Customer 200191409 Test facility

Customer number
Job number
Telephone
Fax
Remark Test user Turbo-Tec EPS 708-2

| Type number | | Type designation | Revision date | Compensation |
|---|---|---|---|---|
| **0445115086** | **--** | **CRI 3-16** | 01.08.2012 | |

| Manufacturer | Component | Type | Control point | Temperature | |
|---|---|---|---|---|---|
| **Bosch** | **CRI** | **Piezo** | | **40** | **°C** |

Complaint

Problem

Remark

| | Injector A | Injector B | Injector C | Injector D | Injector E | Injector F |
|---|---|---|---|---|---|---|
| Serial number | | 5CEFDFSNAG | 5UEFDFW4AG | | | |
| Date of manuf. | | | | | | |
| Repair ID | | | | | | |
| Repair res. | | | | | | |
| Leak test | | ✔ | ✔ | | | |
| IMA identifier | | ---- | ---- | | | |

# 8 Start test Flow meas.
Start test Injector

| n | /min | | °C | p | MPa | U | V | t | µs | p | kPa | p | kPa | | s |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| →I← | 1000 | →I← | 40.0 | →I← | 30.00 | →I← | 110 | →I← | 2500 | | 10.0 | | 20 | | ---- |
| | 250 | ↓↑ | 20.0 | ↓↑ | 2.0 | | | n/min | 600 | ↓↑ | 5.0 | ↓↑ | 10 | | ---- |
| = | 999 | = | 39.8 | = | 30.1 | | | | | = | 10.0 | = | 20.0 | = | 30 |

| p | kPa | Q | mm³/H | Q | mm³/H |
|---|---|---|---|---|---|
| | ---- | →I← | 65.0 | →I← | 65.0 |
| | | ↓↑ | 35.0 | ↓↑ | 35.0 |
| | | B= | 73.7 | C= | 40.1 |

# 9 Back pressure Flow meas.
Back pressure prepare

| n | /min | | °C | p | MPa | U | V | t | µs | p | kPa | p | kPa | | s |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Type number | | Type designation | Revision date | Compensation |
|---|---|---|---|---|
| **0445115086** | **--** | **CRI 3-16** | 01.08.2012 | |

| Manufacturer | Component | Type | Control point | Temperature | |
|---|---|---|---|---|---|
| **Bosch** | **CRI** | **Piezo** | | **40** | **°C** |

| | Injector A | Injector B | Injector C | Injector D | Injector E | Injector F |
|---|---|---|---|---|---|---|
| Serial number | | 5CEFDFSNAG | 5UEFDFW4AG | | | |
| Date of manuf. | | | | | | |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| →I← | 1000 | →I← | 40.0 | →I← | 30.00 | →I← | 125 | →I← | 2500 | | 10.0 | | 20 | | ---- |
| | 250 | ↓↑ | 20.0 | ↓↑ | 2.0 | | | n/min | 600 | ↓↑ | 5.0 | ↓↑ | 10 | | 120 |
| = | 999 | = | 40.0 | = | 30.1 | | | | | = | 10.0 | = | 20.0 | = | 120 |

# 10 Conditioning — Flow meas.

Pressure step for ISA

| n | /min | | °C | p | MPa | U | V | t | µs | p | kPa | p | kPa | | s |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| →I← | 2000 | →I← | 40.0 | →I← | 130.0 | →I← | 125 | →I← | 700 | | 10.0 | | 20 | | ---- |
| | 250 | ↓↑ | 20.0 | ↓↑ | 2.0 | | | n/min | 2000 | ↓↑ | 5.0 | ↓↑ | 10 | | 5 |
| = | 1999 | = | 40.0 | = | 130.1 | | | | | = | 10.0 | = | 20.1 | = | 5 |

# 11 Conditioning — Flow meas.

Conditioning for ISA

| n | /min | | °C | p | MPa | U | V | t | µs | p | kPa | p | kPa | | s |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| →I← | 2000 | →I← | 40.0 | →I← | 160.0 | →I← | 125 | →I← | 700 | | 10.0 | | 20 | | ---- |
| | 250 | ↓↑ | 20.0 | ↓↑ | 5.0 | | | n/min | 2000 | ↓↑ | 5.0 | ↓↑ | 10 | | 35 |
| = | 1999 | = | 40.2 | = | 160.0 | | | | | = | 10.0 | = | 20.7 | = | 35 |

# 12 Warm up — Flow meas.

Warm up Testbench for ISA

| | °C |
|---|---|
| | = |
| | 40 |

| n | /min | | °C | p | MPa | U | V | t | µs | p | kPa | p | kPa | | s |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| →I← | 2000 | →I← | 40.0 | →I← | 160.0 | →I← | 125 | →I← | 700 | | 10.0 | | 20 | | ---- |
| | 250 | ↓↑ | 1.0 | ↓↑ | 5.0 | | | n/min | 2000 | ↓↑ | 5.0 | ↓↑ | 10 | | ---- |
| = | 1999 | = | 40.2 | = | 160.0 | | | | | = | 9.9 | = | 19.2 | = | 0 |

# 13 ISA detection — ISA calibration

ISA detection

| n | /min | | °C | p | MPa | U | V | t | µs | p | kPa | p | kPa | | s |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| →I← | 2000 | →I← | 40.0 | →I← | 160.0 | →I← | 125 | →I← | 700 | | 10.0 | | 20 | | ---- |
| | 250 | ↓↑ | 1.0 | ↓↑ | 5.0 | | | n/min | 2000 | ↓↑ | 5.0 | ↓↑ | 10 | | ---- |
| = | 1999 | = | 40.6 | = | 160.0 | | | | | = | 10.1 | = | 22.4 | = | 33 |

| p | kPa | ISA | ISA |
|---|---|---|---|
| | 1000 | →I← | →I← |
| | | B= G | C= H |

| Type number | | Type designation | Revision date | Compensation |
|---|---|---|---|---|
| **0445115086** | **--** | **CRI 3-16** | 01.08.2012 | |

| Manufacturer | Component | Type | Control point | Temperature | |
|---|---|---|---|---|---|
| **Bosch** | **CRI** | **Piezo** | | **40** | **°C** |

| | Injector A | Injector B | Injector C | Injector D | Injector E | Injector F |
|---|---|---|---|---|---|---|
| Serial number | | 5CEFDFSNAG | 5UEFDFW4AG | | | |
| Date of manuf. | | | | | | |

# 14 Conditioning — Flow meas.

Pressure step for VL point

| | n /min | °C | p MPa | U V | t µs | p kPa | p kPa | s |
|---|---|---|---|---|---|---|---|---|
| →I← | 1000 | 40.0 | 130.0 | ---- | 500 | 10.0 | 20 | ---- |
| ↓↑ | 250 | 1.0 | 1.0 | | 400 | 5.0 | 10 | 150 |
| = | 999 | 40.1 | 130.0 | | | 10.0 | 20.3 | 150 |

# 15 Warm up — Flow meas. — °C = 40

Warm up Testbench

| | n /min | °C | p MPa | U V | t µs | p kPa | p kPa | s |
|---|---|---|---|---|---|---|---|---|
| →I← | 1000 | 40.0 | 130.0 | ---- | 500 | 10.0 | 20 | ---- |
| ↓↑ | 250 | 1.0 | 1.0 | | 400 | 5.0 | 10 | ---- |
| = | 999 | 40.1 | 130.0 | | | 10.0 | 19.5 | 0 |

# 16 Conditioning — Flow meas.

Conditioning for VL point

| | n /min | °C | p MPa | U V | t µs | p kPa | p kPa | s |
|---|---|---|---|---|---|---|---|---|
| →I← | 1000 | 40.0 | 160.0 | ---- | 560 | 10.0 | 20 | ---- |
| ↓↑ | 250 | 1.0 | 1.0 | | 400 | 5.0 | 10 | 400 |
| = | 999 | 40.4 | 160.0 | | | 10.0 | 20.4 | 400 |

# 17 VL — ✘ IMA setting C, — Flow meas.

Measure point VL

| | n /min | °C | p MPa | U V | t µs | p kPa | p kPa | s |
|---|---|---|---|---|---|---|---|---|
| →I← | 1000 | 40.0 | 160.0 | ---- | 560 | 10.0 | 20 | ---- |
| ↓↑ | 250 | 1.0 | 1.0 | | 400 | 5.0 | 10 | ---- |
| = | 999 | 40.3 | 160.0 | | | 10.0 | 20.3 | 71 |

p kPa: 1000

| | Q mm³/H | Q mm³/H |
|---|---|---|
| →I← | 47.3 | 47.3 |
| ↓↑ | 5.5 | 5.5 |
| B= | 45.1 | C= 40.0 |

| | mm³/H | mm³/H |
|---|---|---|
| →I← | 13.5 | 13.5 |
| ↓↑ | 5.5 | 5.5 |
| B= | 10.9 | C= 10.8 |

| Type number | | Type designation | Revision date | Compensation |
|---|---|---|---|---|
| **0445115086** | **--** | **CRI 3-16** | 01.08.2012 | |

| Manufacturer | Component | Type | Control point | Temperature | |
|---|---|---|---|---|---|
| **Bosch** | **CRI** | **Piezo** | | **40** | **°C** |

| | Injector A | Injector B | Injector C | Injector D | Injector E | Injector F |
|---|---|---|---|---|---|---|
| Serial number | | 5CEFDFSNAG | 5UEFDFW4AG | | | |
| Date of manuf. | | | | | | |

# 18 Conditioning — Flow meas.

Conditioning for VE point

| n | /min | | °C | p | MPa | U | V | t | µs | p | kPa | p | kPa | | s |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| →I← | 2000 | →I← | 40.0 | →I← | 120.0 | →I← | ---- | →I← | 175 | | 10.0 | | 20 | | ---- |
| | 250 | ↓↑ | 1.0 | ↓↑ | 1.0 | | | n/min | 400 | ↓↑ | 5.0 | ↓↑ | 10 | | 300 |
| = | 1999 | = | 40.4 | = | 120.0 | | | | | = | 10.0 | = | 20.2 | = | 300 |

# 19 VE — Flow meas.

Measure point VE

| n | /min | | °C | p | MPa | U | V | t | µs | p | kPa | p | kPa | | s |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| →I← | 2000 | →I← | 40.0 | →I← | 120.0 | →I← | ---- | →I← | 175 | | 10.0 | | 20 | | ---- |
| | 250 | ↓↑ | 1.0 | ↓↑ | 1.0 | | | n/min | 400 | ↓↑ | 5.0 | ↓↑ | 10 | | ---- |
| = | 1999 | = | 40.6 | = | 120.0 | | | | | = | 10.0 | = | 21.0 | = | 40 |

| p | kPa | Q̄ | mm³/H | Q̄ | mm³/H |
|---|---|---|---|---|---|
| | 1000 | →I← | 1.9 | →I← | 1.9 |
| | | ↓↑ | 1.5 | ↓↑ | 1.5 |
| | | B= | 1.5 | C= | 1.3 |

# 20 Conditioning — Flow meas.

Conditioning for LL point

| n | /min | | °C | p | MPa | U | V | t | µs | p | kPa | p | kPa | | s |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| →I← | 1000 | →I← | 40.0 | →I← | 25.00 | →I← | ---- | →I← | 545 | | 10.0 | | 20 | | ---- |
| | 250 | ↓↑ | 1.0 | ↓↑ | 1.0 | | | n/min | 400 | ↓↑ | 5.0 | ↓↑ | 10 | | 250 |
| = | 999 | = | 40.2 | = | 25.1 | | | | | = | 10.0 | = | 20.3 | = | 250 |

# 21 LL — IMA setting B, C, — Flow meas.

Measure point LL

| n | /min | | °C | p | MPa | U | V | t | µs | p | kPa | p | kPa | | s |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| →I← | 1000 | →I← | 40.0 | →I← | 25.00 | →I← | ---- | →I← | 545 | | 10.0 | | 20 | | ---- |
| | 250 | ↓↑ | 1.0 | ↓↑ | 1.0 | | | n/min | 400 | ↓↑ | 5.0 | ↓↑ | 10 | | ---- |
| = | 999 | = | 39.8 | = | 25.1 | | | | | = | 10.0 | = | 20.0 | = | 39 |

| p | kPa | Q̄ | mm³/H | Q̄ | mm³/H |
|---|---|---|---|---|---|
| | 1000 | →I← | 3.8 | →I← | 3.8 |
| | | ↓↑ | 2.7 | ↓↑ | 2.7 |
| | | B= | 2.0 | C= | 1.6 |

| Type number | | Type designation | Revision date | Compensation |
|---|---|---|---|---|
| **0445115086** | **--** | **CRI 3-16** | 01.08.2012 | |

| Manufacturer | Component | Type | Control point | Temperature | |
|---|---|---|---|---|---|
| **Bosch** | **CRI** | **Piezo** | | **40** | **°C** |

| | Injector A | Injector B | Injector C | Injector D | Injector E | Injector F |
|---|---|---|---|---|---|---|
| Serial number | | 5CEFDFSNAG | 5UEFDFW4AG | | | |
| Date of manuf. | | | | | | |

# 22 Conditioning — Flow meas.

Conditioning for EM point

| | n | /min | | °C | p | MPa | U | V | t | µs | p | kPa | p | kPa | | s |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1000 | | 40.0 | | 80.00 | | ---- | | 480 | | 10.0 | | 20 | | ---- |
| | 250 | | 1.0 | | 1.0 | | | | 330 | | 5.0 | | 10 | | 300 |
| = | 1000 | = | 40.2 | = | 80.1 | | | | | | 10.0 | = | 19.9 | = | 300 |

# 23 EM — IMA setting C, — Flow meas.

Measure point EM

| | n | /min | | °C | p | MPa | U | V | t | µs | p | kPa | p | kPa | | s |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1000 | | 40.0 | | 80.00 | | ---- | | 480 | | 10.0 | | 20 | | ---- |
| | 250 | | 1.0 | | 1.0 | | | | 330 | | 5.0 | | 10 | | ---- |
| = | 1000 | = | 40.3 | = | 80.0 | | | | | | 10.0 | = | 20.0 | = | 39 |

| p | kPa | Q | mm³/H | Q | mm³/H |
|---|---|---|---|---|---|
| 1000 | | | 19.3 | | 19.3 |
| | | | 4.3 | | 4.3 |
| | | B= | 18.0 | C= | 15.1 |