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| --- |
| **1. 发动机 / *ENGINE*** |
|  | 原发动机型号*Model of origin of the engine* |  |

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| --- | --- |
| **103.** | 气缸容积**/ *Cylinder capacity*** |
| a) 单缸 *Unitary* |  | cm3 |
| b) 总容积 *Total* |  | cm3 |
| c) 最大允许总容积 *Maximum total allowed* |  | cm3 |

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| **104.** | 压缩比**(par rapport à l'unité) / *Compression ratio (in relation with the unit)*** |
| **Maximum** |  | **: 1** |

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| **105.** | 缸径**/ *Bore*** |
|  | +0- 0.1 mm |

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| --- | --- |
| **106.** | 冲程**/ *Stroke*** |
|  | +0- 0.1 mm |

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| A1-1) 从侧面看拆下的发动机（左） *Dismounted engine – seen from the side* |  | A1-2) 从侧面看拆下的发动机（右） *Dismounted engine – seen from the side* |
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| A1-3) 拆下的气门室盖（外） *Cylinderhead cover - dismounted* |  | A1-4) 拆下的气门室盖（内） *Cylinderhead cover - dismounted* |
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| A1-5) 发动机，安装在机舱内 *Engine in its compartment* |  |  |
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| **107.** | 缸体**/ *Cylinder block*** |
| a) 材质 *Material* |  |
| c) 最小重量 *Minimum weight* |  | g | 没有曲轴轴承盖、轴承盖固定螺栓、缸筒和油底壳 *Without crankshaft bearings caps, with fixing studs of bearing caps, of cylinderhead and of oil sump* |

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| A3-1) 裸缸体从上面看 *Bare cylinder block seen from above* |  | A3-2) 裸缸体从下面看 *Bare cylinder block seen from underneath* |
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| --- | --- | --- |
| A3-3) 裸缸体右侧看 *Bare cylinder block seen from right hand side* |  | A3-4) 裸缸体左侧看 *Bare cylinder block seen from left hand side* |
|  |  |  |

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| --- | --- | --- |
| A3-5) 从正时侧看到的裸缸体 *Bare cylinder block seen from timing side* |  | A3-6) 从飞轮侧看到的裸缸体 *Bare cylinder block seen from flywheel side* |
|  |  |  |

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| --- | --- | --- |
| A3-7) 曲轴轴承盖 *Crankshaft bearing caps* |  | A3-8) 发动机缸体油底导油装置 *Oil deflector on engine block* |
| 如果可拆卸/IF DISMOUNTABLE |  |  |

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| **108.** | **缸体最小高度/ *Min. height of the cylinder block*** |
| a)安装油底壳平面到缸垫平面之间 *Between sump and head**gasket planes* |  | mm | **III-C1)** 高度测量/ *Height measurement* |
|  |
| b) 曲轴中心线到缸垫平面之间 *Between crankshaft centrelineand head gasket plane* |  | mm |

|  |  |
| --- | --- |
| **109.** | **缸套 / *Sleeves*** |
| a) 加套缸体 *Sleeved cylinder block* | **是/ *Yes*** | **否 / *No*** | C3-8) 拆下的缸套 *Sleeve dismounted* |
| **[ ]**  | **[ ]**  |
|  |
| b) 材质 *Material* |  |
| c) 类型 *Type* | 湿式***Wet*** | 干式***Dry*** |
| **[ ]**  | **[ ]**  |
|  |

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| --- | --- |
| **110.** | **活塞/ *Piston*** |
| a) 材质 *Material* |  |
| b) 活塞环数量 *Number of rings* |  | b1) 活塞环厚度 *Thickness of rings* |  | + 0.1-0.05 mm |
| c) 最小重量 *Minimum weight* |  | g | 带活塞环、肖、卡子、轴承*With pin, bearing, clips and rings* |
| d1) 最低压缩高度 *Minimum* *compression height* |  | mm |

|  |  |  |
| --- | --- | --- |
| A4-1) 活塞，从顶部¾角度 *Piston from ¾ top* |  | A4-2) 活塞，从底部¾角度 *Piston from ¾ bottom* |
|  |  |  |

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| --- |
| A4-3) 活塞环 *Piston rings* |
|  |

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| --- | --- | --- |
| **I-D1)** 活塞销 *Piston pin* |  | **I-D2)** 最低压缩高度 *Minimum compression height* |
|  |  |  |

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| --- | --- |
| **111.** | 连杆**/ *Connecting rod*** |
| a) 材质 *Material* |  | b) 大端类型 *Big end type* |  |
| c) 大端内径（无轴瓦） *Interior diameter of the big end (without shell bearings)* |  | +0.1- 0 mm |
| d) 轴间的长度 *Length between axes* |  | + 0.1 mm | e) 最小重量 *Minimum weight* |  | g |

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| --- | --- | --- |
| A5-1) 连杆，从大端侧¾角度 *Connecting rod from ¾ on big end side* |  | A5-2) 连杆，从小端侧¾角度 *Connecting rod from ¾ rear on small end side* |
|  |  |  |

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| --- | --- |
| **112.** | **曲轴/ *Crankshaft*** |
| a) 生产类型 *Type of manufacture* |  | b) 材质 *Material* |  |
| c) 制造工艺 *Manufacturing process* | **铸造*****Cast*** | **[ ]**  | **锻造*****Forged*** | **[ ]**  | **原材料加工*****Machined from raw*** | **[ ]**  |
| f) 轴承直径 *Diameter of bearings* |  | +0- 0.1 mm |
| g) 轴承盖材质 *Bearing caps material* |  |
| h) 裸曲轴的最小重量 *Minimum weight of bare crankshaft* |  | g |
| i) 曲柄轴直径 *Diameter of crank pins* |  | +0- 0.1 mm |

|  |  |  |
| --- | --- | --- |
| C6-1) 从曲轴前¾ *Crankshaft from ¾ front* |  | C6-2) 从曲轴后¾ *Crankshaft from ¾ rear* |
|  |  |  |

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| --- | --- |
| **112.** | **飞轮/ *Flywheel*** |
| a) 材质 *Material* |  |
| b) 最小重量 *Minimum weight* |  | g | 带固定螺丝和启动环*With fixings and starter ring* |
| c) 起动环的外直径 *External diameter of the starter ring* |  | + 3 mm |
| d) 起动环的齿数 *Number of teeth of the starter ring* |  |
| e) 起动环的厚度 *Thickness of the starter ring* |  | + 1 mm |

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| --- | --- | --- |
| A7-1) 飞轮图片，从前¾角度 *Flywheel from ¾ front* |  | A7-2) 飞轮图片，从后¾角度 *Flywheel from ¾ rear* |
|  |  |  |

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| **113.** | **气缸盖 / *Cylinderhead*** |
| a) 材质 *Material* |  |
| b) 最小高度 *Minimum height* |  | mm |
| c) 测量位置 *Where measured* |  |
| d) 进气门和缸垫平面之间的角度 *Angle between intake valve and cylinder head gasket plane* *and exhaust valve* |  | deg+30´ |
| e) 排气阀和缸垫平面之间的角度 *Angle between exhaust valve and cylinder head gasket plane* *and exhaust valve* |  | deg+30´ |
| f) 燃烧室最小容积 *Minimum volume of a combustion chamber* *and exhaust valve* |  | cm3 |
| g) 最小重量 *Minimum weight* |  | g | 带凸轮轴轴承盖，轴承盖螺栓，缸盖罩，歧管With camshaft bearings caps, fixing studs of bearing caps, of cylinderhead cover, of manifolds |

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| --- | --- | --- |
| A8-1) 从顶部看到的裸气缸盖 （凸轮轴侧） *Bare cylinderhead seen from top (camshaft side)* |  | A8-2) 从底部看到的裸气缸盖 （燃烧室侧） *Bare cylinderhead seen from underneath (chamber side)* |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| A8-3) 从进气侧看到的裸气缸盖 *Bare cylinderhead seen from intake side* |  | A8-4) 从排气侧看到的裸气缸盖 *Bare cylinderhead seen from exhaust side* |
|  |  |  |

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| --- | --- | --- |
| A8-5) 从正时侧看到的裸气缸盖 *Bare cylinderhead seen from timing side* |  | A8-6) 从飞轮侧看到的裸气缸盖 *Bare cylinderhead seen from flywheel side* |
|  |  |  |

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| --- | --- |
| A8-7) 燃烧室 *Combustion chamber* |  |
|  |

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| --- |
| **进气 / *INTAKE*** |
| **气缸盖端口图纸-对尺寸的公差: +/-1%*****Drawings of cylinder head ports - tolerances on dimensions : +/-1%*** |
|  **I-K1)** 气缸盖，歧管侧/ *Cylinderhead, manifold side* |
|  |
| **排气 / *EXHAUST*** |
| **气缸盖端口图纸-对尺寸的公差: +/-1%*****Drawings of cylinder head ports - tolerances on dimensions : +/-1%*** |
|  **I-L1)** 气缸盖，歧管侧/ *Cylinderhead, manifold side* |
|  |

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| **402.** | **燃油泵（高压油泵 ） / *Fuel pump(High pressure)*** |
| 仅适用于直喷发动机 *Only applicable to GDI engine*a) HP（高压油泵）泵凸轮升程（卸载凸轮轴）毫米 *HP pump cam lift in mm (dismounted camshaft)* |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 旋转角度（度）*Rotation angle (degrees)* | 推起/ *Lift*(+ 0.05 mm) |  | 旋转角度（度）*Rotation angle (degrees)* | 推起 / *Lift*(+ 0.05 mm) |
| 0 |  |  |  |
| - 5 |  | + 5 |  |
| - 10 |  | + 10 |  |
| - 15 |  | + 15 |  |
| - 30 |  | + 30 |  |
| - 45 |  | + 45 |  |
| - 60 |  | + 60 |  |
| - 75 |  | + 75 |  |
| - 90 |  | + 90 |  |
| - 105 |  | + 105 |  |
| - 120 |  | + 120 |  |
| - 135 |  | + 135 |  |
| - 150 |  | + 150 |  |
| - 165 |  |  | + 165 |  |
| - 180 |  |  | + 180 |  |

|  |  |  |
| --- | --- | --- |
| D2-1) 燃油泵 - 拆下状态 *Fuel pump(s) - dismounted* |  | D2-2) 燃油泵 - 在安装位置 *Fuel pump(s) - in its location* |
|  |  |  |

|  |  |
| --- | --- |
| **114.** | 燃油喷射 - 电子产品**/ *Fuel feed by injection - ELECTRONICS*** |
| a) ECU注册于官方套件 *ECU registered in official kit* |  | **直接 Direct** |  |
| **[x]**  |  |
| **b)** 喷油器 ***Injectors*** | f1) 位置 *Position* | **缸盖 / *Cylinder head*** |  |
| **[x]**  |  |
| c) 发动机控制系统传感器列表 *List of engine control system sensors* |
| **C1** |  | **C15** |  |
| **C2** |  | **C16** |  |
| **C3** |  | **C17** |  |
| **C4** |  | **C18** |  |
| **C5** |  | **C19** |  |
| **C6** |  | **C20** |  |
| **C7** |  | **C21** |  |
| **C8** |  | **C22** |  |
| **C9** |  | **C23** |  |
| **C10** |  | **C24** |  |
| **C11** |  | **C25** |  |
| **C12** |  | **C26** |  |
| **C13** |  | **C27** |  |
| **C14** |  | **C28** |  |
| d) 发动机控制系统的执行器列表 *List of engine control system actuators* |
| **A1** |  | **A8** |  |
| **A2** |  | **a9** |  |
| **A3** |  | **A10** |  |
| **A4** |  | **A11** |  |
| **A5** |  | **A12** |  |

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| --- |
| A9-1) 喷射系统 *Injection system* |
|  |  |  |  |
| **C1** | **C2** | **C3** | **C4** |
|  |  |  |  |
| **C5** | **C6** | **C7** | **C8** |
|  |  |  |  |
| **C9** | **C10** | **C11** | **C12** |
|  |  |  |  |
| **C13** | **C14** | **C15** | **C16** |
|  |  |  |  |
| **C17** | **C18** | **C19** | **C20** |
|  |  |  |  |
| **C21** | **C22** | **C23** | **C24** |
|  |  |  |  |
| **C25** | **C26** | **C27** | **C28** |

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| --- |
| A9-1) 喷射系统 *Injection system* |
|  |  |  |  |
| **A1** | **A2** | **A3** | **A4** |
|  |  |  |  |
| **A5** | **A6** | **A7** | **A8** |
|  |  |  |  |
| **A9** | **A10** | **A11** | **A12** |

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| **I-I1)** 传感器和执行器的位置 **/ *LOCATION OF SENSORS AND ACTUATORS*** |
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| **115.** | **凸轮轴/ *Camshaft*** |
| c) 驱动方式 *Drive system* |  |
| e) 轴承直径 *Diameter of bearings* |  | + 0.1 mm |
|  |
| g) 凸轮尺寸 *Cam dimensions* | **进气*****Intake*** | 排气***Exhaust*** |  |
| **A =** |  | + 0.1 mm |  | + 0.1 mm |
| **B =** |  | + 0.1 mm |  | + 0.1 mm |
| A和B的公差值必须与表内数值相符***The tolerances must be used with the same sign for A and B*** |
| h) 最小重量 *Minimum weight* |  | kg |  | kg |  |

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| --- | --- |
| **116.** | **正时 / *Timing*** |
| a) 理论间隙 *Theoretical clearance* | **进气*****Intake*** |  | mm | **排气*****Exhaust*** |  | mm |
| b) 凸轮升程/毫米（卸载凸轮轴） *Cam lift in mm (dismounted camshaft)* |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | c) 最大气门升程 *Maximum valve lift* | **进气*****Intake*** | **排气*****Exhaust*** | **不包括326a项理论间隙*****with clearance according to Art. 326a*** |
|  | + 0.2 mm |  | + 0.2 mm |

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| --- | --- | --- |
| C10-1) 凸轮轴 – 拆下 *Camshaft - dismounted* |  | C10-2) 凸轮轴 – 拆下 *Camshaft - dismounted* |
|  |  |  |

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| --- | --- | --- |
| C10-5) 摇臂 – 拆下 *Rocker arm – dismounted* |  | **III-J2)** 摇臂 - 特征尺寸 *Rocker arm – typical dimensions* |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| C10-6) 挺杆 – 拆下 *Tappet – dismounted* |  | **III-J3)** 挺杆 – 特征尺寸 *Tappet – typical dimensions* |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| C10-7) 正时皮带或链条 – 拆下 *Timing belt or chain – dismounted* |  |  |
|  |  | 明确说明/Specify齿节/ Nb的齿/长/宽Pitch / Nb of teeth / Length / width |

|  |  |
| --- | --- |
| **117.** | **进气 / *Intake*** |
| a) 歧管材质 *Material of manifold* |  |
| b) 歧管元件数量 *Number of manifold elements* |  |
| b1) 歧管的内部容积 Internal volume of manifold |  | + 0.1 dm3 | b2) 歧管的最小重量 *Minimum weight of manifold* |  | g |
| b3) 进气管节流阀的尺寸 Dimensions of the intake pipe at the throttle valve |  | + 0.25 mm |
| d) 阀头的最大直径 *Maximum diameter of the valve head* |  | mm | d1) 阀头的角度 *Angle of valve head* |  | deg + 30 min |
| e) 阀杆在导管内部分的直径 *Diameter of valve stem in guide* |  | +0-0.2 mm |
| f) 阀门长度 *Valve length* |  | + 1.5 mm |

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| --- | --- | --- |
| A11-1) 进气歧管 – 拆下 *Intake manifold - dismounted* |  | A11-2) 进气歧管 – 拆下 *Intake manifold - dismounted* |
|  |  |  |

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| --- | --- | --- |
| A11-3) 节气门 – 拆下 *Throttle unit - dismounted* |  | A11-4) 节气门 – 拆下 *Throttle unit - dismounted* |
|  |  |  |

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| --- | --- | --- |
| A11-6) 泄压阀 – 拆下 *Pressure relief valve - dismounted* |  | A11-7) 泄压阀 – 歧管上安装位置 *Pressure relief valve – Mounted on manifold* |
|  |  |  |

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| --- | --- | --- |
| **I-K4)** 节气门的剖面图 *Section drawing of the throttle-unit* |  |  *FIA pressure measuring tube – in its location* |
|  |  |  |

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| --- |
| **进气 / *INTAKE*** |
| **歧管的端口图纸 - 尺寸公差： + / -1％*****Drawings of manifold ports - tolerances on dimensions : +/-1%*** |
|  **III-K2)** 歧管，缸盖侧 / *Manifold, cylinderhead side* |
|  |
|  **III-K3)** 歧管，进气口横截面/ *Manifold cross section* |
| 定义251-2.3.4**DEFINITION 251-2.3.4** |

|  |  |
| --- | --- |
| **118.** | 排气**/ *Exhaust*** |
| a) 歧管材质 *Material of manifold* |  |
| b) 歧管元件数量 *Number of manifold elements* |  |
| c) 歧管出口的内部尺寸 *Internal dimensions of manifold exit* |  | + 0.2 mm | + 2.0 mm如果是原装未加工/ *if raw or fabricated* |
| c1) 管的最小厚度 *Minimum thickness of tubes* |  | mm |
| e) 阀门的最大直径 *Maximum diameter of the valve* |  | mm | e1) 阀头的角度 *Angle of valve head* |  | deg + 30 min |
| f) 阀杆在导管内部分的直径 *Diameter of valve stem in guide* |  | +0-0.2 mm |  |
| g) 阀门长度 *Valve length* |  | + 1.5 mm |  |

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| --- | --- | --- |
| A12-1) 排气歧管 – 拆下 *Exhaust manifold - dismounted* |  | A12-2) 排气歧管 – 拆下 *Exhaust manifold - dismounted* |
|  |  |  |

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| --- |
| **排气 / *EXHAUST*** |
| **歧管的端口图纸 - 尺寸公差： + / -1％*****Drawings of manifold ports - tolerances on dimensions : +/-1%*** |
|  **III-L2)** 歧管，缸盖侧/ *Manifold, cylinderhead side* |
|  |

|  |  |
| --- | --- |
| **119.** | 冷却系统**/ *Cooling system*** |
| a) 水泵的类型和来源 *Type and origin of the water pump* |  |

|  |  |  |
| --- | --- | --- |
| A13-3) 水泵 – 拆下 *Water pump - dismounted* |  | A13-4) 水泵安装在发动机上的位置 *Water pump mounted on engine* |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| A13-5) 水泵的叶轮 *Turbine wheel of water pump* |  | **I-M2)** 水泵的叶轮 *Turbine wheel of water pump* |
|  |  |  |

|  |  |
| --- | --- |
| **120.** | **润滑系统** **/ *Lubrication system*** |
| a1) 油底壳的材质 *Material of oil sump* |  | a2) 容量 *Capacity* |  | +0.5 litre |

|  |  |  |
| --- | --- | --- |
| A14-1) 油底壳 – 拆下 *Oil sump - dismounted* |  | A14-2) 油底壳 – 拆下 *Oil sump - dismounted* |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| A14-3) 机油泵 – 拆下状态 O*il pump - dismounted* |  | A14-3b) 机油泵 – 拆下状态 *Oil pump – dismounted* |
|  |  |  |

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| --- | --- | --- |
| A14-4) 机油泵 - 在安装的位置 *Oil pump – mounted in its location* |  |  |
|  |  |  |

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| --- | --- |
| **121.** | **涡轮增压器和配套冷却器/ *TurbocharginG System*** |
| a) 涡轮增压器注册于官方套件注册表 *Turbocharger registered in official kit form* |  |
|  | 以下与官方套件注册表的区别 ，体现在延伸注册中 :Exception from registered official kit, shown in extension |  |
|  | a)  |
| b)  |
|  | c)  |
| d)  |
| e)  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | b) 压力调节 *Pressure regulation* | f1) 压力调节的类型 *Type of pressure adjustment* | 通过-pass | 安全阀*Relief valve* | 其他*Other* |
| **[ ]**  | **[ ]**  | **[ ]**  |
| f2) 压力调节的类型 *Type of pressure adjustment* |  |

|  |  |  |
| --- | --- | --- |
| C1-3) 调节涡轮压力的设备 — 拆下状态 *Device regulating turbocharger pressure - dismounted* |  | C1-4) 调节涡轮压力的设备 — 在安装位置 *Device regulating turbocharger pressure – mounted in its location* |
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| **III-05)** 调节涡轮压力的设备 *Device regulating the turbocharger pressure* |
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