



Austin • Bridgeport • Corpus Christi • Dallas/Irving • Edinburg • Ft Worth • Grande
Praire • Laredo • Lewisville • Longview • Pflugerville • San Antonio • Sonora •
Texarkana • Tyler • Victoria • Waco • Weslaco

Date: 10-22-09

Customer: Hidalgo County Pct. 4
1102 N. Doolittle Rd.
Edinburg TX. 78539

PH: (956) 383-3112

(1) Caterpillar Model D100-6 Generator Package & Cat CTSD Automatic Transfer Switch

Description
D100-6 I
EP-NON RENTAL (enclosed)
PUBLIC OR CIVIL SERVICES
STANDBY POWER
60Hz 3PH 208/120v (f)
STANDBY POWER APPLICATION 02
125 KVA W/FAN
NFPA 110 Upgrade
UL2200 Listing and CSA Cert
120
60 Hz
1800 RPM
Weatherproof Enclosure (h)
EMCP3.2 Common Control Panel
Battery Charger UL 10A
UL Listed Fuel Tank 24Hr (c)
Single 3 Pole UL Breaker
Voltage adjust potentiometer
Local Alarm Horn c/w mute
Control Panel Chassis reqd
AREP Excitation System
Low Fuel Level Alarm Std
PW Low Fuel Level Alarm Std
Low Coolant temp alarm
Low Coolant shutdown circuit
ADEM Governor
Coolant Heater

50%
Canopied Silencer System
English Language
Factory Test Report

Qty. (1) Caterpillar Model CTSD ATS-400A-3 Pole-120/208V-3 Phase-4 Wire-60 Hz – Nema 3R Enclosure

Accessories & On-Site Services Include the Following:

- Turnkey Installation for the Installation of Cat D100-6 Generator, CTSD Automatic Transfer Switch, Unloading & Setting of Equipment, Concrete Housekeeping Pad, Terminations, Install Remote Annunciator Panel, Electrical Permits, Fill Fuel Tank & Testing.
- Basic Startup, Bldg. Load Transfer Test & Training Performed During Regular Hours of Operation
- O & M Manuals.
- Delivery of Generator Package to Site

Deviations from Spec:

10A Battery Charger

16 Light Annunciator

24 Hr. Sub base Fuel Tank

Total As Detailed Buy Board Discounted Price: \$64,062.12

BuyBoard Contract: Construction/Street, Road, Bridge #205-04

Terms are 30 Days Net with Approved Credit

Price is Valid for 30 Days

Price Does Not Include Applicable Taxes

TERMS & CONDITIONS:

PRICING IS FIRM FOR ORDERS RECEIVED WITHIN 30 DAYS OF QUOTATION.
Pricing On Bid Spec. Is Based On Product Section For Genset & A.T.S. Of Spec.

CREDIT TERMS ARE SUBJECT TO CREDIT DEPARTMENT APPROVAL.

STATE & LOCAL TAXES THAT MAY BE APPLICABLE ARE NOT INCLUDED.

UNLESS SPECIFICALLY LISTED IN THE BILL OF MATERIALS, EQUIPMENT NOT INDICATED, IS ASSUMED TO BE SUPPLIED BY OTHERS. WE RESERVE THE RIGHT TO CORRECT ANY ERRORS OR OMISSIONS.

STANDARD WARRANTY OF THE MANUFACTURER APPLIES. COPIES ARE AVAILABLE FROM THE MANUFACTURER UPON REQUEST.

CONTRACTS WHICH INCLUDE PENALTY OR LIQUIDATED DAMAGE CLAUSES

FOR FAILURE TO MEET PROMISED SHIPPING DATES ARE NOT ACCEPTABLE OR BINDING UNLESS ACCEPTED AND CONFIRMED IN WRITING BY AN OFFICER OF HOLT POWER SYSTEMS.

A 25% CANCELLATION FEE WILL BE APPLICABLE FOR ANY CANCELLED ORDERS.

THESE TERMS & CONDITIONS HEREBY BECOME PART OF THIS QUOTATION, AND SHOULD BE NOTED ON ANY PURCHASE ORDER RECEIVED BY THE HOLT POWER SYSTEMS PRIOR TO ORDER PROCESSING.

HOLT POWER SYSTEMS WILL NOT BE RESPONSIBLE FOR ANY LABOR OR MATERIAL CHARGES BY OTHERS ASSOCIATED WITH THE START-UP & INSTALLATION OF THIS EQUIPMENT UNLESS PREVIOUSLY AGREED UPON OR LISTED IN THE BILL OF MATERIALS.

THANK YOU FOR THE OPPORTUNITY TO OFFER THIS PROPOSAL. PLEASE DO NOT HESITATE TO CONTACT US IF ADDITIONAL IF INFORMATION OR ASSITANCE IS REQUIRED.

Please sign to order or start submittals, date and fax to my attention.

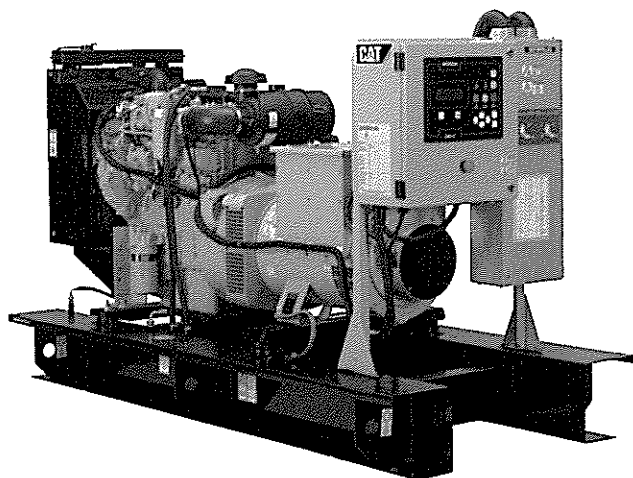
Customer Representative

Date

Thank you for the opportunity of quoting this project. HOLT CAT remains at your disposal for any additional information or assistance that you may require.

Sincerely yours,

Joey Krafka
HOLT CAT
Rental & Generator Sales Representative
Phone: (956) 279-8483
Fax: (956) 361-9986



STANDBY **80-100 kW**
PRIME **72-90 kW**
60 Hz

Model	Standby kW (kVA)	Prime kW (kVA)
D80-6	80 (100)	72 (90)
D80-2S	80 (80)	72 (72)
D100-6	100 (125)	90 (112.5)
D100-6S	100 (100)	90 (90)

Tier 3 EPA Approved, Emissions Certified

FEATURES

GENERATOR SET

- Complete system designed and built at ISO 9001 certified facilities
- Factory tested to design specifications at full load conditions

ENGINE

- Governor, electronic
- Electrical system, 12 VDC
- Cartridge type filters
- Battery rack and cables
- Coolant and lube drains piped to edge of base

GENERATOR

- Insulation system, class H
- Drip proof generator air intake (NEMA 2, IP23)
- Electrical design in accordance with BS5000 Part 99, EN61000-6, IEC60034-1, NEMA MG-1.33

CONTROL SYSTEM

- EMCP 3.1 digital control panel
- Vibration isolated NEMA 1 enclosure with lockable hinged door
- DC and AC wiring harnesses

MOUNTING ARRANGEMENT

- Heavy-duty fabricated steel base with lifting points
- Anti-vibration pads to ensure vibration isolation
- Complete OSHA guarding
- Stub-up pipe ready for connection to silencer pipework
- Flexible fuel lines to base with NPT connections

COOLING SYSTEM

- Radiator and cooling fan complete with protective guards
- Standard ambient temperatures up to 50° C (122° F)

CIRCUIT BREAKER

- UL/CSA listed
- 3-pole with solid neutral
- NEMA 1 steel enclosure, vibration isolated
- Electrical stub-up area directly below circuit breaker

AUTOMATIC VOLTAGE REGULATOR

- Voltage within $\pm 0.5\%$ 3-phase and $\pm 1.0\%$ single phase at steady state from no load to full load
- Provides fast recovery from transient load changes

EQUIPMENT FINISH

- All electroplated hardware
- Anticorrosive paint protection
- High gloss polyurethane paint for durability and scuff resistance

QUALITY STANDARDS

- BS4999, BS5000, BS5514, EN61000-6, IEC60034, NEMA MG-1.33, NFPA 110 (with optional equipment)

DOCUMENTATION

- Operation and maintenance manuals provided
- Wiring diagrams included

WARRANTY

- All equipment carries full manufacturer's warranty.

OPTIONAL EQUIPMENT*

ENCLOSURE

- B Series weather protective enclosure (includes internal silencer system)
 - Single point lift
 - Panel viewing window
 - External emergency stop pushbutton
- Sound attenuated enclosure (includes internal silencer system)

SILENCER SYSTEM – OPEN UNIT

- Level 1 silencer
- Level 2 silencer
- Level 3 silencer
- Mounting kit
- Through-wall installation kits

ENGINE

- Battery heater
- Lube oil drain pump
- High lube oil temperature shutdown
- Lube oil sump heater

CIRCUIT BREAKER

- Auxiliary voltfree contacts
- Shunt trip (100+ amp breakers)

GENERATOR

- Anti-condensation heater
- Permanent magnet generator
- AREP excitation system (3-Phase only)
- Generator upgrade 1 size (3-Phase only)

CONTROL SYSTEM

- No control system
- EMCP 3.2 digital control panel

MOUNTING ACCESSORIES

- Seismic (Zone 4) vibration isolators

FUEL SYSTEM

- UL listed closed top-diked skid-mounted fuel tank base (12/24-hour capacity) with fuel alarm (low level/leak detected)
- Critical high fuel alarm
- Critical low fuel level shutdown

COOLING SYSTEM

- Coolant heater
- Low coolant temperature alarm
- Low coolant level shutdown
- Radiator transition flange

REMOTE ANNUNCIATORS

- 16-channel remote annunciator panel (supplied loose)

MISCELLANEOUS ACCESSORIES

- Toolkit
- Additional operator's manual pack
- Special enclosure color
- UL listing
- CSA certification
- French or Spanish language labels

EXTENDED SERVICE CONTRACTS

- Extended Service Coverage available

TESTING

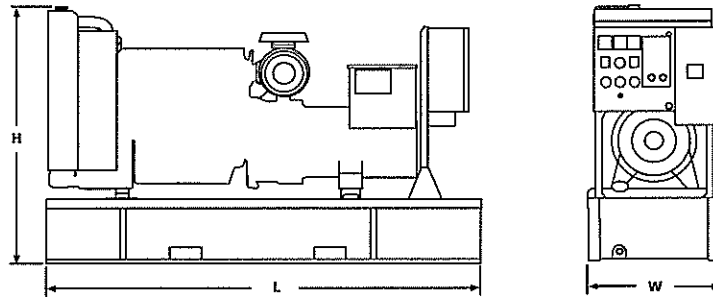
- Factory test and report at both 1.0 pf and 0.8 pf

* Some options may not be available on all models.
Not all options are listed.

STANDBY 80-100 kW
PRIME 72-90 kW
60 Hz



GENERATOR SET DIMENSIONS AND WEIGHTS



Model	Length mm (in)	Width mm (in)	Height mm (in)	Weight kg (lb)*
D80-6	2400 (94.5)	838 (32.9)	1400 (55.1)	960 (2,116)
D80-2S	2400 (94.5)	838 (32.9)	1400 (55.1)	934 (2,059)
D100-6	2400 (94.5)	838 (32.9)	1400 (55.1)	1389 (3,062)
D100-6S	2400 (94.5)	838 (32.9)	1400 (55.1)	1066 (2,350)

NOTE: General configuration not to be used for installation. See specific dimensional drawings for detail.

*Includes oil and coolant

STANDBY
PRIME
60 Hz

80-100 kW
72-90 kW



SPECIFICATIONS GENERATOR

Voltage regulation $\pm 0.5\%$ 3-phase and $\pm 1.0\%$ single
phase at steady state from
no load to full load
Frequency $\pm 0.25\%$ for constant load, no load to full load
Waveform distortion THD < 4%, at no load
Radio interference Compliance with EN61000-6
Telephone interference TIF < 50, THF < 2%
Overspeed limit 2250 rpm
Insulation Class H
Temperature rise Within Class H limits
Available voltages 1-phase – 120/240, 115/230, 110/220
3-phase – 277/480, 266/460,
120/240, 127/220, 120/208, 347/600
Deration Consult factory for available outputs
Ratings At 30° C (86° F), 152.4 m (500 ft), 60%
humidity, 1.0 pf (1-phase), 0.8 pf (3-phase)

ENGINE

Manufacturer Caterpillar
Type 4-cycle
Bore – mm (in) 105.0 (4.13)
Stroke – mm (in) 127.0 (5.00)
Governor Type Electronic
Class G2
Piston speed – m/sec (ft/sec) 7.62 (25.0)
Engine speed – rpm 1800
Air cleaner type Dry, replaceable paper
element type with restriction indicator

D80-6, D80-2S – C4.4

Aspiration Turbocharged
Cylinder configuration In-line 4
Displacement – L (cu in) 4.4 (269)
Compression ratio 19.2:1
Max power at rated rpm – kW (hp)
Standby 97 (130)
Prime 88 (118)
BMEP – kPa (psi)
Standby 1476 (213)
Prime 1335 (194)
Regenerative power – kW (hp) 13.8 (18.5)

D100-6, D100-6S – C4.4

Aspiration Turbocharged
Cylinder configuration In-line 4
Displacement – L (cu in) 4.4 (269)
Compression ratio 19.2:1
Max power at rated rpm – kW (hp)
Standby 117 (156.9)
Prime 106 (142.1)
BMEP – kPa (psi)
Standby 1612 (233)
Prime 1771 (257)
Regenerative power – kW (hp) 13.8 (18.5)

CONTROL PANEL

- Heavy duty sheet steel enclosure with lockable hinged door
- Vibration isolated from generating set
- LCD display
- AC metering
- DC metering
- Fail to start shutdown
- Low oil pressure shutdown
- High engine temperature
- Low/high battery voltage
- Underspeed/overspeed
- Loss of engine speed detection
- 2 spare fault channels
- 20 event fault log
- 2 LED status indicators
- Lockdown emergency stop push button

RATING DEFINITIONS AND CONDITIONS

Standby – Applicable for supplying continuous electrical power (at variable load) in the event of a utility power failure. No overload is permitted on these ratings. The generator is peak rated (as defined in ISO8528-3).

Prime – Applicable for supplying continuous electrical power (at variable load) in lieu of commercially purchased power. There is no limitation to the annual hours of operation and the generator set can supply 10 percent overload power for 1 hour in 12 hours.

D100-6 (3-Phase)

Materials and specifications are subject to change without notice.

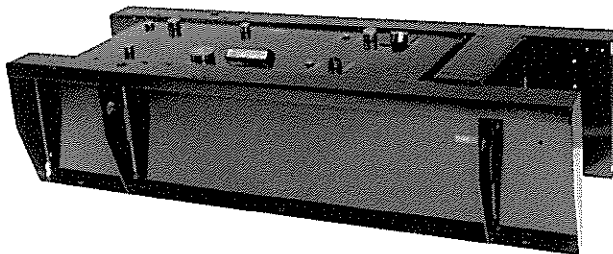
Generator Set Technical Data – 1800 rpm/60 Hz			Standby		Prime	
Power Rating	kW	kVA	100	125.0	90	112.5
Lubricating System						
Type: full pressure						
Oil filter: spin-on, full flow						
Oil cooler: watercooled						
Oil type required: API CH4						
Total oil capacity	L	U.S. gal	8.0	2.1	8.0	2.1
Oil pan	L	U.S. gal	7	1.9	7	1.9
Fuel System						
Generator set fuel consumption						
100% load	L/hr	gal/hr	29.8	7.9	26.8	7.1
75% load	L/hr	gal/hr	23.7	6.3	21.9	5.8
50% load	L/hr	gal/hr	17.5	4.6	16.3	4.3
Engine Electrical System						
Voltage/ground: 12/negative						
Battery charging generator ampere rating	amps		65		65	
Cooling System						
Water pump type: centrifugal						
Radiator system capacity incl. engine	L	U.S. gal	17.0	4.5	17.0	4.5
Maximum coolant static head	m H ₂ O	Ft H ₂ O	10.2	33.5	10.2	33.5
Coolant flow rate	L/hr	U.S. gal/hr	10 140	2,679	10 140	2,679
Minimum temperature to engine	°C	°F	70	158	70	158
Temperature rise across engine	°C	°F	7	44.6	7	44.6
Heat rejected to coolant at rated power	kW	Btu/min	65.6	3,731	59.7	3,396
Total heat radiated to room at rated power	kW	Btu/min	20.7	1,177	18.3	1,041
Radiator fan load	kW	hp	5.0	6.7	5.0	6.7
Air Requirements						
Combustion air flow	m³/min	cfm	8.4	297	8.5	300
Maximum air cleaner restriction	kPa	in H ₂ O	8	32	8	32
Radiator cooling air (zero restriction)	m³/min	cfm	230	8,135	230	8,135
Generator cooling air	m³/min	cfm	26.4	933	26.4	933
Allowable air flow restriction (after radiator)	kPa	in H ₂ O	0.120	0.48	0.120	0.48
Cooling airflow (@ rated speed)						
Rate with restriction	m³/min	cfm	192	6,780	192	6,780
Exhaust System						
Maximum allowable backpressure	kPa	in/mercury	15	4.4	15	4.4
Exhaust flow at rated kW	m³/min	cfm	17.5	618	16	572
Exhaust temperature at rated kW –						
Dry exhaust	°C	°F	522	972	524	975
Generator Set Noise Rating*						
(without attenuation) at 1 m (3 ft)	dB(A)		98		97	

Generator Technical Data		277/480V	266/460V	127/220V	120/240V 120/208V	347/600V
Motor Starting Capability: (kVA)						
(30% voltage dip)	Self excited	206	191	177	160	191
	PM excited**	271	252	233	211	252
	AREP excited	271	252	233	211	252
Full Load Efficiencies:						
	Standby	91.1	90.9	90.6	90.1	91.0
	Prime	91.5	91.3	91.0	90.6	91.4
Reactances (per unit):						
	X _d	3.58	3.90	4.26	4.77	3.90
	X' _d	0.14	0.15	0.17	0.19	0.15
Reactances	X'' _d	0.083	0.091	0.099	0.111	0.091
shown are	X _n	2.15	2.34	2.56	2.86	2.34
applicable to the	X'' _n	0.104	0.113	0.123	0.138	0.113
standby rating.	X ₂	0.094	0.102	0.112	0.125	0.102
	X ₀	0.005	0.005	0.006	0.006	0.005
Time Constants:		t' _d	t'' _d	t' _{do}	t _o	
		100 ms	10 ms	2555 ms	15 ms	

* dB(A) levels are for guidance only

** With PMG Excited Option AVR12

FCUL1, FCUL2 – UL LISTED FUEL TANKS



CLOSED TOP DIKED SKID BASE FUEL TANK

The generator set skid base contains an integral, UL listed, double walled, steel fuel storage tank with diked rupture basin for the containment of fuel resulting from a tank leak or rupture. The rupture basin is integrally vented and has a closed top to prevent the ingress of precipitation, debris or other elements. The tank is leak tested to 3 psi and pressure tested to 15 psi. The base tank is UL142 listed for Steel Above Ground Tanks for Flammable and Combustible Liquids under the "Special Purpose Tanks" category. They are intended for installation in accordance with the Flammable and Combustible Liquids Code, NFPA 30 of the National Fire Protection Association.

FCUL1 – Fuel capacity to provide typically 8 hour standby operation. See tables for actual fuel tank capacity and running hours.

FCUL2 – Fuel capacity to provide typically 24 hour standby operation. See tables for actual fuel tank capacity and running hours.

FEATURES

CONSTRUCTION

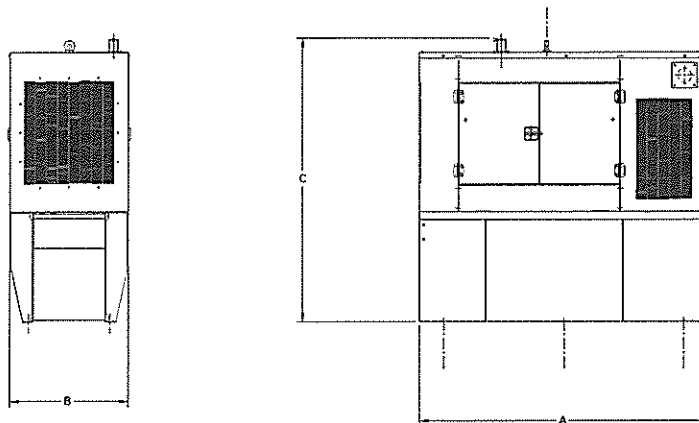
- Manufactured entirely from 8 gauge (4 mm) steel
- Continuously welded seams
- Formed steel channel type side beams
- Unitized load bearing structure
- Integral lifting points
- Corrosion resistant precoat
- Listed to UL142
- Closed top diked base tank

AESTHETICS

- Continuous high gloss finish
- Polyester powder composite
- Extremely durable and corrosion resistant

DESIGN FEATURES

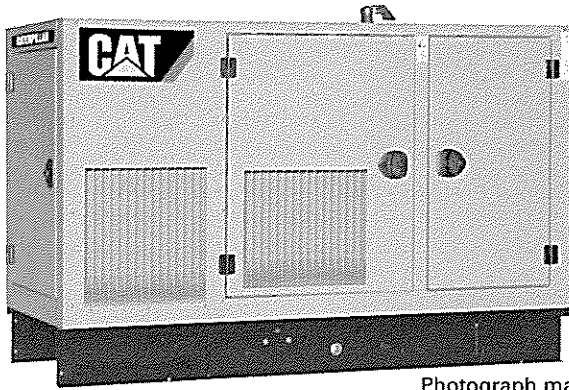
- Unique integral base and tank design
- Developed specifically for open or enclosed generator sets
- Internal baffles arranged to prevent recirculation of heated return fuel
- Brass composite 2" filler cap
- Mechanical fuel gauge
- Primary vent with breather
- Vent located accessible for adapting to remote venting
- Venting areas to UL142 specifications
- Leak detection switch
- Emergency vent for main tank
- Weatherproof diked containment basin
- Removable base-end cover plate encloses stub-up area when used with enclosures



WEATHERPROOF ENCLOSED GENERATOR SETS WITH CAWB ENCLOSURE DIMENSIONS AND WEIGHTS WITH UL LISTED FUEL TANK

Generator Set Model	Working Tank Capacity, liters (US gallons)		Running Time, 75% Load (standby rating)		Running Time, 100% Load (standby rating)		Generator Dimensions, mm (in)				Weight * kg (lb)	
							Length	Width	Height FCUL1	Height FCUL2		
	FCUL1	FCUL2	FCUL1	FCUL2	FCUL1	FCUL2	A	B	C	C	FCUL1	FCUL2
D40-6	276 (73)	547 (145)	25.1	49.7	19.6	38.8	2208 (86.9)	1000 (39.4)	1947 (76.7)	2162 (85.1)	1335 (2943.2)	1440 (3174.7)
D40-6S	276 (73)	547 (145)	24.6	48.8	19.0	37.7	2208 (86.9)	1000 (39.4)	1947 (76.7)	2162 (85.1)	1335 (2943.2)	1440 (3174.7)
D50-6	276 (73)	547 (145)	20.9	41.4	15.9	31.4	2208 (86.9)	1000 (39.4)	1947 (76.7)	2162 (85.1)	1355 (2987.3)	1460 (3218.7)
D50-6S	276 (73)	547 (145)	20.3	40.2	15.1	29.9	2208 (86.9)	1000 (39.4)	1947 (76.7)	2162 (85.1)	1355 (2987.3)	1460 (3218.7)
D60-6	276 (73)	547 (145)	16.2	32.2	14.1	27.9	2208 (86.9)	1000 (39.4)	1947 (76.7)	2162 (85.1)	1417 (3123.9)	1522 (3355.4)
D60-6S	276 (73)	547 (145)	16.1	32.0	14.0	27.8	2208 (86.9)	1000 (39.4)	1947 (76.7)	2162 (85.1)	1417 (3123.9)	1522 (3355.4)
D80-6	363 (96)	720 (190)	18.4	36.5	14.7	29.1	2604 (102.5)	1100 (43.3)	2011 (79.2)	2286 (89.9)	1605 (3538)	1791 (3948)
D80-2S	363 (96)	720 (190)	18.4	36.5	14.7	29.1	2604 (102.5)	1100 (43.3)	2011 (79.2)	2286 (89.9)	1581 (3486)	1767 (3896)
D100-6	363 (96)	720 (190)	15.3	30.4	12.2	24.2	2604 (102.5)	1100 (43.3)	2011 (79.2)	2286 (89.9)	1653 (3644)	1839 (4054)
D100-6S	363 (96)	720 (190)	15.3	30.4	12.2	24.2	2604 (102.5)	1100 (43.3)	1873 (73.7)	2148 (84.6)	1713 (3777)	1899 (4187)
D125-6	517 (136)	1077 (284)	16.4	34.1	12.7	26.5	2930 (115.4)	1100 (43.3)	2190 (86.2)	2380 (93.7)	2171 (4787)	2347 (5175)
D150-8	517 (136)	1077 (284)	14.0	29.3	11.6	24.1	2930 (115.4)	1100 (43.3)	2190 (86.2)	2380 (93.7)	2231 (4919)	2407 (5307)
D175-2	863 (227)	1219 (322)	21.0	30.0	17.0	24.0	3290 (129.5)	1308 (51.5)	2179 (86.5)	2432 (95.7)	2476 (5459)	2655 (5853)

* Weight with lube oil and coolant



Photograph may show optional equipment

CAWB – WEATHERPROOF ENCLOSURES

These weatherproof, factory installed enclosures incorporate internally mounted critical level silencers, designed for safety and aesthetic value on fabricated steel skidbases on diesel models. Optional UL listed tanks are available. These enclosures are of extremely rugged construction to withstand exposure to the elements of weather and rough handling common on many construction sites. They are designed on modular principles with many interchangeable components permitting on-site repair.

FEATURES

ROBUST/HIGHLY CORROSION RESISTANT CONSTRUCTION

- Black zinc die cast hinges tested and proven to withstand extreme conditions of corrosion
- Zinc plated or stainless steel fasteners
- Body made from steel components treated with polyester powder coating

EXCELLENT ACCESS

- Large cable entry area for installation ease
- Doors located convenient to controls and service areas
- Double doors on both sides
- Vertically hinged doors allow 180° opening rotation
- "Lift-off" doors, removable with 45° opening in confined locations
- Lube oil and coolant drains piped to exterior of enclosure and terminated with drain valves
- Radiator fill cover

SECURITY AND SAFETY

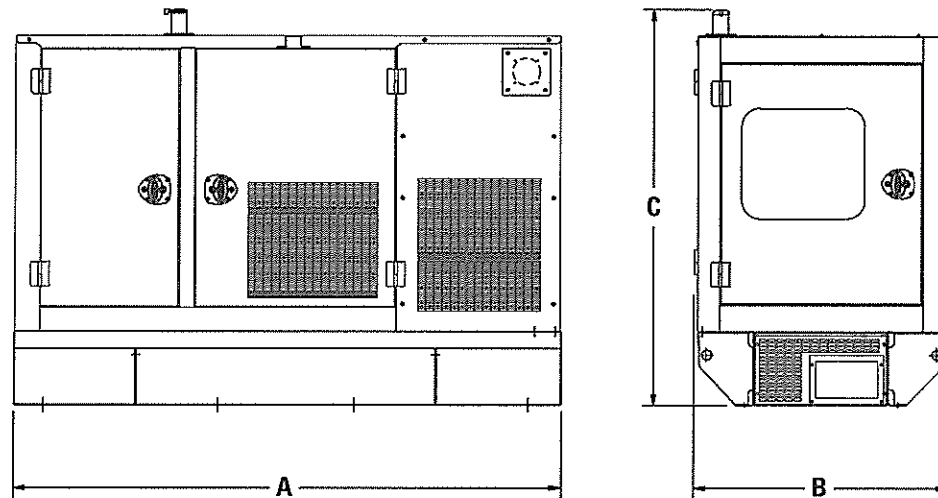
- Lockable access doors with standard key utilization
- Cooling fan and battery charging alternator fully guarded
- Fuel fill can only be reached via lockable access doors (only provided when optional fuel tank is ordered)
- Exhaust silencing system totally enclosed for operator safety
- Roof outlet exhaust with sealed roof aperture and rain cap
- Stub-up cover sheets for "rodent proofing"

TRANSPORTABILITY

- Lifting points on baseframe
- Optional tested and certified single point lifting facility

OPTIONS

- PVW2 Panel Viewing Window for CAWB
- CSB2 External Emergency stop push button (red) mounted flush on exterior enclosure wall



**CAWB – WEATHERPROOF ENCLOSURES
DIMENSIONS AND WEIGHTS (with UL listed base tanks FCUL1)**

Generator Set Model	Length A mm (in)	Width B mm (in)	Height C mm (in)	Fuel Capacity L (US Gal)	Weight* kg (lb)
D40-6	2208 (86.9)	1000 (39.4)	1947 (76.7)	276 (73)	1335 (2943.2)
D40-6S	2208 (86.9)	1000 (39.4)	1947 (76.7)	276 (73)	1335 (2943.2)
D50-6	2208 (86.9)	1000 (39.4)	1947 (76.7)	276 (73)	1355 (2987.3)
D50-6S	2208 (86.9)	1000 (39.4)	1947 (76.7)	276 (73)	1355 (2987.3)
D60-6	2208 (86.9)	1000 (39.4)	1947 (76.7)	276 (73)	1417 (3123.9)
D60-8S	2208 (86.9)	1000 (39.4)	1947 (76.7)	276 (73)	1417 (3123.9)
D80-6	2600 (102.4)	1100 (43.3)	2011 (79.2)	363 (95.9)	1605 (3538)
D80-2S	2600 (102.4)	1100 (43.3)	2011 (79.2)	363 (95.9)	1581 (3486)
D100-6	2600 (102.4)	1100 (43.3)	2011 (79.2)	363 (95.9)	1653 (3644)
D100-6S	2600 (102.4)	1100 (43.3)	2011 (79.2)	363 (95.9)	1713 (3777)

*Net weight with lube oil and coolant, no fuel, quoted for the largest model in range.

ELECTRIC POWER EXTENDED SERVICE COVERAGE

Insurance Backed by the Power of Cat

Whether you need prime power or standby, you can protect your electric power solution with Extended Service Coverage (ESC) from Cat Insurance.

Your ESC provides 100 percent of usual and customary parts and labor costs for engine failures due to defect in materials and workmanship on covered components.

COVERAGE THAT IS RIGHT FOR YOU.

Prime Power Coverage

Platinum coverage - this includes all original factory equipment with Cat® part numbers, excluding consumables such as filters, hoses and belts.

Standby Power Coverage

Select the level of coverage that meets your need.

Silver coverage includes a wide range of covered components and you have confidence that ESC repairs will be done by trained professionals who use genuine Cat parts.

Gold coverage includes all the same items as silver, as well as turbochargers, fuel nozzles, injectors and water pumps.

Platinum coverage includes all original factory equipment with Cat part numbers, excluding consumables such as filters, hoses and belts.

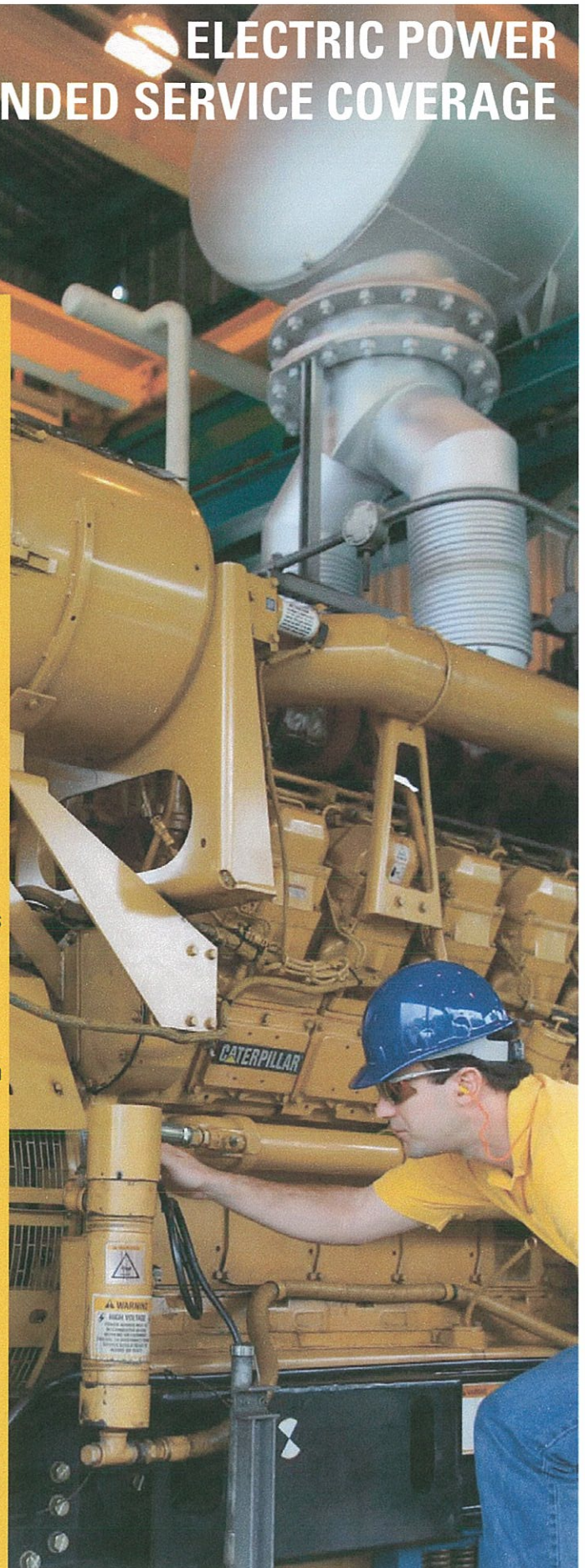
Extended Service Coverage for electric power is available everywhere in the world. So whether your unit remains in one location or mobile around the globe, the Cat Dealer network is available to serve you.

COVERAGE AVAILABLE FOR THE LONG TERM.

An ESC from Cat Insurance can protect your electric power unit for up to 10 years. You can choose from a variety of coverage terms.

COVERAGE FOR YOUR FULLY INTEGRATED POWER SOLUTION.

You turn to Cat for a total Electric Power solution, and you can select an ESC to cover it. Automatic transfer switches and uninterruptible power supplies are eligible for additional protection. See your Cat Dealer today.



CATERPILLAR®

Electric Power Service Coverage Matrix

Platinum Level Coverage Components: All as shipped consist from the factory with Caterpillar® part numbers excluding filters, fluids, vee belts, hoses, power take-offs, paint, batteries and clutches. Also for power modules, coverage excludes containers, undercarriage, ladders, lights, wheels, axles, brakes, tires, stabilizing jacks and fire extinguishers.

Item	Silver	Gold
COOLING SYSTEM		
Thermostat Housing	Yes	Yes
Water Manifold Housing	Yes	Yes
Jacket Water Precooler	Yes	Yes
Jacket Water Pump	No	Yes
FUEL SYSTEM		
Steel Fuel Lines	Yes	Yes
Fuel Shutoff Solenoid	Yes	Yes
Fuel Injectors	No	Yes
LUBRICATION SYSTEM		
Oil Pan	Yes	Yes
Engine Oil Pump	Yes	Yes
Oil Cooler Housing & Core / Bonnet	Yes	Yes
Oil Filter Base	Yes	Yes
ELECTRONIC SYSTEM		
Electronic Control Module (ECM)	Yes	Yes
Sensors: all engine sensors	Yes	Yes
FRONT AND REAR COVERS		
Front Covers / Plate / Housing / Gears & Gaskets	Yes	Yes
Vibration Damper	Yes	Yes
Flywheel Housing & Gasket	Yes	Yes
MISCELLANEOUS		
Cat Bolts, Attaching Covered Components	Yes	Yes
GENERATOR END		
Entire Generator End	Yes	Yes
Generator Controls (EMCP, Wiring)	Yes	Yes

Item	Silver	Gold
AIR INDUCTION & EXHAUST		
Exhaust Manifolds, Studs & Gaskets	Yes	Yes
Inlet Air Heater Relay	Yes	Yes
Intake Manifold	Yes	Yes
Turbocharger (mounting hardware, lines, wastegate)	No	Yes
SHORT BLOCK		
Cylinder Block Casting	Yes	Yes
Freeze Plugs	Yes	Yes
Crankshaft	Yes	Yes
Crankshaft Rod, Main & Thrust Bearings	Yes	Yes
Connecting Rod Assembly	Yes	Yes
Piston, Wrist Pin, Retainer Clip & Piston Rings	Yes	Yes
Piston Cooling Jet Tubes	Yes	Yes
Cylinder Liner, Seals & Filler Band	Yes	Yes
Main Bearing Cap Bolts	Yes	Yes
CYLINDER HEAD		
Cylinder Head Casting, Sleeves, Bolts & Gaskets	Yes	Yes
Freeze Plug	Yes	Yes
Spacer Plate & Spacer Plate Gasket	Yes	Yes
Intake & Exhaust Valve (all related components)	Yes	Yes
Roller Follower	Yes	Yes
Valve Mechanism, Rocker Arm, Brackets, Push Tube, Bridge Dowels, Adjusting Screws, Nuts & Shaft	Yes	Yes
Valve Cover & Base	Yes	Yes
Camshaft, Camshaft Bearings, Key, Gear	Yes	Yes
Camshaft Rear Cover / Seal	Yes	Yes

Note: components not listed in the coverage matrix are not covered under Silver or Gold level coverage options.

Travel & Mileage Limitations:

For Caterpillar generator sets up to and including 7 liter displacement, for ATS models up to and including 1,200 amperes and for all Olympian products

- Up to 4 hours and 0 miles / 0 kilometers travel allowance

For all other models

- Up to 8 hours and 320 miles / 515 kilometers travel allowance

Important Notice:

All "Covered Components" must pass inspection or be replaced at the proper intervals by an "authorized dealer" as prescribed in the manufacturer's Operation and Maintenance Manual to qualify for continued coverage under this Contract. **"Your" failure to follow the Manufacturer's Operation and Maintenance Manual will result in denial of claims.**

Additional Coverage for Cat Standby Generator Sets over 3 liter displacement with Platinum level Extended Coverage:

Additional coverage is allowed if repairs can not be completed within 48 hours of the "authorized dealer" technician's initial visit for a covered "mechanical breakdown" due solely to the nature of the "mechanical breakdown" or Cat's inability to supply the required repair components. Up to \$20,000 (US\$) is allowed for rental genset expenses that are hereby defined as the reasonable and customary rental charge, mileage per guidelines given in the "repairer" travel & mileage limitations section of this contract and the necessary labor for connection & disconnection to your facility of the Rental GenSet from an "authorized dealer."

This is a brief description of Extended Coverage. See your Cat dealer for more information. The Extended Coverage contract will govern.

CAT, CATERPILLAR, their respective logos and "Caterpillar Yellow," and the POWER EDGE trade dress, as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission.

© 2008 Caterpillar. All rights reserved. Printed in the U.S.A.

LEYE5135-02

CATERPILLAR®
TODAY'S WORK. TOMORROW'S WORLD.™

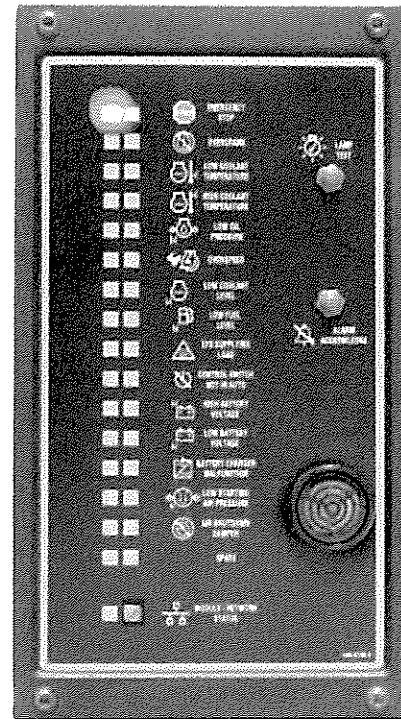
EMCP 3 ANNUNCIATOR

The EMCP 3 Annunciator serves to display generator set system alarm conditions and status indications. The Annunciator has been designed for use on the EMCP 3 J1939 Communication Network and may be used in either local or remote applications, providing customers with enhanced site flexibility.

In local applications, the Annunciator may be mounted on the package generator set with the EMCP 3 Controller to provide a complete package-mounted monitoring solution.

The Annunciator may also be mounted separate from the generator set to provide remote indication of system operating and alarm conditions.

The EMCP 3 Annunciator is configurable to the standards of NFPA 99/110 for emergency standby generator systems.



FEATURES

- The EMCP 3 Annunciator provides sixteen (16) individual points of annunciation, with two (2) LED's included for each point.
- An additional pair of LED's provides status indication of the J1939 data link connection.
- Includes alarm horn with lamp test and alarm acknowledge pushbuttons.
- Configurable using standard Caterpillar® Service Tool
- Configurable to NFPA 99/110 requirements for local and remote annunciation on emergency standby generator systems.
- Provides custom label kit including software for customer's specific alarms and arrangement
- Designed and tested to meet stringent impulse shock and operating vibration requirements
- Uses high quality shielded twisted-pair cable for robust remote communications
- Graphic symbols are provided next to each pair to indicate various alarms and events
- The Annunciator can be mounted either locally, on the package generator set, or remotely (up to 800 feet)
- Provides superior visibility of the LED's in direct sunlight

SPECIFICATIONS

Technical Data

Electrical

Battery Voltage Functional Range: 9 to 32 VDC

Power Consumption

Maximum: ~ 12 watt at 24 VDC

Standby: ~ 5 watt at 24 VDC

Control Power: 12-24 VDC

Communication: J1939 (Accessory Data Link)

Single, 6-pin Connector

Alarm

Sound Level 80 db

PHYSICAL

Weight

4 lb or ~ 1.8 kg

ENVIRONMENTAL

Operating Temperature

-40° C to 70° C

-40° F to 158° F

Storage Temperature

-50° C to 70° C

-58° F to 158° F

Relative Humidity

90%

CERTIFICATIONS



UL Recognized

LED COLOR SCHEME

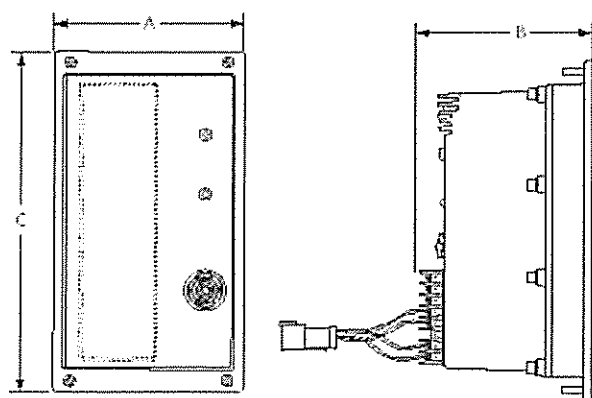
Each pair of LED's on the Annunciator consists of two of three colors: green, yellow and red, which allows for custom configuration of status, warning and shutdown conditions.

The available colors and combinations are:

Row	LED 1	LED 2
1	Red	Yellow
2	Red	Yellow
3	Red	Yellow
4	Red	Yellow
5	Red	Yellow
6	Red	Yellow
7	Red	Yellow
8	Red	Yellow
9	Red	Yellow
10	Red	Yellow
11	Red	Yellow
12	Red	Yellow
13	Green	Yellow
14	Green	Yellow
15	Red	Green
16	Red	Green

STANDARD LED CONFIGURATION

- Emergency stop shutdown
- Overcrank shutdown
- Low coolant temperature warning
- High coolant temperature warning/shutdown
- Low oil pressure warning/shutdown
- Overspeed warning/shutdown
- Low coolant level warning/shutdown
- Low fuel level warning/shutdown
- EPS supplying load status
- Control switch not in auto warning
- High battery voltage warning/shutdown
- Low battery voltage warning/shutdown
- BATT charger AC failure warning/shutdown
- Low starting air pressure warning/shutdown
- Air shutdown damper status
- Spare



Annunciator Dimensions		
A	158 mm	6.22 in
B	139 mm	5.12 in
C	288 mm	11.34 in

Information contained in this publication may be considered confidential.
Discretion is recommended when distributing.

www.cat-ElectricPower.com

Materials and specifications are subject to change without notice.

LEHE4753-01 (09-05)

CAT, CATERPILLAR, their respective logos and "Caterpillar Yellow," as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission.

© 2005 Caterpillar
All rights reserved.
Printed in U.S.A.

AUTOMATIC TRANSFER SWITCH

Engine Division July 2004

CTS Series Automatic Transfer Switch

Electrical Ratings

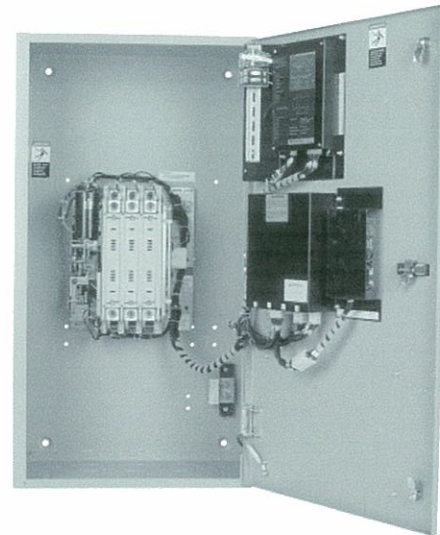
- Ratings 40 to 4000 amperes
- 2, 3 or 4 Poles
- NEMA 1, 3R, 4, 4X and 12
- Available to 600 VAC, 50 or 60 Hz
- Suitable for emergency and standby applications on all classes of load, 100% tungsten rated through 400 amps
- UL 1008 listed at 480 VAC
- CSA C22.2 No. 178 certified at 600 VAC
- IEC 947-6-1 listed through 480 VAC

Performance Features

- Contact transfer speed less than 1/6 of a second
- High close-in and withstand capability
- Temperature rise test per UL 1008 conducted after overload and endurance tests in unventilated enclosure – exceeds UL requirements

Design and Construction Features

- Double throw, interlocked operation
- Electrically operated, mechanically held by a simple, over-center mechanism
- Silver alloy contacts with separate arcing contacts on 225 amp and above
- Arc quenching grids, enclosed arc chambers, and wide contact air gap for superior source-to-source isolation on all units
- Control circuit disconnect plug and drive inhibit switch for safe maintenance
- Components accessible for inspection and maintenance without removal of the switch or the power conductors
- Mechanical indicator and contact chamber cover designed for inspection, safety and position designation



Introducing the Caterpillar CTS Series of Automatic Transfer Switches

The Caterpillar CTS Series power contactor type transfer switch makes use of a fully programmable/configurable microprocessor-based controller to allow the utmost in application flexibility.

Further, the CTS Series is offered in a wide array of configurations enabling it to meet the needs of even the most highly critical load.

Available configurations include:

- CTS Automatic Transfer Switches
40-4000 Amps
- CTSD Delayed Transition Transfer Switches
40-4000 Amps
- CTSC Closed Transition Transfer Switches
100-4000 Amps
- CBTS Automatic Transfer/Bypass Switches
100-4000 Amps

WHERE THE WORLD TURNS FOR POWER

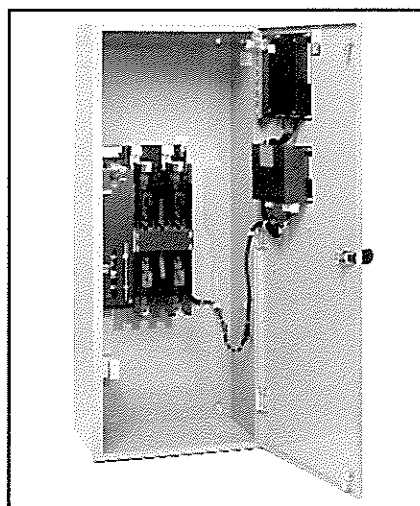
AUTOMATIC TRANSFER SWITCH

- CBTSD Delayed Transition Bypass Switches
100-4000 Amps
- CBTST Closed Transition Bypass Switches
100-4000 Amps
- CTSM Manual Transfer Switches 40-4000 Amps

All CTS products meet or exceed industry requirements to allow specification and installation with confidence.

- UL 1008 listed through 480 VAC
- CSA C22.2 No. 178 listed through 600 VAC
- IEC 947-6-1 listed through 480 VAC
- Codes and Standards
 - ◆ NFPA 70, 99, 101, 110
 - ◆ NEC 517, 700, 701, 702
 - ◆ IEEE 446, 241
 - ◆ NEMA ICS2-447

- Controls tested in accordance with:
 - ◆ IEEE 472 (ANSI C37.90A)
 - ◆ EN55022 Class B (CISPR 11) (Exceeds EN55011 & MILSTD 461 Class 3)
 - ◆ EN61000-4-2 (Level 4)
 - ◆ EN61000-4-3 (ENV50140) 10v/m
 - ◆ EN61000-4-4
 - ◆ EN61000-4-5, IEEE C62.41 (1.2 X 50µs, 5 & 8 kV)
 - ◆ EN61000-4-6 (ENV50141)
 - ◆ EN61000-4-11
- Enclosures meet the requirements of:
 - ◆ UL 508, 50
 - ◆ ICS 6
 - ◆ ANSI C33.76
 - ◆ NEMA 250
- Quality System:
 - ◆ ISO 9001 Registered



CTS SERIES ATS
400 amp, 2 pole

The CTS Series is the basis for each element of the Caterpillar transfer switch product line. This ruggedly built family of power contactor switches has been specifically designed for transfer switch duty with dependability, versatility and user friendliness of prime concern.

The CTS power panel components, consisting of power switching contacts, drive mechanism and terminal lugs, are mounted on a specially formed backplane. Logic devices including microprocessor control auxiliary time delays and special accessory equipment are assembled on the door for ease of maintenance and separation from the power section. They are connected with a numbered wiring harness equipped with a disconnect plug that allows isolation of the control panel for maintenance.

CTS Series Method of Operation

When the normal source fails or the voltage drops to a predetermined point (usually 80% of nominal), if required, a circuit is closed to start the engine generator set. When the emergency source reaches 90% of rated voltage and 95% of rated frequency, the drive solenoid is energized through the emergency coil control relay, causing the main contacts to disconnect the load from the normal source and connect it to the emergency source. After the drive solenoid has completed its electrical stroke and is seated, the emergency coil control relay opens to disconnect it. The transfer switch is now mechanically locked in the emergency position.

LEHE4651-00

When normal voltage is restored to a predetermined point (usually 90% of nominal), the control voltage sensing energizes. The normal side coil relay closes, and after the drive solenoid has completed its electrical stroke and is seated, the coil control relay opens to disconnect it. The transfer switch is now mechanically locked in the normal position.

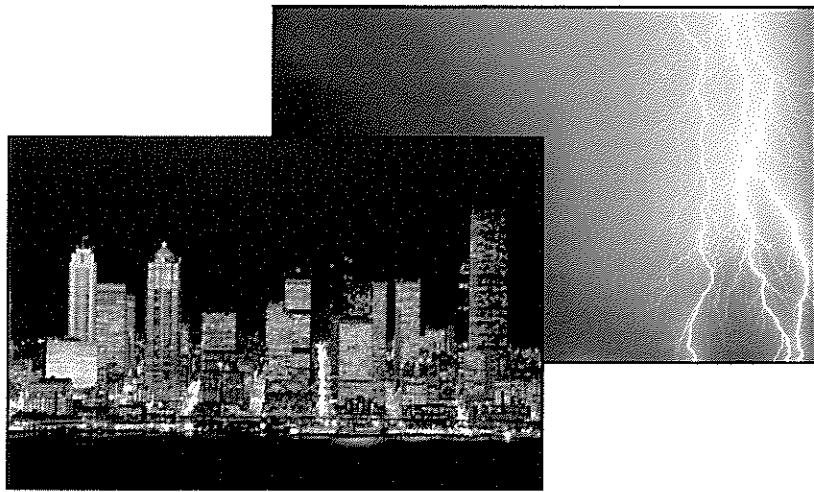
Drive Mechanism

All CTS switches employ the simple "over-center" principle to achieve a mechanically locked position in either normal or emergency and a high speed drive assures contact transfer in 100 ms or less. High contact pressure and positive mechanical lock allow for high withstand and closing ratings, far exceeding UL requirements.

Neutral Switching

The CTS Series is available in true four pole designs for multi-source power systems that require switching the neutral. The neutral contact is on the same shaft as the associated main contacts. This ensures positive operation, and avoids any possibility that the neutral contact will fail to open or close, as is possible when the neutral pole is an add-on accessory. The neutral contacts are identical to the main contacts, having the same current carrying and high withstand/closing ratings as the mains. They are designed to *break last and make first* to negate the possibility of transients while switching the neutral.

AUTOMATIC TRANSFER SWITCH



Safe Manual Operation

The CTS manual operator consists of a large, easy-to-use handle that fits securely for manual operation during installation and maintenance or in an emergency.

Every CTS is provided with an operator inhibit switch to disconnect the electrical drive prior to maintenance. Fully enclosed wrap-around arc covers shield the main contacts and mechanical components, preventing operator exposure during manual operation.

Transferring Large Motor or Highly Inductive Loads

Some loads, especially large motors receive severe mechanical stress if power is transferred out of phase while the motor is still rotating. Also, back EMF generated by a motor can result in over currents that can blow fuses or trip circuit breakers. The CTS Series offers four solutions to these problems:

1. Optional Universal Motor Disconnect Contact:

This load control disconnects a large motor via its control circuit for an adjustable period of time prior to transfer in either direction. For switching multiple motors, the motor disconnect contact with staged restart disconnects the motors prior to transfer and brings them back on line sequentially.

2. Standard In-Phase Monitor: This feature compares the phase angle between both sources of power and prevents transfer until the two are approximately in phase (within a self adjusting range). The CTS's high speed transfer action coupled with the MX series microprocessor control logic ensure closures at or near zero degree phase difference.

3. Series CTSD: The CTSD offers a delayed transition on transfer switches 40A and above. This programmed center-off position allows for the full decay of rotating motors or transformer fields. It can also be used for load shedding of selected circuits or other applications which require a means to disconnect the load from either source. Many UPS system manufacturers recommend delayed transition switches to support sequencing of their systems. Reference the CTSD supplement for further details.

4. Series CTSC: Caterpillar closed transition switches combine CTSD operation during a source failure with a highly engineered control system that allows momentary paralleling (100 ms) of two acceptable sources, thereby limiting the impact of transfer on the load. Reference the CTSC supplement for further details.

MX250

Microprocessor Based ATS Controller

Performance Features

- UL 1008, CSA and IEC listed
- Ringing wave immunity per IEEE 472 (ANSI C37.90A)
- Conducted and Radiated Emissions per EN55022 Class B (CISPR 11) (Exceeds EN55011 & 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 (1.2 X 50µs, 5 & 8 kV)
- Conducted immunity test per EN61000-4-6 (ENV50141)
- Voltage dips and interruption immunity EN61000-4-11

User-Friendly Operation

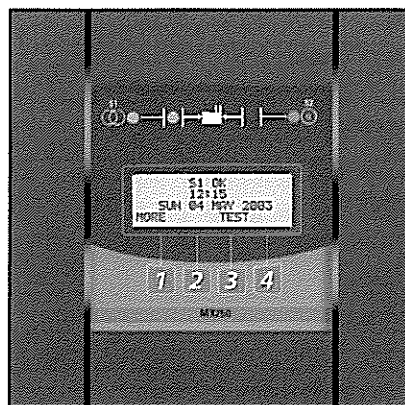
- Multipurpose display: LEDs for continuous monitoring of switch position and source availability; a four line by twenty character LCD display for settings, functions, programming and annunciation
- Through-the-door programming and display
- Simplified keypad entry – menu-driven system is designed for ease of use
- Built-in diagnostics with displays for ease of troubleshooting

Additional Features

- Built-in programmable exerciser uses separate microcontroller with independent battery back-up to serve as clock/calendar – battery failure will not affect switch operation
- User settings are unaffected by power outages
- External communication available through an optional serial network interface

Technical Benefits

- Separate line voltage components for controller isolation
- Inputs are optoisolated for high electrical immunity to transients and noise
- Built-in electrical operator protection
- Simplified maintenance – major components are easily replaceable
- Close differential under-voltage sensing of the normal source
- Voltage and frequency sensing of the emergency source (all settings are adjustable)



The MX250 advanced ATS controller manages switch operation via a convenient touchpad which provides indication setting and diagnostic capabilities. As an embedded digital controller, the device offers high reliability and ease of unattended operation across a range of applications.

The MX250 controller is designed for the most demanding transfer or bypass switch applications. The CTS Series may be specified in its feature-rich standard configuration, with a wide array of individual optional attachments or with the addition of "an accessory group package which adds additional features at a reduced cost. The CTS series may also be equipped with an optional external network interface for use with annunciators, modems or for connection to a PC."

Standard features include pass code protection, load/no load/fast test feature, commit/no commit transfer selection, back-lit/temperature compensated LCD display, watchdog circuit for microprocessor operation, diagnostic displays for ease of maintenance, source connection and transfer data logging and many additional features. The MX250's weather and tamper resistant control interface makes it an ideal choice for a wide range of applications.

Features/Optional Attachments

Standard Features

- Back-lit LCD display (includes the display of source voltage and frequency, exercise time, delay options and source condition)
- Menu driven operator interface
- Full phase adjustable under voltage sensing of both sources (90% pick up, 80% drop out)
- Single phase frequency sensing of the emergency source
- Auxiliary contacts indicating ATS position, S.P.N.O.
- Engine start output contact
- LED indicators for ATS position and source availability
- Plant exerciser clock, load/no-load type (configured for 1, 7, 14 or 28 day run selections)
- Built-in time delays (with count-down display) for:
 - ◆ Engine start (0-10 sec)
 - ◆ Transfer to emergency (0-5 min)
 - ◆ Retransfer to normal (0-60 min)
 - ◆ Engine cooldown (0-60 min)
- Pushbutton to bypass time delay transfer/retransfer
- In-phase monitor
- Event logging (last 16 events)
- Test switch (momentary test switch)

Optional Attachments

Auxiliary Contacts:

- Auxiliary contact S.P.D.T. – Operates on Normal Failure
- Auxiliary contact S.P.D.T. – Operates on Emergency Failure
- Auxiliary contacts (additional, beyond the single contact that is standard) – closed in emergency position (S.P.S.T.)
- Auxiliary contacts (additional, beyond the single contact that is standard) – closed in normal position (S.P.S.T.)
- Timed motor disconnect – on transfer to normal or emergency (contact opens during timing and re-closes instantaneously after transfer)

- Timed motor disconnect contact w/staged restart (contact opens prior to transfer in either direction and closes in sequence after transfer)
- Timed elevator transfer pre-signal contacts
- Fan contact S.P.N.O. (closed when engine runs)

Sensors:

- Under freq. sensor, adjustable – normal source (factory set at 95% of nominal)
- Over/under freq. sensor – normal source (factory set at: under freq. – 95% of nominal, over freq. – 2 Hz above nominal)
- Over/under freq. sensor – emergency source (factory set at: under freq. – 95% of nominal, over freq. – 2 Hz above nominal)
- Over voltage sensor – normal source – 3 phase (default setting of 110% of nominal)
- Over voltage sensor – emergency source – 3 phase (default setting of 110% of nominal)
- Phase sequence sensor (prevents transfer if sources are not in like phase rotation)

Control Inputs:

- Input to enable “peak shave/remote test” mode, relay based (120 VAC input required)
- Input to inhibit transfer to the emergency position, relay based (24 VDC input required)
- Input to inhibit retransfer to the normal position, relay based (24 VDC input required)

Meter Options:

- Ammeter – single phase
- Ammeter – three phase w/selector switch
- Hour meter
- Frequency meter
- EPM Digital Power Meter

Available in several models configured to measure AMPS, Volts, Frequency, Watts kVA, kVAR, kWh, Power Factor as well as Harmonic Distortion. Available in a Modbus 485 or an RS232 Communications port.

Accessories	Group Packages					
	MSTDS	MEXES	MCONS	MSSENS	MSPES	MPSGS
6P	●	●	●	●	●	●
A1	○	●	●	●	●	●
A1E	○	●	●	●	●	●
A3	●	②	②	②	②	③
A4	●	②	②	②	②	③
Calibrate	●	●	●	●	●	●
CDT	●	—	—	—	—	—
CDP	—	●	●	●	●	●
**DS	●	●	●	●	●	●
*DT	●	●	●	●	●	●
*DW	●	●	●	●	●	●
E	●	●	●	●	●	●
EL/P	●	●	●	●	●	●
K/P	●	●	●	●	●	●
L1	●	●	●	●	●	●
L2	●	●	●	●	●	●
L3	●	●	●	●	●	●
L4	●	●	●	●	●	●
*LN	●	●	●	●	●	●
P1	●	●	●	●	●	●
Q2	○	●	●	●	●	●
Q3	○	○	●	○	●	●
Q7	○	○	●	●	●	●
R1-1	○	○	○	●	●	●
R1-3	○	○	○	●	●	●
R15	○	○	○	○	○	●
*R15D	○	○	○	○	○	●
R16	○	●	●	●	●	●
R50	●	●	●	●	●	●
S5P	○	○	○	—	●	—
S12P	○	○	○	●	—	●
S13P	●	●	●	●	●	●
T	●	●	●	●	●	●
T3/W3	②	②	②	②	②	②
U	●	●	●	●	●	●
UMD	②	②	②	②	②	②
VI	●	●	●	●	●	●
W	●	●	●	●	●	●
YEN	●	●	●	●	●	●

● Standard Accessory included in the group package.

○ Optional Accessory not included but can be added to group package.

○ Optional Accessory. Can not be used with accessory having the same symbol.

— N/A

②② Denotes an Accessory with 2 circuits as a standard.

③ Denotes an Accessory with 3 circuits as a standard.

* Delayed Transition Units Only.

** Optional for 40-400 Amp.

Accessory Definitions

6P

Microprocessor activated test switch (Momentary)

6A

Hardwired test switch (Maintained)

6AP

Microprocessor activated test switch (Maintained)

6B

Hardwired test switch (Maintained Auto-Momentary Test) Key operated

6C

Hardwired test switch (Maintained Auto-Maintained Test) Key operated

A1

Auxiliary Contact S.P.D.T. – Normal (Source 1) Failure

A1E

Auxiliary Contact S.P.D.T. – Emergency (Source 2) Failure

A3

Auxiliary Contact – closed in emergency (Source 2) Additional available (10 max.) on CTS and need to be specified

A4

Auxiliary Contact – closed in normal (Source 1) Additional available (10 max.) on CTS and need to be specified

A62

Motor disconnect and staged restart (1 contact)

AB3

Auxiliary Contact – closed in bypass emergency (Source 2) (S.P.D.T.) (Standard up to 400A) Additional available (10 max.) on CTS and need to be specified

AB4

Auxiliary Contact – closed in bypass normal (Source 1) (S.P.D.T.) (Standard up to 400A) Additional available (10 max.) on CTS and need to be specified

B9

Battery charged (ships separate from ATS) – semi-float 5 amp (need to specify input/output voltage and type LA, N, FL)

Calibrate

Microprocessor activated calibration feature

CDP

Programmable exerciser daily, 7/14/28/365 days user-selectable, with or without load.

CDT

Exerciser no load timer. Increased functionality no longer requires a jumper.

CTAP

Chicago transfer alarm panel mounted in door of enclosure. Includes 3 aux. contacts and fuse.

DS

Disconnect Switch. Disconnects source voltage to transfer power panel.

DT (*Delayed Transition Only*)

Time Delay from Neutral Switch position to Source 1 on retransfer

DW (*Delayed Transition Only*)

Time Delay from Neutral Switch position to Source 2 on retransfer

E

Engine Start Relay

EL/P

Event log of last 16 events

F

Fan contact, closed when engine runs

HT1 or HT2

Heater and Thermostat (HT1 for 208/240V, HT2 for 380/600V) mounted and interwired in enclosure (requires larger enclosure for 40-200A)

K

Frequency Meter – Door mounted

K/P

Frequency Indication on the controller

L

LNP Center-off position LCD-Indicator Indicating LED lights

L1 Indicates Switch in Source 2 position.

L2 Indicates Switch in Source 1 position.

L3 Indicates Source 1 available.

L4 Indicates Source 2 available.

M1

Single Phase Amp Meter

M2

Three Phase Amp Meter

M80

3000 Digital Power Monitor

M82

5200 Digital Power Meter

M83A

EPM 5300 Digital Power Meter with Modbus Port

M83B

EPM 5350 Digital Power Meter with Ethernet Port

M84

7430 Digital Power Meter, Wye or Delta

M85A

EPM 9450 Digital Power Meter, Ethernet

M85B

EPM 9450 Digital Power Meter with Internal 56K Mod.

M86A

EPM 9650 Digital Power Meter, Wye or Delta, RS232 or RS485

M86B

EPM 9650 Digital Power Meter, Wye or Delta, RS232 or RS485

N1

Running Time Indicator – Door mounted

N2

Operation Counter – Door Mounted

P1

Engine Start Timer (adjustable to 6 sec.)

P2

Engine Start Timer (adjustable to 300 sec.)

Q2

Peak shave/remote load test/area protection – Relay (S.P.D.T.) (Need to specify voltage – 120 VAC, 24 VAC, 24 VDC – 120V default standard)

Q3

Inhibit transfer to emergency (Source 2) (load add relay) – Relay (S.P.D.T.) (Need to specify voltage – 120 VAC, 24 VAC, 24 VDC – 120V default standard)

Q7

Inhibit transfer to normal (Source 1) – Relay (S.P.D.T.) (Need to specify voltage – 120 VAC, 24 VAC, 24 VDC – 120V default standard)

R1-1/R1-3

Over Voltage sensing for normal (Source 1) single (R1-1) or three (R1-3) phase

R15/R15D

Load Shed. Should Source 2 become overloaded, a signal can be given to switch to the dead or Mid position.

R16

Phase rotation sensing of Normal (Source 1) and Emergency (Source 2)

R26/R26D

Interruptible Power Rate Provisions. Allow transfer out of Source 1 position to Mid position or dead Source 2. Alarm and Pre-Signal circuit included. (Need to specify voltage – 120 VAC, 24 VAC, 24 VDC – 120V default standard)

R50

In Phase monitor between Normal (Source 1) and Emergency (Source 2) to allow transfer

S5P

Microprocessor activated auto/manual retransfer selector switch for transferring to Normal (Source 1) (includes microprocessor activated YN accessory)

S12P

Microprocessor activated auto/manual retransfer selector switch for transferring to Normal (Source 1) (includes microprocessor activated YN & YE accessory)

S13P

Microprocessor activated commit/no commit on transferring to Emergency (Source 2) (with enable/disable)

S14

Keyed selector switch for (retransfer to normal-test-auto)

SW1

Auto/Off/Start Engine control selector – Door mounted (keyed or non-keyed operation available)

SW2

Auto/Off Engine control selector – Door mounted (keyed or non-keyed operation available)

SW3

Source Priority Selector Switch – Door mounted Allows selection of Source 1 or Source 2 to be the Prime Source. Transfer Switch will transfer to selected Prime Source if that Source is available (keyed or non-keyed operation available).

T

Retransfer to normal adjustable time delay

T3/W3

Pre-signal contact on transfer to Normal (Source 1) or Emergency (Source 2) during test

U

Engine stop/cool adjustable cool down timer

UMD

Pre and post transfer output adjustable time range. Functions in both directions. Includes 2 circuits. Additional circuits available.

VI

Voltage imbalance between phases (3 Phase only)

W

Adjustable time delay on transfer to Emergency (Source 2)

YEN

Bypass transfer timers function (soft switch in control)

ZNET

Microprocessor Communication Module

CTS SERIES

Dimensional Specifications

CTS Series Transfer Switches

Ampere Rating	Poles	Height (A)	Width (B)	Depth (C)	Reference Figure	Weight		Application Notes
						NEMA 1		
40, 80	2, 3	61 (24)	46 (18)	26 (10)	A	26 (57)		1 - 7
100, 150, 200	4	61 (24)	46 (18)	26 (10)	A	27 (60)		
225 to 260	2, 3	117 (46)	61 (24)	36 (14.13)	A	75 (165)		1 - 7
260	4	117 (46)	61 (24)	36 (14.13)	A	68 (170)		
400	2, 3	117 (46)	61 (24)	41 (16.13)	A	100 (220)		1 - 7
	4	117 (46)	61 (24)	41 (16.13)	A	102 (225)		
600	2, 3	168 (66)	61 (24)	50 (19.75)	B	172 (380)		1 - 8
	4	188 (74)	76 (30)	50 (19.75)	B	195 (430)		
800, 1000	2, 3	188 (74)	76 (30)	50 (19.75)	B	206 (455)		1 - 8
1200	4	188 (74)	102 (40)	50 (19.75)	B	245 (540)		
1600	3	229 (90)	76 (30)	122 (48)	B	458 (1010)		1 - 8
2000	4	229 (90)	91 (36)	122 (48)	B	526 (1160)		
3000	3	229 (90)	76 (30)	122 (48)	B	513 (1130)		1 - 8, 10, 11
	4	229 (90)	91 (36)	122 (48)	B	633 (1395)		
4000	3	229 (90)	102 (40)	152 (60)	B	723 (1595)		1 - 11
	4	229 (90)	118 (46.5)	152 (60)	B	839 (1850)		

APPLICATION NOTES:

- English dimensions (inches) and weights (pounds) shown in parenthesis adjacent to Metric measurements in cm and Kg.
- Includes 1.25" door projection beyond base depth. Allow a minimum of 3" additional depth for projection of handle, light, switches, pushbuttons, etc.
- All dimensions and weights are approximate and subject to change without notice.
- Special enclosures (NEMA 3R, 4, 12, etc.) may include mounting tabs, etc. Consult the published dimension drawings for details.
- Normal and emergency may be ordered inverted on any switch. The load may be inverted 500-1200 amps. Consult the factory for details.
- Special lug arrangements may require different enclosure dimensions. For certified drawings, contact CATERPILLAR.
- Packing materials must be added to weights shown. Allow 15% additional weight for cartons, skids, crates, etc.
- Add 4" in height for removable lifting lugs.
- 4000 amp depth dimension shown is standard. Depending on your cable/conduit requirements you may desire a deeper enclosure. Consult CATERPILLAR for further details.
- Lug adapters for 3000-4000 amp limits may be staggered length for ease of entrance. Consult CATERPILLAR for details.
- Ventilation louvers on side/rear of enclosure at 3000 and 4000A. One side or rear must be clear to afford proper airflow.

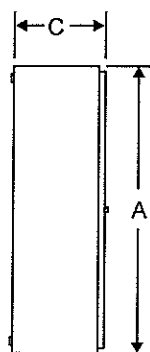


Figure A

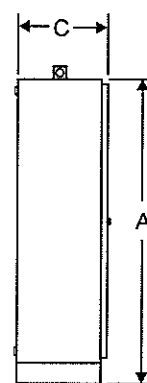
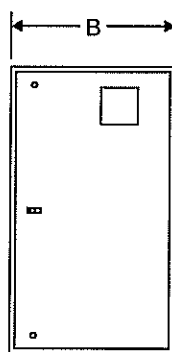
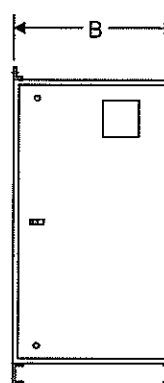


Figure B



Test Switch Options:

- Test switch – maintained type, via an external selector switch
- Test switch – momentary type, key operated
- Test switch – maintained type, key operated

Selector Switch Options:

- Engine selector switch (Auto/Start/Off); "Auto" provides normal operation, "Off" interrupts the transfer switch start signal to engine, and "Start" causes engine to run until switch removed from "Start" position
- Engine start disconnect switch
- Auto/Manual retransfer selector switch

- Auto/Manual transfer/retransfer (full manual mode) selector switch
- Retransfer/Test/Auto selector switch

Miscellaneous:

- Space heater – thermostatically controlled
- Extended time delay on engine start (.5-300 sec)
- Network interface card

Many additional optional attachments are available to meet specific application requirements, consult your Caterpillar Price List or Applications Engineering with your project's specific needs.

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

Normal, Emergency & Load Terminals			Normal, Emergency & Load Terminals		
Switch Size Amps	Cables per Pole	Range of Wire Sizes	Switch Size Amps	Cables per Pole	Range of Wire Sizes
40-150	1	#8 to 3/0 AWG	800/1000/1200	4	#2 AWG to 600 MCM
225		#6 AWG to 250 MCM	1600		
260		#6 AWG to 350 MCM	2000		
400		#4 AWG to 600 MCM	3000		
600	2	#2 AWG to 600 MCM	4000		*

NOTES:

- * Line and load terminals are located in rear and arranged for bus bar connection. Terminal lugs are available at additional cost. Contact factory for more details.
- 1. Special terminal lugs and neutral bars are available at additional cost. Contact factory and advise cable sizes and number of conductors per pole.
- 2. Fully rated solid neutral (3x standard normal power connector) provided when required by system voltage.
- 3. Normal and emergency may be ordered inverted on any switch. Load may be inverted 600-1200 amps. Consult the factory for details.
- 4. Lug adapters for 3000-4000 amp units may be staggered length for ease of entrance. Consult the factory for details.
- 5. Special lug arrangements may require different enclosure dimensions. For certified drawings, contact CATERPILLAR.

UL and CSA Ratings

The CTS Series Automatic Transfer Switches have been subjected to an extensive test program to show that they comply with and exceed UL 1008 standards, as well as the various performance specifications used by most government agencies and major electrical engineering firms throughout the world. The primary test to ensure the quality and dependability of an automatic transfer switch is its ability to close into and withstand high fault currents. The table shows the Underwriters Laboratories and Canadian Standards certified withstand and closing current ratings in symmetrical RMS amperes at 480 and 600 volts AC.

CTS Series Switches Rated for Total Systems or Motor Loads (1)		Withstand and Closing Current Ratings per UL 1008 and CSA							
		Current Limiting Fuse		Specific Coordinated Breaker Rating (3)			Any Breaker Rating		
				Max. Circuit Breaker Size Amps	Max. Circuit Amps at 480 VAC (UL)	Max. Circuit Amps at 600 VAC (CSA)	Max. Circuit Amps at 480 VAC (UL)	Max. Circuit Amps at 600 VAC (CSA)	
Series	UL 1008 CTS Switch Rating	Max. Fuse Size Amps	Max. Circuit Amps at 480 VAC (UL)	Max. Circuit Amps at 600 VAC (CSA)	Max. Circuit Breaker Size Amps	Max. Circuit Amps at 480 VAC (UL)	Max. Circuit Amps at 600 VAC (CSA)	Max. Circuit Amps at 480 VAC (UL)	Max. Circuit Amps at 600 VAC (CSA)
CTS (2)	40	50	200,000	200,000	400	30,000	22,000	10,000	10,000
CTS (2)	80	100	200,000	200,000	400	30,000	22,000	10,000	10,000
CTS (2)	100	125	200,000	200,000	400	30,000	22,000	10,000	10,000
CTS (2)	150	200	200,000	200,000	400	30,000	22,000	10,000	10,000
CTS (2)	200	200	200,000	200,000	400	30,000	22,000	10,000	10,000
CTS (2)	225	300	200,000	200,000	400	50,000	42,000	35,000	35,000
CTS (2)	260	350	200,000	200,000	400	50,000	42,000	35,000	35,000
CTS (2)	400	500	200,000	200,000	800	50,000	42,000	35,000	35,000
CTS	600	750	200,000	150,000	800	65,000	50,000	50,000	42,000
CTS	800	1000	200,000	150,000	1200	65,000	65,000	50,000	42,000
CTS	1000	1250	200,000	150,000	1600	85,000	65,000	50,000	42,000
CTS	1200	1500	200,000	150,000	1600	85,000	65,000	50,000	42,000
CTS	1600	2000	200,000	150,000	2500	100,000	85,000	100,000	85,000
CTS	2000	2500	200,000	150,000	2500	100,000	85,000	100,000	85,000
CTS	3000	4000	200,000	150,000	4000	100,000	85,000	100,000	85,000
CTS	4000	6000	200,000	150,000	5000	100,000	85,000	100,000	85,000
CBTS (2)	100	125	200,000	200,000	800	50,000	42,000	35,000	35,000
CBTS (2)	150	200	200,000	200,000	800	50,000	42,000	35,000	35,000
CBTS (2)	225	300	200,000	200,000	800	50,000	42,000	35,000	35,000
CBTS (2)	260	350	200,000	200,000	800	50,000	42,000	35,000	35,000
CBTS (2)	400	600	200,000	200,000	800	50,000	42,000	35,000	35,000
CBTS	600	750	200,000	150,000	800	65,000	50,000	50,000	42,000
CBTS	800	1000	200,000	150,000	1600	85,000	65,000	50,000	42,000
CBTS	1000	1250	200,000	150,000	1600	85,000	65,000	50,000	42,000
CBTS	1200	1500	200,000	150,000	1600	85,000	65,000	50,000	42,000
CBTS	1600	2500	200,000	150,000	2500	100,000	85,000	100,000	85,000
CBTS	2000	2500	200,000	150,000	2500	100,000	85,000	100,000	85,000
CBTS	3000	4000	200,000	150,000	4000	100,000	85,000	100,000	85,000
CBTS	4000	6000	200,000	150,000	5000	100,000	85,000	100,000	85,000
CTSD (2)	40	50	200,000	200,000	800	50,000	42,000	35,000	35,000
CTSD (2)	80	100	200,000	200,000	800	50,000	42,000	35,000	35,000
CTSD (2)	100	125	200,000	200,000	800	50,000	42,000	35,000	35,000
CTSD (2)	150	200	200,000	200,000	800	50,000	42,000	35,000	35,000
CTSD (2)	225	300	200,000	200,000	800	50,000	42,000	35,000	35,000
CTSD (2)	260	350	200,000	200,000	800	50,000	42,000	35,000	35,000
CTSD (2)	400	600	200,000	200,000	800	50,000	42,000	35,000	35,000

CTSD 600 amp – 4000 amp – Ratings identical to CTS Series

CTSD and CBTSCT 100 amp – 4000 amp – Ratings identical to CBTS Series

NOTES:

1. For each rating attained in above table, the heat run was performed after the overload and endurance tests.
2. These models also listed for 100% tungsten lamp loads.
3. Contact Caterpillar for coordinated breaker types and ratings.
4. All transfer switches are rated in coordination with the protective device installed.
Lower rated devices than those shown may be utilized and the system rated accordingly.
5. Contact Caterpillar for IEC ratings.

The information contained in this publication may be considered confidential.
Use discretion when distributing.

LEHE4651-00

© 2004 Caterpillar
Printed in USA
All rights reserved.

ACORD™ CERTIFICATE OF LIABILITY INSURANCEDATE (MM/DD/YYYY)
03/31/2009**PRODUCER**

Marsh USA, Inc.
112 East Pecan
Suite 2625
San Antonio, TX 78205-1505
Attn: Karen Haas 210 299 3343 Fax 210 299 3350
413630-CAT 2-08/09

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURED

Holt Texas Ltd
dba Holt CAT
P. O. Box 207916
San Antonio, TX 78220

INSURERS AFFORDING COVERAGE**NAIC #**

INSURER A: Travelers Property Casualty Company Of

25674

INSURER B: N/A

N/A

INSURER C: Travelers Indemnity Co

25658

INSURER D: N/A

N/A

INSURER E:

COVERAGES

5

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR	ADD'L	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS
A	X	GENERAL LIABILITY ☒ COMMERCIAL GENERAL LIABILITY ☐ CLAIMS MADE ☒ OCCUR GENERAL AGGREGATE LIMIT APPLIES PER ☒ POLICY ☐ PRO-JECT ☐ LOC	TC2JGLSA-750G3730-TIL-09	04/01/09	04/01/10	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 350,000 MED EXP (Any one person) \$ 10,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 10,000,000 PRODUCTS - COMP/OP AGG \$ 3,000,000
A	X	AUTOMOBILE LIABILITY ☒ ANY AUTO ALL OWNED AUTOS SCHEDULED AUTOS HIRED AUTOS NON-OWNED AUTOS	TC2JCAP-750G3698-TIL-09	04/01/09	04/01/10	COMBINED SINGLE LIMIT (Ea accident) \$ 2,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
		GARAGE LIABILITY ANY AUTO				AUTO ONLY - EA ACCIDENT \$ OTHER THAN EA ACC \$ AUTO ONLY: AGG \$
		EXCESS/UMBRELLA LIABILITY ☐ OCCUR ☐ CLAIMS MADE DEDUCTIBLE RETENTION \$				EACH OCCURRENCE \$ AGGREGATE \$ \$ \$ \$
C		WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? If yes, describe under SPECIAL PROVISIONS below OTHER	TC2KUB-750G3662-09	04/01/09	04/01/10	X WC STATU-TORY LIMITS OTH-ER E.L. EACH ACCIDENT \$ 2,000,000 E.L. DISEASE - EA EMPLOYEE \$ 2,000,000 E.L. DISEASE - POLICY LIMIT \$ 2,000,000

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/EXCLUSIONS ADDED BY ENDORSEMENT/SPECIAL PROVISIONS

Hidalgo County is included as Additional Insured, with regards to AL & GL as agreed in written contract executed prior to loss, but only for those limits agreed to in such contract or the limits of liability of this policy, whichever is less.

CERTIFICATE HOLDER

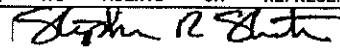
HOU-001071575-05

CANCELLATION

Hidalgo County
2802 S. Bus. Hwy 281
Edinburg, TX 78539

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE
of Marsh USA Inc.
Stephen R. Skeeter



IMPORTANT

If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

DISCLAIMER

The Certificate of Insurance on the reverse side of this form does not constitute a contract between the issuing insurer(s), authorized representative or producer, and the certificate holder, nor does it affirmatively or negatively amend, extend or alter the coverage afforded by the policies listed thereon.