

Refinery Systems

CFR Crankcase Overhaul



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BACKGROUND

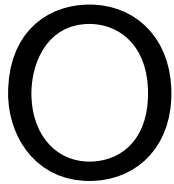
Refinery Systems, a Division of Core Laboratories is a global organization specializing in Octane and Diesel equipment, providing services and parts for Laboratory as well as On-line Applications. With half a century industry experience we have been standing by our designs and customer support. Our company continues to improve and expand our expertise based on long customer partnership and communication to accommodate Petroleum trade.

- Over 50 years serving the Petroleum industry
- Experience in Octane Analyzers
- Focusing on Laboratories & On-line Applications
- Offering Standard Fuel Program
- Manufacture of Octane Analyzer Systems
- Provides worldwide maintenance services as well as training seminars off and on customer site
- The largest in the world distributor for: CFR Engines Inc. & CFR Support Equipment

With locations on three continents we are always ready to assist you:

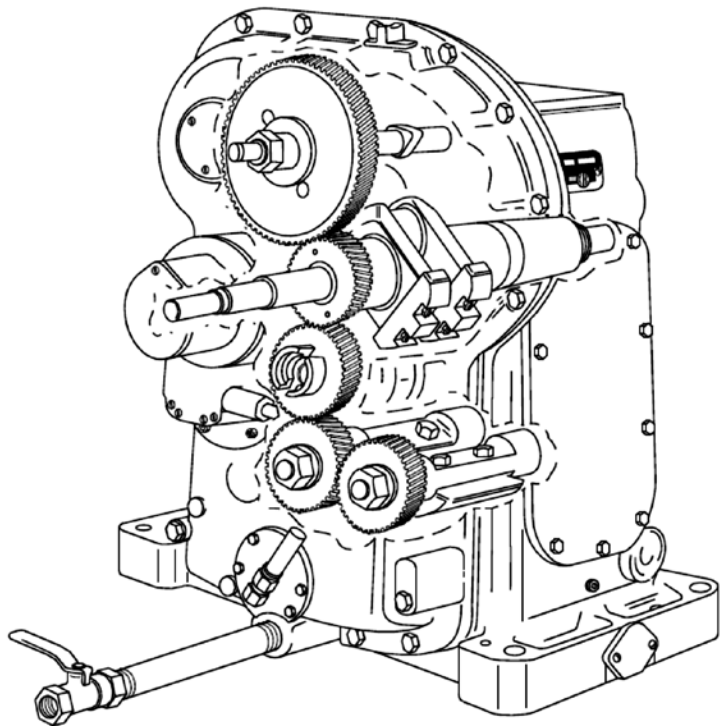
- **Lawrenceville, New Jersey, USA**
- **Darul Ehsan, Selangor, Malaysia**
- **Mumbai, India**
- **Fujairah, United Arab Emirates**

OVERVIEW



Overhaul of the CFR Engine 48D style crankcase can be challenging and time consuming. Also improper overhaul will cause the CFR Engine to perform poorly with results being off by approx. 5 percent.

Refinery Systems offers cylinder service conducted at customer's site or Lawrenceville, New Jersey location. The service is conducted by CFR certified technician and comes with one (1) year warranty against defects and workmanship. Complete crankcase overhaul kit is available to ensure top



quality and give you dependable rating performance while meeting critical part tolerances required by the ASTM methods.

PARTS

Refinery Systems provides a overhaul kit (G-807-24) for the CFR crankcase. Complete set of parts will allow the customer to rebuild their crankcase with new components and will ensure that all the ASTM specifications are met. Kits also offer the customer a way to purchase them as a set. Please view the chart below.

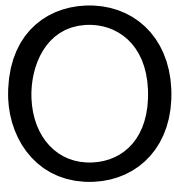
Crankcase Overhaul Kit: G-807-24

Part	Description	Qty	UOM
3337	PLUG,EXP,2,BRASS	2	EA
B3109A	HEATER, OIL	1	EA
B6417	PLUG,EXP,1.75,BRASS	2	EA
Y19247	TERMINAL,WIRE#8 14-18AWG	6	EA
21002	KEY,WDRF 3,.125X.50	1	EA
21006	KEY,WDRF 8,.156X.75	4	EA
21014	KEY,WDRF 18,.25X1.12	2	EA
211196	O RING,1.25X1.5X.12,FKM	5	EA
21720	SOHDSETSC,.25-20X.25 LG	8	EA
109503A	PLATE THRUST	2	EA
109512	GEAR CRANKSHAFT	1	EA
109514Z	GEAR BALANCING DRIVE	1	EA
109526	GEAR CAMSHAFT	1	EA
O109531X	GEAR, IDLER	1	EA
109535A	WASHER,.39DRX.19	1	EA
109541	CRANSHAFT THRUST PLT	2	EA
109546	SHIM CRKSHAFT THRUST	1	EA
109546A	SHIM CRKSHAFT THRUST	6	EA
109546B	SHIM CRKSHAFT THRUST	3	EA
109546C	SHIM CRKSHAFT THRUST	2	EA
109575	KEY,FLYWHEEL,.31X.375X3.375 LG	1	EA
109577	LOCK NUT FLYWHEEL	1	EA
109579	LOCK NUT BAL SHAFT	2	EA
109608	FRONT CAMSHAFT BUSH	1	EA
109618	BEARING, CRANKSHAFT (REAR)	1	EA
109622	GEAR BAL SHAFT DR RH	1	EA
109624	BUSHING, BALANCING SHAFT	4	EA
109625A	SCREW LOCK	2	EA
109626A	SET SCR, SOCKET W/DOGPT 1/4-20	6	EA
109633	GASKET LOCK SCREW	13	EA
109803	GAUGE PLASTIC SIGHT	1	EA
110148	SEAL OIL	1	EA
110149	RETAINER CS O SEAL	1	EA
110150A	OIL PUMP ASM.	1	EA
110158	SEAL OIL	2	EA
110669	KEY WOODRUFF SPEC	1	EA
110174	SLEEVE, CMSHFT OIL SEAL	1	EA
111251	HXHDSCR,.38-24 X .75	1	EA
111372	NUT,JAM,1.125-12 X .61	1	EA

111623	WIRE,MOTOR LEAD -#14	2	EA
118013F	O RING,4.00X4.25X.12,NITRILE	2	EA
A111352	OIL LINE ASM	1	EA
A111352A	OIL LINE ASM.	1	EA
A166182U	HOSE FLEXIBLE ASM	1	EA
B1686	ELBOW,HALF UNION 4X2	1	EA
B567A	ELBOW,STREET,.12SPEC	1	EA
B7106	FITTING,.188REST,.12	1	EA
110177A	SPACER,CRNKSHFT SEAL	1	EA
A166182L	FLEXIBLE HOSE ASM	1	EA
75745	BUSHING REDUCING	1	EA
75806	RESTRICTOR,ORIFICAL	1	EA
Y18802	1/8" NPTF Steel Socket Head Pipe Plug 3/4" Taper Dryseal	20	EA
106343	PLUG,PIPE,SOCKHD,.25	15	EA
199111D	ELBOW,MALE,.50 ODX.38NPT	2	EA
194769G	CONN,MALE,.50 ODX .38NPT	2	EA
110184A	TUBE,OIL PRESSURE	1	EA
21274	HXHDSCR,.25-20X.62 LG	12	EA
21545	SOCHDSCR,.312-18X1.00 LG	5	EA
39149	WASHER,SOCHDSCR LOCK,.31	4	EA
78920	TEE,SERVICE,.38	1	EA
39112	ELBOW,MALE HALF	1	EA
39023	UNION, MALE HALF	3	EA
109566	SCRSOCHD.50-20X2.44,CTRWGHT	4	EA
177382A	NUTELSTOP,.50-20X.59	4	EA
B2674	NUTSPARKINDK1-20X3/8	3	EA
21309	HXHDSCR,.312-18X.75	7	EA
21051	WASHER,LOCK,.312 & M8	15	EA
21312	HXHDSCR,.3125-18 X.88	2	EA
21349	HXHDSCR,.375-16X1.00 LG	20	EA
21273	HXHDSCR .25-20X.625 LG	8	EA
21050	WASHER, MED LOCK .250	21	EA
21354	HXHDSCR,.375-16X1.38 LG	8	EA
21052	WASHER,MED LOCK .375	13	EA
21346	HXHDSCR,.375-16X.88 LG	4	EA
21604	SHPRF EXT LW NO 8	2	EA
111473	CONNECTION-ELECT	1	EA
21660	RDHDSCR,6-32X.25	2	EA
21310	HXHDSCR,.312-18X.75 LG	2	EA
28801	CPSCR.38-16X 3.75 STNLSS STL	4	EA
21754	FLHDSCR,.38-16X.88 LG	8	EA
26144	3/8 CTSK EXT L/W P	8	EA
109410	HXHDSCR,.38-24X.88SS	10	EA
109576	NUTFLYWHEL2-16X.69	1	EA
B2747	WASHR25/64X9/16X.050	2	EA
26005	RDHDSCR,6-32X.31 LG	2	EA
109518	GUIDE VALVE LIFTER	2	EA
O109519	LIFTER VALVE ASSEM	2	EA
B4681	SCREW VALVE LIFT ADJ	2	EA
7721B	NUT ADJ SCREW	2	EA
106827	PLUNGER,RELIEF VALVE	1	EA
B9107A	SPRING, OIL RELIEF VALVE	1	EA
105595	NUTCORN,.75-16X1.19	1	EA
26411	PLUG,PIPE,SOCHD,.38	2	EA
21322	HXHDSCR,.3125-18X2.25 LG	4	EA
21094	RDHDSCR,8-32X.75	2	EA
109791C	COUPLING,FLEXIBLE	1	EA
110248	THROWER OIL	2	EA
110533C	GUARD, CRANKSHAFT	1	EA

111207A	COVER,CRKSHFT.GUARD	1	EA
26051	RDHDSCR,10-24X.62 LG	1	EA
26420	WASHER,MED LOCK,#10-.188	1	EA
152452D	SPACER,COVER	1	EA
Y18814E	WASHER, FLAT, #10, 3/16 PLATED	1	EA
26128	PLUG,PIPE,HXHD,.50 BRASS	1	EA
FA110475	VALVE,C'CASE BREATHER ASM.	1	EA
78212G	BUSH,RED,.75X.50	1	EA
109543	WASHER CRANKS THRUST	1	EA
B4296A	CAP, OIL FILLER	1	EA
73654S	PIPE,.50 X 8.00 TBE	1	EA
116880C	VALVE,BALL,.50 NPT	1	EA
109542A	BEARING, CRANKSHAFT (FRONT)	1	EA
109619A	BUSHING, CAMSHAFT REAR	1	EA
B10168C	PIPE FITTING STREET ELBOW	2	EA
110186B	TUBE, OIL SUCTION	1	EA
105593	NUT RELIEF VAL ADJ	1	EA
105594	NUTRVLOCK,.75-16X.312	1	EA
109552	SCREEN OIL	1	EA
Y7408C	NUTELSTOP,.25-28X.312	2	EA
BA111666	ROD CONN ASM	1	EA
28311	NUT,STSTHEX,.375-24	2	EA
21116	RDHDSCR,.25-20X.38	2	EA
21536	WASHER,MED LOCK,.25	12	EA
26059	WASHER,MED LOCK,#8	2	EA
21983	SOCHDSCR,.375-16X.75 LG	2	EA
21089	RDHDSCR,8-32X.38	2	EA
109323	3/8"-16 x 1-3/8" Grade 5 Zinc Finish Hex Cap Screw	8	EA
109616	GASKET, CAMSHAFT HOLE COVER	1	EA
109522	GASKET COVER PLATE	2	EA
168922F	O RING,8.00X8.25X.12,NITRILE	1	EA
109571A	GASKET FRONT PLATE	1	EA
109570	GASKET GEAR COVER	1	EA
109590	SEAL PRESSURE OIL	1	EA
109612	GASKET CRKCSE DOOR	2	EA
109561A	GASKET RELIEF VALVE	1	EA
106721	GASKET CYL BASE	1	EA
B2544	GASKET CYL BASE	1	EA
109559B	GASKET OIL PUMP BODY	1	EA
B1956A	GASKET, BREATHER	1	EA
109553	GASKET SUPPORT PLATE	1	EA
176412	GASKET	1	EA
B10410	WASHER 25/32X1X1/32 (Copper)	2	EA
118013F	O RING,4.00X4.25X.12,NITRILE	2	EA
118013M	O RING,1.12X1.38X.12,NITRILE	1	EA
B2543	GASKET	1	EA

SERVICE



One (1) year warranty starts on the day that the cylinder is received by the customer.

Coverage includes manufacturing defects and workmanship on any overhauled cylinder by Refinery Systems on and off site. Regular turnaround time for this service is one week depending on the work load.

The service includes are as follows:

1. Crankcase is received and inspected for damage.
2. Completely disassemble to a bare casting and thoroughly cleaned.
3. After cleaning it is inspected and measured.
4. Rebuilt using all new components meeting the manufacture's tolerances.
5. Painted, inspected, carefully packaged and sent back to the customer ready for use.

Note:

The Crankshaft (A109511H), Idler Shaft (109530A) & Camshaft (109583B) are not included in the kit but can be ordered separately upon inspection indicating they are worn beyond specifications.

ADDITIONAL PRODUCTS

- **COMOC 6**

Refinery System's premier octane analyzer system connects to multiple CFR knock testing engines for comprehensive control of up to ten engines and three in-line blenders. COMOC 6 leverages the power of technologies such as client server web based software and the Windows Server operating system to control a network of engines via the COMOC 6 I/O cabinet and consoles.

- **Reference Fuel System – Octane and Cetane**

Easy to use for blending Octane primary reference fuels and standardization fuels. Cetane reference system supplies high and low check fuels. Four Burette Octane Station and Two Burette Cetane Station are manufactured to ASTM specifications. Equipped with flow restricted dripless spout dispensing valves and Power & Pump Panel with intrinsically safe-pak. Custom units and Amber burettes are available upon request.

- **CFR Services**

Refinery Systems provides on-site engine/analyzer troubleshooting, diagnostic support and maintenance services worldwide. Technicians are available to provide customer support in any manner related to CFR engines, maintenance, operation, or to any of the support products offered. On-site as well as off-site services are available for site evaluation, systems maintenance, as well as training services.

CONTACT US

Address all correspondence – including order to:

Refinery Systems

11 Princess Road, Suite H

Lawrenceville, NJ 08648

Telephone: (609) 896 – CORE (2673)

Telefax: (609) 896 – CLRS (2577)

Email: refsys.info@corelab.com

Web Page: www.corelab.com

1. Give a complete description and a part number of required items.
2. Be certain to give a complete street address where the parts are to be shipped to and billed.
3. Specify method of the shipment – parcel post, freight, air express, etc.
4. Prices and F.O.B. supplier's plant and subject without notice.
5. The minimum order is \$100.00USD.
6. Title passes on delivery to common carrier. Claims for loss or damage must be filed with the delivering carrier immediately.

