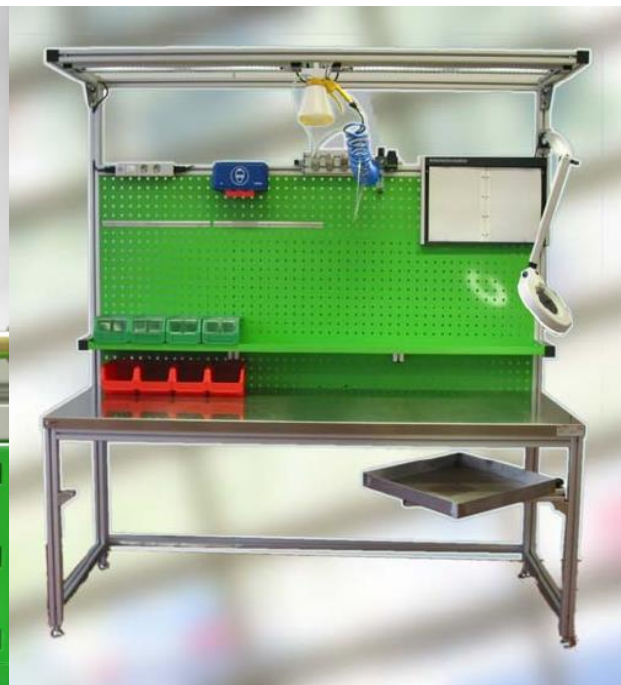
共轨系统保养的清洁度要求 Cleanliness



过滤压缩空气



清洁工作台



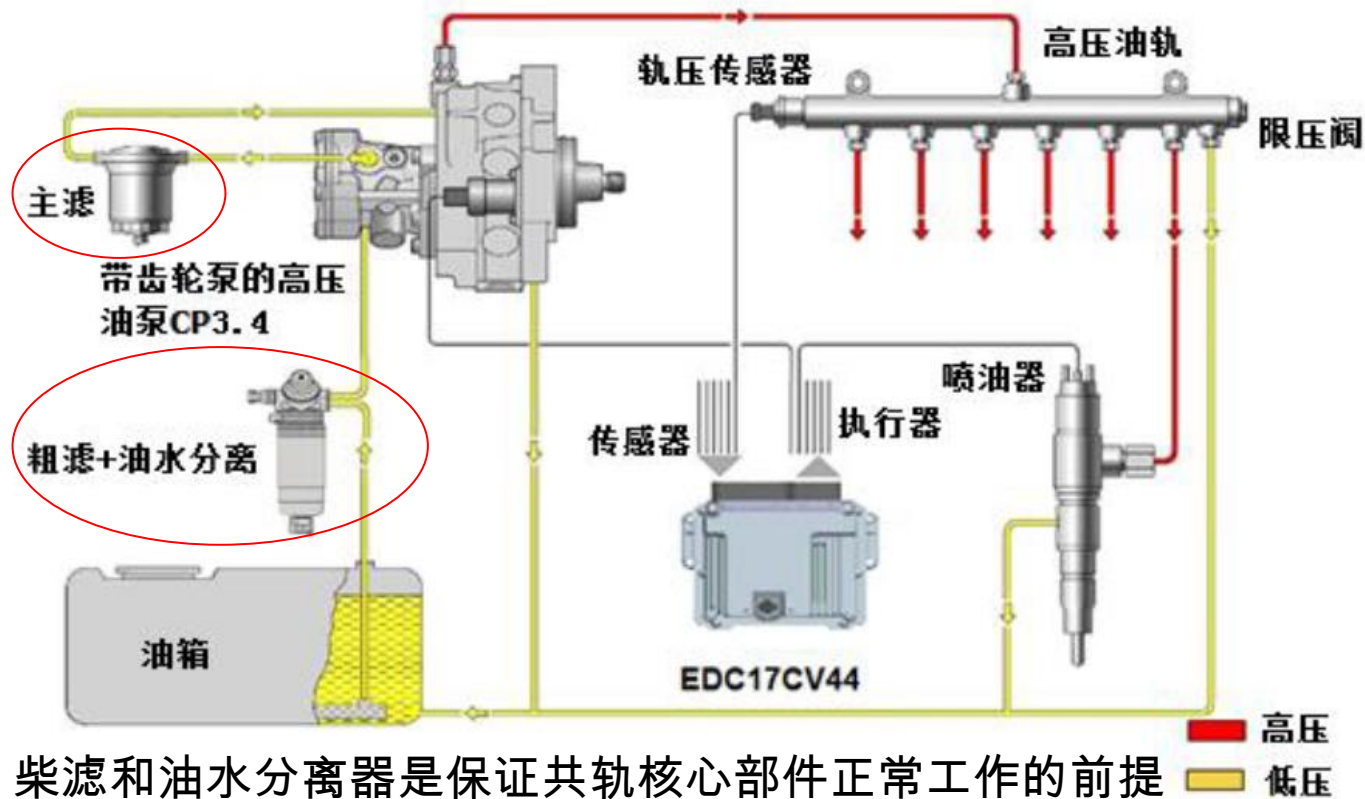
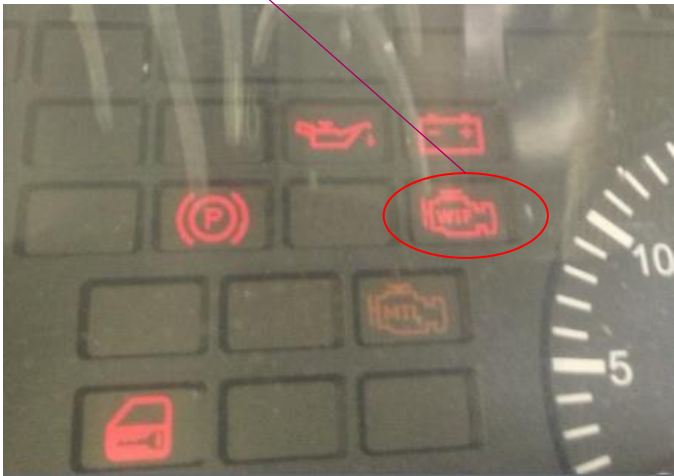
车辆常规保养对共轨系统的影响

Vehicle maintenance & CRS

常规保养：更换三滤（空滤、机滤和柴滤）和机油

Normal Maintenance : Three filters and oil change

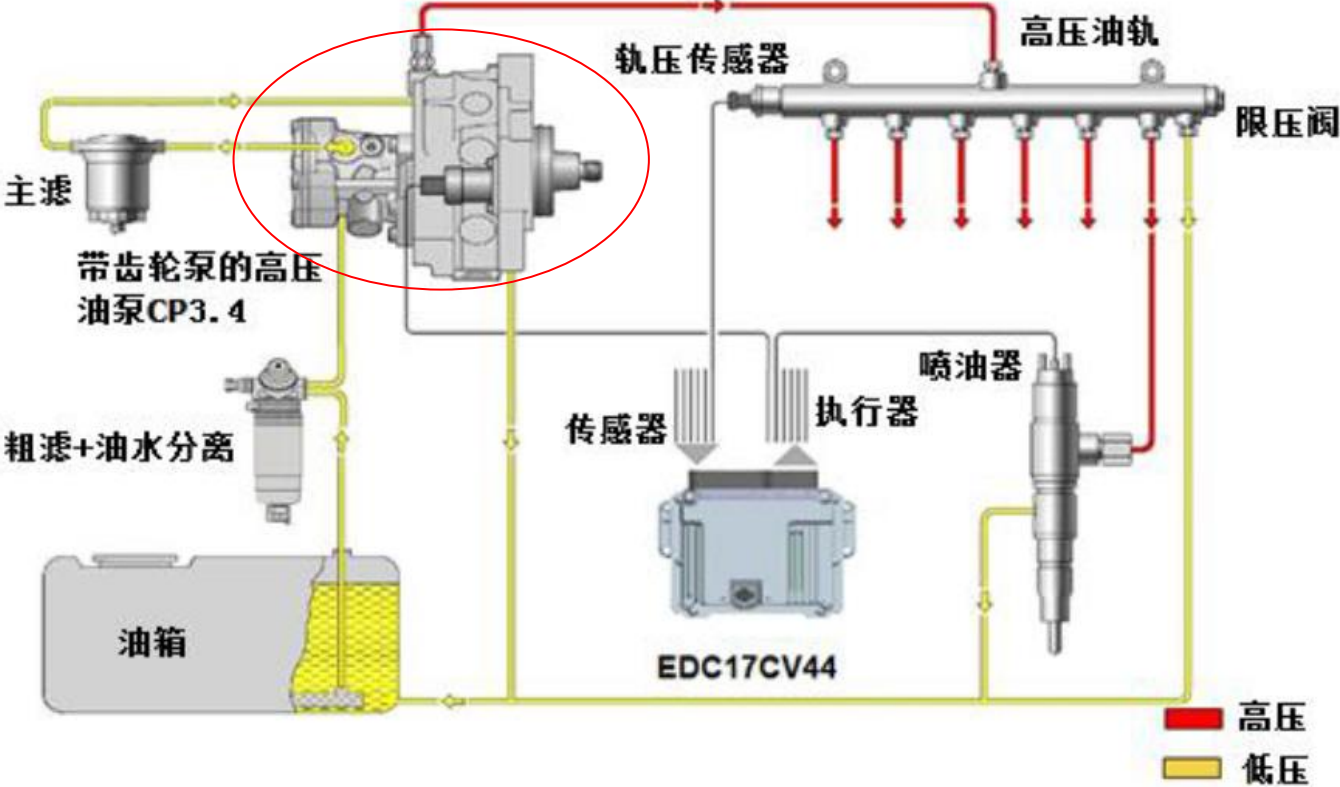
WIF=Water into fuel



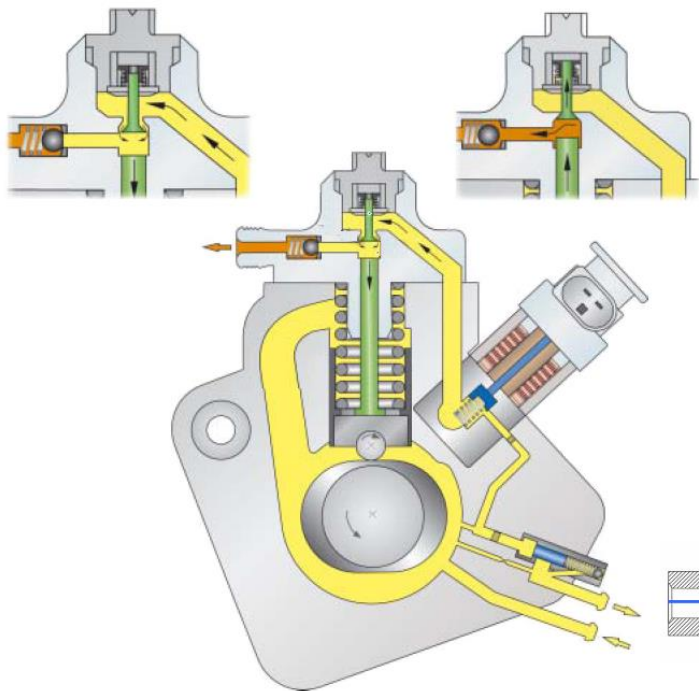
柴滤和油水分离器是保证共轨核心部件正常工作的前提

共轨泵的正确维修保养

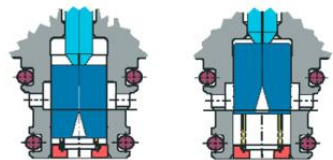
CP Maintenance/Repair



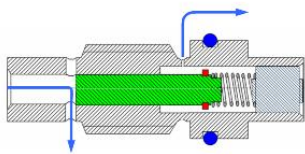
共轨泵的正确维修保养 CP Maintenance/Repair



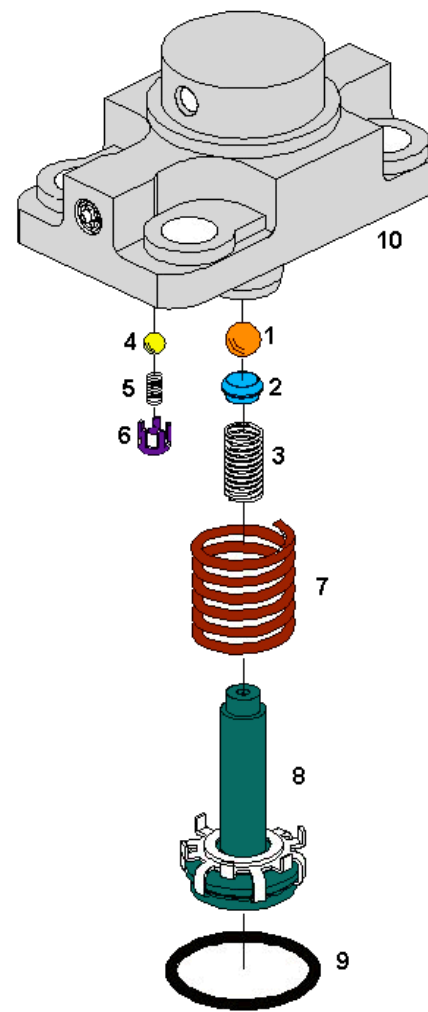
Suction valve 进出油阀
Outlet valve



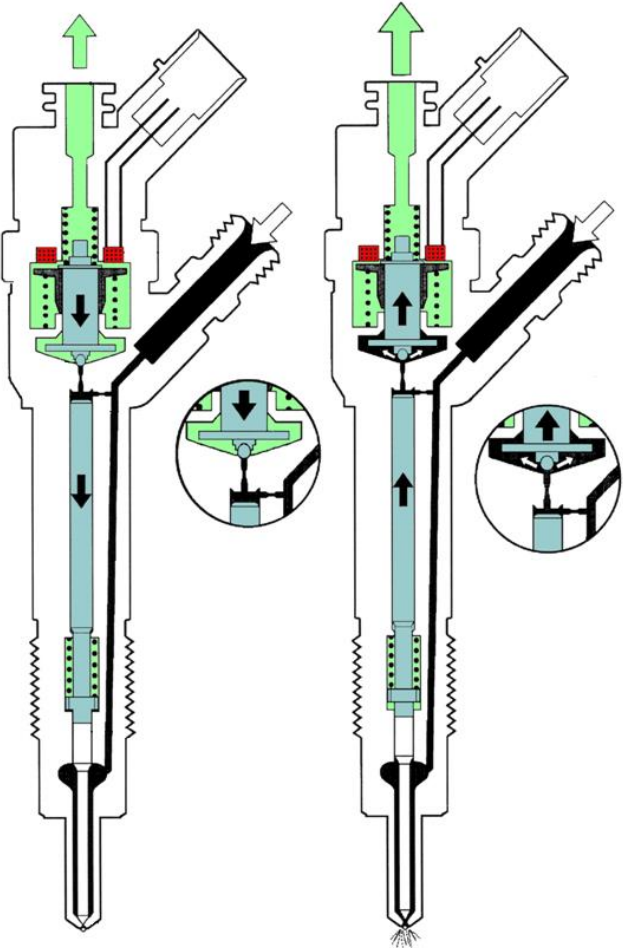
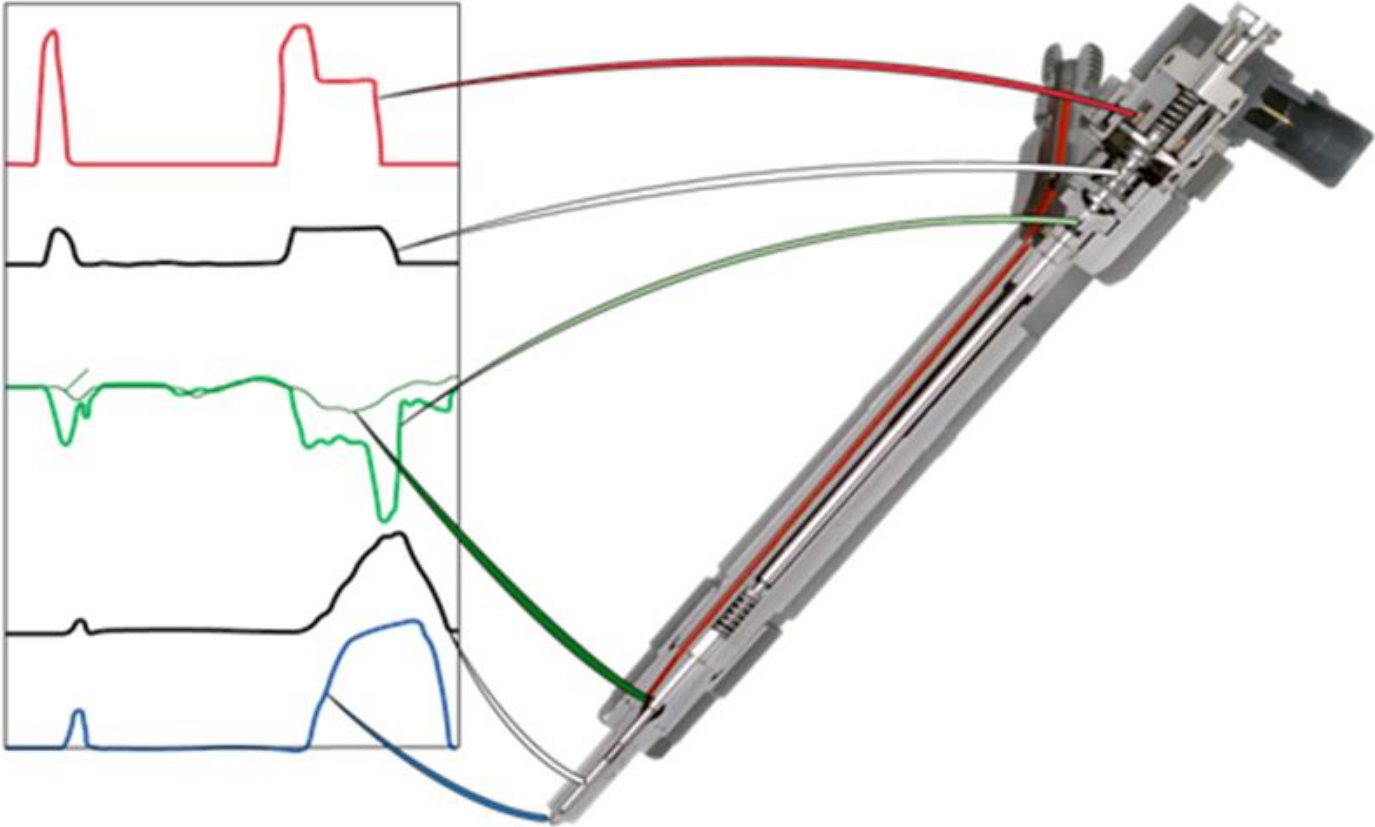
Metering Unit
燃油计量单元



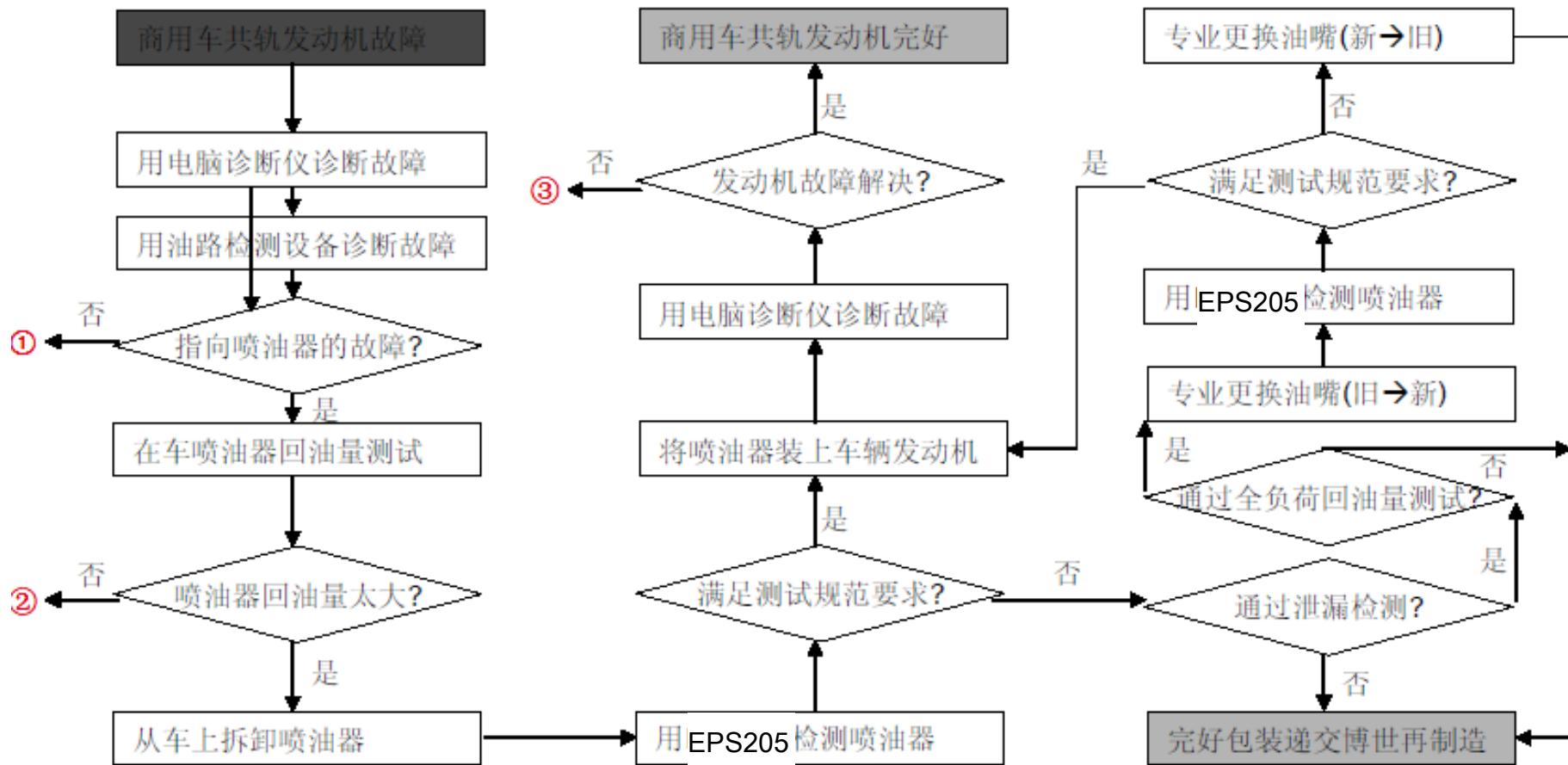
Overflow valve
溢流阀



共轨喷油器的正确维修保养 CRI Maintenance/Repair




共轨喷油器的正确维修保养 CRI Maintenance/Repair Process



共轨喷油器的正确维修保养


CRI Maintenance/Repair equipment & software



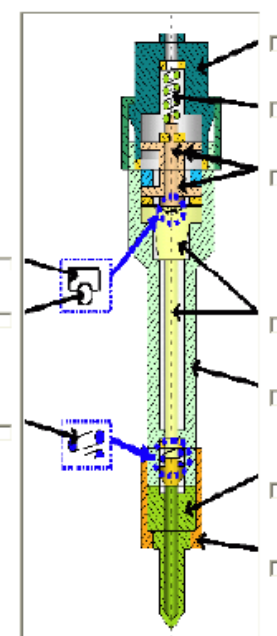
 **BOSCH** SW CRR920 - V
DB CRR920 - V(C) XXXXXXXXXXXX
2 / 2

XXXXXX XXXX CRII_Drst_M15_VF

FD x (tt.min,yy) SN xx xx



- 01 - M - AH
- 02 - S - VSS
- 03 - NM - AH
- 04 - M - AHR XXX XXX XXX ✓
- 05 - L - VSS
- 06 - S2 - VSS
- 07 - M - RLS
- 08 - M - VFF
- 09 - S - MSM
- 10 - AHE - AHE
- 11 - M - DNH
- 12 - M - DFK
- 13 - S - DSM
- 14 - S - DRS
- 15 - C - ISO
- 15 - C - R



只有授权的专业服务网络才能正确保养核心柴油部件 FCR mainly in BDC/BDS

核心柴油部件通过专业的博世
授权的柴油系统服务中心或服
务站来维修服务
合格的维修才能保证产品性能
才能满足排放法规的要求



只有授权的专业服务网络才能正确保养核心柴油部件

FCR mainly in BDC/BDS

驾驶员在驾驶共轨柴油引擎的车辆时，应时刻关注仪表盘上是否有异常。一旦出现MIL灯点亮，请注意与排放相关的一些传感器、执行器或系统工作有异常，应及时排查。



博世汽车售后官方微信

From a single source:
diagnostics, parts and services for trucks and LCVs

Diesel

by Bosch



Thank you !