

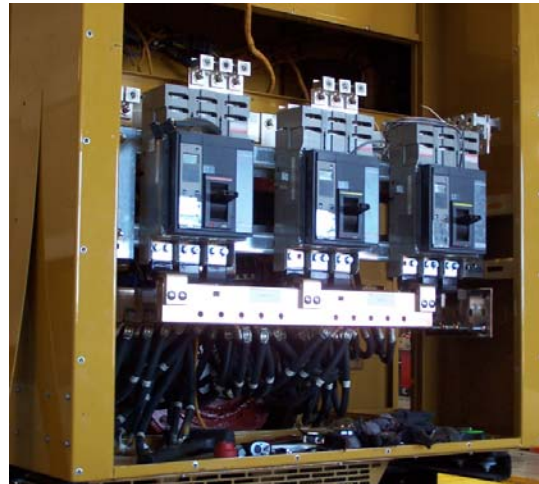


*Intelligent Power Systems*

# GENKIT/GENBOX Caterpillar Solutions

## Generator Mounted Power Distribution & Control Solutions

- **GENKIT** and **GENBOX** are ideal systems for site specific power distribution and control mounted directly on a generator
- Solutions are available for new generators and retrofit applications
- A **GENKIT** consists of breakers, busing, cabling, mounting hardware and control (if required) to be mounted in an *existing* breaker enclosure
- A **GENBOX** consists of breakers, busing, cabling, mounting hardware, control (if required) and a *new or expansion* breaker enclosure



*Fig. 1, Typical Single CB GenBox Assemblies (Front Covers Removed)*

**GENKIT** and **GENBOX** provide an economical answer to power distribution and control for generators as it eliminates the need for costly external switchgear. They can streamline generator installations with resultant reductions in engineering, wiring, use of external switchgear, construction, use of space, testing and commissioning.

Many generators have multiple compartments with access to the alternator power conductors. These compartments may be used with bolt-on adaptation providing combinations of power circuit breakers for feeders and motors, transfer switches, and other power distribution for needs such as house power, fire pumps and convenience outlets.

## Benefits

- **Cost effective power distribution for connected loads**
- **Eliminate cost of separate power distribution equipment**
- **Eliminates space of separate power distribution equipment**
- **Minimizes site work and field engineering**

### Applications for New and Retrofit Installations:

- Single (1) Circuit Breaker Configurations
- Twin (2) Circuit Breaker Configurations, including temporary load bank connection
- Multiple (3 and 4) Circuit Breaker Configurations (dependent upon enclosure size and CB ratings)
- Optional Additional Circuit Breakers for House Power, Fire Pump, Convenience Power, or other loads
- UL Listing Available for Many Configurations
- Parallel generation operation possible with integrated genset controller
- Utility-Generator Paralleling operation possible with integrated genset controller and protective relays

### Standard Equipment:

- 24VDC Circuit Breaker Operating Coil and Spring Charge Unit
- LSI Trip Unit
- 2 Form 'A' and 2 Form 'B' Auxiliary Switches (MOC)
- 1 Form 'C' Overcurrent Trip Switch (OTS)
- Cabling between alternator output terminals and breaker supply bus connections

### General Options:

- Space Heater Package
- Key Interlock
- Service Entrance

### Protection Options

- LSIG Trip Unit (ground fault CT added)
- Ground Fault Annunciator (LSIA)
- Supplemental Relay Protection
- Lock Out Relay

### Controls Options

- Utility-Generator Automatic Transfer Switch Controls
- Utility-Generator Manual Transfer Switch Controls
- Generator-Generator Emergency Power Source Selection Controls
- Utility-Generator Paralleling Controls
- Generator-Generator Paralleling Controls
- Load Management Controls

### Instrumentation and Interface Options

- Metering (Instrumentation and Revenue Grade)
- Communications to External Systems such as Utility and BAS
- HMI using Touchscreen
- Control Interface with Pushbuttons, Switches, and Indicators
- Current and Voltage Transformers for Required Sensing

### Miscellaneous

- New Enclosures Painted to Match Generator Color
- Convenience Power Outlets

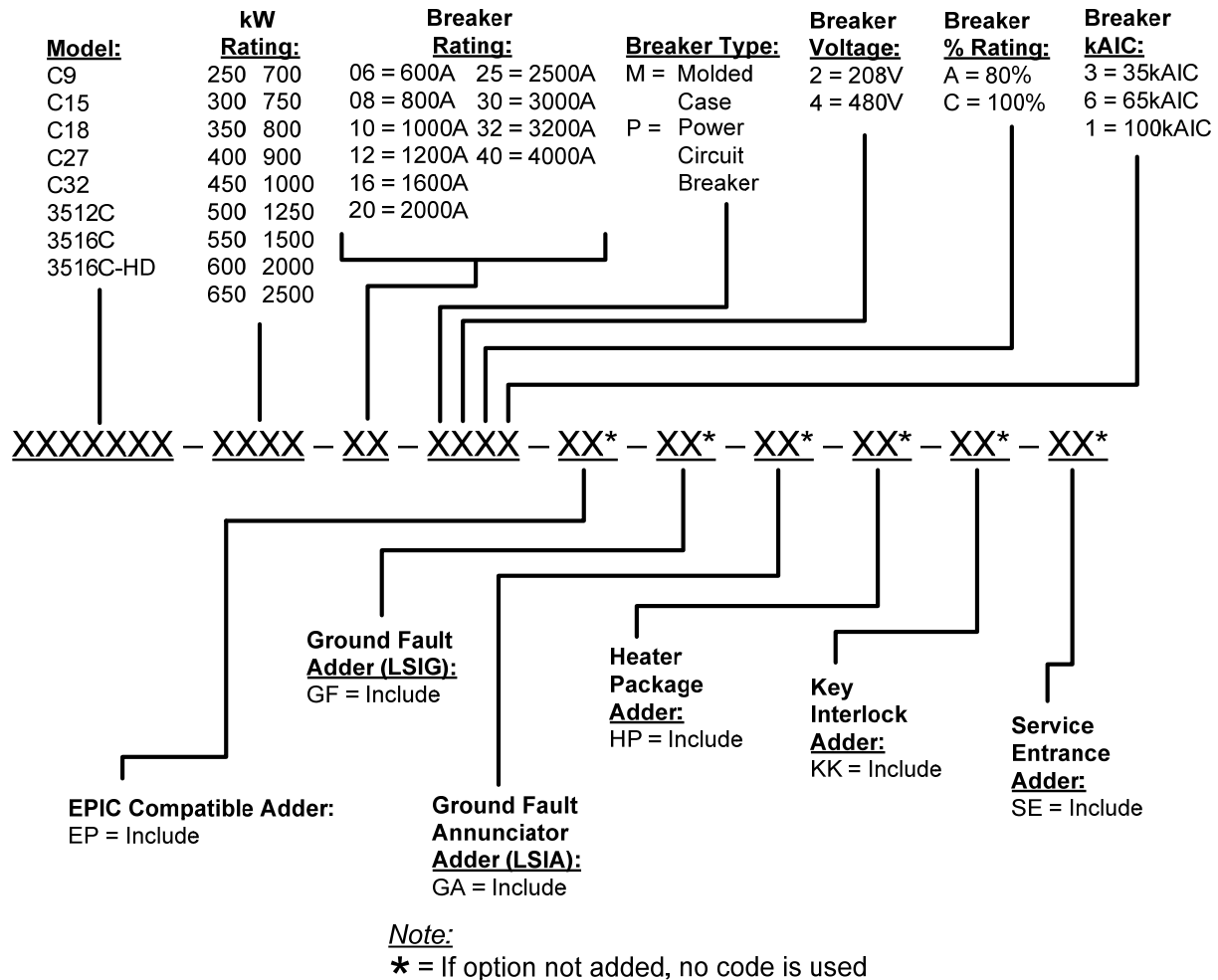


Figure 2, Standard Model Number Development Matrix

**Example Code:**

**C15-0500-20-M2A6 -GF-HP-SE**

- C15 = C15 Genset
- 0500 = 500kW
- 20 = 2000A Breaker Rating
- M = Molded Case Breaker
- 2 = 208V
- A = 80% Rated Breaker
- 6 = 65kAIC
- GF = Ground fault (LSIG)
- HP = Heater Package
- SE = Service Entrance

Note:

Other GenKit and GenBox variants of are possible. Contact us to explore solutions that include other breakers, multiple breakers, controls, relays and more.

## GENKIT

A **GENKIT** consists of breakers, busing, cabling, mounting hardware and control (if required) to be mounted in an *existing* breaker enclosure

Model/kW	Generator Voltage	Breaker Size	Breaker Rating	kAIC Rating	Base Style Number
<b>C9</b>					
250kW	480V	400A	80%	35kAIC	C9-0250-04-M4A3
				65kAIC	C9-0250-04-M4A6
				100kAIC	C9-0250-04-M4A1
			100%	35kAIC	C9-0250--04-M4C3
				65kAIC	C9-0250--04-M4C6
				100kAIC	C9-0250-04-M4C1
	208V	1000A	80%	35kAIC	C9-0250-10-M2A3
				65kAIC	C9-0250-10-M2A6
				100kAIC	C9-0250-10-M2A1
100%			35kAIC	C9-0250-10-M2C3	
			65kAIC	C9-0250-10-M2C6	
			100kAIC	C9-0250-10-M2C1	
300kW	480V	600A	80%	35kAIC	C9-0300-06-M4A3
				65kAIC	C9-0300-06-M4A6
				100kAIC	C9-0300-06-M4A1
			100%	35kAIC	C9-0300-06-M4C3
				65kAIC	C9-0300-06-M4C6
				100kAIC	C9-0300-06-M4C1
	208V	1200A	80%	35kAIC	C9-0300-12-M2A3
				65kAIC	C9-0300-12-M2A6
				100kAIC	C9-0300-12-M2A1
			100%	35kAIC	C9-0300-12-M2C3
				65kAIC	C9-0300-12-M2C6
				100kAIC	C9-0300-12-M2C1

**Table 1A, Caterpillar Standard Single Circuit Breaker GenKit Ratings**

Notes:

1. Breaker Type: MC = Molded case, PB = Power Circuit Breaker
2. Option codes, if applied, are added as suffixes to base style number
3. Other GenKit and GenBox variants of are possible. Contact us to explore solutions that include other breakers, multiple breakers, controls, relays and more.

Model/kW	Generator Voltage	Breaker Size	Breaker Rating	kAIC Rating	Base Style Number
<b>C15</b>					
350kW	480V	600A	80%	35kAIC	C15-0350-06-M4A3
				65kAIC	C15-0350-06-M4A6
				100kAIC	C15-0350-06-M4A1
			100%	35kAIC	C15-0350-06-M4C3
				65kAIC	C15-0350-06-M4C6
				100kAIC	C15-0350-06-M4C1
	208V	1600A	80%	35kAIC	C15-0350-16-M2A3
				65kAIC	C15-0350-16-M2A6
				100kAIC	C15-0350-16-M2A1
			100%	35kAIC	C15-0350-16-M2C3
				65kAIC	C15-0350-16-M2C6
				100kAIC	C15-0350-16-M2C1
400kW	480V	800A	80%	35kAIC	C15-0400-08-M4A3
				65kAIC	C15-0400-08-M4A6
				100kAIC	C15-0400-08-M4A1
			100%	35kAIC	C15-0400-08-M4C3
				65kAIC	C15-0400-08-M4C6
				100kAIC	C15-0400-08-M4C1
	208V	1600A	80%	35kAIC	C15-0400-16-M2A3
				65kAIC	C15-0400-16-M2A6
				100kAIC	C15-0400-16-M2A1
			100%	35kAIC	C15-0400-16-M2C3
				65kAIC	C15-0400-16-M2C6
				100kAIC	C15-0400-16-M2C1

**Table 1B, Caterpillar Standard Single Circuit Breaker GenKit Ratings**

**Notes:**

1. Breaker Type: MC = Molded case, PB = Power Circuit Breaker
2. Option codes, if applied, are added as suffixes to base style number
3. Other GenKit and GenBox variants of are possible. Contact us to explore solutions that include other breakers, multiple breakers, controls, relays and more.

Model/kW	Generator Voltage	Breaker Size	Breaker Rating	kAIC Rating	Base Style Number
<b>C15</b>					
450kW	480V	800A	80%	35kAIC	C15-0450-08-M4A3
				65kAIC	C15-0450-08-M4A6
				100kAIC	C15-0450-08-M4A1
			100%	35kAIC	C15-0450-08-M4C3
				65kAIC	C15-0450-08-M4C6
				100kAIC	C15-0450-08-M4C1
	208V	1600A	80%	35kAIC	C15-0450-16-M2A3
				65kAIC	C15-0450-16-M2A6
				100kAIC	C15-0450-16-M2A1
			100%	35kAIC	C15-0450-16-M2C3
				65kAIC	C15-0450-16-M2C6
				100kAIC	C15-0450-16-M2C1
500kW	480V	800A	80%	35kAIC	C15-0500-08-M4A3
				65kAIC	C15-0500-08-M4A6
				100kAIC	C15-0500-08-M4A1
			100%	35kAIC	C15-0500-08-M4C3
				65kAIC	C15-0500-08-M4C6
				100kAIC	C15-0500-08-M4C1
	208V	2000A	80%	35kAIC	C15-0500-20-M2A3
				65kAIC	C15-0500-20-M2A6
				100kAIC	C15-0500-20-M2A1
			100%	35kAIC	C15-0500-20-M2C3
				65kAIC	C15-0500-20-M2C6
				100kAIC	C15-0500-20-M2C1

**Table 1C, Caterpillar Standard Single Circuit Breaker GenKit Ratings**

**Notes:**

1. Breaker Type: MC = Molded case, PB = Power Circuit Breaker
2. Option codes, if applied, are added as suffixes to base style number
3. Other GenKit and GenBox variants of are possible. Contact us to explore solutions that include other breakers, multiple breakers, controls, relays and more.

Model/kW	Generator Voltage	Breaker Size	Breaker Rating	kAIC Rating	Base Style Number
<b>C18</b>					
550kW	480V	1000A	80%	35kAIC	C18-0550-10-M4A3
				65kAIC	C18-0550-10-M4A6
				100kAIC	C18-0550-10-M4A1
			100%	35kAIC	C18-0550-10-M4C3
				65kAIC	C18-0550-10-M4C6
				100kAIC	C18-0550-10-M4C1
	208V	2000A	80%	35kAIC	C18-0550-20-M2A3
				65kAIC	C18-0550-20-M2A6
				100kAIC	C18-0550-20-M2A1
			100%	35kAIC	C18-0550-20-M2C3
				65kAIC	C18-0550-20-M2C6
				100kAIC	C18-0550-20-M2C1
600kW	480V	1000A	80%	35kAIC	C18-0600-10-M4A3
				65kAIC	C18-0600-10-M4A6
				100kAIC	C18-0600-10-M4A1
			100%	35kAIC	C18-0600-10-M4C3
				65kAIC	C18-0600-10-M4C6
				100kAIC	C18-0600-10-M4C1
	208V	2500A	80%	35kAIC	C18-0600-25-M2A3
				65kAIC	C18-0600-25-M2A6
				100kAIC	C18-0600-25-M2A1
			100%	35kAIC	C18-0600-25-M2C3
				65kAIC	C18-0600-25-M2C6
				100kAIC	C18-0600-25-M2C1

**Table 1D, Caterpillar Standard Single Circuit Breaker GenKit Ratings**

Notes:

1. Breaker Type: MC = Molded case, PB = Power Circuit Breaker
2. Option codes, if applied, are added as suffixes to base style number
3. Other GenKit and GenBox variants of are possible. Contact us to explore solutions that include other breakers, multiple breakers, controls, relays and more.

Model/kW	Generator Voltage	Breaker Size	Breaker Rating	kAIC Rating	Base Style Number
<b>C27</b>					
650kW	480V	1000A	80%	35kAIC	C27-0650-10-M4A3
				65kAIC	C27-0650-10-M4A6
				100kAIC	C27-0650-10-M4A1
			100%	35kAIC	C27-0650-10-M4C3
				65kAIC	C27-0650-10-M4C6
				100kAIC	C27-0650-10-M4C1
	208V	2500A	80%	35kAIC	C27-0650-25-M2A3
				65kAIC	C27-0650-25-M2A6
				100kAIC	C27-0650-25-M2A1
			100%	35kAIC	C27-0650-25-M2C3
				65kAIC	C27-0650-25-M2C6
				100kAIC	C27-0650-25-M4C1
700kW	480V	1200A	80%	35kAIC	C27-0700-12-M4A3
				65kAIC	C27-0700-12-M4A6
				100kAIC	C27-0700-12-M4A1
			100%	35kAIC	C27-0700-12-M4C3
				65kAIC	C27-0700-12-M4C6
				100kAIC	C27-0700-12-M4C1
	208V	2500A	80%	35kAIC	C27-0700-25-M2A3
				65kAIC	C27-0700-25-M2A6
				100kAIC	C27-0700-25-M2A1
			100%	35kAIC	C27-0700-25-M2C3
				65kAIC	C27-0700-25-M2C6
				100kAIC	C27-0700-25-M4C1

**Table 1E, Caterpillar Standard Single Circuit Breaker GenKit Ratings**

Notes:

1. Breaker Type: MC = Molded case, PB = Power Circuit Breaker
2. Option codes, if applied, are added as suffixes to base style number
3. Other GenKit and GenBox variants of are possible. Contact us to explore solutions that include other breakers, multiple breakers, controls, relays and more.

Model/kW	Generator Voltage	Breaker Size	Breaker Rating	kAIC Rating	Base Style Number
<b>C27</b>					
750kW	480V	1200A	80%	35kAIC	C27-0750-12-M4A3
				65kAIC	C27-0750-12-M4A6
				100kAIC	C27-0750-12-M4A1
			100%	35kAIC	C27-0750-12-M4C3
				65kAIC	C27-0750-12-M4C6
				100kAIC	C27-0750-12-M4C1
	208V	3000A	80%	35kAIC	C27-0750-30-M2A3
				65kAIC	C27-0750-30-M2A6
				100kAIC	C27-0750-30-M2A1
			100%	35kAIC	C27-0750-30-M2C3
				65kAIC	C27-0750-30-M2C6
				100kAIC	C27-0750-30-M4C1
800kW	480V	1200A	80%	35kAIC	C27-0800-12-M4A3
				65kAIC	C27-0800-12-M4A6
				100kAIC	C27-0800-12-M4A1
			100%	35kAIC	C27-0800-12-M4C3
				65kAIC	C27-0800-12-M4C6
				100kAIC	C27-0800-12-M4C1
	208V	3000A	80%	35kAIC	C27-0800-30-M2A3
				65kAIC	C27-0800-30-M2A6
				100kAIC	C27-0800-30-M2A1
			100%	35kAIC	C27-0800-30-M2C3
				65kAIC	C27-0800-30-M2C6
				100kAIC	C27-0800-30-M4C1

**Table 1F, Caterpillar Standard Single Circuit Breaker GenKit Ratings**

**Notes:**

1. Breaker Type: MC = Molded case, PB = Power Circuit Breaker
2. Option codes, if applied, are added as suffixes to base style number
3. Other GenKit and GenBox variants of are possible. Contact us to explore solutions that include other breakers, multiple breakers, controls, relays and more.

**GENBOX**

A **GENBOX** consists of breakers, busing, cabling, mounting hardware, control (if required) and a *new or expansion* breaker enclosure

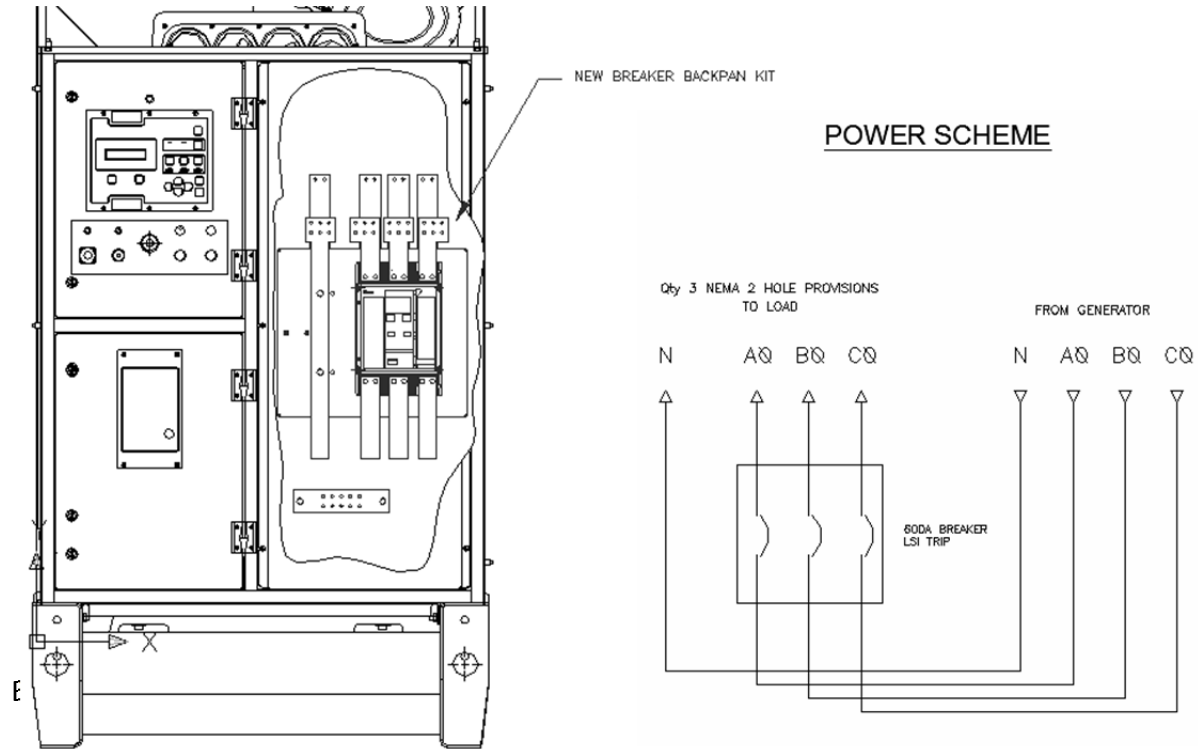
Model/kW	Generator Voltage	Breaker Size	Breaker Rating	kAIC Rating	Base Style Number
<b>C32</b>					
900kW	480V	1600A - MC	80%	35kAIC	C32-0900-16-M4A3
				65kAIC	C32-0900-16-M4A6
				100kAIC	C32-0900-16-M4A1
		1600A - PB	100%	35kAIC	C32-0900-16-M4C3
				65kAIC	C32-0900-16-M4C6
				100kAIC	C32-0900-16-M4C1
1000kW	480V	1600A - MC	80%	35kAIC	C32-1000-16-M4A3
				65kAIC	C32-1000-16-M4A6
				100kAIC	C32-1000-16-M4A1
		1600A - PB	100%	35kAIC	C32-1000-16-M4C3
				65kAIC	C32-1000-16-M4C6
				100kAIC	C32-1000-16-M4C1
<b>3512C</b>					
1250kW	480V	2000A - MC	80%	35kAIC	3512C-1250-20-M4A3
				65kAIC	3512C-1250-20-M4A6
				100kAIC	3512C-1250-20-M4A1
		2000A - PB	100%	35kAIC	3512C-1250-20-M4C3
				65kAIC	3512C-1250-20-M4C6
				100kAIC	3512C-1250-20-M4C1
1500kW	480V	2500A - MC	80%	35kAIC	3512C-1500-25-M4A3
				65kAIC	3512C-1500-25-M4A6
				100kAIC	3512C-1500-25-M4A1
		2500A - PB	100%	35kAIC	3512C-1500-25-M4C3
				65kAIC	3512C-1500-25-M4C6
				100kAIC	3512C-1500-25-M4C1
<b>3516C</b>					
2000kW	480V	3000A - MC	80%	35kAIC	3516C-2000-30-M4A3
				65kAIC	3516C-2000-30-M4A6
				100kAIC	3516C-2000-30-M4A1
		3000A - PB	100%	35kAIC	3516C-2000-30-M4C3
				65kAIC	3516C-2000-30-M4C6
				100kAIC	3516C-2000-30-M4C1
3200A - PB	100%	100kAIC	3516C-2000-32-P4C1		
<b>3516C-HD</b>					
2500kW	480V	4000A - PB	100%	100kAIC	3516CHD-2500-40-P4C1

**Table 2, Caterpillar Standard Single Circuit Breaker GenBox Ratings**

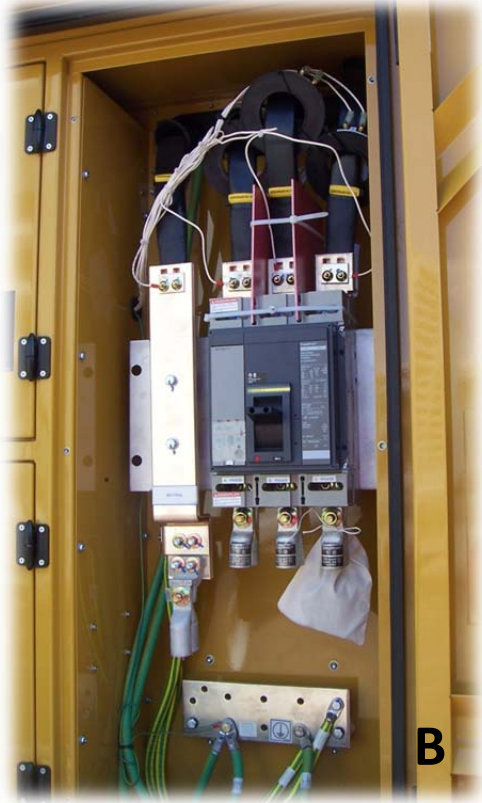
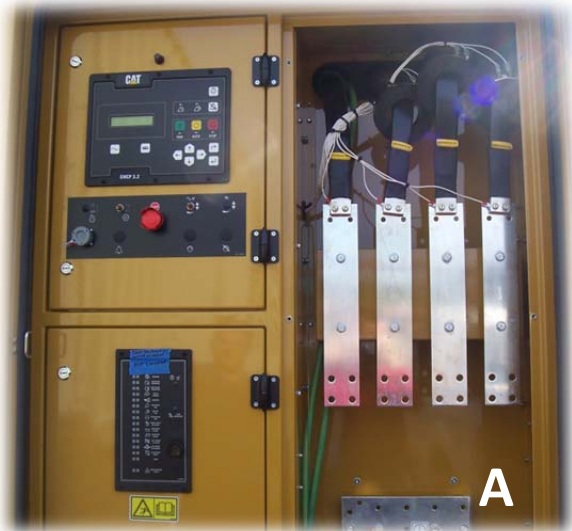
Notes:

1. Breaker Type: MC = Molded case, PB = Power Circuit Breaker
2. Option codes, if applied, are added as suffixes to base style number
3. Other GenKit and GenBox variants of are possible. Contact us to explore solutions that include other breakers, multiple breakers, controls, relays and more.

**GENKIT** and **GENBOX** solutions are complete with detailed drawings that document physical and electrical attributes. Excerpted examples are shown following:



**Fig. 3, Typical CAT Single CB GENKIT with Backpan Mounting, Top Cable Exit**



**Fig. 4A-C, Before and After GENKIT Conversion, Typical CAT C15, Single CB**



*Fig. 5A-D, Before and After GENKIT Conversion, Typical CAT C27, Single CB*

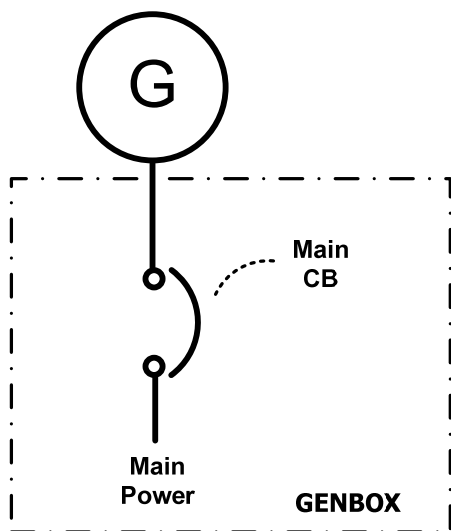


*Fig. 6A-C, GENKIT Conversion, Typical CAT C27, Single CB*

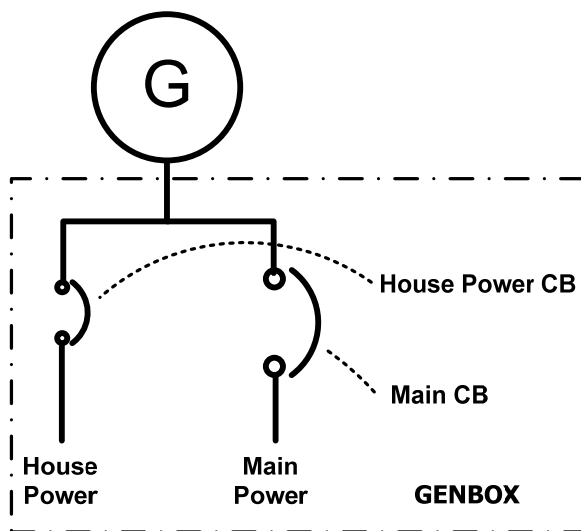


*Fig. 6D-F, GENKIT Conversion, Typical CAT C27, Single CB*

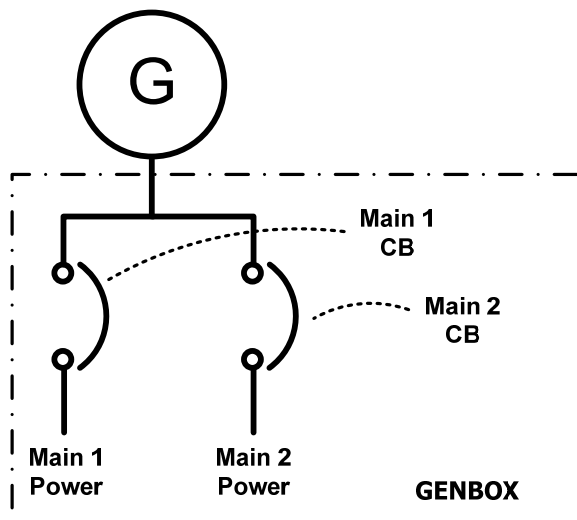
The following figures demonstrate the flexibility of **GENKIT** and **GENBOX** to meet various power system needs. These figures are illustrative purposes, and the **GENKIT** and **GENBOX** solution can be configured to meet other requirements as needed.



*Fig. 7, Main Power*



*Fig. 8, Main and House Power*



*Fig. 9, Main 1 and Main 2 Power*

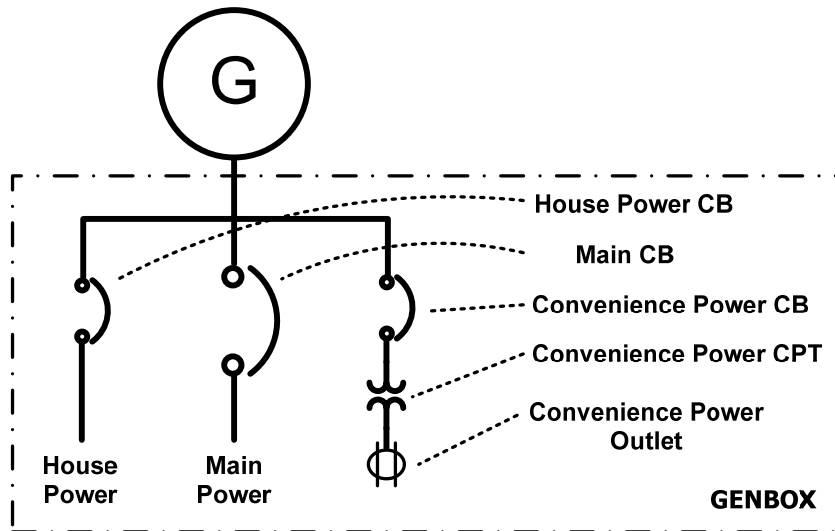


Fig. 10, Main and House Power, Lower Voltage Convenience Outlet

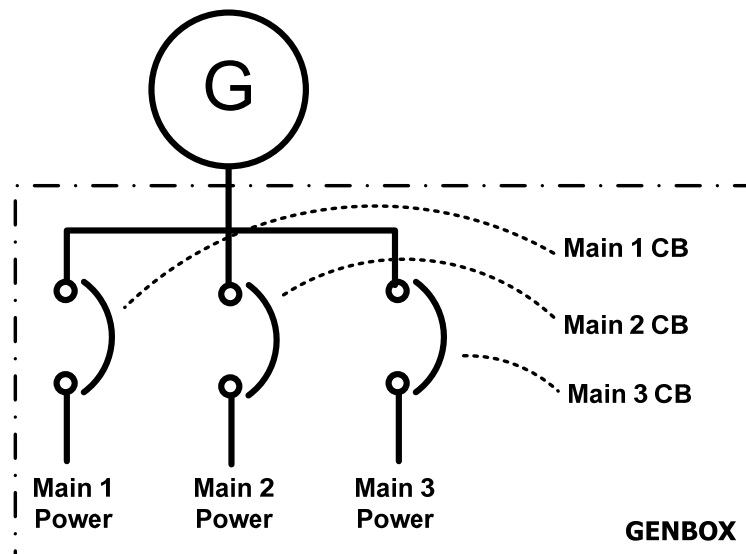


Fig. 11, Main Power 1, 2 & 3

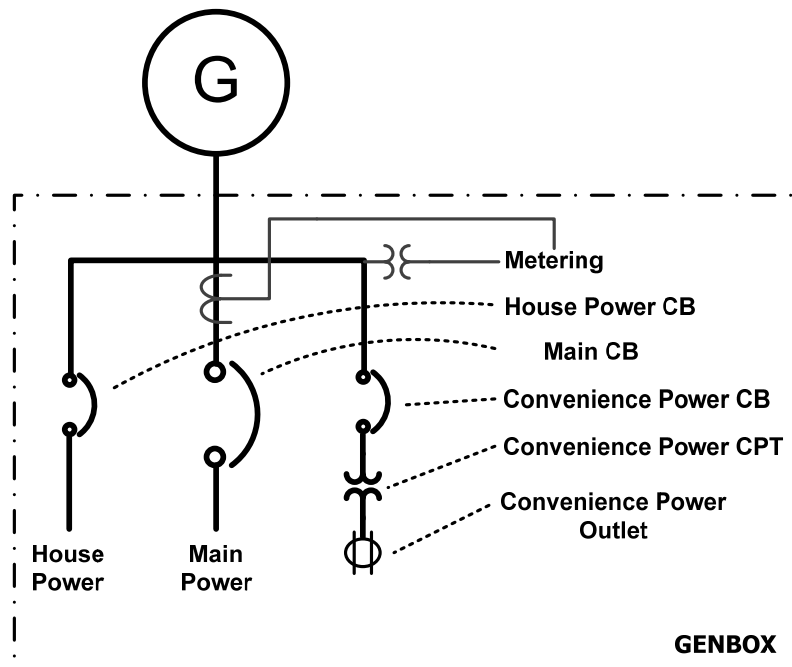


Fig. 12, Main and House Power, Lower Voltage Convenience Outlet, Main Metering

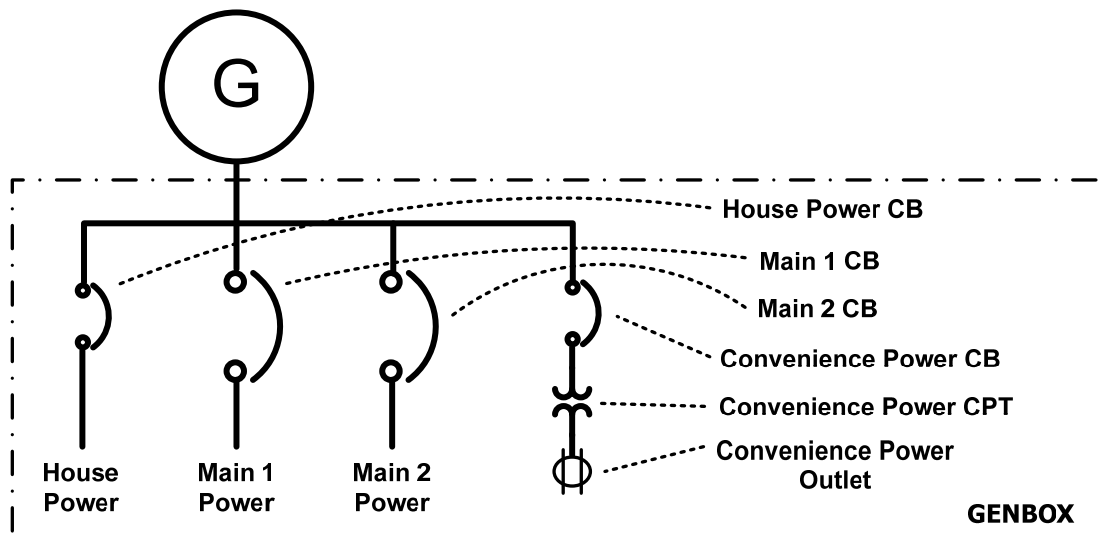
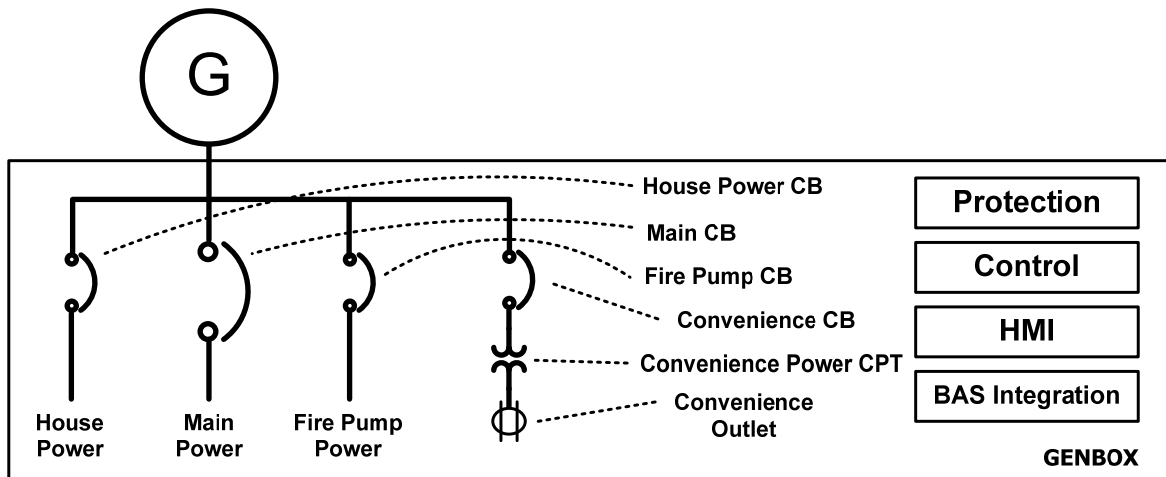
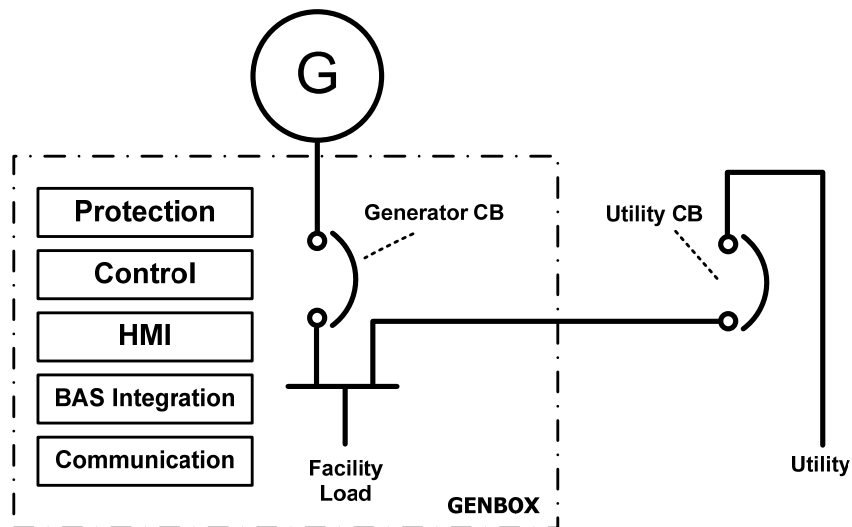


Fig. 13, Main 1 & 2, House Power, Lower Voltage Convenience Outlet



**Fig. 14, Main, House and Fire Pump Power, plus Protection, Control, HMI and BAS Integration**



**Fig. 15, Generator CB, plus Protection, Control, HMI, BAS Integration, Communications, and Control of the Utility CB**

In addition to the power distribution, various types of sensing, control, protection and external system communication connectivity may be provided. Utility connection can be made in various modes: emergency transfer without paralleling, grid paralleled operation for load testing and demand reduction, bumpless grid isolation and return, and bumpless emergency power run return to Utility power.

- **Other GENKIT and GENBOX variants of are possible. Contact us to explore solutions that include other breakers, multiple breakers, controls, relays and more.**
- **No set up charge for non-stock designs**

NG\_GenKit-Box\_Capabilities\_CAT\_111206.docx

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