

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 & CFR Support Equipment

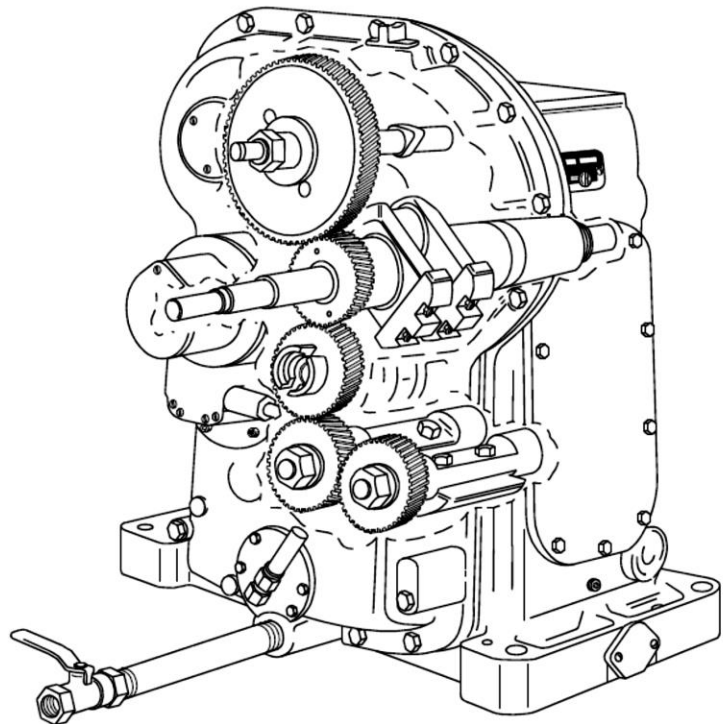
With locations on three continents we are always ready to assist you:

- **Lawrenceville, New Jersey, USA**
- **Göteborg, Sweden**
- **Darul Ehsan, Selangor, Malaysia**
- **Mumbai, India**

OVERVIEW

Overhaul of the Waukesha 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 Waukesha 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 (7851) 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: 7851

Component	Item Description	U/M	Quantity
0109531X	GEAR, IDLER ASSY W/BUSH	EA	1
109522	GASKET, COVER PLATE	EA	2
109526	GEAR, CAMSHAFT	EA	1
109541	PLATE, CRANKCASE THRUST	EA	2
109542	BEARING, CRANKSHAFT, FRONT	EA	1
109553	GASKET, OIL SCREEN	EA	1
109559B	GASKET, OIL PUMP BODY (0.015)	EA	1
109561A	GASKET, OIL RELIEF VALVE	EA	1
109570	GASKET, GEAR COVER	EA	1
109571A	GASKET, FRONT PLATE	EA	1
109577	LOCK, FLYWHEEL NUT	EA	1
109579	LOCK NUT, BAL. SHAFT	EA	2
109590	SEAL ADAPTER, PRESSURE, OIL	EA	1
109608	BUSHING, CAMSHAFT, FRONT	EA	1
109612	GASKET, CRANKCASE DOOR	EA	2
109616	GASKET, CAMSHAFT HOLE COVER	EA	1
109618	BEARING, CRANKSHAFT, REAR	EA	1
109619	BUSHING, CAMSHAFT, REAR	EA	1
109624	BUSHING, BALANCING SHAFT	EA	4
109625A	SCREW, MAIN BEARING LOCK	EA	2
109626A	SCREW, BUSHING LOCK	EA	6
109633	GASKET, LOCK SCREW	EA	7
109803	GAUGE, OIL LEVEL, PLASTIC	EA	1
110148	SEAL, OIL, REAR	EA	1
110158	RING, OIL SEAL, FRONT	EA	2
110174	RETAINER, CAMSHAFT, OIL SEAL	EA	1
110176	SPACER, IND. DISC	EA	1

111251	SCREW, SELF-LOCK CAP	EA	1
111473	PLUG, HEATER	EA	1
116375	SUPERSEDED BY 199111D (ELBOW)	EA	0
117926C	GASKET, OIL FILTER	EA	1
118013F	O RING	EA	2
118013M	O RING, 1.12 X 1.38 X.12, NITRILE	EA	1
168922F	O RING	EA	1
1700	CONN. ROD ASSY., RECONDITIONED	EA	0
176412	GASKET	EA	1
177382A	NUT, EL STOP 1/2-20 X .594	EA	4
211196	O RING, 1.25 X 1.5 X .12 (FORMELY 157497M)	EA	3
3337	PLUG, EXPANSION	EA	2
3496-1	S.S. CLOSE NIPPLE, 3/8	EA	1
3506	BRASS TEE, 3/8	EA	1
39023	MALE HALF UNION	EA	1
39112	ELBOW, MALE, HALF	EA	1
75745	BUSHING, REDUCING	EA	1
75806	RESTRICTOR, FUEL	EA	1
78202D	ELBOW, PIPE, 3/8 X 90 DEG	EA	2
790	VALVE, 3/4 , OIL	EA	1
792	PIPE, 12 , GALVANIZED	EA	1
A110184A	LINE, OIL PRESSURE ASSEMBLY	EA	1
A110186A	LINE, OIL, SUCTION	EA	1
B10410	GASKET, OIL RELIEF VALVE NUT	EA	2
B1686	ELBOW, HALF UNION 4 X 2	EA	1
B1956A	GASKET, BREATHER BODY	EA	1
B2543	GASKET, TACHOMETER DRIVE	EA	1
B3109A	PLATE, OIL HEATER, 110V	EA	1
B4296A	CAP, OIL FILLER	EA	1
B567A	ELBOW, STREET	EA	1
B6417	PLUG, EXPANSION	EA	2
B7106	ADAPTER	EA	1
OB2670	DIAL, SPARK INDICATOR	EA	1
BA111666	ROD, CONNECTING ASSEMBLY	EA	1
199111D	ELBOW, MALE	EA	1
110533C	GUARD, CRANKSHAFT, METAL	EA	0
109546	SHIM, CRANKSHAFT, THRUST	EA	1
109546A	SHIM, CRANKSHAFT, THRUST	EA	5
109546B	SHIM, CRANKSHAFT, THRUST	EA	2
109546C	SHIM, CRANKSHAFT, THRUST	EA	2

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 (4) weeks 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 Stub 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.

- **Intake Air Refrigeration Unit 115V 50/60Hz or 220V 50 Hz**

Provides chilled and dehumidified air to Laboratory or On-line applications. Equipped to meet fuel cooling requirements for CFR engines by circulating mixture through the carburetor. Humidity Guarantee Apparatus is available for locations with humidity lower than 25 GPP per ASTM D2699 & D2700.

- **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 dripleless 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

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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.

