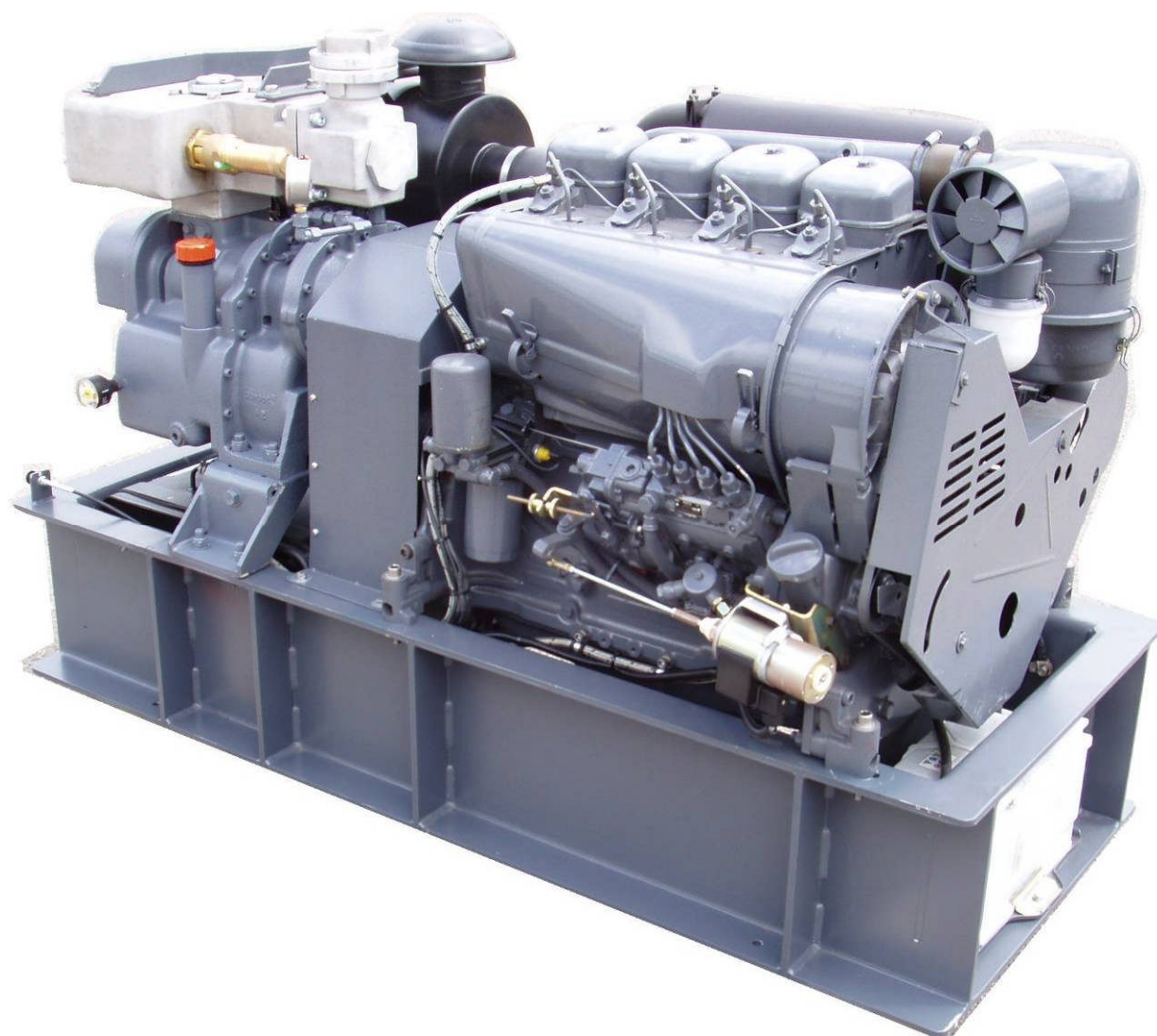


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# GHH RAND

## Operating Instructions

Diesel Powered Compressor Unit  
CG 600 DP - belt - NON EU



# Foreword

Please read these operating instructions carefully before setting up and commissioning the diesel powered compressor unit. They provide essential information which has to be observed to ensure trouble-free operation and a long service life.

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# 1 General

## 1.1 Purpose

GHH-Rand build and supply the diesel powered compressor unit SILU CG 600 DP-belt ready for operation. These units are used to handle bulk material pneumatically owing to their ability to compress atmospheric air free of oil and their service weight which makes them suitable for installation on silo-type trucks.

## 1.2 Manufacturer's address

GHH-RAND Schraubenkompressoren GmbH  
Max-Planck-Ring 27  
D-46049 Oberhausen  
Germany

## 1.3 Identification

The machine data can be found on the name plate.

<b>Machine-No:</b>
--------------------

## 1.4 Service contact

For addresses see the Internet:  
[www.ghh-rand.com](http://www.ghh-rand.com)

## 1.5 Technical Data Diesel powered compressor pack

Diesel powered compressor pack: GHH RAND Schraubenkompressoren GmbH

Type:	CG 600 DP - belt
Operating speed motor:	2000 1/min
Operating speed compressor:	3560 1/min
Working over pressure:	2,6 bar(g)
Suction volume flow:	550 m <sup>3</sup> /h (at 2,0 bar(g))
Bauausführung:	Belt drive i=1.78
Pulley compressor:	SPA-5-140/TP
Pulley motor:	SPA-5-250/50
Belt size:	XPA 1157
Dimensions:	L 1650mm/W 700mm/ H 950 mm
Weight:	750 kg

### **1.6 Technical Data Diesel Motor:**

Operating Manual (see Deutz F4L912)

Motor:	Deutz-Dieselmotor
Motortype:	F4L912
Cylinder:	4
Engine displacmenemt:	3770 cm <sup>3</sup>
Power:	44,0 kW
Engine speed:	2000 1/min (fixed)
Curent:	12 V
Lubricant capacity:	9 Liter
Starter battery:	Current:12 V, Capacity: min. 88 AH
Dimensions:	Length: 353 mm
	With: 175 mm
	Height: 190 mm

### **1.7 Technical Data Compressor**

Operating Manual (siehe CG 80)

Working pressure abs.:	3,6 bar(abs.)
Suction pressure abs.:	1,0 bar(abs.)
Suction temperature:	20 C°
Suction temperature max.:	40 C°
Discharge temperature:	190 C°
Power consumption:	37 kW
Weight:	110 kg
Lubricant capacity	9 Liter

## **Important!!**

The function of the non-return valve installed in the compressor unit is to prevent the compressor, after having been switched off, from running in reverse at high speed for a long time as a result of residual pressure that exists in the discharge lines of the pneumatic system.

To avoid an unintended return blow of material into the compressor, it is mandatory that at least one further non-return valve is installed in the pneumatic system of the silo arrangement.

## **Important!!**

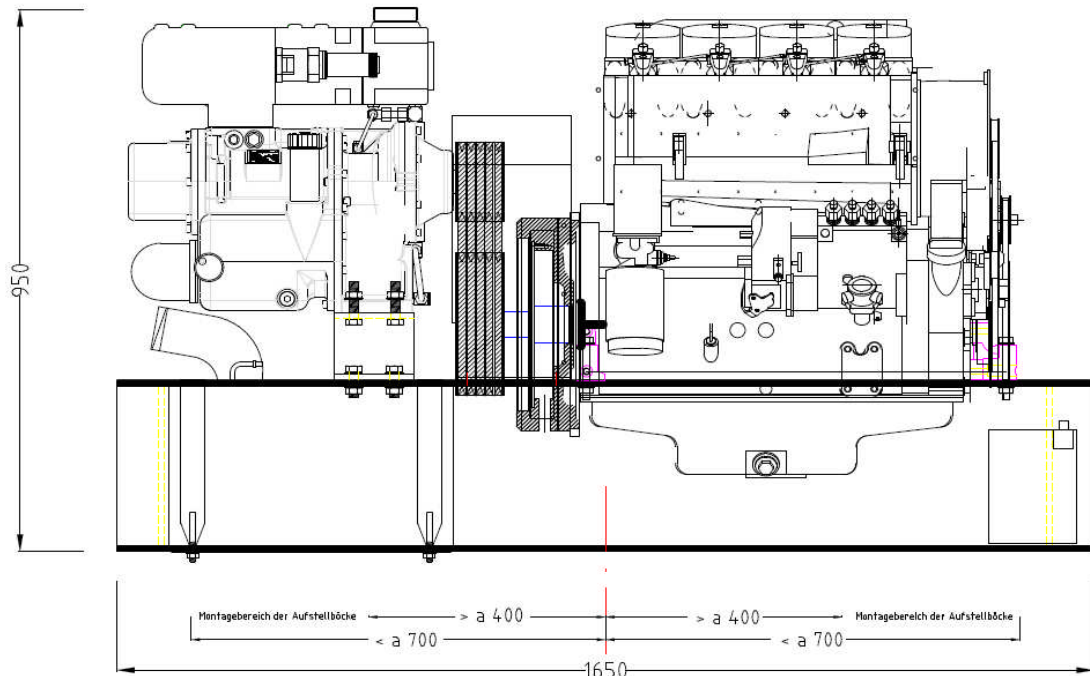
### **Maximum duty cycle**

**Maximum operating period 3 hours followed by a 1-hour interval.**

## 1.8 Installation procedure of diesel powered compressor unit

### A. Installation the diesel compressor unit:

During the installation of the compressor unit the symmetry of the sampling points to the vertical centre axis has to be observed.



B. Assembly of the starter battery: Battery has to be adopted in the holder frame and holding plate has to be fixed by the screw. Battery clamps have to be connected at first. At last the negative pole has to be connected.

C. Compressor and diesel engine have to be filled up with lubricant. Fuel tank has to be filled up with diesel.

### D. Exhaust-pipe:

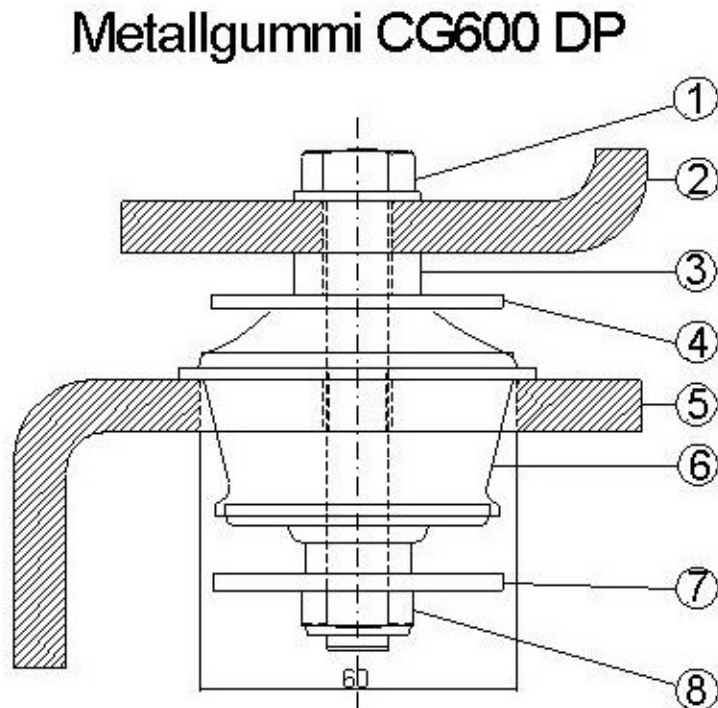
Before initial commissioning exhaust-pipe end has to be upturned to top and pipe clamp has to be fastened.

## 1.9 Installation procedure Metallgummi (metal rubbers)

### Installation of the metal rubbers:

After the predefinition of the mounting points of the Metal Rubbers in the subconstruction, a hole with a diameter of 60 mm has with a hole saw to be drilled.

The arrangement of the components has to be done as shown in the following sketch.



1. Screw M12 x 90
2. Compressor base frame
3. Spacer 8mm
4. Lock washer above
5. Chassis baseframe
6. Metallgummi
7. Lock washer below
8. Lock nut

## **2 Safety**

### **2.1 General**

These operating instructions provide important information which must be observed during operation and maintenance. The skilled personnel / operator / user therefore have to read these operating instructions before commissioning, and the instructions must be at hand where the machine is used at all times.

### **2.2 Skilled personnel**

Work on the compressor unit may be performed only by authorized personnel according to the safety rules in force.

### **2.3 Safety information**

The operator / user is responsible for ensuring that the compressor unit is always in an operationally safe condition. Damaged parts must be replaced at once. If flammable goods are handled with the compressor, take appropriate precautions to avoid that the spontaneous-ignition temperature of a dust-and-air mixture that may arise will not be reached.

### **2.4 Impermissible applications**

The compressor unit may not be used under other conditions than those mentioned in Section "Technical data" unless with authorization by GHH-RAND Schraubenkompressoren GmbH.

## **3 Commissioning**

### **3.1 Set-up**

Park the vehicle horizontally if possible. Otherwise, limits have to be observed when the compressor unit is not horizontal.

### **Important!!**

Maximum permissible angles of tilt during operation:

forward and backward: 10°  
to the right and left: 10°

### **3.2 Controls - Operating elements and monitoring gauges**

List / Designation:

- Starter ignition key
- Stop bowden cable
- Battery charge indicator
- Oil pressure indicator diesel engine
- Compressor oil pressure gauge
- Compressor maintenance gauge

### **3.3 Motor / Compressor Start-up**

#### **Starting up the diesel engine / compressor**

- Turn ignition key to 1 / ignition on indicated by pilot lamp
- Press ignition key and turn to 3/START, and keep it turned
- Release switch after successful start
- Turn switch to 0/Stop if start fails
- Repeat start-up cycle several times until the engine starts

### **Important!!**

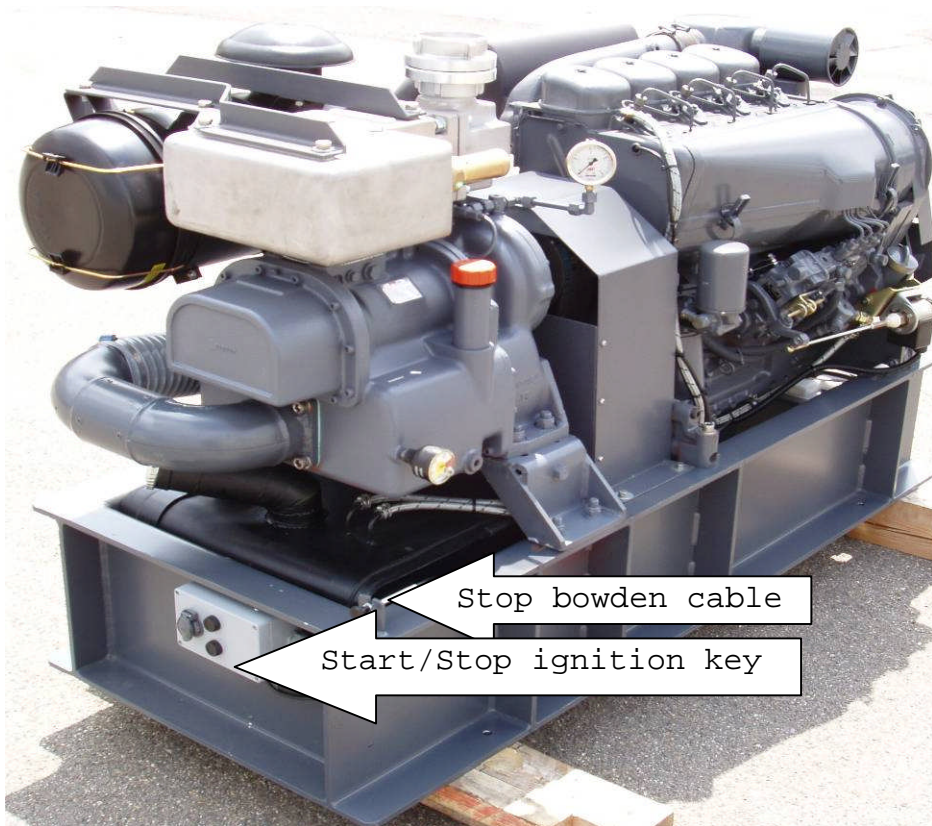
Start up the compressor unit completely relieved of load. Never start it trying to overcome any backpressure that may exist!



### 3.4 Motor / Compressor Shut-down

#### Switch off the diesel engine / compressor

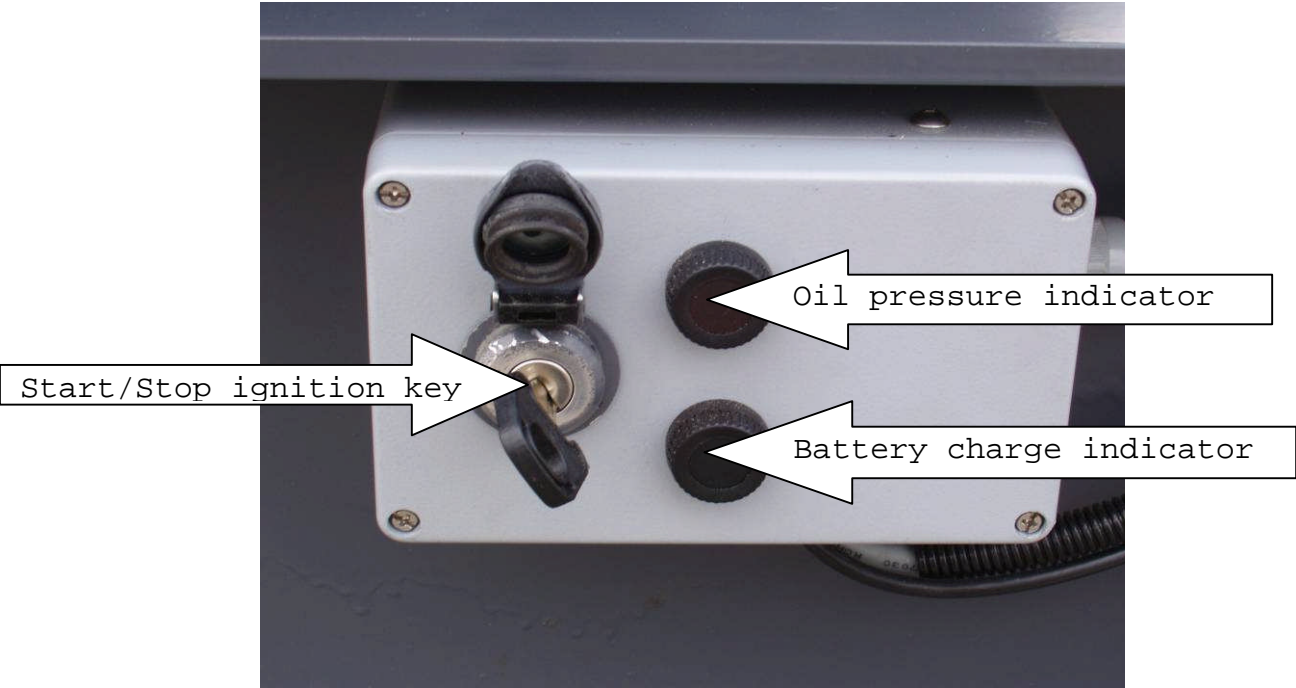
- Relieve compressor discharge pipe of load
- Turn ignition key to 0/Stop
- Pull bowden cable, after switching-off, push Bowden cable back if applicable (optional for mechanical cut-off)



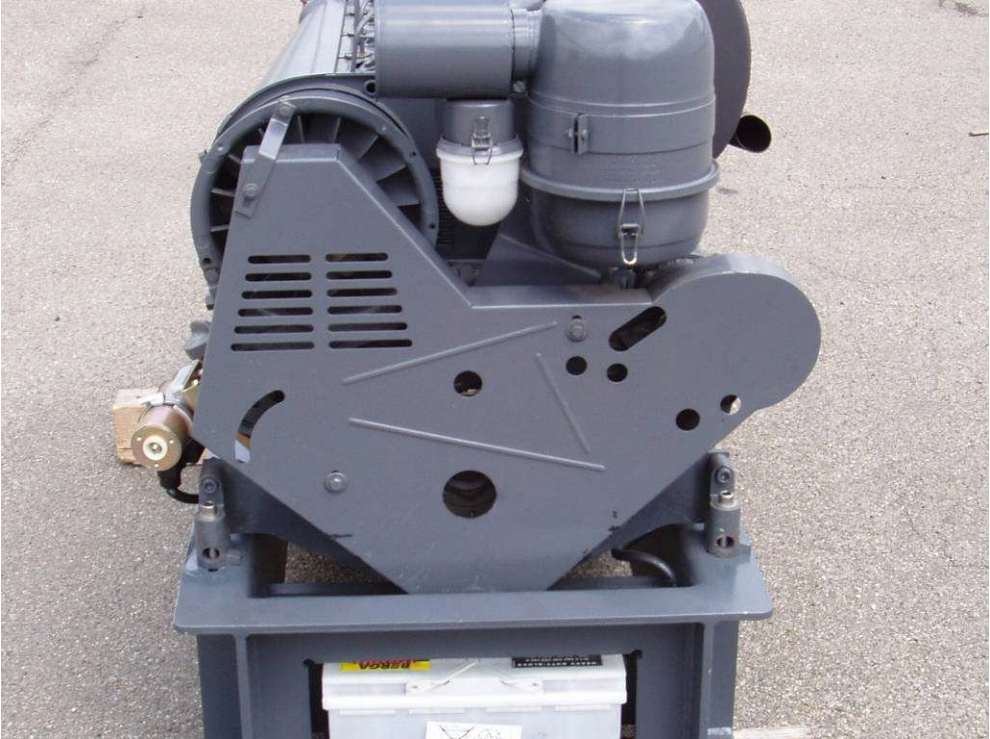
### 3.5 Motor operation monitoring

- The red oil pressure indicator lamp and the green charge indicator lamp are on when operating voltage is switched on and the engine is at standstill.
- The red oil pressure indicator lamp and the green charge indicator lamp must be off while the engine is running.
- V-belt for cooling fan has to be monitored. If the V-belt is torn, switch off the engine at once to avoid overheating. If belt is cracked, replace belts.

Control panel:



V-belt drive diesel engine:



### 3.6 Compressor operation monitoring

#### Oil pressure gauge

The oil pressure is indicated on the oil pressure gauge.  
The oil pressure must not fall below 0.3 bar.

### Important!!

If the oil pressure does not build up within a short period of time, switch off the engine / compressor. Check the oil level, clean the oil suction strainer if necessary (see operating instructions for compressor, chapter Maintenance).

#### Maintenance indicator

Negative pressure is indicated on the maintenance indicator on the compressor unit.

### Important!!

If the 65-mbar indication is reached, the negative pressure has fallen below the permissible limit. Clean the filter element in the suction filter of the compressor unit or replace it if it is soiled very much.

Reset the maintenance indicator.

(see operating instructions for compressor, chapter Maintenance)

**Oil pressure gauge:**



**Maintenance indicator:**



## **4 Maintenance / Service**

### **4.1 Engine / Compressor maintenance intervals**

#### **Important!!**

After the first two hours of operation, tension the V-belt and the quick-tensioning bushes of the V-belt pulleys and retighten the fastening screws of the discharge silencer.

#### **Daily:**

Check oil level in engine / compressor, correct oil level if necessary.

#### **Weekly:**

Clean the filter element in the suction filter of the engine / compressor or replace it if it is soiled too much.  
Check V-belt tension, correct it if necessary.

#### **Every three months:**

##### **Diesel engine**

(see operating instructions for Deutz 912)

##### **Compressor**

Check non-return valve, safety valve, for proper function  
(see operating instructions for compressor CG 80)

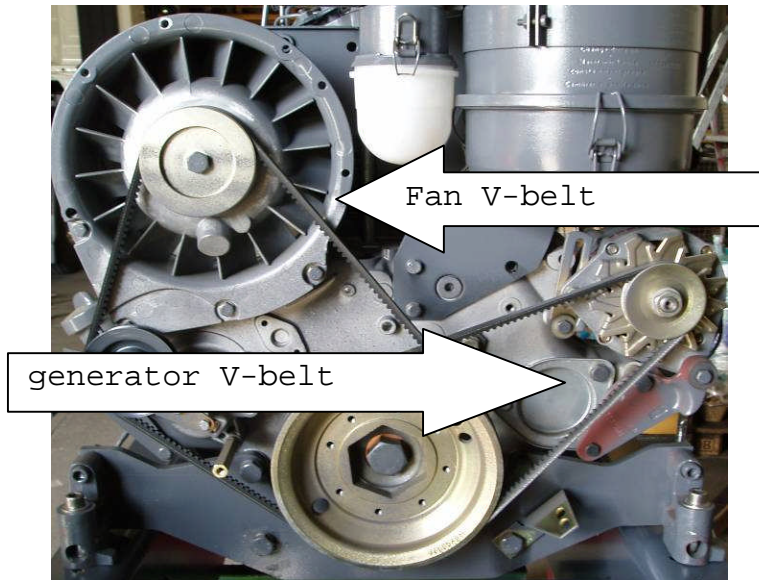
### **4.2 Safety information**

- Carry out all checks and maintenance work only when the machine has been switched off and is in the depressurized state.
- Risk of injury from burns by hot machinery parts!
- Wear protective gloves!
- Before doing work on the diesel powered compressor unit, disconnect the earth cable from the battery.

#### 4.3 Engine V-belt drive:

Diesel engine Deutz F4L 912

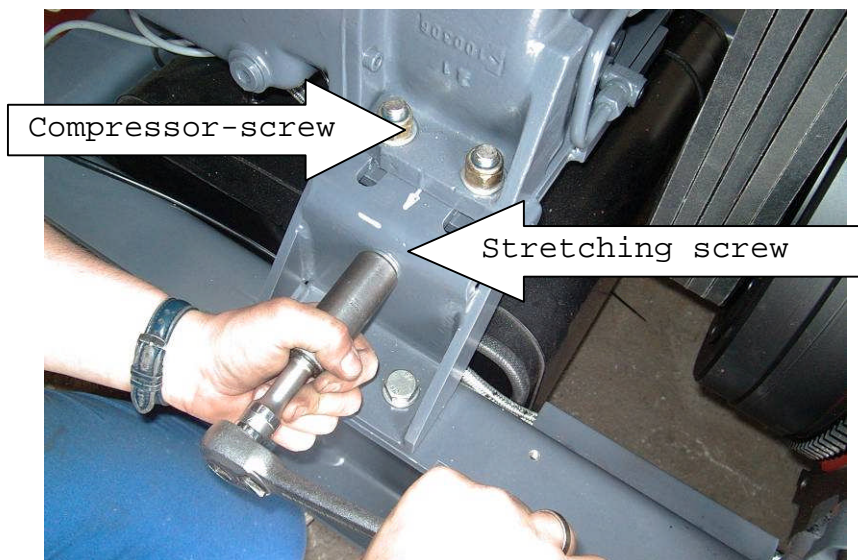
- Remove V-belt cover
- Visually inspect the V-belts for fan and generator.
- Replace damaged V-belts.
- Reinstall V-belt cover



#### 4.4 Compressor V-belt drive

Compressor CG80

- Remove V-belt cover
- Visually inspect the V-belts
- Replace damaged V-belts.
- Reinstall V-belt cover



# 5 Malfunctions and remedies

## 5.1 Malfunctions / Remedies on engine

Malfunctions	Possible cause	Remedy
Before starting, red / green charge indicator is not on	Battery empty	Recharge or replace battery
	Fuse blown	Replace fuse
	Corroded wire connections	Replace wire connections
Indicator is on after starting	Oil pressure too low	Operating Instructions
	Generator does not charge	Check wire connection
	Cable loose	
Starter does not turn	Battery not charged or defective	Charge battery Replace battery
	Connecting cable loose	Check cable connection
	Starter defective	Replace starter
Engine does not start	No fuel	Replenish fuel
	Fuel too cold	
	Fuel filter clogged	Replace filter
	Bowden cable is pulled	Push back Bowden cable
Engine starts, but switches off when ignition key is released	Engine temperature too high	Allow the engine to cool down
	Temperature transmitter is defective	Check safety installations

## 5.2 Malfunctions / Remedies on compressor

Malfunctions	Possible cause	Remedy
Oil pressure below 0.3 bar at operating temperature	Drive speed too low	Check drive speed
	Oil filter soiled	Clean oil strainer
	Wrong grade of oil	Replace oil
	Oil fill insufficient	Top up oil
Oil pressure is varying	Oil fill insufficient	Top up oil Check screwed union
	Oil suction pipe not tight	
Oil is foaming	Wrong grade of oil	Top up with approved grade of oil
	Water in the oil	Change oil
	Oil level too high	Reduce oil level
Oil leakages	Screwed union not tight	Check screwed union
Compressed air pressure too high	Speed too high	Adjust the speed
	Non-return valve defective	Replace non-return valve
	Safety valve does not blow off	Check safety valve
Negative-pressure indicator reading 65 mbar	Suction filter clogged	Clean / replace filter elements
	Speed too high	Adjust the speed

## 6 Spare parts list

Description	Order-no.	Required Qty.
<b>Main components</b>		
Deutz Dieselmotor F 4 L 912	22695043	1
Compressor CG 80	23689599-LG	1
Fuel tank 63 ltrs.	22867584	1
<b>Sub-assembly base frame / belt drive</b>		
Base frame for diesel engine	22867337	1
Compressor bracket incl. stretching device	22867394	1
Backplate for shaft extension	22867428	1
Shaft extension	22867568	1
Rubber buffers with oval flange	22898332	4
Pulley SPA-250/5 with borehole 50H7	22908149	1
Pulley SPA-140/5 / 2012-35	13030GHH	1
V-Belt XPA 1157	22880538	5
Belt cover	22885586	1
<b>Sub-assembly airfilter compressor</b>		
Cyclon air filter	23156235	1
Air filter element	22968937	1
Holder for air filter Europiclone (12m <sup>3</sup> /Min)	22968929	1
Hose connection DN100	22749543	1
Rubber elbow 90° D- i 100	23250681	2
Suction pipe DA=100 90° for CG 600 DP/EP BELT	23166077	1
Hose clamp 90-110x13	22682132	4
<b>Sub-assembly discharge silencer</b>		
Discharge Silencer (complete)	22603047	1
Safety relief valve 2.6 bar	83901289GHH	1
Non-return valve	22480560	1
Discharge silencer head piece	12792GHH	1
<b>Miscellaneous / accesoiries</b>		
Battery case	24073637	1
Rubber elements 30,30xM8 type BZ 40 Shore	240776762	4
Heavy duty lubricant SILOL 2x5 ltrs.	83903817	1
Accessory kit CG80R	22760276	1



# Service

GHH-RAND Schraubenkompressoren GmbH  
Max-Planck-Ring 27  
D-46049 Oberhausen

SILU service hotline	Phone (0049)208-999 4177
Fax	Fax (0049)208-999 4179
Service	Phone (0049)208-999 4170
Spare parts	Phone (0049)208-999 4171

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