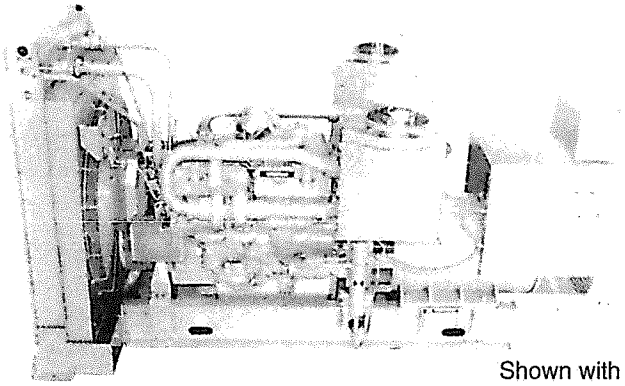
CATERPILLAR®

Generator Set

3412

50/60 Hz Standby

Standby Power 700 kV•A at 50 Hz, 700 kW at 60 Hz
Standby Power 750 kV•A at 50 Hz, 750 kW at 60 Hz
Standby Power 800 kV•A at 50 Hz, 800 kW at 60 Hz



Shown with Optional Equipment

CATERPILLAR ENGINE SPECIFICATIONS

Cat® 3412 Engine, 1500 rpm or 1800 rpm
Watercooled Diesel, four stroke, V-12

Bore – mm (in)	137	(5.4)
Stroke – mm (in)	152	(6.0)
Displacement – L (cu in)	27.0	(1,649)
Aspiration	twin turbocharged, aftercooled (TTA); or series turbocharged, aftercooled (STA)	
Compression ratio		
TTA	14.5:1	
STA	13.0:1	
Governor	CAT® Electronic	

FEATURES

■ CAT® DIESEL GENERATOR SETS

Factory designed, certified prototype tested with torsional analysis. Production tested and delivered to you in a package that is ready to be connected to your fuel and power lines. EPG Designer computer sizing available.

Supported 100% by your Caterpillar dealer with warranty on parts and labor. Extended warranty available in some areas. Generator Set designed and manufactured in conformance with ISO 9001 Quality System Standard; and generator set and components meet or exceed the following specifications: AS1359, AS2789, ABGSM TM3, BS4999, DIN6271, DIN6280, EGSA101P, JEM1359, IEC 34/1, ISO 3046/1, ISO DIS 8528, NEMA MG1-22, 89/392 EEC.

■ RELIABLE, FUEL EFFICIENT DIESEL

The compact, four-stroke-cycle diesel engine combines durability with minimum weight while providing dependability and economy. The fuel system operates on a variety of fuels.

■ CATERPILLAR SR4 GENERATOR

Single bearing, wye connected, brushless, permanent magnet excited generator designed to match the performance and output characteristics of the Caterpillar diesel engine that drives it.

■ EXCLUSIVE CATERPILLAR VOLTAGE REGULATOR

Three phase sensing and Volts per Hertz regulation with constant voltage in the normal operating range gives precise control, excellent block loading.

CATERPILLAR SR4 GENERATOR

Frame size	590 Family
Type	Static regulated brushless excited
Construction	Single bearing, close coupled
Three phase	Wye connected
Insulation	Class H with tropicalization
Terminal box	Drip proof IP 22
Overspeed capability	150%
Paralleling capability	Standard with adjustable voltage droop
Voltage regulator	3 phase sensing with Volts-per-Hertz adjustable – 25%+10%
Voltage regulation	Less than ± ½% (steady state) Less than ± 1% (no load to full load)
Voltage gain	Adjustable to compensate line loss
Wave form	Less than 5% deviation
TIF	Less than 50
THD	Less than 5%

CATERPILLAR CONTROL PANEL

24 Volt DC Control
Terminal box mounted
Vibration isolated
NEMA 1, IP 22 enclosure
Electrically dead front
Lockable door
Generator instruments meet ANSI C-39-1

Voltages Available
(Consult Price List)

CATERPILLAR ENGINE FACILITIES ISO 9001 CERTIFIED

STANDARD EQUIPMENT

Engine

Aftercooler
Air cleaner
Base, 13 inch rails
Breather, crankcase
Cooler, lubricating oil
Exhaust fitting and flange
Filters, right hand
  Fuel, full flow
  Lubricating oil, gear driven
Governor, Cat® electronic
Lifting eyes
Manifold, exhaust, dry
Pumps,
  Fuel transfer, gear driven
  Lubricating oil, gear driven
  Jacket water, gear driven
Radiator
Shutoff, manual
Starting, electric, 24 Volt DC

Generator

SR4 brushless with VR3
Automatic voltage regulator
Permanent magnet excitation system

Control Panel

Digital ammeter, voltmeter
Phase selector switch, frequency meter
Auto start-stop control module w/cycle crank and cooldown
Digital DC Voltmeter; tachometer, hourmeter
Emergency stop pushbutton
Engine control switch for auto, start/run, off/reset, stop
Digital oil pressure and water temperature gauges
Shutoffs with indicators for:
  Low oil pressure
  High water temperature
  Overspeed
  Overcrank
  Emergency stop push-button
Voltage adjust rheostat
Speed adjust rheostat
System diagnostic codes –
  Digital readout
  Lamp display

OPTIONAL EQUIPMENT

Engine/Base

Air cleaner, heavy duty
Air precleaner
Battery chargers
Battery/racks
Charging alternator
Cooling system
  High ambient radiator
Exhaust fittings
  Fittings, elbows, pipe
  Flex, mufflers
Jacketwater heater
Load share module
Mounting system
  Fuel tank base
  Lifting arch
  Vibration isolators
Primary fuel filter
Protection devices

Generator

Coastal protected generator
Manual voltage control
Space heater
MIL Std. 461B
RFI N Level (VDE 875), BS800
Self excited

Switchgear

Circuit breaker
  Manual
Automatic transfer switch

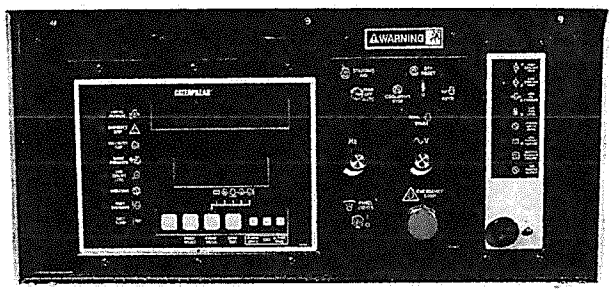
Control Panel

Enclosure, NEMA 12/IP 44
Provision for:
  Alarm module – std
  Alarm module – NFPA 99
  Alarm module – NFPA 110
  Auxiliary relay
  Illuminating lights
  Low coolant level
  Reverse power relay
  Starting aid switch
  Synchronizing lights

Caterpillar® EMCP II

Electronic Modular Control Panel

The Electronic Modular Control Panel (EMCP) is a generator-mounted control panel, available on all Caterpillar packaged generator sets. It utilizes environmentally sealed, solid-state, micrprocessor-based modules for engine control and AC metering. This new application of mature, high-tech electronics to generator monitoring provides more features, accuracy and reliability than present electro-mechanical and many competitive panel systems.



The EMCP provides these standard control and monitoring features, many of which are options on other panels:

- Automatic/manual start-stop engine control with programmable safety shutdowns and associated flashing LED indicators for low oil pressure, high coolant temperature, overspeed, overcrank and emergency stop
- Cycle cranking–adjustable 1-60 second crank/rest periods
- Cooldown timer–adjustable 0-30 minutes
- Energized to run or shutdown fuel control systems
- LCD digital readout for: Engine oil pressure; coolant temperature; engine rpm; system DC volts; engine running hours; eight system diagnostic codes; generator AC volts; generator AC amps; and generator frequency
- Engine control switch
- Ammeter-voltmeter phase selector switch
- Emergency stop pushbutton
- Indicator/display test switch
- Voltage adjust potentiometer
- Rugged NEMA 1/IP 22 cabinet
- Three spare inputs for customer use

TECHNICAL DATA – 700 kW/kV•A

3412 TTA Standby Power Generator Set (Twin Turbo)			50 Hz–1500 RPM	60 Hz–1800 RPM
Rating Information	Power Rating @ 0.8 PF with Fan	kW	560	700
	Power Rating @ 0.8 PF with Fan	kV•A	700	875
Dimensions	Generator Frame Size		595	595
	Length	mm **in**	3,772 **148.5**	3,772 **148.5**
	Width	mm **in**	1,483 **58.4**	1,483 **58.4**
	Height	mm **in**	2,143 **84.4**	2,143 **84.4**
	Weight (Dry)	kg **lb**	5,334 **11,760**	5,334 **11,760**
Lubrication & Cooling Systems	Engine Lubricating Oil Capacity	L **qts**	117 **124**	117 **124**
	Engine Coolant Capacity without Radiator	L **gal**	60.6 **16.0**	60.6 **16.0**
	Engine Coolant Capacity with Radiator	L **gal**	117.3 **31.0**	117.3 **31.0**
	Standard Radiator Arrangement Data: Air Flow (Max @ Rated Speed)	m³/min **cfm**	820 **28,966**	984 **34,759**
	Air Flow Restriction (after radiator)	kPa **in water**	.06 **0.25**	.06 **0.25**
	Ambient Air Temperature with standard radiator (Consult T.M.I.)	Deg. C **Deg. F**	46 **116**	44 **112**
	Coolant Pump External Resistance (max. allowable)	m water **ft water**	5.1 **16.8**	5.1 **16.8**
	Coolant Pump Flow at Max. Allowable Resistance	L min **gpm**	530.6 **140**	530.6 **140**
Exhaust System	System Backpressure (Max. Allowable)	kPa **in water**	6.7 **27**	6.7 **27**
	Exhaust Flange Size (Internal Diameter)	mm **in**	200.2 **8**	200.2 **8**
Performance Data @ Rated Conditions	Fuel Consumption (100% load) with Fan	L/Hr **gph**	155.1 **41.0**	189.6 **50.1**
	Fuel Consumption (75% load) with Fan	L/Hr **gph**	119.2 **31.5**	143.6 **37.9**
	Combustion Air Inlet Flow Rate	m³/min **cfm**	38.6 **1,363**	55.1 **1,946**
	Exhaust Gas Flow Rate	m³/min **cfm**	116.2 **4,104**	153.3 **5,414**
	Heat Rejection to Coolant (total)	kW **Btu/min**	364 **20,700**	444 **25,250**
	Heat Rejection to Exhaust (total)	kW **Btu/min**	545 **30,994**	666 **37,875**
	Heat Rejection to Atmosphere from Engine	kW **Btu/min**	131 **7,450**	134 **7,620**
	Heat Rejection to Atmosphere from Generator	kW **Btu/min**	30.2 **1,717**	35.7 **2,030**
	Exhaust Gas Stack Temperature	Deg. C **Deg. F**	613 **1,135**	551 **1,024**

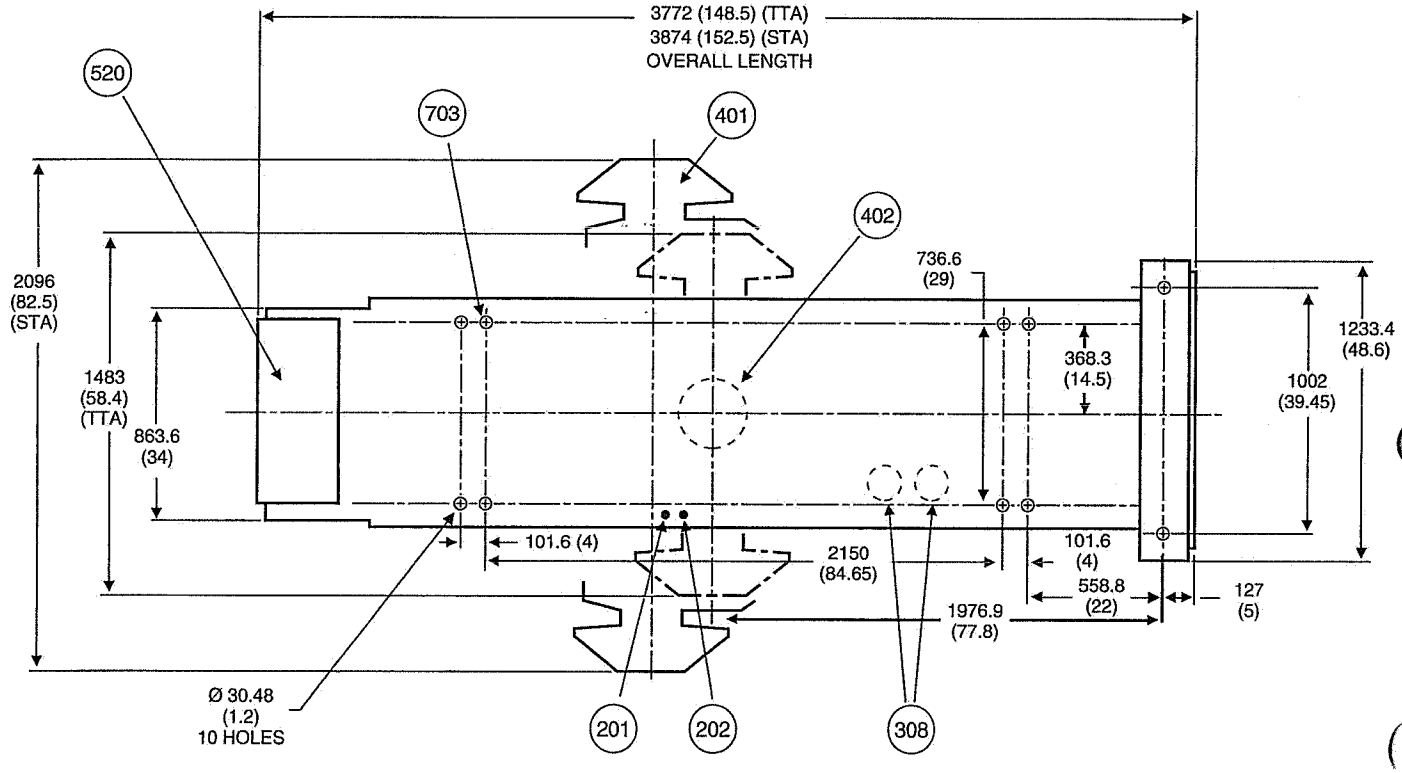
TECHNICAL DATA – 750 kW/kV•A

3412 STA Standby Power Generator Set (Series Turbo)			50 Hz–1500 RPM	60 Hz–1800 RPM
Rating Information	Power Rating @ 0.8 PF with Fan	kW	600	750
	Power Rating @ 0.8 PF with Fan	kV•A	750	938
Dimensions	Generator Frame Size		596	596
	Length	mm **in**	3,874 **152.5**	3,874 **152.5**
	Width	mm **in**	2,096 **82.5**	2,096 **82.5**
	Height	mm **in**	2,143 **84.4**	2,143 **84.4**
	Weight (Dry)	kg **lb**	5,543 **12,220**	5,543 **12,220**
Lubrication & Cooling Systems	Engine Lubricating Oil Capacity	L **qts**	117 **124**	117 **124**
	Engine Coolant Capacity without Radiator	L **gal**	60.6 **16.0**	60.6 **16.0**
	Engine Coolant Capacity with Radiator	L **gal**	117.3 **31.0**	117.3 **31.0**
	Standard Radiator Arrangement Data: Air Flow (Max @ Rated Speed)	m^3/min **cfm**	820 **28,966**	984 **34,759**
	Air Flow Restriction (after radiator)	kPa **in water**	.06 **0.25**	.06 **0.25**
	Ambient Air Temperature with standard radiator (Consult T.M.I.)	Deg. C **Deg. F**	48 **119**	43 **110**
	Coolant Pump External Resistance (max. allowable)	m water **ft water**	5.1 **16.8**	5.1 **16.8**
	Coolant Pump Flow at Max. Allowable Resistance	L min **gpm**	530.6 **140**	530.6 **140**
Exhaust System	System Backpressure (Max. Allowable)	kPa **in water**	6.7 **27**	6.7 **27**
	Exhaust Flange Size (Internal Diameter)	mm **in**	200.2 **8**	200.2 **8**
Performance Data @ Rated Conditions	Fuel Consumption (100% load) with Fan	L/Hr **gph**	160.8 **42.3**	222.6 **58.8**
	Fuel Consumption (75% load) with Fan	L/Hr **gph**	120.6 **31.9**	155.1 **40.9**
	Combustion Air Inlet Flow Rate	m^3/min **cfm**	47.9 **1,692**	68.7 **2,426**
	Exhaust Gas Flow Rate	m^3/min **cfm**	130.5 **4,609**	181.8 **6,420**
	Heat Rejection to Coolant (total)	kW **Btu/min**	374 **21,269**	486 **27,638**
	Heat Rejection to Exhaust (total)	kW **Btu/min**	562 **31,960**	730 **41,514**
	Heat Rejection to Atmosphere from Engine	kW **Btu/min**	111 **6,312**	168 **9,554**
	Heat Rejection to Atmosphere from Generator	kW **Btu/min**	31.2 **1,774**	36.8 **2,093**
	Exhaust Gas Stack Temperature	Deg. C **Deg. F**	535 **995**	514 **957**

TECHNICAL DATA – 800 kW/kV•A

3412 STA Standby Power Generator Set (Series Turbo)			50 Hz–1500 RPM	60 Hz–1800 RPM
Rating Information	Power Rating @ 0.8 PF with Fan	kW	640	800
	Power Rating @ 0.8 PF with Fan	kV•A	800	1000
Dimensions	Generator Frame Size	597	597	597
	Length	mm **in**	3,874 **152.5**	3,874 **152.5**
	Width	mm **in**	2,096 **82.5**	2,096 **82.5**
	Height	mm **in**	2,143 **84.4**	2,143 **84.4**
	Weight (Dry)	kg **lb**	5,729 **12,630**	5,729 **12,630**
Lubrication & Cooling Systems	Engine Lubricating Oil Capacity	L **qts**	117 **124**	117 **124**
	Engine Coolant Capacity without Radiator	L **gal**	60.6 **16.0**	60.6 **16.0**
	Engine Coolant Capacity with Radiator	L **gal**	117.3 **31.0**	117.3 **31.0**
	Standard Radiator Arrangement Data: Air Flow (Max @ rated speed)	kPa **cfm**	820 **28,966**	984 **34,759**
	Air Flow Restriction (after radiator)	m³/min **in water**	.06 **0.25**	.06 **0.25**
	Ambient Air Temperature with standard radiator (Consult T.M.I.)	Deg. C **Deg. F**	41 **107**	39 **103**
	Coolant Pump External Resistance (max. allowable)	m water **ft water**	5.1 **16.8**	5.1 **16.8**
	Coolant Pump Flow at Max. Allowable Resistance	L min **gpm**	530.6 **140**	530.6 **140**
Exhaust System	System Backpressure (Max. Allowable)	kPa **in water**	6.7 **27**	6.7 **27**
	Exhaust Flange Size (Internal Diameter)	mm **in**	200.2 **8**	200.2 **8**
Performance Data @ Rated Conditions	Fuel Consumption (100% load) with Fan	L/Hr **gph**	170.9 **45.1**	224.0 **59.2**
	Fuel Consumption (75% load) with Fan	L/Hr **gph**	129.2 **34.1**	165.1 **43.6**
	Combustion Air Inlet Flow Rate	m³/min **cfm**	50.3 **1,776**	73.3 **2,589**
	Exhaust Gas Flow Rate	m³/min **cfm**	137.5 **4,856**	194.8 **6,879**
	Heat Rejection to Coolant (total)	kW **BTU/min**	398 **22,634**	523 **29,743**
	Heat Rejection to Exhaust (total)	kW **Btu/min**	598 **34,007**	784 **44,585**
	Heat Rejection to Atmosphere from Engine	kW **Btu/min**	118 **6,711**	189 **10,748**
	Heat Rejection to Atmosphere from Generator	kW **Btu/min**	32.6 **1,854**	38.4 **2,184**
	Exhaust Gas Stack Temperature	Deg. C **Deg. F**	536 **997**	518 **964**

STANDBY POWER GEN SET PACKAGE



202 Excess Fuel Return

401 Air Inlet

520 Control and Power Panel

201 Fuel Inlet

308 Oil Filter

402 Exhaust

703 Customer Mounting Holes

Note: General configuration not to be used for installation. See general dimension drawings for detail.

CONDITIONS AND DEFINITIONS

Prime — Output available with varying load for an unlimited time. Prime power in accordance with ISO8528, Overload power in accordance with ISO3046/1, AS2789, DIN6271, and BS5514.

Standby — Output available with varying load for the duration of the interruption of the normal source power. Fuel stop power in accordance with ISO3046/1, AS2789, DIN6271, and BS5514.

Continuous — Output available without varying load for an unlimited time. Continuous power in accordance with ISO8528, ISO3046/1, AS2789, DIN6271 and BS5514.

Ratings are based on SAE J1349 standard conditions. These ratings also apply at ISO3046/1, DIN6271 and BS5514 standard conditions. Fuel rates are based on ISO3046 and on fuel oil of 35° API (16° C or 60° F) gravity having a LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29° C (85° F) and weighing 838.9 g/L (7.001 lbs/U.S. gal.).