

# Warranty Flat Rates/ Failure Codes

## RV/Mobile Generator Sets



**KOHLER**<sup>®</sup>  
POWER SYSTEMS

**ISO 9001**  
**ISI** KOHLER  
GENERATORS  
INTERNATIONALLY REGISTERED

TP-5176 11/96a

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## Warranty Flat Rates

### Introduction

Flat rate defines the maximum time allowed for making specific warranty repairs. Each flat rate corresponds to a *Flat Rate Number*. Each flat rate was determined using facilities and equipment that any service shop should have available. **WRITE THE FLAT RATE NUMBER ON THE WARRANTY CLAIM FORM (KO-1500) IN THE SPACE MARKED FLAT RATE NUMBER.**

If you make a repair that is not listed in the flat rates, please do the following:

- Enter a description of the work done in the *Work Performed* area on the warranty claim form.
- Give the appropriate failure code.

If unforeseen circumstances cause you to exceed the flat rate, enter the actual time against the Flat Rate Number with an explanation of the causes in the *Work Performed* area—**DO NOT PUT THIS EXTRA TIME UNDER MISCELLANEOUS TIME.** If you need additional space for explanation, continue it either on the back of the form or on a separate sheet. Kohler Co. reviews all claims individually. Claims are subject to approval by Kohler Generator Division's Warranty Department.

### NOTE

Refer to *RV and Mobile Generator Sets* (TP-5183) for Warranty Policies and Procedures.

**USE THE FLAT RATE NUMBER AND A FAILURE CODE.** Write the appropriate code from the following chart on the Warranty Claim Form (KO-1500) in the space marked *Failure Code*. This Failure Code applies to the primary failed part and should help determine mode of failure.

### NOTE

**EACH FLAT RATE TIME INCLUDES TROUBLE-SHOOTING, TESTING, AND CLEAN-UP TIME.**

### NOTE

Removal and replacement is abbreviated to R & R throughout this publication.

## Failure Codes

Electrical:	
EA	Electrically out of Adjustment
EB	Circuit Board
EC	Poor/Bad Connection
EH	High Voltage
EL	Low Voltage
EO	Open
ES	Shorted
EU	Unstable Voltage
Mechanical:	
BD	Binding
BT	Bent
CD	Casting Defect
CK	Cracked
LP	Loose Parts
MA	Assembled Improperly
MB	Mechanically Broken
MD	Machining Defect
ML	Leaking
MN	Noisy
MO	Mechanically out of Adjustment
MV	Vibration
OC	Oil Consumption
PL	Plugged
PM	Material
ST	Sticking
SZ	Seized
TW	Twisted
Paint:	
PA	Adhesion
PC	Corrosion (Oxidation, Rust)
PE	Peeling Paint
PO	Overspray
PR	Runs, Sags
Packaging:	
PS	Shipping Damage
Parts:	
CP	Parts Claim
Miscellaneous:	
FT	Freight
IN	Intermittent
IP	Incorrect Parts Supplied
IS	Incorrect Shipment
MP	Missing Parts
SB	Service/Parts Bulletin

## Flat Rates

<b>Ford Engine</b>			
<b>Flat Rate Description</b>	<b>Flat Rate No.</b>	<b>10-12.5 kW</b>	<b>Comments</b>
<b>Air Intake and Exhaust:</b>			
Air cleaner assembly	2233	0.30	
Air cleaner element	2229	0.10	
Exhaust manifold (dry)	2231	0.75	Each
Exhaust manifold (liquid cooled)	2232	1.25	Each
Intake manifold	2230	0.75	
<b>Camshaft, Timing Gear:</b>			
Camshaft gear and chain	2203	1.80	
Camshaft R & R	2202	2.50	
<b>Cooling:</b>			
Coolant hoses	2207	0.80	Each
Engine block heater	2212	1.50	Complete kit or heater assembly
Engine cooling fan	2210	1.25	
Heater cord or thermostat	2213	1.00	
Radiator R & R	2209	2.00	
Thermostat/housing	2206	1.25	
V-belt	2211	0.75	
Water pump (coolant)	2208	2.00	
<b>Crankshaft, Mains, Flywheel:</b>			
Balancer R & R	2200	1.60	
Crankshaft and main bearings	2196	3.80	
Crankshaft damper	2199	0.40	
Crankshaft flywheel seal	2198	1.50	
Crankshaft front cover seal	2197	1.60	
Flywheel R & R	2201	3.90	Includes generator R & R from engine
<b>Cylinder Block, Liners, Pistons, Rods:</b>			
Pistons and/or rings (all)	2225	5.20	
<b>Cylinder Head, Valves:</b>			
Cylinder head or gasket	2223	1.80	R & R
Cylinder head retorque	2224	1.00	
Valve cover gasket or breather	2222	0.20	
Valve grinding or replacement	2219	1.80	Each head
Valve push rod (all)	2220	0.30	All
Valve spring or stem seal	2221	1.50	R & R (all)
Valve tappet adjustment	2218	0.70	
<b>Engine Electrics:</b>			
Battery charging alternator	2181	1.30	
Shutdown/gauge senders	1973	1.50	
Wiring harness—engine DC	1974	1.50	

## Flat Rates

<b>Ford Engine (Continued)</b>			
<b>Flat Rate Description</b>	<b>Flat Rate No.</b>	<b>10-12.5 kW</b>	<b>Comments</b>
<b>Engine Mounting:</b>			
Engine R & R	2242	3.00	
Front engine mount (LH)	2238	1.00	
Front engine mount (RH)	2239	1.50	
Generator mounting base	2241	2.25	
Vibration isolator	2240	1.25	Per pair
<b>Fuel:</b>			
Carburetor adjustment	2188	0.30	Gas or gasoline
Carburetor fuel shutdown solenoid	2191	0.90	Gasoline
Carburetor R & R	2189	1.10	Includes adjustment
Carburetor rebuild	2187	1.75	Gas or gasoline
Electric choke R & R	2190	0.90	Includes choke adjustment
Fuel filter	2195	0.50	
Fuel pump	2192	1.25	
Gas fuel regulator/vaporizer	2193	1.00	LP, R & R
Gas solenoid valve	2194	1.00	LP
<b>Governor:</b>			
Governor actuator	2215	1.25	Includes adjustment
Governor adjustment	2214	0.50	
Governor controller	2216	1.50	Includes adjustment
Magnetic pickup	2217	1.00	R & R
<b>Ignition:</b>			
Crankshaft position sensor	2186	1.00	
Ignition coil R & R	2184	1.40	DIS module
Ignition module	2185	1.50	Electronic spark control module
Spark plug wires	2183	0.25	Replacement
Spark plugs replacement	2182	0.25	
<b>Lubrication:</b>			
Oil pan or gasket	2205	1.60	
Oil pump replacement	2204	0.50	
Oil filter R & R	2778	0.50	
<b>Rebuild:</b>			
Major overhaul	2227	7.40	Includes valve service
Minor overhaul	2228	6.40	Excludes valve service
Short block	2226	4.00	R & R
<b>Starting:</b>			
Starter drive R & R	2235	0.90	
Starter motor	2234	1.20	
Starter rebuild	2236	1.80	Includes R & R
Starter relay	2237	1.25	

## Flat Rates

<b>Kohler Engine</b>					
<b>Flat Rate Description</b>	<b>Flat Rate No.</b>	<b>4-5 kW</b>	<b>5.1-7 kW</b>	<b>7.1-7.5 kW</b>	<b>Comments</b>
<b>Air Intake and Exhaust:</b>					
Air cleaner	2038	0.30	0.30	0.30	
Manifold, intake/exhaust	2037	0.75	0.55	0.75	
Exhaust pipe flange gasket	2780	0.50	0.50	0.50	
Exhaust system component	2782	1.00	1.00	1.00	
<b>Cooling:</b>					
Circulating pump	2010	–	–	2.75	Each
Coolant hoses (each)	2012	–	–	0.75	
Idler pulley	2013	–	–	1.00	
Radiator R & R	2011	–	–	1.50	
Thermostat/housing	2014	–	–	1.50	
V-belt	2015	–	–	0.50	
<b>Crankshaft, Mains, Flywheel:</b>					
Balance gears—R & R	2005	3.20	–	–	
Crankshaft and main bearing R & R	2000	3.20	3.00	5.00	
Crankshaft and rod	2003	3.20	3.50	6.00	
Crankshaft—flywheel seal	2002	1.70	2.00	3.00	
Crankshaft—PTO seal	2001	0.50	0.80	1.50	
Flywheel—R & R	2004	1.00	1.00	2.00	
<b>Cylinder Block, Liners, Pistons, Rods:</b>					
Bare block	2033	–	7.00	–	
Connecting rod	2030	2.20	3.50	3.50	Add 0.25 hour for each additional
Mini block	2034	3.70	–	–	
Piston and/or rings	2031	2.20	3.50	3.50	Add 0.25 hour for each additional
Short block	2032	3.00	5.00	6.00	
Cylinder jug R & R—each cylinder	2786	1.50	–	–	
<b>Cylinder Head, Valves:</b>					
Cylinder head retorque	2028	0.30	0.70	0.50	
Cylinder head/gasket—replace	2027	1.00	0.80	1.50	
Shrouds only, R & R	2029	0.40	0.50	–	
Valve cover gasket/breather	2021	0.50	0.50	0.50	
Valve grinding	2022	1.40	1.70	2.00	
Valve guide replacement	2023	2.00	1.70	2.00	Add 0.3 hour for each additional
Valve R & R (no grinding)	2024	1.50	1.75	4.00	Includes valve adjustment
Valve spring replacement	2025	1.20	1.50	1.00	Add 0.3 hour for each additional
Valve tappet adjustment	2026	0.60	1.00	1.00	
<b>Engine Electrics:</b>					
Battery charging regulator	2045	1.00	0.75	–	Test and replace
Shutdown senders	2352	1.25	1.25	1.25	
Stator test and replace	2046	1.00	1.50	–	Includes flywheel R & R
Wire harness	2353	1.50	1.50	1.50	
Battery cable R & R	2774	1.00	1.00	1.00	
<b>Engine Mounting:</b>					
Engine R & R from generator set	2047	1.00	2.00	3.00	
Mounting base	2044	2.00	2.00	2.25	
Vibration isolators	2043	0.75	0.75	1.00	Per pair

## Flat Rates

<b>Kohler Engine (Continued)</b>					
<b>Flat Rate Description</b>	<b>Flat Rate No.</b>	<b>4-5 kW</b>	<b>5.1-7 kW</b>	<b>7.1-7.5 kW</b>	<b>Comments</b>
<b>Fuel:</b>					
Carburetor, adjust	1991	0.20	0.20	0.70	
Carburetor rebuild—includes R & R	1990	1.00	1.00	1.50	Includes adjustment
Carburetor R & R	1989	0.50	0.50	1.00	Includes adjustment
Electric choke, R & R	1995	1.25	1.25	1.25	Includes adjustment
Electric fuel solenoid	1996	1.00	1.25	1.25	Carburetor fuel solenoid
Fuel drip tank, R & R	1994	–	–	1.00	
Fuel pump, R & R	1992	0.30	0.60	1.25	
Fuel pump, rebuild including R & R	1993	0.80	1.00	1.50	
LP solenoid valve	1999	1.00	1.50	1.50	
LP vaporizer	1997	–	1.00	–	
Primary/secondary LP regulator	1998	1.50	1.50	1.50	
Thermistor	2763	1.50	–	–	
Fuel line	2764	0.50	0.50	0.50	
Heat sink assembly—heater	2771	1.00	–	–	
<b>Governor:</b>					
Governor—adjustment	2016	0.50	0.70	0.50	
Governor—replacement	2017	3.70	1.50	1.00	Mechanical includes adjustment
Governor actuator (stepper motor)	2018	1.25	1.25	–	Electronic
Governor controller	2019	1.50	1.50	–	
Governor magnetic pickup	2020	1.50	1.50	–	
<b>Ignition:</b>					
Ignition coil, replace	1984	0.30	0.30	–	
Ignition module	1988	1.50	1.50	–	Electronic ignition
Ignition timing	1978	0.30	0.50	0.50	Points-type ignition
Magneto	1986	–	–	1.00	Includes timing adjustment
Magneto coil, test and replace	1985	1.00	1.00	–	Including flywheel R & R
Magneto components	1987	–	–	0.25	Each distributor cap, end cap, points, condenser, and rotor
Points and/or condenser	1980	0.50	0.50	–	Replace and adjust
Spark plug wire replace	1982	0.20	0.40	–	Battery ignition
Spark plug wire replace	1983	1.00	0.40	0.40	Magneto ignition
Spark plug, replace and adjust	1981	0.55	0.40	–	
Ignition magnetic pickup	2770	1.00	1.00	–	
<b>Lubrication:</b>					
Oil pan and/or gasket—replace	2006	0.50	0.50	2.00	
Oil pressure adjustment	2007	–	0.50	0.25	
Oil pressure gauge	2008	–	–	0.25	
Oil pump—replacement	2009	–	3.00	3.00	
Oil filter R & R	2773	0.50	0.50	0.50	
Oil reservoir tank	2781	1.50	–	–	
<b>Rebuild:</b>					
Major overhaul, including valve service	2035	5.25	8.00	8.00	
Minor overhaul, excluding valve service	2036	4.00	7.25	4.00	Includes all adjustments
<b>Starting:</b>					
Starter drive—R & R	2039	1.30	1.00	1.25	
Starter motor—Bendix type R & R	2041	0.75	1.25	1.00	
Starter relay	2042	1.00	1.25	1.25	“C” contactor
Starter—rebuild including R & R	2040	1.25	1.50	2.00	

## Flat Rates

<b>Kubota Engine</b>				
<b>Flat Rate Description</b>	<b>Flat Rate No.</b>	<b>7-9.9 kW</b>	<b>10-11 kW</b>	<b>Comments</b>
<b>Air Intake and Exhaust:</b>				
Air cleaner assembly	2335	0.30	0.30	
Air cleaner element	2336	0.10	0.10	
Exhaust manifold	2338	0.30	0.30	
Intake manifold	2337	0.20	0.30	
<b>Camshaft, Timing Gear:</b>				
CAM gear	2344	2.30	2.60	First
Camshaft	2345	2.30	2.60	
Camshaft tappet	2346	1.10	1.40	
Camshaft tappets—all	2347	1.20	1.40	
Camshaft with gear	2343	2.20	2.50	
Crank gear	2349	1.50	1.60	
Fuel camshaft with gear	2348	1.40	1.50	
Gear case cover or gasket	2339	1.30	1.30	
Gear case oil seal	2340	1.20	1.20	
Idle gear	2342	1.10	1.20	
Timing gears—all	2341	4.00	4.30	
<b>Cooling:</b>				
Fan	2281	1.75	1.50	Upper or lower
Fan belt or pulley	2279	0.50	0.50	
Radiator hose	2274	0.60	0.60	
Radiator R & R	2278	1.50	1.50	
Thermostat assembly	2277	0.50	0.50	
Thermostat bypass hose	2280	0.50	0.50	
Water pump assembly	2275	1.10	1.10	Mechanical seal or pump overhaul
Water pump seal	2276	1.40	1.40	
Overflow bottle	2784	0.50	0.50	
<b>Crankshaft, Mains, Flywheel:</b>				
Crankshaft R & R	2273	4.30	4.80	First All
Flywheel	2267	0.30	0.30	
Main bearing case or bearing	2271	3.70	4.10	
Main bearing case or bearing	2272	4.30	4.80	
Rear bearing case cover	2269	0.70	0.70	
Rear oil seal	2270	0.70	0.70	
Ring gear	2268	1.00	1.00	
<b>Cylinder Block, Liners, Pistons, Rods:</b>				
Connecting rod—one	2329	2.10	2.40	First bushing assembly All bushing assembly
Connecting rod—all	2330	2.30	2.60	
Crank case assembly	2333	5.20	5.50	
Piston—one	2327	2.30	2.60	
Piston—all	2328	2.40	2.80	
Piston ring or pin	2325	2.10	2.40	
Piston ring or pin	2326	2.75	2.70	
Rear end plate	2334	0.40	0.40	
Rod crank bearing—one	2331	2.00	2.30	
Rod crank bearing—all	2332	2.10	2.40	
<b>Cylinder Head, Valves:</b>				
Breather assembly or pipe	2283	0.10	0.10	
Cylinder head cover or gasket	2282	0.10	0.10	

## Flat Rates

<b>Kubota Engine (Continued)</b>				
<b>Flat Rate Description</b>	<b>Flat Rate No.</b>	<b>7-9.9 kW</b>	<b>10-11 kW</b>	<b>Comments</b>
<b>Cylinder Head, Valves (Continued):</b>				
Cylinder head gasket	2295	1.10	1.40	
Cylinder head R & R	2296	1.10	1.50	
Push rod R & R—one	2285	0.30	0.40	
Push rods R & R—all	2286	0.40	0.50	
Rocker arm assembly	2284	0.30	0.40	
Valve—one	2291	1.30	1.50	
Valve guide—one	2293	1.50	1.70	
Valve guide—all	2294	2.70	3.30	
Valve spring—one	2289	1.30	1.50	
Valve springs—all	2290	2.10	2.60	
Valve stem seal—one	2287	1.30	1.50	
Valve stem seal—all	2288	2.20	2.70	
Valves—all	2292	2.10	2.60	
<b>Engine Electrics:</b>				
Alternator R & R	2297	0.10	0.10	
Engine wire harness	2303	1.50	1.50	
Glow plug—one	2299	0.10	0.20	
Glow plug—all	2300	0.20	0.20	
Glow plug relay	2298	1.25	1.25	
Shutdown solenoid	2302	1.50	1.50	
Switches/senders	2301	1.00	1.20	Oil pressure or water temperature
Battery cable R & R	2775	1.00	1.00	
<b>Fuel:</b>				
Electric fuel pump	2305	0.75	0.75	
Fuel pipe or line	2304	0.10	0.10	Each
High pressure pipe	2307	0.10	0.10	First
High pressure pipe	2308	0.20	0.20	All
Injection pump assembly	2306	0.30	0.30	
Nozzle assembly	2309	0.30	0.30	First
Nozzle assembly—all	2310	0.60	0.80	All nozzles R & R
Fuel filter	2788	0.25	0.25	
<b>Governor:</b>				
Fuel limiter assembly	2323	0.30	0.30	
Governor fork lever assembly	2320	1.60	1.70	
Governor gear	2322	1.70	1.80	
Governor weight and holder	2321	1.40	1.50	
Idling apparatus	2324	0.30	0.30	
Speed control lever and plate	2319	0.30	0.40	
<b>Lubrication:</b>				
Oil filter R & R	2316	0.20	0.20	
Oil pan or gasket	2318	0.40	0.50	
Oil pump R & R	2315	1.20	1.20	
Oil relief valve	2317	0.30	0.30	
Oil strainer/pickup	2314	0.50	0.60	
<b>Starting:</b>				
Magnetic switch	2313	0.20	0.50	
Starter clutch assembly	2312	0.60	0.50	
Starter R & R	2311	0.20	0.10	

## Flat Rates

<b>Tecumseh Engine</b>			
<b>Flat Rate Description</b>	<b>Flat Rate No.</b>	<b>2.5 kW</b>	<b>Comments</b>
<b>Air Intake and Exhaust:</b>			
Muffler	1362	0.30	
<b>Camshaft, Timing Gear:</b>			
Camshaft R & R	1333	1.60	
<b>Crankshaft, Mains, Flywheel:</b>			
Crankshaft and main bearing R & R	1334	2.50	
Crankshaft and rod	1337	2.50	
Crankshaft—flywheel seal	1336	1.00	
Crankshaft—PTO seal	1335	0.50	
Flywheel—R & R	1338	0.50	
<b>Cylinder Block, Liners, Pistons, Rods:</b>			
Connecting rod	1339	2.00	
Cylinder head—retorque	1347	0.30	
Cylinder head shrouds only—R & R	1348	0.20	
Cylinder head/gasket—replace	1346	0.30	
Pistons and/or rings	1340	2.00	
Valve cover gasket/breather	1345	0.40	
Valve grinding	1343	1.40	
Valve R & R (no grinding)	1341	1.00	
Valve spring replacement	1344	1.00	Add 0.3 hour for each additional
Valve tappet adjustment	1342	1.00	
<b>Engine Electrics:</b>			
Low oil level switch	1966	0.75	
Battery cable R & R	2776	1.00	
<b>Engine R &amp; R From Generator Set:</b>			
Engine R & R from generator set	1969	1.00	
<b>Engine Mounting:</b>			
Generator mount plate	1967	1.50	
Vibration isolators	1968	0.50	

## Flat Rates

### Tecumseh Engine (Continued)

Flat Rate Description	Flat Rate No.	2.5 kW	Comments
Fuel:			
Carburetor—adjust	1351	0.20	
Carburetor R & R	1349	0.50	
Carburetor—rebuild including R & R	1350	0.75	
Fuel Pump—R & R	1352	0.50	
Governor:			
Adjustment	1353	0.50	
Replacement	1354	2.00	
Ignition:			
CDI ignition	1360	0.50	
Ignition timing	1355	1.00	
Magneto coil—test	1359	1.00	
Points/condenser—replace and adjust	1356	0.60	
Shipped damaged spark plug	1357	0.20	Replace and adjust
Spark plug wire (Magneto ignition)	1358	1.00	Replace
Stator—including flywheel R & R	1361	1.25	Test and replace
Rebuild:			
Major overhaul, including valve service	1363	3.00	
Minor overhaul, excluding valve service	1364	3.00	
Starting:			
Starter drive—R & R	1366	0.50	
Starter relay	1367	1.00	
Starter—rebuild including R & R	1365	1.00	

## Flat Rates

Yanmar Engine				
Flat Rate Description	Flat Rate No.	9 kW	12-21 kW	Comments
Air Intake and Exhaust:				
Air cleaner assembly	1248	0.50	0.50	
Air cleaner element	1245	0.30	0.30	R & R
Intake/exhaust manifolds	1249	1.00	1.00	
Turbo charger	1246	–	1.00	R & R
Turbo charger rebuild	1247	–	3.00	Includes R & R
Camshaft, Timing Gear:				
Camshaft bearings	1206	4.00	6.00	
Camshaft gear	1208	3.50	3.50	
Camshaft or tappets	1205	4.00	6.00	
Crankshaft timing gear	1207	3.50	3.50	
Gear case bearing	1209	–	–	
Cooling:				
Coolant circulating pump R & R	1219	2.50	2.50	Includes radiator R & R
Cooling fan	1225	1.75	1.75	Includes radiator R & R
Cooling system hose	1223	0.50	0.50	Each
Radiator	1224	1.25	1.25	
Thermostat/gasket	1220	0.90	0.90	
Water pump internal components	1222	3.00	3.00	
Water pump V-belt	1221	0.50	0.50	
Overflow bottle	2785	0.50	0.50	
Crankshaft, Mains, Flywheel:				
Crankshaft/main bearings	1200	8.00	10.00	
Flywheel	1204	4.00	4.50	Includes alternator R & R
Oil seal—flywheel end	1201	4.00	4.00	
Oil seal—front	1202	3.00	3.00	
V-belt drive pulley	1203	0.50	0.50	
Cylinder Block, Liners, Pistons, Rods:				
Connecting rod/crank pin bearing	1241	4.50	6.00	
Cylinder block	1238	14.00	15.00	
Cylinder liner	1239	6.00	8.00	
Each additional P, PR, PB	1244	0.30	0.30	
Each additional liner	1240	0.30	0.30	
Each additional rod/crank pin	1242	0.30	0.30	
Piston/piston ring/pin bushing	1243	4.50	6.00	
Cylinder Head, Valves:				
Cylinder head	1226	2.00	2.50	Replace
Cylinder head gasket	1227	2.00	2.40	Includes cylinder head R & R
Each additional intake/exhaust valve	1229	0.30	0.30	
Each additional valve guide	1233	0.40	0.40	Intake or exhaust
Each additional valve spring	1231	0.20	0.20	
Push rod	1235	0.50	0.50	
Rocker arms	1236	0.50	0.50	
Valve clearance	1234	0.50	0.60	Check and/or adjust
Valve guide R & R	1232	3.00	3.20	Intake or exhaust
Valve replace	1228	2.00	2.00	Intake or exhaust with lapping
Valve spring replace	1230	0.80	0.80	Intake or exhaust

## Flat Rates

<b>Yanmar Engine (Continued)</b>				
<b>Flat Rate Description</b>	<b>Flat Rate No.</b>	<b>9 kW</b>	<b>12-21 kW</b>	<b>Comments</b>
<b>Engine Electrics:</b>				
Alternator internal component	1251	2.00	2.00	Replacement
Battery charging alternator/generator	1250	1.10	1.10	R & R
Battery charging voltage regulator	1252	1.25	1.25	External regulator
Engine preheat relay	1259	1.25	1.25	
Engine preheater	1260	1.25	1.25	
Fuel rack solenoid	1257	1.50	1.50	
Switches/senders	1256	1.20	1.20	
Wire harness	1258	1.50	1.50	Engine DC harness
Battery cable R & R	2777	1.00	1.00	
<b>Engine R &amp; R From Generator Set:</b>				
Engine R & R from generator set	1975	4.00	4.00	
<b>Engine Mounting:</b>				
Engine mounts	1261	0.75	1.00	Each pair
Generator skid	1262	2.00	2.25	
<b>Fuel:</b>				
Bleed fuel system	1198	0.40	0.50	
Each additional plunger/barrel	1194	0.50	0.50	
Fuel feed pump	1197	0.50	0.90	
Fuel injection pump delivery valve	1192	0.30	0.80	
Fuel injection pump plunger/barrel	1193	1.50	2.00	
Fuel injection pump	1191	2.00	1.25	R & R
Fuel injection valve	1195	0.60	1.10	
High pressure fuel pipe	1196	0.20	0.50	
Injection pump timing	1199	1.00	1.00	
Fuel filter R & R	2789	0.25	0.25	
<b>Lubrication:</b>				
Lube oil control valve assembly	1211	0.50	0.50	
Lube oil cooler	1215	-	0.80	
Lube oil inlet pipe	1213	0.60	0.60	Includes oil pan R & R
Lube oil strainer/filter	1212	0.20	0.20	
Oil pan	1214	0.50	0.50	
Oil pump	1210	3.50	3.50	Includes front cover R & R
<b>Starting:</b>				
Starter motor	1253	0.60	0.60	R & R
Starter relay	1255	1.25	1.25	
Starter motor internal component	1254	1.50	1.50	Replacement

## Flat Rates

<b>RV and Mobile Generator</b>					
<b>Flat Rate Description</b>	<b>Flat Rate No.</b>	<b>2-7 kW</b>	<b>7.1-15 kW</b>	<b>15.1-21 kW</b>	<b>Comments</b>
<b>AC Generator:</b>					
Bearing/end bracket	2097	2.00	2.00	2.25	Includes rotor R & R and truing of collector rings
Brush collector ring	2099	4.50	6.25	8.00	
Brushes/brush holder	2100	1.75	1.75	1.75	
Capacitor	2105	2.00	-	-	
Generator adapter	2098	2.50	2.75	3.50	
Output circuit breakers	2101	1.25	1.50	1.50	
Rectifier/transformer	2103	1.50	1.50	-	
Relay	2102	1.25	1.25	1.25	
Rotor	2095	2.00	3.50	4.00	
Stator	2096	1.75	3.00	3.50	
Voltage regulator—AC	2104	2.00	2.00	2.00	
Voltage regulator adjust	2765	0.25	0.25	0.25	
Overbolts R & R	2779	0.50	0.50	0.50	
Generator R & R	2783	2.00	4.00	6.00	
<b>Controller:</b>					
AC circuit breaker	2093	1.50	1.50	1.50	Load breaker
Control relay(s)	2091	1.00	1.00	1.00	Each
Controller circuit board	2092	1.25	1.50	1.50	
Fuse holder/DC circuit breaker	2090	0.75	0.75	0.75	
Switches	2094	1.25	1.00	1.00	
Voltage regulator—AC	2766	1.00	1.00	1.00	
Hourmeter	2767	-	0.50	0.50	
Replace fuse	2768	0.25	0.25	0.25	
Voltage adjust	2769	0.25	0.25	0.25	

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