ASSEMBLY



At CHINOOK

we have two key words: specialisation and experience.

Air compressors are own only product.

All our engineering skills and nearly thirty years of manufacturing experience and specialization are dedicated exclusively toward the production of a complete line of single and two stage reciprocating compressors ranging from 1/2 horsepower four cylinder two stage models.

Our compressors are designed for the most discriminating compressor buyer under the most demanding operation conditions.

CHINOOK compressors are sold and serviced throughout the world in all mayor industrialized countries.

Our simple but reliable and proven design is easy to maintain and service.

Replacement parts and service are available throughout the world from authorized distributors and service centers.



Fitting the conrod onto the crankshaft



section 1 page 1

Insert the conrods with their piston pin onto the tool.



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Loosen the conrod nuts by means of a pneumatic screwdriver. Remove the nuts and washers (not to be used again)from the conrod screws.

2







Pull out the conrod and hold it as shown in the drawing; insert the halfshells.

3

NOTE :

The conrod stem and cap must be reassembled the way they were and not facing the other way.

Fit and oil the half-shells; oil the conrod housing on the crankshaft.



section 1 page 3

Position the conrod stem and cap on the conrod housing, on the flywheel side, making sure the locator marks on one side of the stem and cap are properly matched.





5

The position of the conrod on the crankshaft must be as shown in Table A, which lists the screw tightening torque values.



If necessary, tighten the nuts with a calibrated dynamometric wrench, adjust conrod-crankshaft coupling with light hammer blows. After that, tighten the nuts again with the dynamometric wrench; the conrod must be able to rotate freely (see Table A).



8

 Fit the conrods onto the crankshaft after placing the latter into its crankcase (see page 3); once you have completed the tightening process, screw the oil splash pins into their housings and fasten them with a special adhesive.



Assembling the crankcase and placing the crankshaft





Fit the support on vent side with a ball bearing previously placed into its support, with a support gasket in between.







Put the crankshaft, with the conrods mounted, into the crankcase.





5

support, by means of a special punch.

Drive pins.

Fit and tighten the guiding pins before fitting the support and the gasket. Fit the support on flywheel side with the ball bearing previously assembled onto the support, with the support gasket in between.

6





Place support on flywheel side by means of a special punch.

8



Place the biangular bearing on the support housing by means of a special punch. Fix the housing screw and alum



Fix the hexagonal screw and aluminium washer; tighten the screws by means of a pneumatic screwdriver.



Fitting the pistons









Pull out the piston with the piston pin partially fit in it from the conrod.

Put the piston on the conrod housing and drive the piston pin.

3



Complete the driving of the piston pin by means of a special punch.







5 Place the reating rings by means of special pliers.







Fit the crankcase/cylinder gasket.





Fit the piston rings. Warning: the rings must be placed with the "Top" mark facing up (towards the piston crown).

The exacte position is shown in the figure.

NOTE: In order to fit and change the piston rings you can use the special pliers shown on section 3 page 5.





Special pliers



Fitting the cylinder, head and coolers







Oil the inner side of the cylinder in which the pistons will be placed.

Tighten the rings onto the piston by means of a special pliers with a steel band; insert the cylinder onto the piston.









Place the guiding pins onto the cylinder and fit the cylinder/plate gasket.

Spread a small amount of vaseline onto the end of the strip valves and fit them into the special housing built in the valve plates.







256

Fit the two valve plates with a special gasket inbetween.

NOTE : The valve plates of twostage compressors can be assembled in one position only. In the case of single-stage compressors, instead, it is possible to invert the compression

8



side with the intake side by rotating the plate at 180 °.



Fit the plate/head gasket.





All single-stage pumps in our range make it possible to position the intake on either side, as desired, by simply rotating the plates and head. The most important two-stage models are available with special plates affording the same possibilities.

V type models are supplied with a special set of plates (called "contrary" set). Its correct position is shown in the figure.







Test the assembly making sure that the intake and compression stages are working properly.



NOTE : To this end you can make

use of a special tool, i.e. a geared motor which transmits the motion to the crank-

crank- 14 shaft. If desired, the assembly can be tested by applying a suitable wrench to the nut and rotating it by hand. Fit the double cooler to connect the 1st and 2nd stage, with a cooler gasket in between.

section 4	page	0
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TIGHTENING COOLER BOLT Ø 10 mm

(HEAD-COOLER BOLTS)

GROUP	Tightening KGM
K 8	4
K 11	4
K 12-K 9	4
K 17	4
K 18	4
K 24	4
K 30	4
K 35	4
K 50	4
K 60	4
K 100	4

15

Fit the aftercooler with a gasket in between; fit the filter elbow onto its housing.

Assembly the filter onto the elbow. The filter is fit on the tension rod tightened with the

aid of a special finned nut.



MANTENANCE



Ordinary maintenance

CLEANING THE OIL BREATHER

Wash the cap tank at regular intervals with fuel oil, kero-sene or similar products so as to ensure that the oil will flow back through the recovery inlet.

CHANGING THE FILTER CARTRIDGE

After about 400 hours of work in standard environmental conditions.

CHECKING THE OIL LEVEL

The oil level must be maintened, by topping it up, as close as possible to the centre of the oil window. Larger quantities of oil might result in too much oil flowing out from the oil breather, whilst lower quantities might result an insufficient lubrification of the moving parts.

After 1.000 hours of work the oil has to be replaced. We re-commend using oil type :

§ Q8 Haydn 100 for single phase machines with less than 2.2 kW (3HP).

§ Q8 Haydn 150 for three phase machines with more than 2.2 kW (3HP).

In temperatures of below +5°C only use SAE 20 oil. For temperatures of

over +35°C only use SAE 40 oil.

or a similar product producing low carbon residues.

<u>Oil capacity</u>	<u>lt.</u>		
K 8	0,400	Ē	
K 9	0,500		
K 11	0,500	艮声 月	Y
K 12	0,500		
K 17	1,000		
K 18	1,000		
K 22	1,800		
K 23	1,800		
K 24	1,800		
K 25	1,800		KA DA
K 30	1,450		
K 35	1,450		
K 50	1,750		
K 60	3,000		
K 70	3,000		
K 100	4,000		

-0

Extraordinary maintenance 1



It consists in 3 stages for increasing complexity. For the first stage we supply the 1st maintenance kit necessary to replace the materials for the filter cartridge, the strip valves and the corresponding gaskets.

The 2nd kit includes all the materials contained in the 1st, as well as piston rings, oil sight gauges and caps.

The 3rd kit allows for more extensive repairs such as the replacement of the conrod shells on the crankshaft, the piston pin housing, bushing and the piston pin. It also includes all the materials contained in the 2nd kit.





Whenever it is necessary to disassemble the pump in its entirety, clean each individual piece and fit the new gaskets supplied with the kit.

During the assembly operations, make sure that the valve plates, the head and the cylinder are levelled and are correctly matched with one another.



The drawing one shows an ejector, the indispensable tool for pulling the flywheel from the crankshaft easily.

The drawing two illustrates a practical way to free the crankshaft from its support. This must be done in order to overhaul both the crankshaft and the conrods.

The support and ball bearings could be damaged in this process, fit new ones. **DRAWING 2**



POSSIBLE Inconvenientes





Defects	Reduced efficiency of the compressor unit.		
Cause	Failure of strips valvesBroken gasketsObstructing materialin thevalve plate air holes and/or in the strip valves themselves.		
Remedy	Take down the assembly and eliminate the cause of the defect • During reassembly, make sure the lower piston plane is properly aligned with the upper plain of the crankcase (see section 3- page 3).		
Defect	Noise, striking and rolling sounds caming from inside the crankcase which may be ascribed to the moving parts (crankshaft, conrods, pistons, bearings).		
Cause	Insufficent lubrification. Coupling tolerances not suitable.		
Remedy	Identify the cause and eliminate the problem by replacing the defective parts.		
Defect	Oil flowing out from the oil breather, possibly in the form of vapour.		
Cause	Excessive quantity of oil.		
Remedy	Make sure the oil level is at below the center of the window.		
Defect	Excessive oil consumption.		
Cause	Piston ring worn out.		
Remedy	Fit new rings: NOTE : If the machine is new, wait till the end of the running-in period (approx. 100 h), then check again.		



Defect	Exceedingly high temperature.		
Cause	Incorrect flywheel rotation due to incorrect electrical connections. Poor ventilation of the room housing the unit.		
Remedy	Check flywheel rotation. Position the compressor at no less than 30 cm. from the wall. Air the room.		
Defect	Carbon residues on the plates.		
Cause	Oil not suitable or excessive heating.		
Remedy	Remove the oil, wash thorougly and fill with fresh AGIP DICREA 150 oil. NOTE: Synthetic and mineral oils should not be mixed in any circumstance.		
Defect	Water in the head.		
Cause	Critical conditions with high humidity contents. Incorrect slant of air duct lines.		
Remedy	Fit a pipe to take in the air form a "standard" humidity environment. Make sure that the condensate in the piping flows towards a special discharge valve.		