

# Warranty Flat Rates/ Failure Codes

Commercial & Recreational Mobile  
Generator Sets



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

**ISO 9001**  
**KOHLER**  
GENERATORS  
INTERNATIONALLY REGISTERED  
U.S.A. Plant ISO Registered

TP-6019 10/98

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# Notes

A flat rate is the maximum time allowed for making warranty repairs. The manufacturer assigns a flat rate number to each flat rate. The manufacturer sets flat rates using facilities and equipment that any service shop should have available. You must write the flat rate number on the warranty claim form (K-1500) in the space marked Flat Rate Number.

For repairs not listed in the flat rates, follow these steps.

- Enter a description of the work performed in the Work Performed area on the warranty claim form.
- Give the appropriate failure code.
- Enter the actual time in the space marked Miscellaneous Labor Hours on the claim form.

If you exceed an allowable flat rate time because of unforeseen circumstances, enter the actual time, the flat rate number, and an explanation of the causes for the extra time in the Work Performed area. Do not put extra time under Miscellaneous Labor Hours. If you need additional space for an explanation, continue it on the back of the form or on a separate sheet. The claims are reviewed individually and subject to approval by the Warranty Department.

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## NOTE

Refer to Commercial & Recreational Mobile Generator Sets Publication (TP-6018) for applicable Warranty Policies and Procedures.

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In addition to the flat rate number, use a failure code. Find the appropriate code in the list following. Enter this code on the Warranty Claim Form (K-1500) in the space marked Failure Code. This failure code applies to the primary failed part and helps to determine the mode of failure.

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## NOTE

Each flat rate time includes troubleshooting, test, and cleanup time.

## NOTE

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

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# Notes

# Failure Codes

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## Electrical

EA	Electrically Out of Adjustment
EB	Circuit Board
EC	Connection Defect
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	Mechanical Defect
ML	Leaking
MN	Noisy
MO	Mechanically Out of Adjustment
MV	Vibration
OC	Oil Consumption
PL	Plugged
ST	Sticking
SZ	Seized
TW	Twisted

## Paint

PA	Adhesion
PC	Corrosion (Oxidation, Rust)
PE	Peeling Paint
PO	Overspray
PR	Runs, Sags

## Packaging

PM	Material
PS	Shipping Damage

## Parts

CP	Parts Claim
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## Miscellaneous

FT	Freight Damage
IN	Intermittent
IP	Incorrect Parts Supplied
IS	Incorrect Shipment
MP	Missing Parts
SB	Service/Parts Bulletin
FM	Foreign Material

# Notes

# Engine Cross Reference

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Use the following chart to determine the engine manufacturer for specific kW models.

<b>Commercial &amp; Recreational Mobile Engine Cross-Reference Chart</b>	
<b>Model</b>	<b>Engine</b>
Gas engines 10–12.5 kW	Ford
Diesel engines* 7–11 kW 12–21 kW	Kubota Yanmar

\*Include an "O" in the model number (for example: 7CCOZ).

# Notes

## Section 1. Engine Flat Rates

### 1.1 Ford 10–12.5 kW

Flat Rate Description	Flat Rate No.	Flat Rate Hours	Comments
		10–12.5 kW	
<b>Air Intake and Exhaust</b>			
Air cleaner assembly	3733	0.30	
Air cleaner element	3729	0.10	
Exhaust manifold (dry)	3731	0.75	Each
Exhaust manifold (liquid cooled)	3732	1.25	Each
Intake manifold	3730	0.75	
<b>Camshaft and Timing Gear</b>			
Camshaft gear and chain	3735	1.80	
Camshaft R & R	3734	2.50	
<b>Cooling</b>			
Coolant hoses	3737	0.80	Each
Engine block heater	3742	1.50	Complete kit or heater assembly
Engine cooling fan	3740	1.25	
Heater cord or thermostat	3743	1.00	
Radiator R & R	3739	2.00	
Thermostat/housing	3736	1.25	
V-belt	3741	0.75	
Water pump (coolant)	3738	2.00	
<b>Crankshaft, Mains, and Flywheel</b>			
Balancer R & R	3749	1.60	
Crankshaft and main bearings	3745	3.80	
Crankshaft damper	3748	0.40	
Crankshaft flywheel seal	3747	1.50	
Crankshaft front cover seal	3746	1.60	
Flywheel R & R	3750	3.90	Includes generator R & R from engine
<b>Cylinder Block, Liners, Pistons, and Rods</b>			
Pistons and/or rings	3751	5.20	All
<b>Cylinder Head and Valves</b>			
Cylinder head or gasket R & R	3757	1.80	
Cylinder head retorque	3758	1.00	
Valve cover gasket or breather	3756	0.20	
Valve grinding or replacement	3753	1.80	Each head
Valve push rods	3754	0.30	All
Valve spring or stem seal R & R	3755	1.50	All
Valve tappet adjustment	3752	0.70	
<b>Engine Electrics</b>			
Battery charging alternator	3761	1.30	
Shutdown/gauge senders	3759	1.50	
Wiring harness—engine DC	3760	1.50	

## Ford 10–12.5 kW (continued)

Flat Rate Description	Flat Rate No.	Flat Rate Hours	Comments
		10–12.5 kW	
<b>Engine Mounting</b>			
Engine R & R	3766	3.00	
Front engine mount (LH)	3762	1.00	
Front engine mount (RH)	3763	1.50	
Generator mounting base	3765	2.25	
Vibration isolators	3764	1.25	Per pair
<b>Fuel</b>			
Carburetor adjustment	3768	0.30	Gas or gasoline
Carburetor fuel shutdown solenoid	3771	0.90	Gasoline
Carburetor R & R	3769	1.10	Includes adjustment
Carburetor rebuild	3767	1.75	Gas or gasoline
Electric choke R & R	3770	0.90	Includes choke adjustment
Fuel filter	3775	0.50	
Fuel pump	3772	1.25	
Gas fuel regulator/vaporizer R & R	3773	1.00	LP
Gas solenoid valve	3774	1.00	LP
<b>Governor</b>			
Governor actuator	3777	1.25	Includes adjustment
Governor adjustment	3776	0.50	
Governor controller	3778	1.50	Includes adjustments
Magnetic pickup R & R	3779	1.00	
<b>Ignition</b>			
Crankshaft position sensor	3784	1.00	
Ignition coil R & R	3782	1.40	DIS module
Ignition module	3783	1.50	Electronic spark control module
Spark plug wires	3781	0.25	Replacement
Spark plugs replacement	3780	0.25	
<b>Lubrication</b>			
Oil filter R & R	3787	0.50	
Oil pan or gasket	3786	1.60	
Oil pump replacement	3785	0.50	
<b>Rebuild</b>			
Major overhaul	3790	7.40	Includes valve service
Minor overhaul	3789	6.40	Excludes valve service
Short block R & R	3788	4.00	
<b>Starting</b>			
Starter drive R & R	3792	0.90	
Starter motor	3791	1.20	
Starter rebuild	3793	1.80	Includes R & R
Starter relay	3794	1.25	

## 1.2 Kubota 7–11 kW

Flat Rate Description	Flat Rate No.	Flat Rate Hours		Comments
		7–9.9 kW	10–11 kW	
<b>Air Intake and Exhaust</b>				
Air cleaner assembly	3795	0.30	0.30	
Air cleaner element	3796	0.10	0.10	
Exhaust manifold	3798	0.30	0.30	
Intake manifold	3797	0.20	0.30	
<b>Camshaft and Timing Gear</b>				
CAM gear	3804	2.30	2.60	
Camshaft	3805	2.30	2.60	
Camshaft tappet	3806	1.10	1.40	First
Camshaft tappets	3807	1.20	1.40	All
Camshaft with gear	3803	2.20	2.50	
Crank gear	3809	1.50	1.60	
Fuel camshaft with gear	3808	1.40	1.50	
Gear case cover or gasket	3799	1.30	1.30	
Gear case oil seal	3800	1.20	1.20	
Idle gear	3802	1.10	1.20	
Timing gears	3801	4.00	4.30	All
<b>Cooling</b>				
Fan	3817	1.75	1.50	
Fan belt or pulley	3815	0.50	0.50	
Overflow bottle	3818	0.50	0.50	
Radiator hose	3810	0.60	0.60	Upper or lower
Radiator R & R	3814	1.50	1.50	
Thermostat assembly	3813	0.50	0.50	
Thermostat bypass hose	3816	0.50	0.50	
Water pump assembly	3811	1.10	1.10	
Water pump seal	3812	1.40	1.40	Mechanical seal or pump overhaul
<b>Crankshaft, Mains, and Flywheel</b>				
Crankshaft R & R	3825	4.30	4.80	
Flywheel	3819	0.30	0.30	
Main bearing case or bearing	3823	3.70	4.10	First
Main bearing case or bearings	3824	4.30	4.80	All
Rear bearing case cover	3821	0.70	0.70	
Rear oil seal	3822	0.70	0.70	
Ring gear	3820	1.00	1.00	
<b>Cylinder Block, Liners, Pistons, and Rods</b>				
Connecting rod	3830	2.10	2.40	One
Connecting rods	3831	2.30	2.60	All
Crankcase assembly	3834	5.20	5.50	
Piston	3828	2.30	2.60	One
Pistons	3829	2.40	2.80	All
Piston ring or pin	3826	2.10	2.40	First bushing assembly
Piston ring or pin	3827	2.75	2.70	All bushing assemblies
Rear end plate	3835	0.40	0.40	
Rod crank bearing	3832	2.00	2.30	One
Rod crank bearings	3833	2.10	2.40	All

## Kubota 7–11 kW (continued)

Flat Rate Description	Flat Rate No.	Flat Rate Hours		Comments
		7–9.9 kW	10–11 kW	
<b>Cylinder Head and Valves</b>				
Breather assembly or pipe	3837	0.10	0.10	
Cylinder head cover or gasket	3836	0.10	0.10	
Cylinder head gasket	3849	1.10	1.40	
Cylinder head R & R	3850	1.10	1.50	
Push rod R & R	3839	0.30	0.40	One
Push rods R & R	3840	0.40	0.50	All
Rocker arm assembly	3838	0.30	0.40	
Valve	3845	1.30	1.50	One
Valves	3846	2.10	2.60	All
Valve guide	3847	1.50	1.70	One
Valve guides	3848	2.70	3.30	All
Valve spring	3843	1.30	1.50	One
Valve springs	3844	2.10	2.60	All
Valve stem seal	3841	1.30	1.50	One
Valve stem seals	3842	2.20	2.70	All
<b>Engine Electrics</b>				
Alternator R & R	3851	0.10	0.10	
Battery cable R & R	3858	1.00	1.00	
Engine wire harness	3857	1.50	1.50	
Glow plug	3853	0.10	0.20	One
Glow plugs	3854	0.20	0.20	All
Glow plug relay	3852	1.25	1.25	
Shutdown solenoid	3856	1.50	1.50	
Switches/senders	3855	1.00	1.20	Oil pressure or water temperature
<b>Fuel</b>				
Electric fuel pump	3860	0.75	0.75	
Fuel filter	3866	0.25	0.25	
Fuel pipe or line	3859	0.10	0.10	Each
High pressure pipe	3862	0.10	0.10	First
High pressure pipes	3863	0.20	0.20	All
Injection pump assembly	3861	0.30	0.30	
Nozzle assembly	3864	0.30	0.30	First
Nozzle assemblies R & R	3865	0.60	0.80	All

## Kubota 7–11 kW (continued)

Flat Rate Description	Flat Rate No.	Flat Rate Hours		Comments
		7–9.9 kW	10–11 kW	
<b>Governor</b>				
Fuel limiter assembly	3871	0.30	0.30	
Governor fork lever assembly	3868	1.60	1.70	
Governor gear	3870	1.70	1.80	
Governor weight and holder	3869	1.40	1.50	
Idling apparatus	3872	0.30	0.30	
Speed control lever and plate	3867	0.30	0.40	
<b>Lubrication</b>				
Oil filter R & R	3875	0.20	0.20	
Oil pan or gasket	3877	0.40	0.50	
Oil pump R & R	3874	1.20	1.20	
Oil relief valve	3876	0.30	0.30	
Oil strainer/pickup	3873	0.50	0.60	
<b>Starting</b>				
Magnetic switch	3880	0.20	0.50	
Starter clutch assembly	3879	0.60	0.50	
Starter R & R	3878	0.20	0.10	

### 1.3 Yanmar 12–21 kW

Flat Rate Description	Flat Rate No.	Flat Rate Hours	Comments
		12–21 kW	
<b>Air Intake and Exhaust</b>			
Air cleaner assembly	3884	0.50	
Air cleaner element R & R	3881	0.30	
Intake/exhaust manifolds	3885	1.00	
Turbocharger R & R	3882	1.00	
Turbocharger rebuild	3883	3.00	Includes R & R
<b>Camshaft and Timing Gear</b>			
Camshaft bearings	3887	6.00	
Camshaft gear	3889	3.50	
Camshaft or tappets	3886	6.00	
Crankshaft timing gear	3888	3.50	
<b>Cooling</b>			
Coolant circulating pump R & R	3891	2.50	Includes radiator R & R
Cooling fan	3897	1.75	Includes radiator R & R
Cooling system hose	3895	0.50	Each
Overflow bottle	3899	0.50	
Radiator	3896	1.25	
Radiator repair	3900	2.00	
Thermostat/gasket	3892	0.90	
Water pump internal components	3894	3.00	
Water pump V-belt	3893	0.50	
<b>Crankshaft, Mains, and Flywheel</b>			
Crankshaft/main bearings	3901	10.00	
Flywheel	3905	4.50	Includes alternator R & R
Oil seal—flywheel end	3902	4.00	
Oil seal—front	3903	3.00	
V-belt drive pulley	3904	0.50	
<b>Cylinder Block, Liners, Pistons, and Rods</b>			
Connecting rod/crank pin bearing	3909	6.00	
Each additional rod/crank pin	3910	0.30	
Cylinder block	3906	15.00	
Cylinder liner	3907	8.00	
Each additional liner	3908	0.30	
Piston/piston ring/pin bushing	3911	6.00	
Each additional piston/piston ring/pin bushing	3912	0.30	
<b>Cylinder Head and Valves</b>			
Cylinder head	3913	2.50	Replace
Cylinder head gasket	3914	2.40	Includes cylinder head R & R
Push rod	3922	0.50	
Rocker arms	3923	0.50	

## Yanmar 12–21 kW (continued)

Flat Rate Description	Flat Rate No.	Flat Rate Hours	Comments
		12–21 kW	
<b>Cylinder Head and Valves (continued)</b>			
Valve clearance	3921	0.60	Check and/or adjust
Valve guide R & R	3919	3.20	Intake or exhaust
Each additional valve guide	3920	0.40	Intake or exhaust
Valve replace	3915	2.00	Intake or exhaust with lapping
Each additional intake/exhaust valve	3916	0.30	
Valve spring replace	3917	0.80	Intake or exhaust
Each additional valve spring	3918	0.20	
<b>Engine Electrics</b>			
Alternator internal component	3925	2.00	Replacement
Battery cable R & R	3932	1.00	
Battery charging alternator/generator R & R	3924	1.10	
Battery charging voltage regulator	3926	1.25	External regulator
Engine preheat relay	3930	1.25	
Engine preheater	3931	1.25	
Fuel rack solenoid	3928	1.50	
Switches/senders	3927	1.20	
Wire harness	3929	1.50	Engine DC harness
<b>Engine R &amp; R From Generator Set</b>			
Engine R & R from generator set	3933	4.00	
<b>Engine Mounting</b>			
Engine mounts	3934	1.00	Each pair
Generator skid	3935	2.25	
<b>Fuel</b>			
Bleed fuel system	3943	0.50	
Fuel feed pump	3942	0.90	
Fuel filter R & R	3945	0.25	
Fuel injection pump delivery valve	3937	0.80	
Fuel injection pump plunger/barrel	3938	2.00	
Each additional plunger/barrel	3939	0.50	
Fuel injection pump R & R	3936	1.25	
Fuel injection valve	3940	1.10	
High pressure fuel pipe	3941	0.50	
Injection pump timing	3944	1.00	
<b>Lubrication</b>			
Lube oil control valve assembly	3947	0.50	
Lube oil cooler	3951	0.80	
Lube oil-inlet pipe	3949	0.60	Includes oil pan R & R
Lube oil strainer/filter	3948	0.20	
Oil pan	3950	0.50	
Oil pump	3946	3.50	Includes front cover R & R
<b>Starting</b>			
Starter motor R & R	3952	0.60	
Starter relay	3954	1.25	
Starter motor internal component	3953	1.50	Replacement

# Notes

## Section 2. Generator Flat Rates

### 2.1 Kohler 7-21 kW

Flat Rate Description	Flat Rate No.	Flat Rate Hours		Comments
		7-15 kW	15.1-21 kW	
<b>AC Generator</b>				
Bearing/end bracket	3957	2.00	2.25	Includes rotor R & R and truing of collector rings
Brush collector ring	3958	6.25	8.00	
Brushes/brush holder	3959	1.75	1.75	
Generator adapter	3961	2.75	3.50	
Generator R & R	3970	4.00	6.00	
Output circuit breakers	3962	1.50	1.50	
Overbolts R & R	3969	0.50	0.50	
Rectifier/transformer	3963	1.50	-	
Relay	3964	1.25	1.25	
Rotor	3965	3.50	4.00	
Stator	3966	3.00	3.50	
Voltage regulator—AC	3967	2.00	2.00	
Voltage regulator adjust	3968	0.25	0.25	
<b>Controller</b>				
AC circuit breaker	3971	1.50	1.50	Load breaker
Control relay(s)	3972	1.00	1.00	Each
Controller circuit board	3973	1.50	1.50	
Fuse holder/DC circuit breaker	3974	0.75	0.75	
Hourmeter	3977	0.50	0.50	
Replace fuse	3978	0.25	0.25	
Switches	3975	1.00	1.00	
Voltage adjust	3979	0.25	0.25	
Voltage regulator—AC	3976	1.00	1.00	

# Notes

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