



Ring Power Corporation  
500 World Commerce Parkway  
St. Augustine, FL 32092

Prepared For:  
Florida Sheriff's Association

8/5/2020

Item #465: (1) NEW CATERPILLAR CTG AUTOMATIC TRANSFER SWITCH

CONTRACT DETAILS

Florida Sheriff's Association
Bid # FSA20-EQU18.0
Item #465: Group: TRANSFER SWITCH: 600 Amp Automatic Transfer Switch
Contract Dates: October 1, 2020 through September 30, 2023

BID SPECIFICATION:

AUTOMATIC TRANSFER SWITCH: Maximum voltage rating of 600Vac, 60hz; 1ph or 3ph; Open transition (break-before-make) transfer logic; Transfer switch must meet the related industry standards: UL 1008 - Automatic transfer switches for use in emergency systems; CSA - Automatic transfer switches; NEMA - Industrial control and systems AC transfer switch equipment; IEC - Automatic transfer switching equipment. RATING: 600-amp, 3 pole, 277/480vac, 60hz; Enclosure type: NEMA 3r. FUNCTIONAL: The automatic transfer switch shall automatically transfer the load to the generator supply in the event of a utility supply failure and return the load to the utility supply upon restoration. The automatic transfer switch power switching devices shall be mechanically and electrically interlocked to prevent the utility and generator supplies from being interconnected. All timers should be field adjustable to ensure proper field site compatibility. AUTOMATIC SEQUENCE OF OPERATION: When the voltage on any phase of the utility supply is below present levels of rated voltage for a preset time delay, a contact shall close to initiate start of the standby generator. The load shall transfer to the generator supply when the generator voltage and frequency have reached acceptable present levels and the warm up time delay has expired. When the utility supply is restored to the above present levels of rated voltage on all phases, load transfer from generator to utility supply shall be initiated following expiry of the utility return timer. Once the transfer mechanism operates and opens the generator power switching device, the transfer mechanism shall stop in the neutral position (i.e. with the both power switching devices open) for the duration of the neutral delay timer setting to allow load voltage to decay prior to reconnecting the utility supply. The load shall be re-connected to the utility supply once the neutral delay timer expires and the transfer mechanism continues operation and closes the utility power switching device. The load shall immediately retransfer to the utility supply (if within acceptable limits) should the generator supply fail prior to the expiry of the utility transfer delay. The generator set shall continue to operate following a load transfer for a cool down delay period, and then a contact shall open to stop the generator set. An "on load" test mode may be initiated which shall cause a simulated utility failure condition and transfer the load to the generator set. The transfer sequence shall be the same as for a utility power failure except a neutral delay sequence shall occur when transferring from utility to a generator source. The load shall immediately retransfer to the utility supply (if within acceptable limits) should the generator supply fail during an "on load" test mode. FACTORY TESTING: A certified factory test report shall be shipped with each switch at time of shipment; The automatic transfer switch shall be factory tested prior to delivery to the purchaser; The following test shall be conducted by qualified factory personnel: Visual Inspection; Mechanical Tests; Electrical Tests; Final Inspection. FIELD TESTING AND COMMISSIONING: The automatic transfer switch shall be field tested once installed at the project site to confirm proper operation of the system; Schedule and witness testing activities shall be coordinated with the project engineer, site contractor, and owner as required in advance of the testing date; A qualified local factory-trained field representative shall conduct the necessary test to ensure proper operation of the switch. Visual Inspection: Electrical and Mechanical inspection to verify the installation is correct as recommended by the transfer switch manufacturer and as per National Electric Code (NEC) requirements. Mechanical Tests: As a minimum, the following mechanical tests shall be performed on the transfer switch: Power conductor torque verification; Verification of mechanical interlock; Manual ATS Mechanism Operation; All Mechanical Fasteners/Wire Connections Tight; Confirmations of correct transfer switch voltage, current and withstand ratings as is required for the application; Meggar testing the power cabling to the transfer switch; Verification of correct power cabling phasing and phase rotation prior to energization; Confirmation of settings for all timers & voltages sensors. Full Function Test-normal operation – 3 complete cycles of failing the utility supply, and transfer load to/from the generator set; Verification of all test modes operates correctly. CONDITIONS: In addition to equipment specified, each automatic transfer switch shall be equipped with all necessary equipment as specified by the manufacturer for this model and shall include but not be limited to the following necessary items: Shrink Wrap applied to the product to ensure a clean finish; One complete set of operation and maintenance manuals; A two (2) year or 1500 hour from date of standard standby warranty will apply from date of successful startup; Labor, materials, and travel for the warranty period repair will be paid by manufacturer during normal business hours.

BASE MACHINE

CTG 600	CATERPILLAR CTG 600 AMP RATED ATS
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Image shown may not reflect actual configuration

## CTG Series Automatic Transfer Switch (ATS)

The Cat<sup>®</sup> CTG Series ATS are pre-configured for applications requiring the dependability and ease of operation found in a full feature power contactor-type transfer switch.

CTG switches are equipped with the next generation MX150 microprocessor panel, which controls the operation and displays the status of the transfer switch's position, timers, and available sources. As an embedded digital controller, the MX150 offers high reliability and ease of unattended operation across a range of applications.

## Features

- Ratings 40 to 3000 amps (2, 3, or 4 poles)
- UL 1008 listed at 480 VAC
- CSA certified at 600 VAC (200-260 amp at 480V)
- IEC listed at 480 V
- Double throw, mechanically interlocked contactor mechanism
- Electrically operated, mechanically held
- Designed for emergency and standby applications
- Available in standard open transition (CTG) or delayed transition (CTGD) models
- Ringing wave immunity per IEEE 472 (ANSI C37.90A)
- Conducted and Radiated Emissions per EN 55022 Class B (CISPR 11) (exceeds EN 55011 and MILSTD 461 Class 3)
- Electrostatic Discharge (ESD) immunity test per EN 61000-4-2 (Level 4)
- Radiated Radio Frequency (RF), electromagnetic field immunity test per EN 61000-4-3 (ENV50140) 10v/m
- Electrical fast transient/burst immunity test per EN 61000-4-4
- Surge immunity test per EN 61000-4-5 IEEE C62.41 (1.2 X 50 ms, 5 and 8 kV)
- Conducted immunity test per EN 61000-4-6 (ENV50141)
- Voltage dips and interruption immunity EN 61000-4-11
- Seismic compliance to IEEE-693-2005, IBC-2003 and OSP-0035-10

## Design and Construction Features

- Close differential 3-phase under-voltage sensing of the normal source – factory standard setting 90% pickup, 80% dropout (adjustable); underfrequency sensing of the normal source factory setting 95% pickup (adjustable)
- Voltage and frequency sensing of the emergency source – factory standard setting 90% pickup voltage, 95% pickup frequency (adjustable)
- Test switch (fast test/load/no load) to simulate normal source failure – automatically bypassed should the emergency source fail
- Type 1 enclosure is standard – also available in open style or types 3R, 4, 4X, or 12.

## Standard Features and Options

### Standard Features

- Auxiliary contact: Closed when the switch is in the emergency position (additional contacts optional)
- Auxiliary contact: Closed when the switch is in the normal position (additional contacts optional)
- 7-, 14-, 28-day interval timed exerciser, pushbutton/timer operation
- Engine start contact
- Indicating LED pilot lights:
  - Switch in emergency position
  - Switch in normal position
  - Normal source available
  - Emergency source available
- Time delay to engine start: Standard setting 3 seconds, adjustable 0-10 seconds
- In-phase monitor, self-adjusting (not available on CTGD models)
- Time delay on retransfer to normal: To delay retransfer to normal source (immediate retransfer on generator set failure); standard setting 30 minutes, adjustable 0-60 minutes
- Pushbutton bypass of time delay and normal emergency
- Test switch – momentary
- 16 events log that tracks date, time, reason, and action taken
- Voltage and frequency indication for S1 and S2
- Peak shave/remote load test: Input for peak shave or remote load test; includes automatic return to normal if emergency source fails and normal is present; 120 VAC

When specified for use with a CTGD Series delayed transition switch, the control panel also includes the following:

- Time delay from neutral switch position to normal on retransfer: Standard setting 5 seconds, adjustable 0-10 minutes
- Time delay from neutral switch position to emergency: Standard setting 5 seconds, adjustable 0-10 minutes
- Center-off position/off delay timing indicators

### MX150 Control Panel

- Time delay for engine cool-down: Allows engine to run unloaded after switch retransfer to normal; standard setting 5 minutes, adjustable 0-60 minutes

- Time delay on transfer to emergency: To delay transfer to emergency after verifying emergency source available; standard setting 1 second, adjustable 0-5 minutes
- Timer and voltage/frequency settings adjustable without disconnection from power sources
- Built-in diagnostics with LCD display for immediate troubleshooting
- LED/LCD indicators for ease of viewing and long life
- Nonvolatile memory (exerciser battery backup not required for standard operation)
- Processor and digital circuitry isolated from line voltage
- Inputs opto-isolated for high electrical immunity to transients and noise
- Communications header for network interface

### Options

- Plant exerciser, clock type (load/no load): Allows the generator to start and run unloaded or to simulate a power failure, start generator and run under load (7-14-28-365 days, user selectable)
- Space heater and thermostat
- Network communications interface card (LonWorks/ModBus)
- Maintained test switch
- Maintained test switch w/keypad
- Service entrance configuration
- Auxiliary contact, operates on source 1 line failure
- Auxiliary contact, operates on source 2 availability
- Auxiliary contacts: Closed when the transfer switch is in source 2 position
- Auxiliary contacts: Closed when the transfer switch is in source 1 position
- Disconnect switch: Permits transfer in "AUTO" position and inhibits transfer in "INHIBIT" position. (standard 800A and above)
- Elevator pre-signal auxiliary contacts: Open 0-60 seconds prior to transfer to either direction, re-closes after transfer
- Universal motor load disconnect circuit: Auxiliary contact opens 0-60 seconds prior to transfer in either direction, re-closes after transfer. Can be configured by end user for pre-transfer, post-transfer, or both.
- Voltage imbalance monitor (three-phase)
- Lockable, see-through cover for ATS controller

## Options (continued)

### Power Measurement Meters

- M90 – EPM 2000 digital power meter with display: amps, volts, and frequency
- M91 – EPM 6000 digital meter with display of amps, watts, volts, frequency, plus THD capability with ethernet

**Note:** For applications requiring additional options or other configurations, see the CTS Series fully configurable transfer switch.

## Testing Standards

UL, CSA, and IEC listed	UL 1008, CSA 22.2 No. 178, IEC 947-6-1
Ringling wave immunity	IEEE 472 (ANSI C37.90A)
Conducted and radiated emissions	EN 55022 Class B (CISPR 11) (exceeds EN 55011 and MILSTD 461 Class 3)
ESD immunity test Class B	EN 61000-4-2 (Level 4)
Radiated RF, electromagnetic field immunity test	EN 61000-4-3 (ENV50140) 10v/m
Electrical fast, transient/burst immunity test	EN 61000-4-4
Surge immunity test	EN 61000-4-5 IEEE C62.41
Conducted immunity test	EN 61000-4-6 (ENV50141)
Voltage dips and interruption immunity	EN 61000-4-11

## AL/CU UL Listed Solderless Screw-Type Terminals for External Power Connections

Switch Size (Amps)	Normal, Emergency and Load Terminals	
	Cables per Pole	Range of Wire Sizes
40, 80	1	#8 to 3/0 AWG
100, 150, 200 & 225	1	#6 AWG to 250 MCM*
260 & 400	1	#4 AWG to 600 MCM*
600	2	#2 AWG to 600 MCM
800, 1000, 1200	4	#2 AWG to 600 MCM
1600, 2000, 2600, 3000	8	#2 AWG to 600 MCM

\*or 2 1/0 - 250 MCM may be used

## MX150 Control Setting Ranges

Control Function		Range	Factory Setting
Normal Line Sensing – Undervoltage	Dropout	75-98%	80%
	Pickup	85-100%	90%
Emergency Line Sensing – Undervoltage	Dropout	75-98%	80%
	Pickup	85-100%	90%
Emergency Line Sensing – Underfrequency	Dropout	2 Hz below pickup	Set
	Pickup	90-100%	95%
Time Delay – Engine Start		0-10 seconds	3 seconds
Time Delay – Engine Cool-down		0-60 minutes	5 minutes
Time Delay – Transfer to Emergency		0-5 minutes	1 second
Time Delay – Retransfer to Normal		0-60 minutes	30 minutes
Time Delay – Motor Disconnect or Transfer Presignal (when applicable)		0-60 seconds	20 seconds
Delayed Transition Time Delays (when applicable)		0-10 minutes	5 seconds

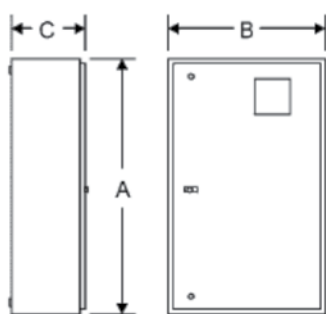
## Dimensional Specifications

CTG & CTGD Transfer Switches								
Model	Amp Rating	Poles	NEMA 1 Enclosed				Weight	Application Notes
			Height (A)	Width (B)	Depth (C)	Reference Figure		
CTG	40, 80, 100, 150 & 200	2, 3	24 (610)	18 (457)	11 (279)	A	69 (31)	1-6
		4	24 (610)	18 (457)	11 (279)	A	69 (31)	
	225	2, 3	46 (1168)	24 (610)	14 (356)	A	69 (31)	1-5
		4	46 (1168)	24 (610)	14 (356)	A	75 (34)	
	260	2, 3	46 (1168)	24 (610)	14 (356)	A	114 (52)	1-5
		4	46 (1168)	24 (610)	14 (356)	A	125 (57)	
	400	2, 3	46 (1168)	24 (610)	14 (356)	A	168 (76)	1-5
		4	46 (1168)	24 (610)	14 (356)	A	180 (82)	
	600	2, 3	66 (1686)	24 (610)	19.5 (495)	B	214 (97)	1-5 & 7
		4	66 (1686)	24 (610)	19.5 (495)	B	224 (102)	
	800	2, 3	74 (1880)	40 (1016)	19.5 (495)	B	460 (209)	1-5 & 7
		4	74 (1880)	40 (1016)	19.5 (495)	B	490 (222)	
	1000	2, 3	74 (1880)	40 (1016)	19.5 (495)	B	475 (215)	1-5 & 7
		4	74 (1880)	40 (1016)	19.5 (495)	B	560 (254)	
	1200	2, 3	74 (1880)	40 (1016)	19.5 (495)	B	475 (215)	1-5 & 7
		4	74 (1880)	40 (1016)	19.5 (495)	B	560 (254)	
	1600	2, 3	90 (2286)	35.5 (902)	48 (1219)	C	1030 (467)	1-5 & 7-8
		4	90 (2286)	35.5 (902)	48 (1219)	C	1180 (535)	
	2000	2, 3	90 (2286)	35.5 (902)	48 (1219)	C	1030 (467)	1-5 & 7-8
		4	90 (2286)	35.5 (902)	48 (1219)	C	1180 (535)	
	2600	2, 3	90 (2286)	35.5 (902)	48 (1219)	C	1150 (522)	1-5 & 7-8
		4	90 (2286)	35.5 (902)	48 (1219)	C	1400 (635)	
	3000	2, 3	90 (2286)	35.5 (902)	48 (1219)	C	1150 (522)	1-5 & 7-8
		4	90 (2286)	35.5 (902)	48 (1219)	C	1400 (635)	
CTGD	40, 80, 100, 150 & 225	2, 3	46 (1168)	24 (610)	14 (356)	A	127 (58)	1-5
		4	46 (1168)	24 (610)	14 (356)	A	133 (60)	
	260 & 400	2, 3	46 (1168)	24 (610)	14 (356)	A	176 (80)	1-5
		4	46 (1168)	24 (610)	14 (356)	A	188 (85)	
	600	2, 3	66 (1686)	24 (610)	19.5 (495)	B	221 (100)	1-5 & 7
		4	66 (1686)	24 (610)	19.5 (495)	B	230 (104)	
	800	2, 3	74 (1880)	40 (1016)	19.5 (495)	B	475 (215)	1-5 & 7
		4	74 (1880)	40 (1016)	19.5 (495)	B	560 (254)	
	1000	2, 3	74 (1880)	40 (1016)	19.5 (495)	B	475 (215)	1-5 & 7
		4	74 (1880)	40 (1016)	19.5 (495)	B	560 (254)	
	1200	2, 3	74 (1880)	40 (1016)	19.5 (495)	B	475 (215)	1-5 & 7
		4	74 (1880)	40 (1016)	19.5 (495)	B	560 (254)	
	1600	2, 3	90 (2286)	35.5 (902)	48 (1219)	C	1030 (467)	1-5 & 7-8
		4	90 (2286)	35.5 (902)	48 (1219)	C	1180 (535)	
	2000	2, 3	90 (2286)	35.5 (902)	48 (1219)	C	1030 (467)	1-5 & 7-8
		4	90 (2286)	35.5 (902)	48 (1219)	C	1180 (535)	
	2600	2, 3	90 (2286)	35.5 (902)	48 (1219)	C	1150 (522)	1-5 & 7-8
		4	90 (2286)	35.5 (902)	48 (1219)	C	1400 (635)	
	3000	2, 3	90 (2286)	35.5 (902)	48 (1219)	C	1150 (522)	1-5 & 7-8
		4	90 (2286)	35.5 (902)	48 (1219)	C	1400 (635)	

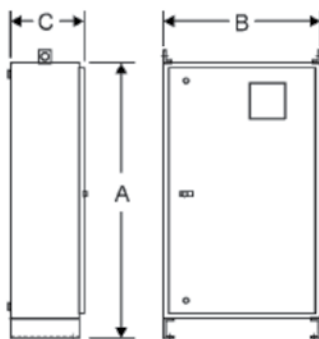
## Dimensional Specifications (continued)

### Application Notes:

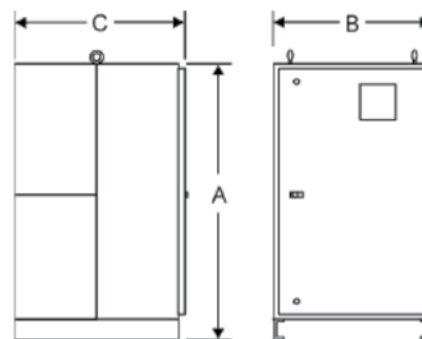
1. Dimensions are listed in inches (mm) and weights in pounds (kg).
2. Includes 1.25" door projection beyond base depth. Allow a minimum of 3" additional depth for projection of handle, light, switches, pushbuttons, etc.
3. All dimensions and weights are approximate and subject to change without notice and are not for construction use.
4. Packing materials must be added to weights shown. Allow 15% additional weight for cartons, skids, crates, etc.
5. Special enclosures (NEMA 3R, 4, 4X, 12, etc.) dimensions may differ. Consult Caterpillar for details.
6. CTG 40-200 require larger 36" H X 24" W X 14" D enclosure depending on options specified. Consult Caterpillar for details.
7. Add 3" in height for lifting eyes.
8. Ventilation louvers on side/rear of 2600 and 3000A units require one side or rear of enclosure to be clear in order to afford proper airflow.



**Figure A**  
CTG Series Transfer Switch  
(40-400 amp)



**Figure B**  
CTG Series Transfer Switch  
(600-1200 amp)



**Figure C**  
CTG Series Transfer Switch  
(1600-3000 amp)

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## MX150 MICROPROCESSOR CONTROLLER

The MX150 microprocessor is standard with the CTG product family. The MX150 microprocessor panel controls the operation and displays the status of the transfer switch's position, timers and available sources.

As an embedded digital controller, the MX series offers high reliability and ease of unattended operation across a range of applications.

### FEATURES AND BENEFITS

- Digital timer and adjustments with 1 second resolution
- Long lasting LED indicators and an easy-to-view LCD display
- Inputs optoisolated for high electrical immunity to transients and noise
- Digital voltage and frequency adjustments with 1% resolution
- Voltage and frequency sensing includes:
  - Voltage imbalance detection between phases.
  - Under frequency sensing on source 2.
  - 3 Phase under voltage sensing on source 1 (S1) – Normal and single phase sensing on source (S2) – Emergency
- Modular pre-signal option easily integrated into the system (e.g. elevator pre-signal and motor load disconnect)
- Universal Motor Disconnect (UMD) available for programming to pre-signal, post-signal or both
- Line voltage transients are isolated from the control board using remote transformers
- Simplified major components and modules for easy replacement
- On-board diagnostics including voltage frequency, control and timing
- Nonvolatile memory – battery backup not required during normal source outage

- External communication available through LonWorks/ModBus network interface (RS 232, RS 422, and RS 485 are also available)
- Maintained and momentary test positions are available to the controller
- Test mode allows manual bypass of all transfer timers when applicable
- Automatic daylight savings adjustment available

### USER-FRIENDLY OPERATION

- LEDs for continuous monitoring of switch position, source availability, exercise time delay operation and diagnostics
- Simplified adjustment for voltage, frequency and time delay settings
- Close differential 3 phase under-voltage sensing of source 1, factory standard setting 90% pickup, 80% dropout (adjustable); under-frequency sensing of the source 1 factory setting 95% pickup (adjustable)
- Voltage and frequency sensing of source 2, factory standard setting 90% pickup voltage, 95% pickup frequency (adjustable)
- Test switch (fast test/load/no load) to simulate normal source failure – automatically bypassed should source 2 fail



## PERFORMANCE FEATURES

- UL, CSA and IEC listed
- Ringing wave immunity per IEEE 472 (ANSI C37.90A)
- Conducted and Radiated Emissions per EN55022 Class B (CISPR 22) (Exceeds EN55011 and MILSTD 461 Class 3)
- ESD immunity test per EN61000-4-2 (Level 4)
- Radiated RF, electromagnetic field immunity test per EN61000-4-3 (ENV50140) 10v/m
- Electrical fast transient/burst immunity test per EN61000-4-4
- Surge immunity test per EN61000-4-5 IEEE C62.41
- Conducted immunity test per EN61000-4-6 (ENV50141)
- Voltage dips and interruption immunity EN61000-4-11

## CONTROL SETTING RANGES

Control Function		MX150	
		Range	Factory Setting
S1 Line Sensing – Under-voltage	Fail	75-98%	80%
	Restore	85-100%	90%
S2 Line Sensing – Under-voltage	Fail	75-98%	80%
	Restore	85-100%	90%
S2 Line Sensing – Under-frequency	Fail	88-98%	90%
	Restore	(2 Hz below restore setting) 90-100%	95%
Time Delay – S2 Start	(P1)	0-10 seconds	3 seconds
Time Delay – Engine Cool Down	(U)	0-60 minutes	5 minutes
Time Delay – Transfer to Emergency	(W)	0-5 minutes	1 second
Time Delay – Retransfer to Normal	(T)	0-60 minutes	30 minutes
Time Delay – Motor Disconnect or Transfer Pre-signal	(A62, UMD, or T3/W3)	0-60 seconds	20 seconds
Delayed Transition (when applicable)	(DT, DW)	0-10 minutes	5 seconds

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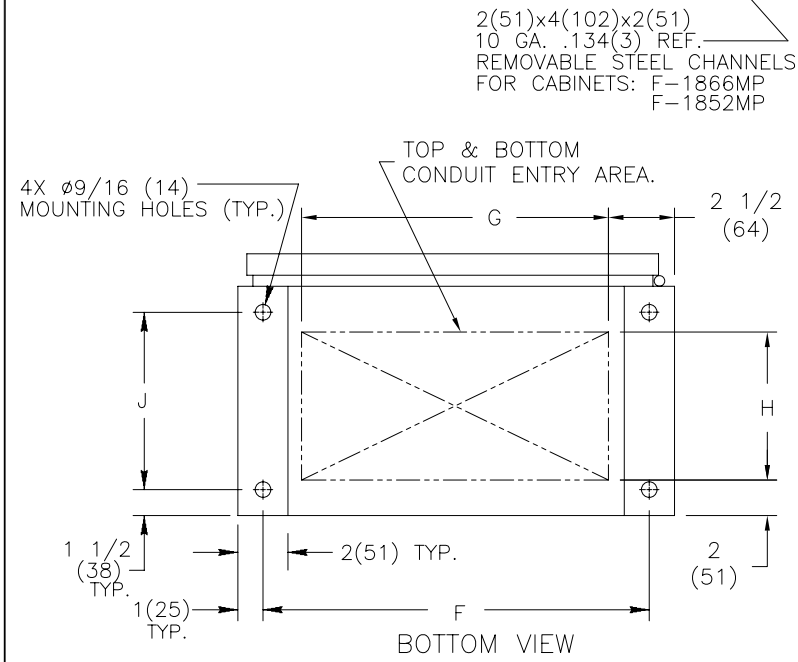
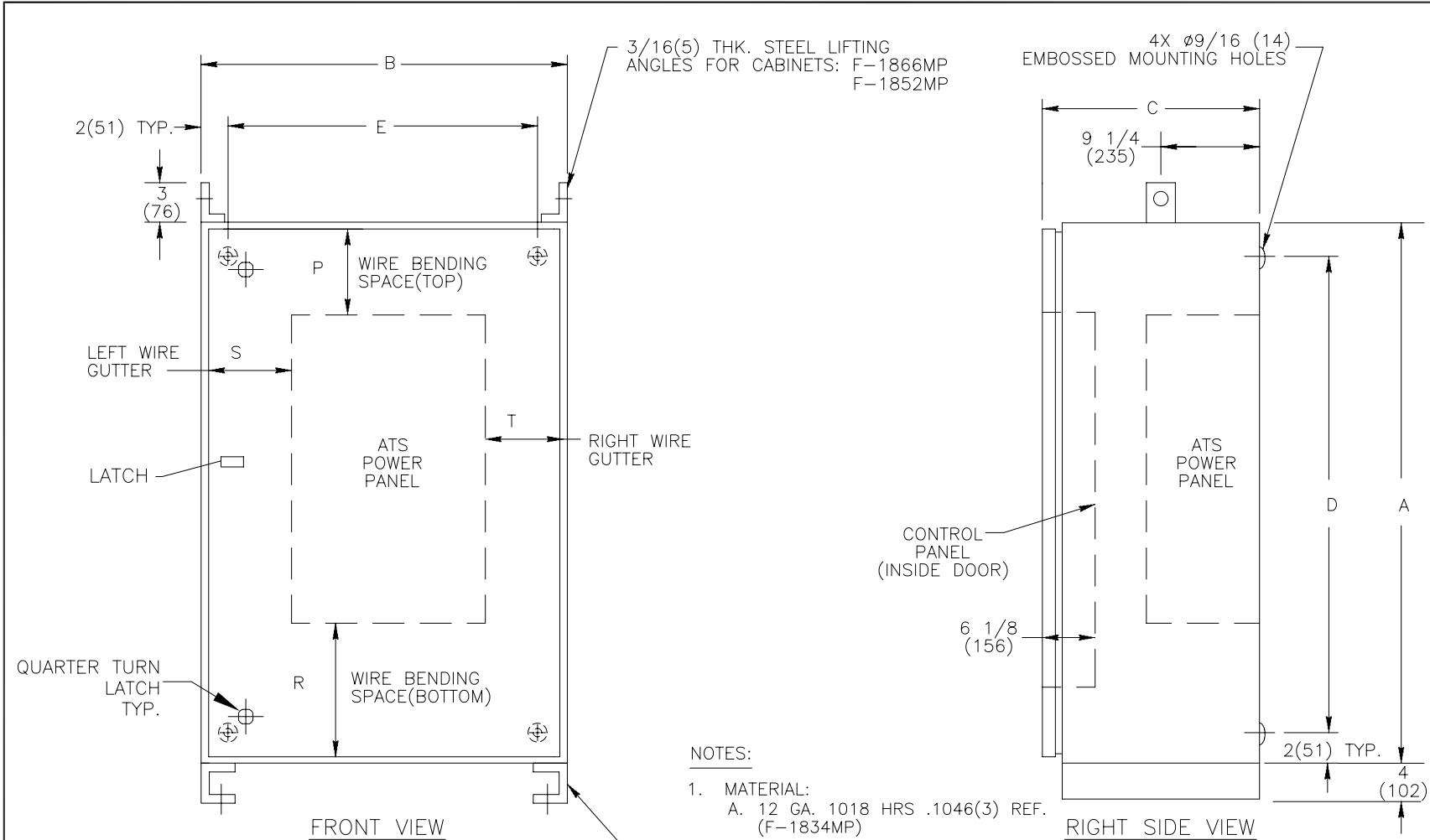
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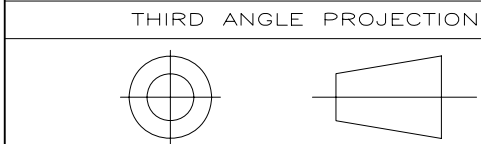


- NOTES:
- MATERIAL:
    - A. 12 GA. 1018 HRS .1046(3) REF. (F-1834MP)
    - B. 14 GA. 1018 HRS .074(2) REF. (F-1830MP, F-1832MP)
    - C. 16 GA. 1018 HRS .0598(1.5) REF. (F-1828MP)UNLESS OTHERWISE NOTED.
  - FINISH: ANSI 61 GREY
  - ALL DIMENSIONS ARE FOR REFERENCE ONLY AND SHOWN IN INCHES(MILLIMETERS).
  - CONSTRUCTION PER UL 1008
  - A CTG 40A-225A WHEN ORDERED WITH THE FOLLOWING OPTIONS WILL REQUIRE A LARGER ENCLOSURE OF 46"H X 24"W X 14"D: A62(T), DIGITAL METER, HT, OCVR-1SG, OCVR-1SS.
  - FOR SEISMIC MOUNTING, REFER TO SHEET NO.6.
  - FOR 260A & 600A 600V CTG SWITCH ORDER, USE 50C-1034 DRAWING

CABINET DIMENSIONS									
CABINET	A	B	C	D	E	F	G	H	J
F-1872MP	46 (1168)	24 (610)	14 (356)	42 (1067)	20 (508)	--	19 (483)	6 (152)	--
F-1866MP	62 (1575)		19 1/2 (495)	58 (1473)	20 (508)	22 (559)		11 (279)	15 1/2 (394)
F-1852MP	70 (1778)	40 (1016)		66 (1676)	36 (914)	38 (965)	35 (889)		
F-1828MP	24 (610)	18 (457)	11 (279)	20 (508)	16 (406)	--	13 (330)	4 (102)	--

REVISIONS											
REV.	DESCRIPTION					DATE		APPROVED			
X	S-8887 ADDED WEIGHT					08/11/09		YP MAS			
MODEL	AMPERAGE	NO. POLES	NEMA CABINET	LUG RANGE	WIRE BENDING SPACE		WIRE GUTTERS				
					P(TOP)	R(BOTTOM)	S(LEFT)	T(RIGHT)			
CTG	40-150	2,3	F-1828MP	#8-3/0 (8-85mm <sup>2</sup> )	7 (178)	8 (203)	3 1/2 (89)	5 7/8 (149)			
		4						4 1/2 (114)			
	200	2,3		#6-250 MCM (13-127mm <sup>2</sup> )				7 (178)	8 (203)	3 1/2 (89)	8 7/8 (225)
		4									7 1/2 (191)
	225, 260	2	F-1872MP	#6-350 MCM (13-177mm <sup>2</sup> )	14 3/4 (375)	14 5/8 (371)	4 7/8 (124)	7 5/8 (194)			
		3					4 5/8 (117)	5 9/16 (141)			
		4					2 3/4 (70)				
	400	2		#4-600 MCM (21-304mm <sup>2</sup> )			14 3/4 (375)	14 5/8 (371)	4 7/8 (124)	7 5/8 (194)	
		3							4 5/8 (117)	5 9/16 (141)	
		4							2 3/4 (70)		
	600	2	F-1866MP	(QTY 2) #2-600 MCM (33-304mm <sup>2</sup> )	15 (381)	18 (457)	9 7/8 (251)	2 7/16 (62)			
		3					8 (203)				
		4					6 1/16 (154)				
	800	2,3	F-1852MP	(QTY 4) #2-600 MCM (33-304mm <sup>2</sup> )	18 1/2 (470)	18 (457)	17 1/8 (435)	1 1/8 (29)			
		4					10 3/4 (273)				
CTGD	40-80	2	F-1872MP	#8-3/0 (8-85mm <sup>2</sup> )	14 3/4 (375)	14 5/8 (371)	4 7/8 (124)	7 5/8 (194)			
		3					4 5/8 (117)	5 9/16 (141)			
		4					2 3/4 (70)				
	100-400	2		#4-600 MCM (21-304mm <sup>2</sup> )			14 3/4 (375)	14 5/8 (371)	4 7/8 (124)	7 5/8 (194)	
		3							4 5/8 (117)	5 9/16 (141)	
		4							2 3/4 (70)		
	600	2	F-1866MP	(QTY 2) #2-600 MCM (33-304mm <sup>2</sup> )	15 (381)	18 (457)	9 7/8 (251)	2 7/16 (62)			
		3					8 (203)				
		4					6 1/16 (154)				
	800	2,3	F-1852MP	(QTY 4) #2-600 MCM (33-304mm <sup>2</sup> )	18 1/2 (470)	18 (457)	17 1/8 (435)	1 1/8 (29)			
		4					10 3/4 (273)				

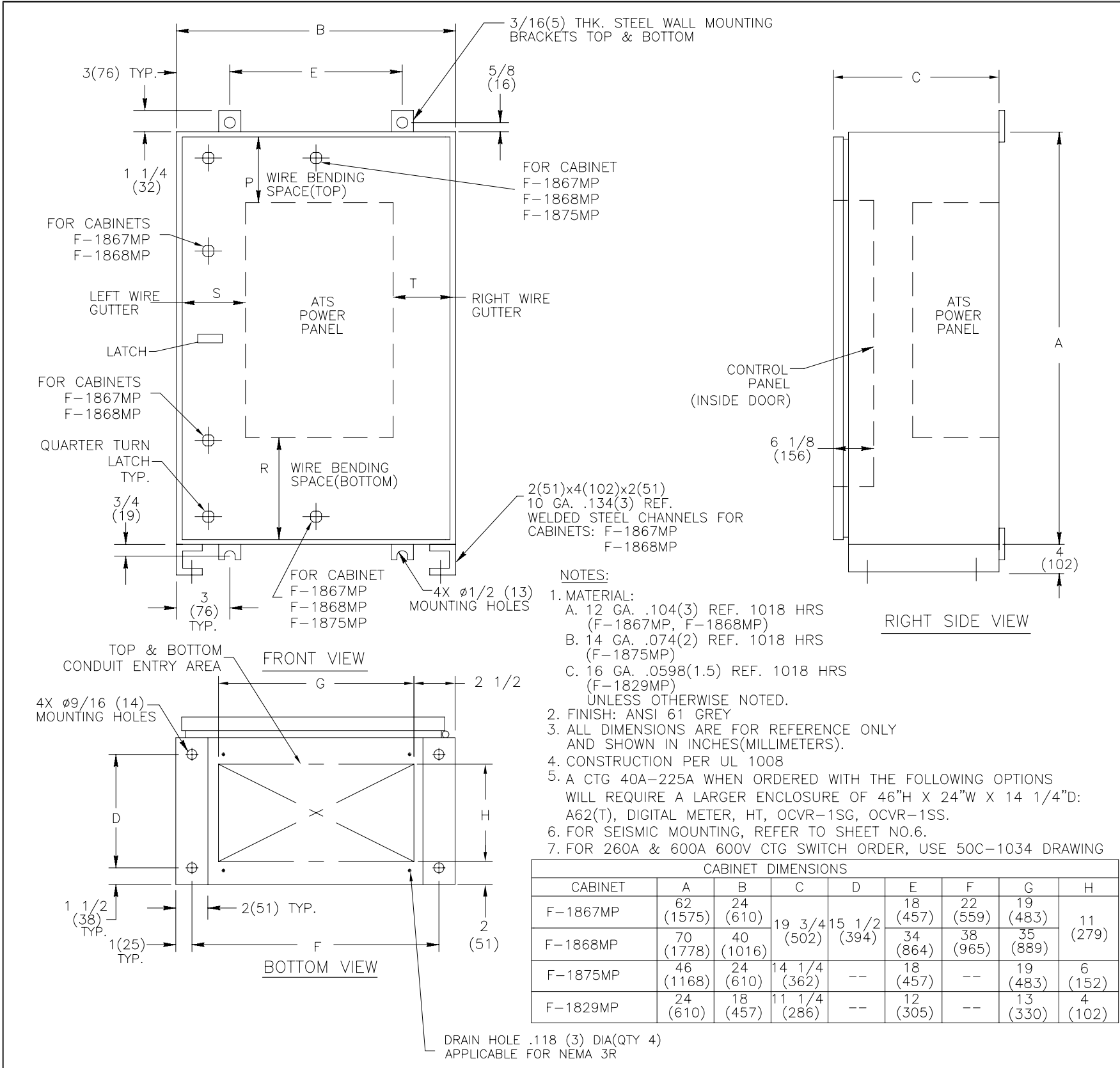
SIGNATURES		DATE	<div>CATERPILLAR®</div> <div>TRANSFER SWITCHES</div> <div>NEMA 1 ENCLOSURE</div>			
MODEL	EC	11/01/00				
DETAIL						
CHECKED						
ENGRG	SB	11/01/00				
MFG						
QUALITY			FIRST MADE FOR: -			
ISSUED			SIZE	CAGE CODE	DWG NO	
DRAWING FILE:		52c-1035-x-1.dwg	B		52C-1035	
MODEL / ASSEMBLY FILE:		CTG(D) (40-800A)				
# CTQs	⊖	CRITICAL TO QUALITY CHARACTERISTIC	SCALE: N/A		SHEET 1 OF 6	



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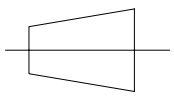
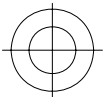
AutoCad Generated



CABINET DIMENSIONS								
CABINET	A	B	C	D	E	F	G	H
F-1867MP	62 (1575)	24 (610)	19 3/4 (502)	15 1/2 (394)	18 (457)	22 (559)	19 (483)	11 (279)
F-1868MP	70 (1778)	40 (1016)			34 (864)	38 (965)	35 (889)	
F-1875MP	46 (1168)	24 (610)	14 1/4 (362)	--	18 (457)	--	19 (483)	6 (152)
F-1829MP	24 (610)	18 (457)	11 1/4 (286)	--	12 (305)	--	13 (330)	4 (102)

REVISIONS									
REV.	DESCRIPTION					DATE		APPROVED	
X	S-8887 ADDED WEIGHT					08/11/09		YP MAS	
MODEL	AMPERAGE	NO. POLES	NEMA CABINET	LUG RANGE	WIRE BENDING SPACE		WIRE GUTTERS		
					P(TOP)	R(BOTTOM)	S(LEFT)	T(RIGHT)	
CTG	40-150	2,3	F-1829MP	#8-3/0 (8-85mm <sup>2</sup> )	7 (178)	8 (203)	3 1/2 (89)	5 7/8 (149)	
		4						4 1/2 (114)	
	200	2,3	F-1829MP	#6-250 MCM (13-127mm <sup>2</sup> )	7 (178)	8 (203)	3 1/2 (89)	8 7/8 (225)	
		4						7 1/2 (191)	
	225, 260	2	F-1875MP	#6-350 MCM (13-177mm <sup>2</sup> )	14 3/4 (375)	14 5/8 (371)	4 7/8 (124)	7 5/8 (194)	
		3						4 5/8 (117)	5 9/16 (141)
		4						2 3/4 (70)	
	400	2	F-1875MP	#4-600 MCM (21-304mm <sup>2</sup> )	14 3/4 (375)	14 5/8 (371)	4 7/8 (124)	7 5/8 (194)	
		3						4 5/8 (117)	5 9/16 (141)
		4						2 3/4 (70)	
	600	2	F-1867MP	(QTY 2) #2-600 MCM (33-304mm <sup>2</sup> )	15 (381)	18 (457)	9 7/8 (251)	2 7/16 (62)	
		3							8 (203)
		4							6 1/16 (154)
800	2,3	F-1868MP	(QTY 4) #2-600 MCM (33-304mm <sup>2</sup> )	18 1/2 (470)	18 (457)	17 1/8 (435)	1 1/8 (29)		
	4							10 3/4 (273)	
CTGD	40-80	2	F-1875MP	#8-3/0 (8-85mm <sup>2</sup> )	14 3/4 (375)	14 5/8 (371)	4 7/8 (124)	13 5/8 (346)	
		3						4 5/8 (117)	11 9/16 (294)
		4						2 3/4 (70)	
	100-400	2	F-1875MP	#4-600 MCM (21-304mm <sup>2</sup> )	14 3/4 (375)	14 5/8 (371)	4 7/8 (124)	7 5/8 (194)	
		3						4 5/8 (117)	5 9/16 (141)
		4						2 3/4 (70)	
	600	2	F-1867MP	(QTY 2) #2-600 MCM (33-304mm <sup>2</sup> )	15 (381)	18 (457)	9 7/8 (251)	2 7/16 (62)	
		3							8 (203)
		4							6 1/16 (154)
	800	2,3	F-1868MP	(QTY 4) #2-600 MCM (33-304mm <sup>2</sup> )	18 1/2 (470)	18 (457)	17 1/8 (435)	1 1/8 (29)	
		4							10 3/4 (273)

THIRD ANGLE PROJECTION

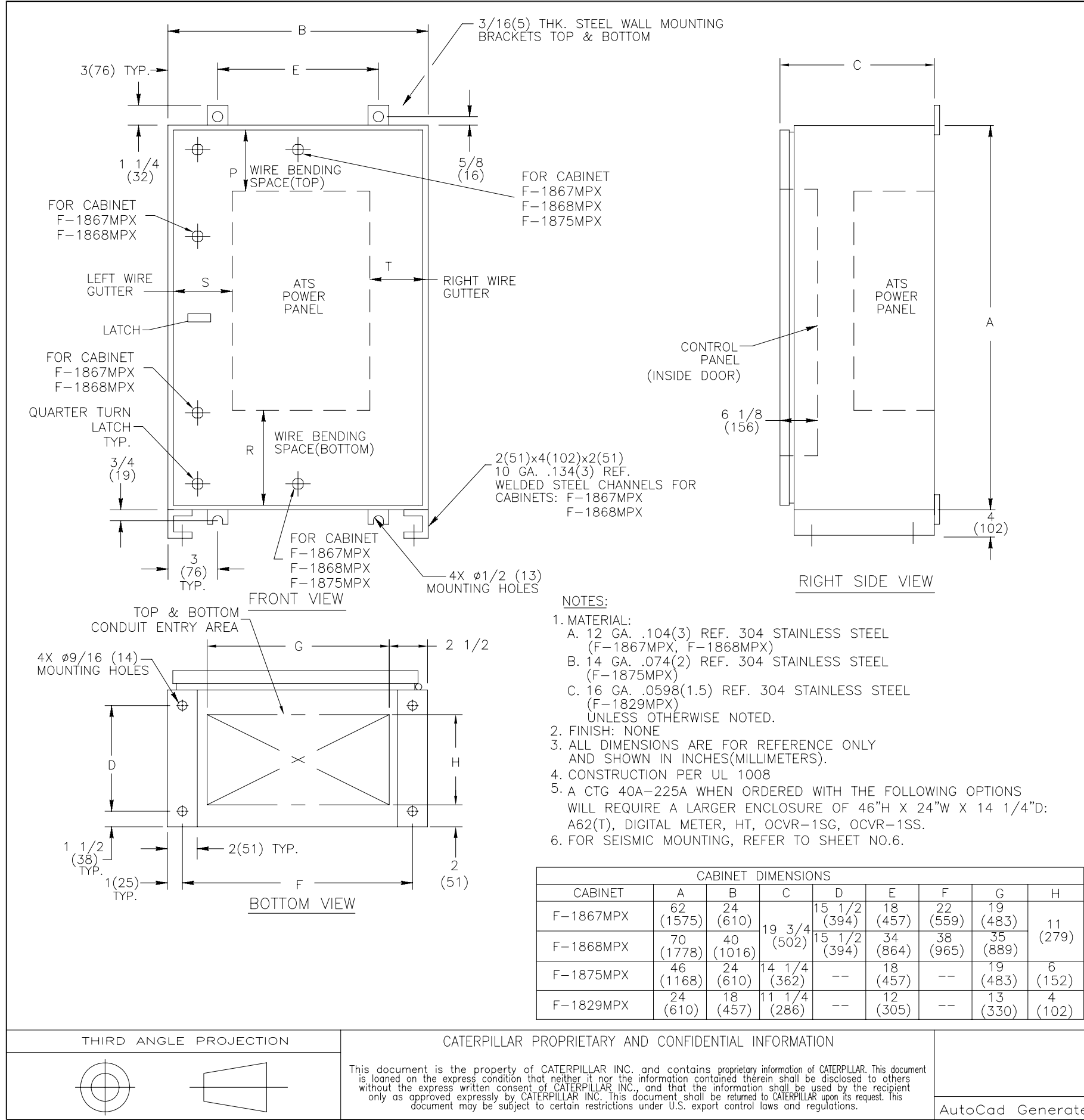


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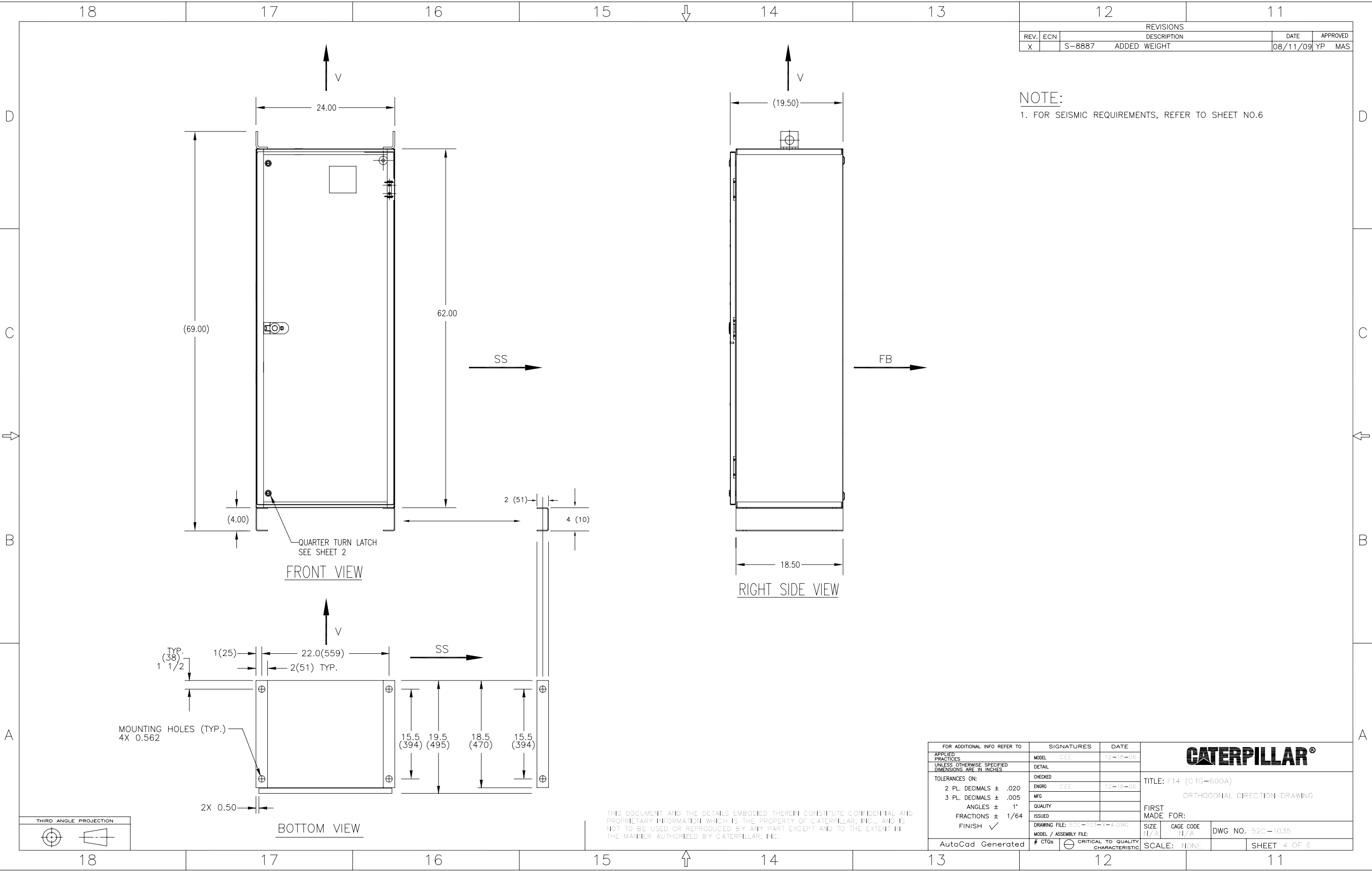
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SIGNATURES		DATE	<b>CATERPILLAR®</b>		
MODEL	EC	11/01/00			
DETAIL			TITLE TRANSFER SWITCHES NEMA 3R, 4 & 12 ENCLOSURES		
CHECKED					
ENGRG	SB	11/01/00			
MFG					
QUALITY			FIRST MADE FOR:		
ISSUED					
DRAWING FILE:	52c-1035-x-2.dwg		SIZE	CAGE CODE	DWG NO
MODEL / ASSEMBLY FILE:	CTG(D) (40-800A)		B		52C-1035
# CTQs	⊖	CRITICAL TO QUALITY CHARACTERISTIC	SCALE: N/A		SHEET 2 OF 6



REVISIONS								
REV.	DESCRIPTION					DATE		APPROVED
X	S-8887 ADDED WEIGHT					08/11/09		YP MAS
MODEL	AMPERAGE	NO. POLES	NEMA CABINET	LUG RANGE	WIRE BENDING SPACE		WIRE GUTTERS	
					P(TOP)	R(BOTTOM)	S(LEFT)	T(RIGHT)
CTG	40-150	2,3		#8-3/0 (8-85mm <sup>2</sup> )				5 7/8 (149)
		4						4 1/2 (114)
	200	2,3	F-1829MPX	#6-250 MCM (13-127mm <sup>2</sup> )	7 (178)	8 (203)	3 1/2 (89)	8 7/8 (225)
		4						7 1/2 (191)
	225, 260	2	F-1875MPX	#6-350 MCM (13-177mm <sup>2</sup> )	14 3/4 (375)	14 5/8 (371)		4 7/8 (124)
		3						4 5/8 (117)
		4						2 3/4 (70)
	400	2	F-1875MPX	#4-600 MCM (21-304mm <sup>2</sup> )				4 7/8 (124)
		3						4 5/8 (117)
		4						2 3/4 (70)
	600	2	F-1867MPX	(QTY 2) #2-600 MCM (33-304mm <sup>2</sup> )	15 (381)	18 (457)		9 7/8 (251)
		3						8 (203)
		4						6 1/16 (154)
CTGD	40-80	2	F-1875MPX	#8-3/0 (8-85mm <sup>2</sup> )				4 7/8 (124)
		3						4 5/8 (117)
		4						2 3/4 (70)
	100-400	2	F-1875MPX	#4-600 MCM (21-304mm <sup>2</sup> )				4 7/8 (124)
		3						4 5/8 (117)
		4						2 3/4 (70)
	600	2	F-1867MPX	(QTY 2) #2-600 MCM (33-304mm <sup>2</sup> )	15 (381)	18 (457)		9 7/8 (251)
		3						8 (203)
		4						6 1/16 (154)
	800	2,3	F-1868MPX	(QTY 4) #2-600 MCM (33-304mm <sup>2</sup> )	18 1/2 (470)	18 (457)		17 1/8 (435)
		4						10 3/4 (273)

SIGNATURES		DATE	<div>CATERPILLAR®</div> <div>TITLE</div> <div>TRANSFER SWITCHES NEMA 4X ENCLOSURES</div> <div>FIRST MADE FOR:</div>		
MODEL	EC	11/01/00			
DETAIL					
CHECKED					
ENGRG	SB	11/01/00			
MFG					
QUALITY					
ISSUED					
DRAWING FILE: 52c-1035-x-3.dwg			SIZE	CAGE CODE	DWG NO
MODEL / ASSEMBLY FILE: CTG(D) (40-800A)			B		52C-1035
# CTQs	⊖	CRITICAL TO QUALITY CHARACTERISTIC		SCALE: N/A	SHEET 3 OF 6

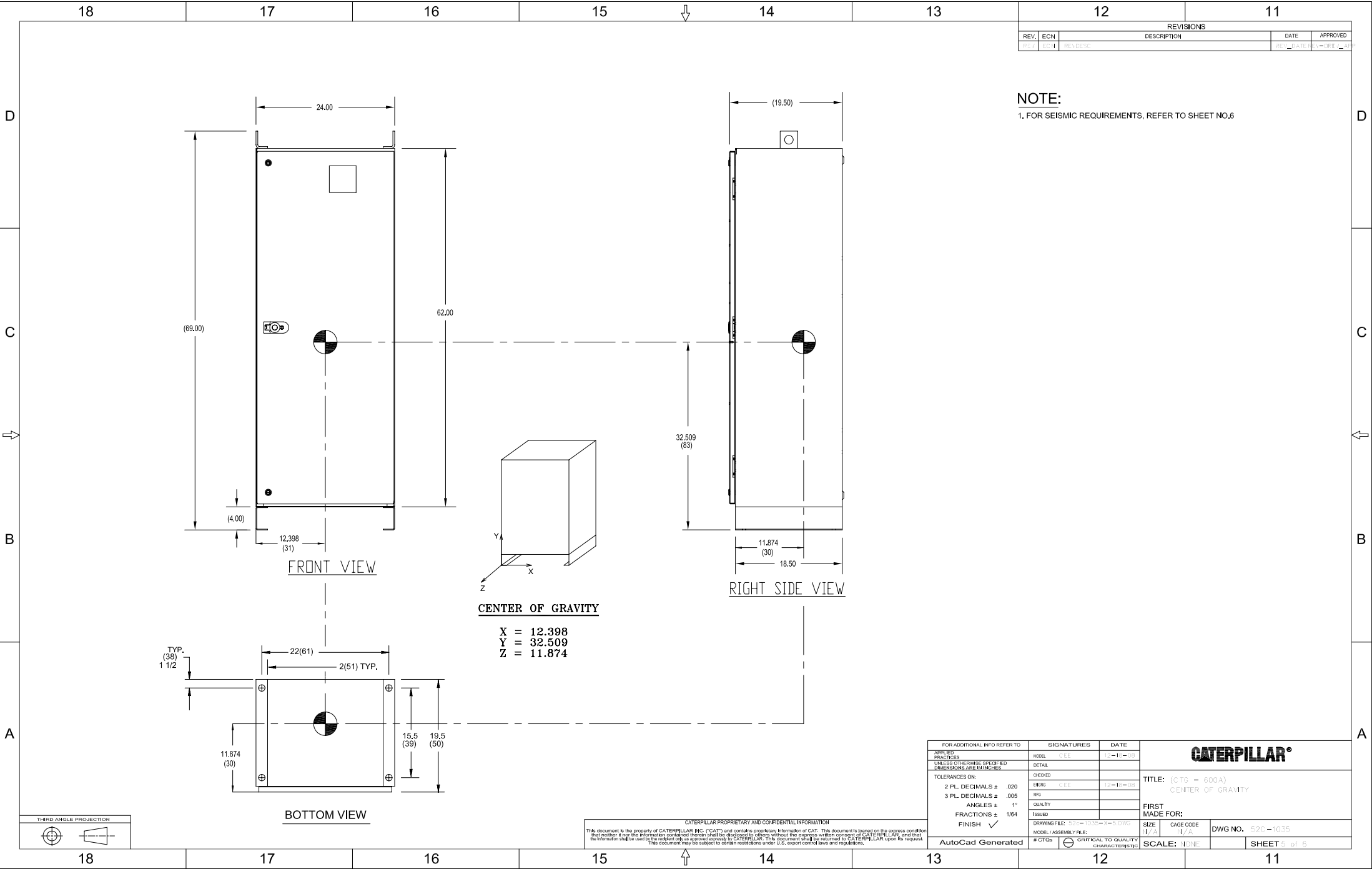


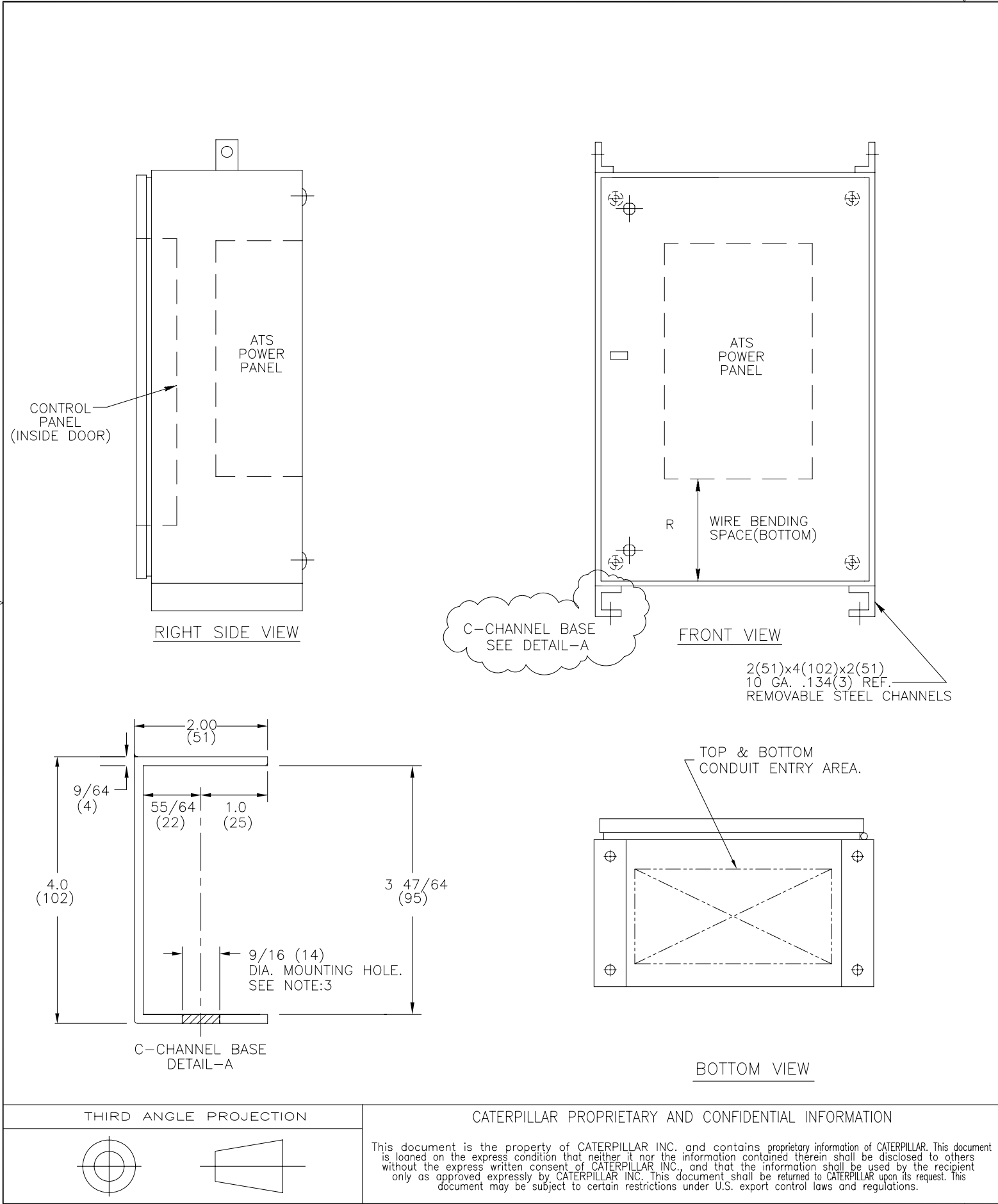
REVISIONS			
REV.	ECN	DESCRIPTION	DATE
X		S-8887 ADDED WEIGHT	08/11/09 YP MAS

NOTE:  
1. FOR SEISMIC REQUIREMENTS, REFER TO SHEET NO.6

FOR ADDITIONAL INFO REFER TO		SIGNATURES	DATE	<div>CATERPILLAR®</div>		
APPLIED PRACTICES	MODEL	CEE	12-18-06			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		CHECKED		TITLE: F14 (CTG-600A) ORTHOGONAL DIRECTION DRAWING		
TOLERANCES ON:		ENGRG	CEE			
		MFG				
		QUALITY				
2 PL. DECIMALS ± .020		ISSUED		FIRST MADE FOR:		
3 PL. DECIMALS ± .005						
ANGLES ± 1°		DRAWING FILE: 52C-103-X-4.DWG		SIZE	CAGE CODE	DWG NO.
FRACTIONS ± 1/64		MODEL / ASSEMBLY FILE:		N/A	N/A	52C-1035
FINISH ✓		# CTQs	CRITICAL TO QUALITY CHARACTERISTIC	SCALE: NONE		SHEET 4 OF 6
AutoCad Generated						

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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
X	S-8887 ADDED WEIGHT	08/11/09	YP MAS

- NOTES:
- REFER SHEETS 1 TO 3 FOR DETAIL ENCLOSURE DIMENSIONS.
  - SEISMIC DATA OF MOST VULNERABLE ATS CONSTRUCTION WITHIN ITS PLATFORM:

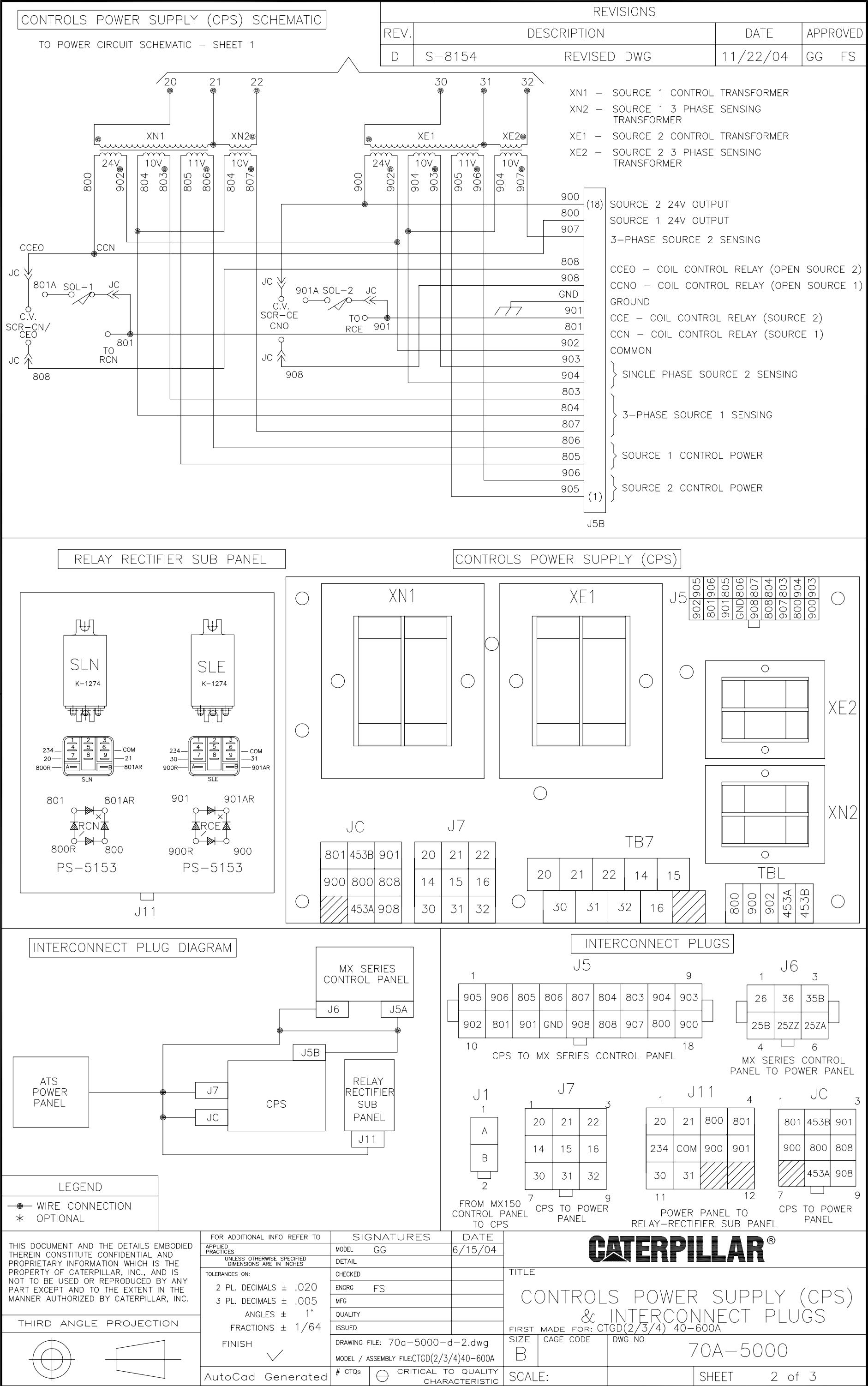
MAXIMUM DEFLECTION AT TOP OF GEAR:	dss=0.69 INCHES (18 mm) dfb=0.21 INCHES (5 mm)
QUALIFIED BY:	TIME HISTORY SHAKE TABLE TEST IEEE-693-2005-HIGHx2.5 (64 mm) IBC-2003-300%G
RESONANCE FREQUENCIES:	fss=10.9 Hz ffb=19.5 Hz fv=>33.0 Hz
MAXIMUM REACTION TO ANY BOLT:	Vss=945 LBS (430 KG) SHEAR (DEAD LOAD +/- SEISMIC) Vfb=945 LBS (430 KG) SHEAR Tv=1872 LBS (851 KG) UP Pv=2613 LBS (1188 KG) DOWN
  - BOLT ENCLOSURE FROM C-CHANNEL BASE (SEE DETAIL A) USING THE FOLLOWING SEISMIC CERTIFIED MOUNTING HARDWARE PER MOUNTING HOLE:  
(HARDWARE PROVIDED BY INSTALLER).
    - 1/2-13 GRADE 5 BOLT TORQUE TO 15 FT-LBS. (95 NEWTON METERS).
    - US STANDARD HIGH STRENGTH ZINC-PLATED FLAT WASHER 5/8 (16) I.D. AND 1-1/2 (38) O.D.
    - 1/2 (13) HELICAL SPRING LOCK WASHER.

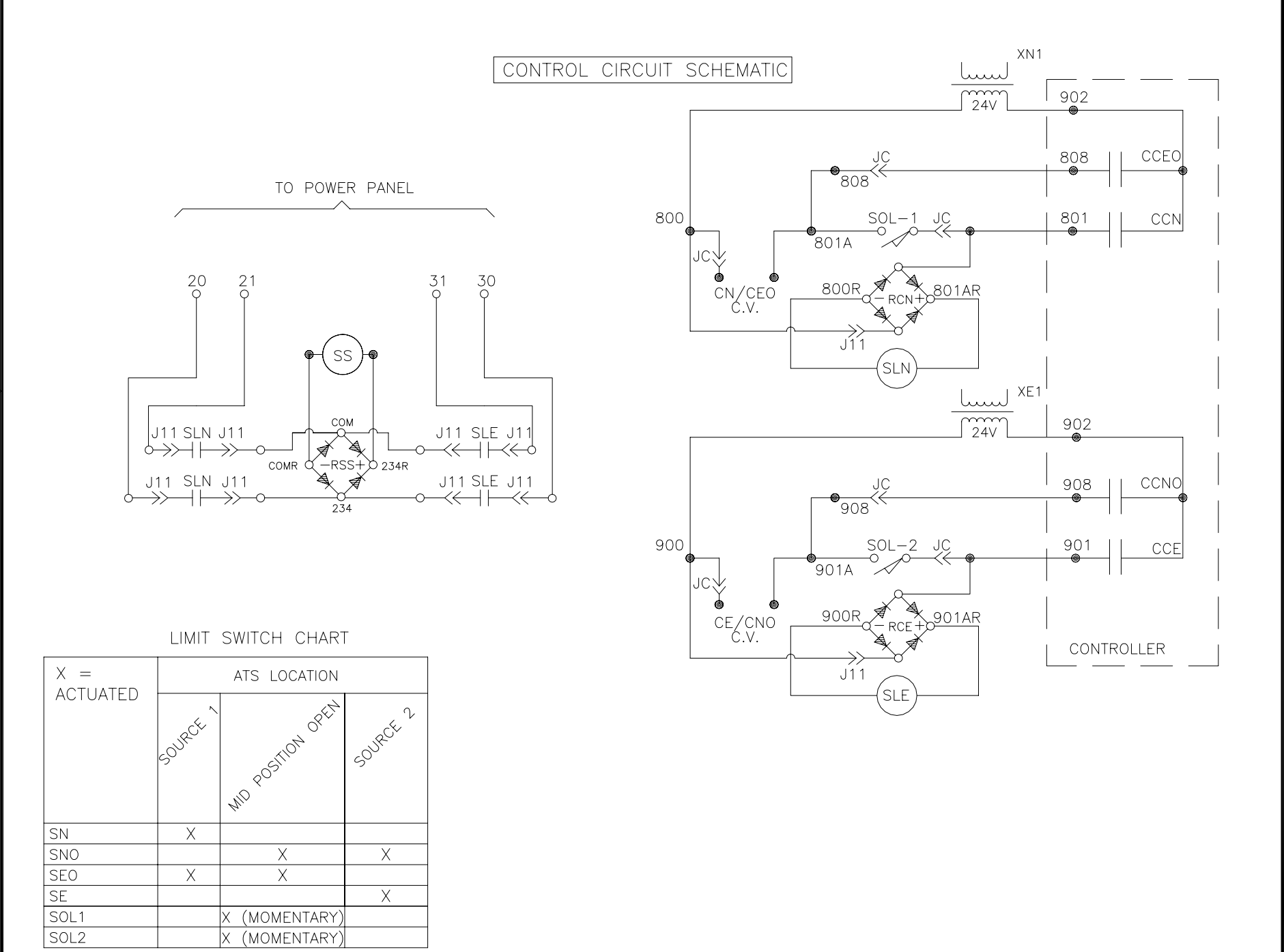
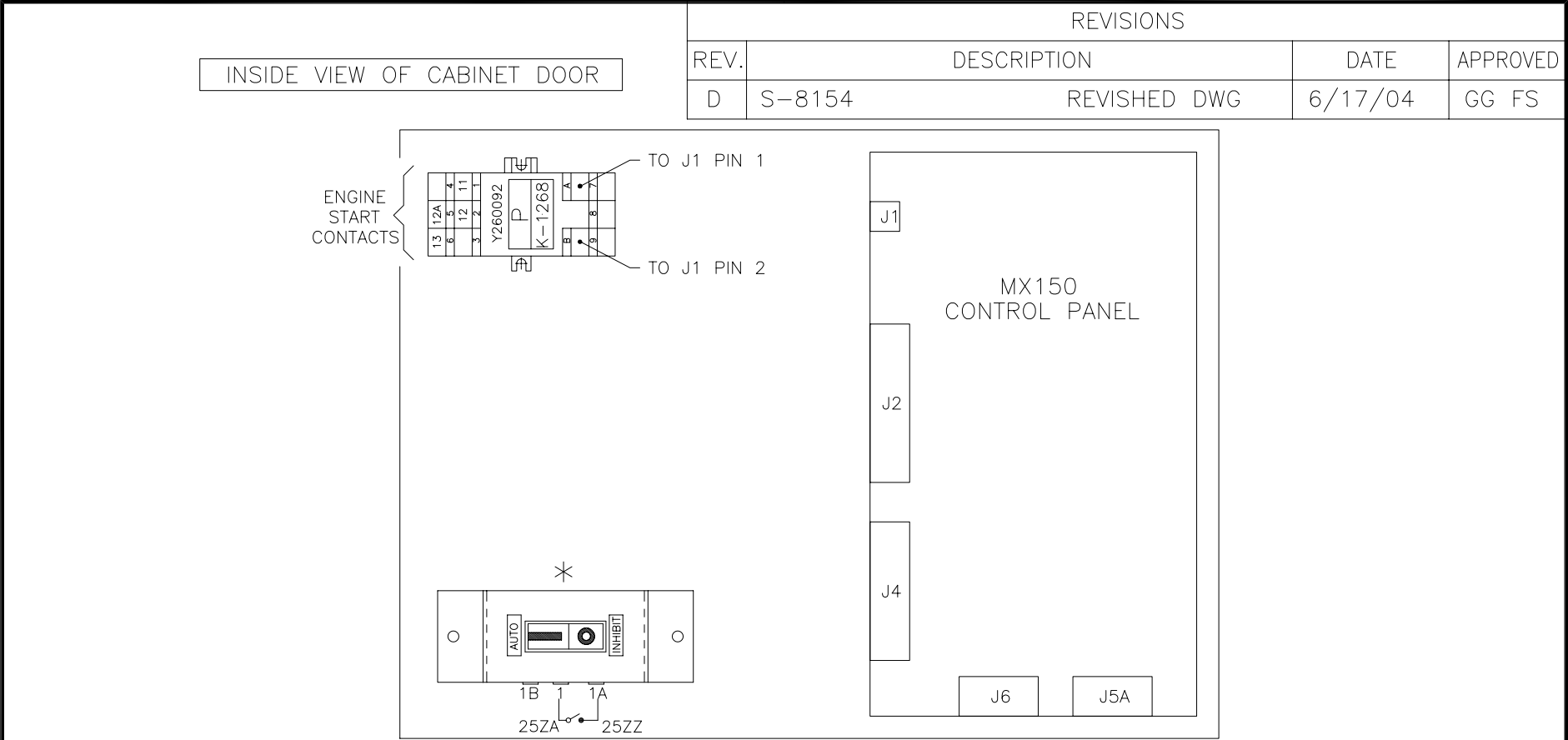
AMP	POLE	WEIGHT LB (Kg)	
		NEMA-1	NEMA-3R,4(X),12
40-225	2,3	69 (31)	84 (38)
	4	75 (34)	90 (41)
260	2,3	114 (51)	139 (63)
	4	125 (57)	150 (68)
400	2,3	168 (76)	193 (88)
	4	180 (82)	205 (93)
600	3	214 (97)	250 (113)
	4	224 (102)	260 (118)
800	3	460 (209)	496 (225)
	4	490 (222)	526 (239)

SIGNATURES		DATE	<b>CATERPILLAR®</b>		
MODEL	EC	11/01/00			
DETAIL			TITLE ENCLOSURE SEISMIC MTG. DETAIL		
CHECKED					
ENGRG	CEE	1/26/07	FIRST MADE FOR: -		
MFG					
QUALITY			SIZECAGE CODEDWG NO  52C-1035		
ISSUED					
DRAWING FILE: 52c-1035-x-6.dwg			SCALE: N/A		
MODEL / ASSEMBLY FILE: CTG(D) (600-800A)					
# CTQs	⊖ CRITICAL TO QUALITY CHARACTERISTIC		SHEET 6 OF 6		









LIMIT SWITCH CHART

X = ACTUATED	ATS LOCATION		
	SOURCE 1	MID POSITION OPEN	SOURCE 2
SN	X		
SNO		X	X
SEO	X	X	
SE			X
SOL1		X (MOMENTARY)	
SOL2		X (MOMENTARY)	

LEGEND

WIRE CONNECTION

WIRE IN INTERCONNECT PLUG

OPTIONAL

CUSTOMER CONNECTIONS

A3, A4

SEE POWER CIRCUIT SCHEMATIC & LAYOUT

ENGINE START (P RELAY)

11

12

E

12A

13

RELAY	CONTACT	RATING
P	E	10A @ 250V AC 10A @ 30V DC
	A3, A4	10A @ 125, 250V AC

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THIRD ANGLE PROJECTION

FOR ADDITIONAL INFO REFER TO

APPLIED PRACTICES

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

TOLERANCES ON:

2 PL. DECIMALS ± .020

3 PL. DECIMALS ± .005

ANGLES ± 1°

FRACTIONS ± 1/64

FINISH

✓

SIGNATURES

MODEL GG

DETAIL

CHECKED

ENGRG FS

MFG

QUALITY

ISSUED

DRAWING FILE: 70a-5000-d-3.dwg

MODEL / ASSEMBLY FILE: CTS2 (40-400A)

# CTQs

CRITICAL TO QUALITY CHARACTERISTIC

DATE

04/09/03

CATERPILLAR®

TITLE

MX BOARD & SUB PLANEL

FIRST MADE FOR: CTS2 (2/3/4) 4-40 (40-400A)

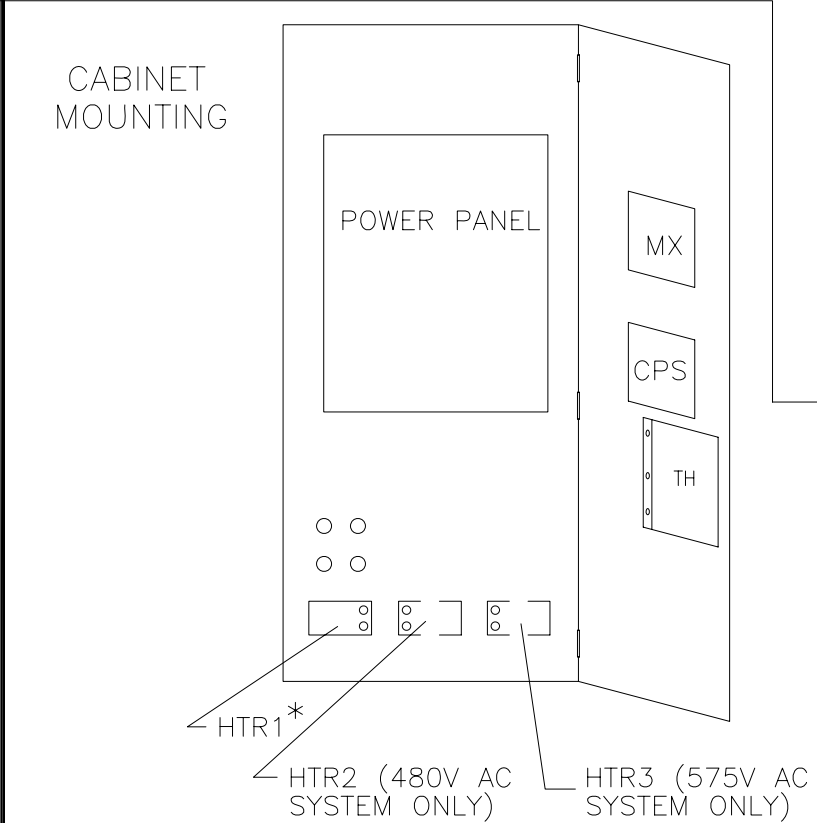
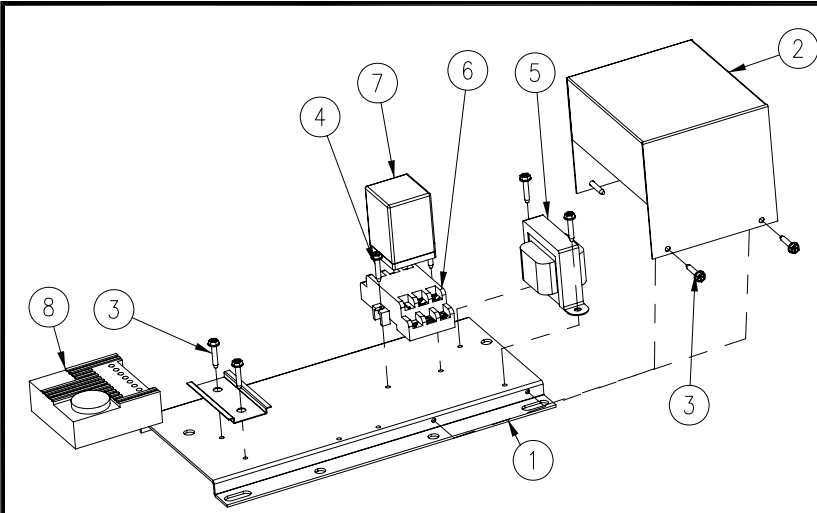
SIZE B

CAGE CODE

DWG NO 70A-5000

SCALE:

SHEET 3 of 3



REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
E	S-8466 REVISED DWG	08/09/06	MAS MAS
BILL OF MATERIALS			
ITEM	PART NO.	DESCRIPTION	HT/TH
1	50H-1036	BRACKET	1
2	50H-1037	COVER	1
3	HMH-177A	6-32 X .50 HEX WASHER HD TAPPING SCREW	10
4	Y810142	6-32 X .75 HEX WASHER HD TAPPING SCREW	2
5	K-3026	480/120 V, TRANSFORMER, 10 VA	1
	K-3025	240/120 V, TRANSFORMER, 10 VA	
	K-3106	208/120 V, TRANSFORMER, 10 VA	
	K-3018	277/120 V, TRANSFORMER, 10 VA	
	K-3022	575/120 V, TRANSFORMER, 10 VA	
	K-3115	380/120 V, TRANSFORMER, 10 VA	
6	CR420HA	RELAY BASE	1
7	CR420HPL022J	RELAY, 120VAC, 2-POLE, LED OPT	1
8	Y900027	ENCLOSURE THERMOSTAT w/ DINRAIL	1
9	PS-7306	STRIP HEATER, 125W, 120V	SEE NOTE A
10	PS-7307	STRIP HEATER, 150W, 240V	SEE NOTE A
11	Y740033	WIRE 14AWG BLACK TYPE SRML AP	AS NEEDED

A. USE THE QUANTITES FROM FIGURE A TO FIGURE D

- \* -FOR NEMA 1  
THE HEATER WILL BE MOUNTED 1" BELOW THE NEUTRAL BAR MOUNTING HOLES.
- FOR NEMA 3R  
THE HEATER WILL BE MOUNTED 1/2" ABOVE THE NEUTRAL BAR MOUNTING HOLES.

FIG.A (120V AC SYSTEMS)

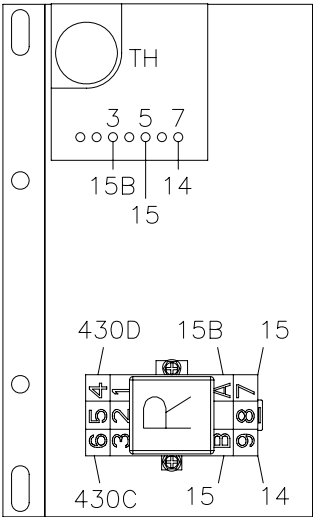
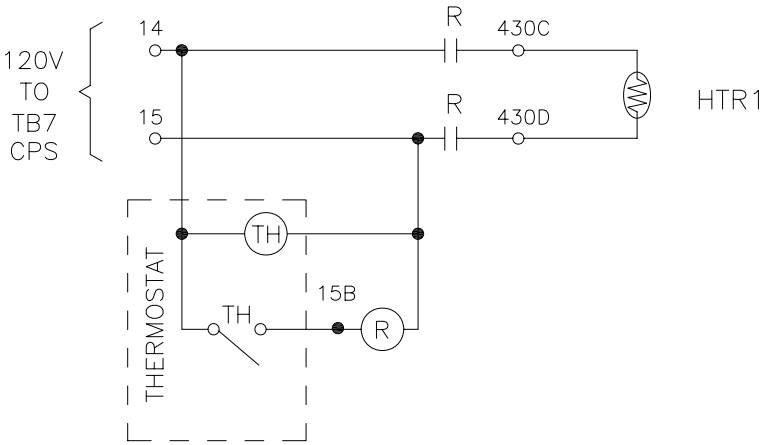
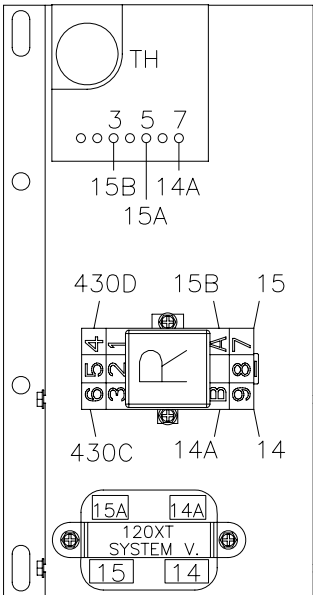
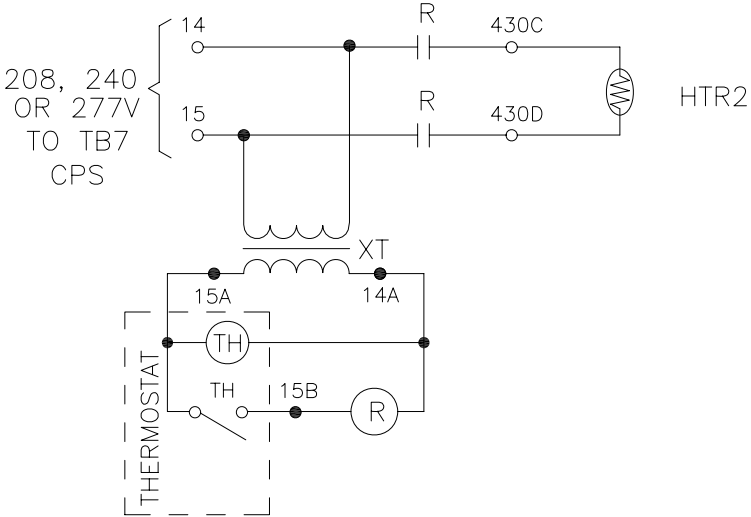
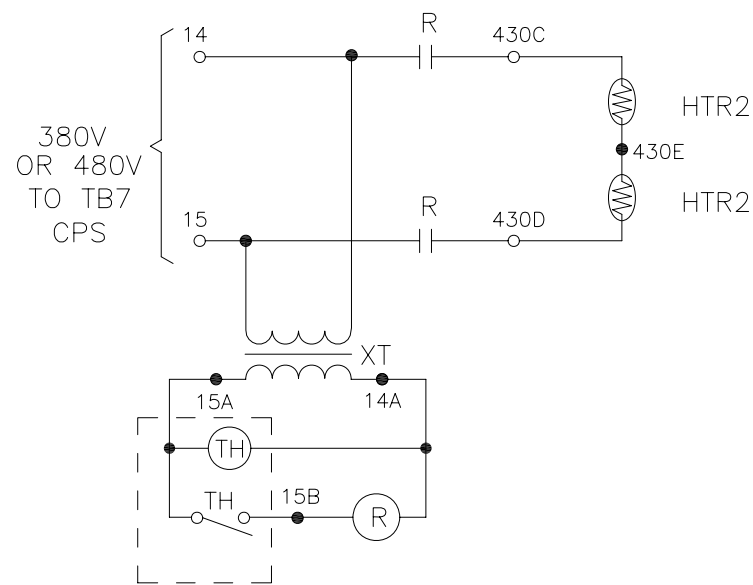


FIG.B (208, 240, OR 277V AC SYSTEMS)



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	APPLIED PRACTICES		MODEL MAS		08/09/06					
	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		DETAIL				TITLE  HEATER & THERMOSTAT HT & TH			
	TOLERANCES ON:		CHECKED							
	2 PL. DECIMALS ± .020		ENGRG MAS		08/09/06					
3 PL. DECIMALS ± .005		MFG								
THIRD ANGLE PROJECTION	ANGLES ± 1°		QUALITY				FIRST MADE FOR: CTG 40-3000A			
	FRACTIONS ± 1/64		ISSUED							
	FINISH		DRAWING FILE: 70r-1016-e-1.dwg		SIZE B		CAGE CODE		DWG NO	
	✓		MODEL / ASSEMBLY FILE:						70R-1016	
	AutoCAD Generated		# CTQs		⊖ CRITICAL TO QUALITY CHARACTERISTIC		SCALE: NA		SHEET 1 OF 2	

FIG.C (380 OR 480V AC SYSTEMS)



REVISIONS			
REV.	DESCRIPTION		DATE
E	S-8466 REVISED DWG		08/09/06

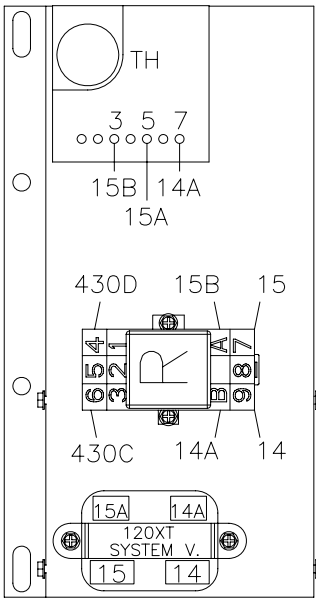
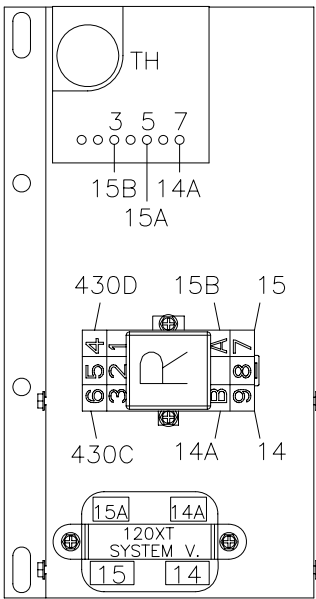
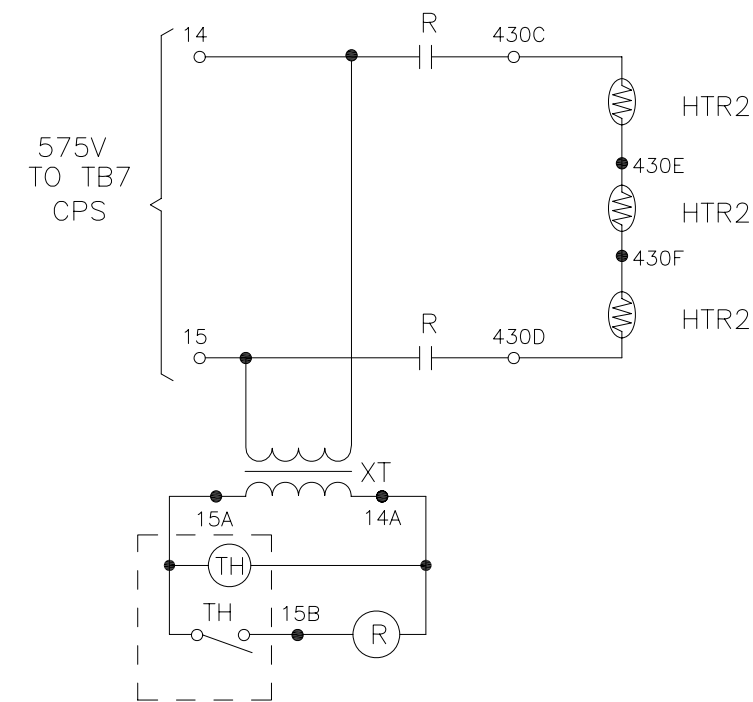


FIG.D (575V AC SYSTEMS)



OPERATION:

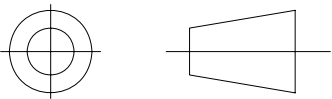
Thermostat (TH): When temperature in cabinet drops below thermostat setpoint, heater is turned "ON". Above set point, heater turns "OFF".

NOTES:

- Thermostat factory set at 10°C (50°F) unless otherwise specified.
- Use wire (Y740033) for heater wiring (430C, 430D to heater strip(s)).

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THIRD ANGLE PROJECTION



FOR ADDITIONAL INFO REFER TO	
APPLIED PRACTICES	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON:	
2 PL. DECIMALS ± .020	
3 PL. DECIMALS ± .005	
ANGLES ± 1°	
FRACTIONS ± 1/64	
FINISH	✓
AutoCAD Generated	

SIGNATURES		DATE
MODEL	MAS	08/09/06
DRAWING FILE:	70r-1016-e-2.dwg	
MODEL / ASSEMBLY FILE:		
# CTQs	⊖	CRITICAL TO QUALITY CHARACTERISTIC

CATERPILLAR®		
TITLE		
HEATER & THERMOSTAT HT & TH		
FIRST MADE FOR: CTG 40-3000A		
SIZE	CAGE CODE	DWG NO
B		70R-1016
SCALE:	NA	SHEET 2 OF 2

Effective with sales to the first user on or after August 1, 2018

# CATERPILLAR LIMITED WARRANTY

## Industrial, Petroleum, Locomotive, and Agriculture Engine Products and Electric Power Generation Products

### Worldwide

Caterpillar Inc. or any of its subsidiaries ("Caterpillar") warrants new and remanufactured engines and new and rebuild electric power generation products sold by it (including any products of other manufacturers packaged and sold by Caterpillar), to be free from defects in material and workmanship.

This warranty does not apply engines sold for use in on-highway vehicle or marine applications; engines in machines manufactured by or for Caterpillar; C175, 3500 and 3600 series engines used in locomotive applications; 3000 Family engines, C0.5 through C4.4 and ACERT™ (C6.6, C7, C7.1, C9, C9.3, C11, C13, C15, C18, C27, and C32) engines used in industrial, mobile agriculture and locomotive applications; or Cat<sup>®</sup> batteries; or Electric Power Generation Products manufactured or assembled in India. These products are covered by other Caterpillar warranties.

This warranty is subject to the following:

#### Warranty Period

- For industrial engines, engines in a petroleum applications or Petroleum Power Systems (excluding petroleum fire pump application), or engines in a Locomotive application, or Uninterruptible Power Supply (UPS) systems, the warranty period is 12 months after date of delivery to the first user.
- For engines used in petroleum fire pump and mobile agriculture applications the warranty period is 24 months after date of delivery to the first user.
- For controls only (EPIC), configurable and custom switchgear products, and automatic transfer switch products, the warranty period is 24 months after date of delivery to the first user.
- For new CG132, CG170 and CG260 series power generation products the warranty period is 24 months after date of delivery to first user, but not to exceed 36 months from shipment from the Caterpillar place of manufacture.
- For electric power generation products other than CG132, CG170 and CG260 series in prime or continuous applications the warranty period is 12 months. For standby applications the warranty period is 24 months/1000 hours. For emergency standby applications the warranty period is 24 months/400 hours. All terms begin after date of delivery to the first user.
- For Caterpillar rebuild electric power generation products the warranty period is 12 months, but not to exceed 24 months from shipment of rebuilt electric power generation product from Caterpillar.
- For all other applications the warranty period is 12 months after date of delivery to the first user.

#### Caterpillar Responsibilities

If a defect in material or workmanship is found during the warranty period, Caterpillar will, during normal working hours and at a place of business of a Cat dealer or other source approved by Caterpillar:

- Provide (at Caterpillar's choice) new, Remanufactured, or Caterpillar approved repaired parts or assembled components needed to correct the defect.
- Note:** New, remanufactured, or Caterpillar approved repaired parts or assembled components provided under the terms of this warranty are warranted for the remainder of the warranty period applicable to the product in which installed as if such parts were original components of that product. Items replaced under this warranty become the property of Caterpillar.
- Replace lubricating oil, filters, coolant, and other service items made unusable by the defect.
- Provide reasonable and customary labor needed to correct the defect, including labor to disconnect the product from and reconnect the product to its attached equipment, mounting, and support systems, if required.

For new 3114, 3116, and 3126 engines and, new and Caterpillar rebuild electric power generation products (which includes the following: any new products of other manufacturers packaged and sold by Caterpillar)

- Provide travel labor, up to four hours round trip, if in the opinion of Caterpillar, the product cannot reasonably be transported to a place of business of a Cat dealer or other source approved by Caterpillar (travel labor in excess of four hours round trip, and any meals, mileage, lodging, etc. is the user's responsibility).

For all other products:

- Provide reasonable travel expenses for authorized mechanics, including meals, mileage, and lodging, when Caterpillar chooses to make the repair on-site.

#### User Responsibilities

The user is responsible for:

- Providing proof of the delivery date to the first user.
- Labor costs, except as stated under "Caterpillar Responsibilities," including costs beyond those required to disconnect the product from and reconnect the product to its attached equipment, mounting, and support systems.
- Travel or transporting costs, except as stated under "Caterpillar Responsibilities."

- Premium or overtime labor costs.
- Parts shipping charges in excess of those that are usual and customary.
- Local taxes, if applicable.
- Costs to investigate complaints, unless the problem is caused by a defect in Caterpillar material or workmanship.
- Giving timely notice of a warrantable failure and promptly making the product available for repair.
- Performance of the required maintenance (including use of proper fuel, oil, lubricants, and coolant) and items replaced due to normal wear and tear.
- Allowing Caterpillar access to all electronically stored data.

#### Limitations

Caterpillar is not responsible for:

- Failures resulting from any use or installation that Caterpillar judges improper.
- Failures resulting from attachments, accessory items, and parts not sold or approved by Caterpillar.
- Failures resulting from abuse, neglect, and/or improper repair.
- Failures resulting from user's delay in making the product available after being notified of a potential product problem.
- Failures resulting from unauthorized repairs or adjustments, and unauthorized fuel setting changes.
- Damage to parts, fixtures, housings, attachments, and accessory items that are not part of the engine, Cat Selective Catalytic Reduction System or electric power generation product (including any products of other manufacturers packaged and sold by Caterpillar).
- Repair of components sold by Caterpillar that is warranted directly to the user by their respective manufacturer. Depending on type of application, certain exclusions may apply. Consult your Cat dealer for more information.

(Continued on reverse side...)

This warranty covers every major component of the products. Claims under this warranty should be submitted to a place of business of a Cat dealer or other source approved by Caterpillar. For further information concerning either the location to submit claims or Caterpillar as the issuer of this warranty, write Caterpillar Inc., 100 N. E. Adams St., Peoria, IL USA 61629.

Caterpillar's obligations under this Limited Warranty are subject to, and shall not apply in contravention of, the laws, rules, regulations, directives, ordinances, orders, or statutes of the United States, or of any other applicable jurisdiction, without recourse or liability with respect to Caterpillar.

*A) For products operating outside of Australia, Fiji, Nauru, New Caledonia, New Zealand, Papua New Guinea, the Solomon Islands and Tahiti, the following is applicable:*

NEITHER THE FOREGOING EXPRESS WARRANTY NOR ANY OTHER WARRANTY BY CATERPILLAR, EXPRESS OR IMPLIED, IS APPLICABLE TO ANY ITEM CATERPILLAR SELLS THAT IS WARRANTED DIRECTLY TO THE USER BY ITS MANUFACTURER.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, EXCEPT CATERPILLAR EMISSION-RELATED COMPONENTS WARRANTIES FOR NEW ENGINES, WHERE APPLICABLE. REMEDIES UNDER THIS WARRANTY ARE LIMITED TO THE PROVISION OF MATERIAL AND SERVICES, AS SPECIFIED HEREIN.

CATERPILLAR IS NOT RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

CATERPILLAR EXCLUDES ALL LIABILITY FOR OR ARISING FROM ANY NEGLIGENCE ON ITS PART OR ON THE PART OF ANY OF ITS EMPLOYEES, AGENTS OR REPRESENTATIVES IN RESPECT OF THE MANUFACTURE OR SUPPLY OF GOODS OR THE PROVISION OF SERVICES RELATING TO THE GOODS.

IF OTHERWISE APPLICABLE, THE VIENNA CONVENTION ON CONTRACTS FOR THE INTERNATIONAL SALE OF GOODS IS EXCLUDED IN ITS ENTIRETY.

For personal or family use engines or electric power generation products, operating in the USA, its territories and possessions, some states do not allow limitations on how long an implied warranty may last nor allow the exclusion or limitation of incidental or consequential damages. Therefore, the previously expressed exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights, which vary by jurisdiction. To find the location of the nearest Cat dealer or other authorized repair facility, call (309) 675-1000. If you have questions concerning this warranty or its applications, call or write:

In USA and Canada: Caterpillar Inc, 100 N.E. Adams St., Peoria, IL USA 61629, Attention: Customer Service Manager, Telephone 1 (309) 675-1000, outside the USA and Canada: Contact your Cat dealer.

*B) For products operating in Australia, Fiji, Nauru, New Caledonia, New Zealand, Papua New Guinea, the Solomon Islands and Tahiti, the following is applicable:*

THIS WARRANTY IS IN ADDITION TO WARRANTIES AND CONDITIONS IMPLIED BY STATUTE AND OTHER STATUTORY RIGHTS AND OBLIGATIONS THAT BY ANY APPLICABLE LAW CANNOT BE EXCLUDED, RESTRICTED OR MODIFIED ("MANDATORY RIGHTS"). ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED (BY STATUTE OR OTHERWISE), ARE EXCLUDED. WITHOUT LIMITING THE FOREGOING PROVISIONS OF THIS PARAGRAPH, WHERE A PRODUCT IS SUPPLIED FOR BUSINESS PURPOSES, THE CONSUMER GUARANTEES UNDER THE CONSUMER GUARANTEES ACT 1993 (NZ) WILL NOT APPLY.

NEITHER THIS WARRANTY NOR ANY OTHER CONDITION OR WARRANTY BY CATERPILLAR, EXPRESS OR IMPLIED (SUBJECT ONLY TO THE MANDATORY RIGHTS), IS APPLICABLE TO ANY ITEM CATERPILLAR SELLS THAT IS WARRANTED DIRECTLY TO THE USER BY ITS MANUFACTURER.

IF THE MANDATORY RIGHTS MAKE CATERPILLAR LIABLE IN CONNECTION WITH SERVICES OR GOODS, THEN TO THE EXTENT PERMITTED UNDER THE MANDATORY RIGHTS, THAT LIABILITY SHALL BE LIMITED AT CATERPILLAR'S OPTION TO (a) IN THE CASE OF SERVICES, THE SUPPLY OF THE SERVICES AGAIN OR THE PAYMENT OF THE COST OF HAVING THE SERVICES SUPPLIED AGAIN AND (b) IN THE CASE OF GOODS, THE REPAIR OR REPLACEMENT OF THE GOODS, THE SUPPLY OF EQUIVALENT GOODS, THE PAYMENT OF THE COST OF SUCH REPAIR OR REPLACEMENT OR THE ACQUISITION OF EQUIVALENT GOODS.

CATERPILLAR EXCLUDES ALL LIABILITY FOR OR ARISING FROM ANY NEGLIGENCE ON ITS PART OR ON THE PART OF ANY OF ITS EMPLOYEES, AGENTS OR REPRESENTATIVES IN RESPECT OF THE MANUFACTURE OR SUPPLY OF GOODS OR THE PROVISION OF SERVICES RELATING TO THE GOODS.

CATERPILLAR IS NOT LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES UNLESS IMPOSED UNDER MANDATORY RIGHTS.

IF OTHERWISE APPLICABLE, THE VIENNA CONVENTION ON CONTRACTS FOR THE INTERNATIONAL SALE OF GOODS IS EXCLUDED IN ITS ENTIRETY.

*C) For products supplied in Australia:*

IF THE PRODUCTS TO WHICH THIS WARRANTY APPLIES ARE:

I. PRODUCTS OF A KIND ORDINARILY ACQUIRED FOR PERSONAL, DOMESTIC OR HOUSEHOLD USE OR CONSUMPTION; OR

II. PRODUCTS THAT COST AUD 40,000 OR LESS,

WHERE THOSE PRODUCTS WERE NOT ACQUIRED FOR THE PURPOSE OF RE-SUPPLY OR FOR THE PURPOSE OF USING THEM UP OR TRANSFORMING THEM IN THE COURSE OF PRODUCTION OR MANUFACTURE OR IN THE COURSE OF REPAIRING OTHER GOODS OR FIXTURES, THEN THIS SECTION C APPLIES.

THE FOLLOWING MANDATORY TEXT IS INCLUDED PURSUANT TO THE AUSTRALIAN CONSUMER LAW AND INCLUDES REFERENCES TO RIGHTS THE USER MAY HAVE AGAINST THE DIRECT SUPPLIER OF THE PRODUCTS: OUR GOODS COME WITH GUARANTEES THAT CANNOT BE EXCLUDED UNDER THE AUSTRALIAN CONSUMER LAW. YOU ARE ENTITLED TO A REPLACEMENT OR REFUND FOR A MAJOR FAILURE AND COMPENSATION FOR ANY OTHER REASONABLY FORESEEABLE LOSS OR DAMAGE. YOU ARE ALSO ENTITLED TO HAVE THE GOODS REPAIRED OR REPLACED IF THE GOODS FAIL TO BE OF ACCEPTABLE QUALITY AND THE FAILURE DOES NOT AMOUNT TO A MAJOR FAILURE. THE INCLUSION OF THIS TEXT DOES NOT CONSTITUTE ANY REPRESENTATION OR ACCEPTANCE BY CATERPILLAR OF LIABILITY TO THE USER OR ANY OTHER PERSON IN ADDITION TO THAT WHICH CATERPILLAR MAY HAVE UNDER THE AUSTRALIAN CONSUMER LAW.

TO THE EXTENT THE PRODUCTS FALL WITHIN THIS SECTION C BUT ARE NOT OF A KIND ORDINARILY ACQUIRED FOR PERSONAL, DOMESTIC OR HOUSEHOLD USE OR CONSUMPTION, CATERPILLAR LIMITS ITS LIABILITY TO THE EXTENT IT IS PERMITTED TO DO SO UNDER THE AUSTRALIAN CONSUMER LAW TO, AT ITS OPTION, THE REPAIR OR REPLACEMENT OF THE PRODUCTS, THE SUPPLY OF EQUIVALENT PRODUCTS, OR THE PAYMENT OF THE COST OF SUCH REPAIR OR REPLACEMENT OR THE ACQUISITION OF EQUIVALENT PRODUCTS.

THE WARRANTY SET OUT IN THIS DOCUMENT IS GIVEN BY CATERPILLAR INC. OR ANY OF ITS SUBSIDIARIES, 100 N. E. ADAMS ST, PEORIA, IL USA 61629, TELEPHONE 1 309 675 1000, THE USER IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH MAKING A CLAIM UNDER THE WARRANTY SET OUT IN THIS DOCUMENT, EXCEPT AS EXPRESSLY STATED OTHERWISE IN THIS DOCUMENT, AND THE USER IS REFERRED TO THE BALANCE OF THE DOCUMENT TERMS CONCERNING CLAIM PROCEDURES, CATERPILLAR RESPONSIBILITIES AND USER RESPONSIBILITIES.

TO THE EXTENT PERMISSIBLE BY LAW, THE TERMS SET OUT IN THE REMAINDER OF THIS WARRANTY DOCUMENT (INCLUDING SECTION B) CONTINUE TO APPLY TO PRODUCTS TO WHICH THIS SECTION C APPLIES.

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