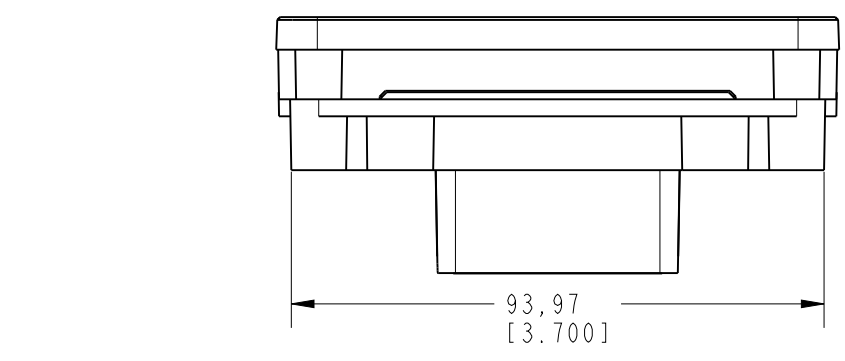


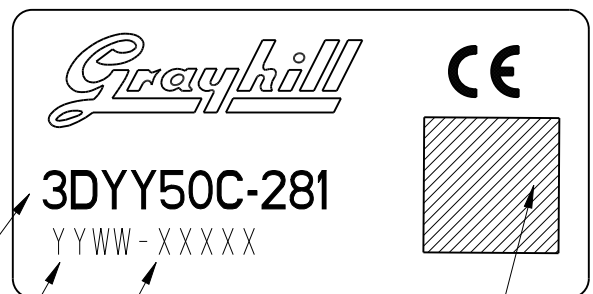
ALL REVISIONS TO THIS DRAWING MUST BE MADE ON THE PRO/E SYSTEM

**GRAYHILL INC.**  
**CRITICAL PART**  
 NO CHANGES ARE ALLOWED TO THIS DRAWING, THE BILL OF MATERIAL, THE PRODUCTION PROCESS REQUIRED TO BUILD THIS PRODUCT, OR THE LOCATION OF MANUFACTURE WITHOUT EVIDENCE OF CUSTOMER APPROVAL.

REVISIONS		
ISSUE	DESCRIPTION	APPD/DATE
A	ORIGINAL. ECN#418992 LHM 07-11-2019	BJH/RMO 07-11-19



DETAIL B  
STANDARD LABEL INFORMATION  
(LABEL P/N SSS2427-11)



PART NUMBER: 3DYY50C-281  
 DATE CODE: YYWW-XXXXX  
 SERIAL NUMBER: [Barcode Area]  
 2D BARCODE CONTAINING: PART NUMBER, DATE CODE, SERIAL NUMBER

**TABLE C  
CONNECTOR INFORMATION**

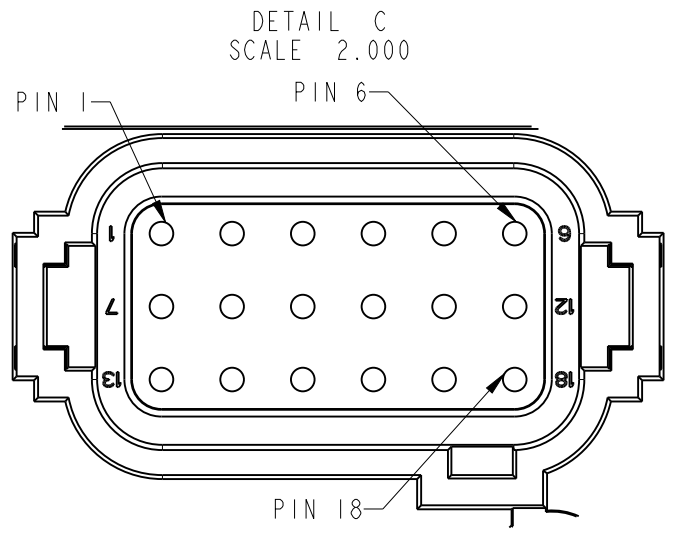
PIN#	PART NUMBER:
	3D50VT-100
1	POWER
2	GROUND
3	SWITCHED POWER
4	DIGITAL IN 1
5	DIGITAL OUT 1
6	DIGITAL I/O 2
7	DIGITAL I/O 3
8	DIGITAL I/O 4
9	VIDEO 1 +
10	VIDEO 1 -
11	VIDEO 2 +
12	VIDEO 2 -
13	CAN 1 HIGH
14	CAN 1 LOW
15	CAN 2 HIGH
16	CAN 2 LOW
17	RS232Tx
18	RS232Rx

ASSEMBLY MATES WITH  
 DEUTSCH PART NUMBER DT16-18SA-K004  
 18 PIN DT SERIES CONNECTOR

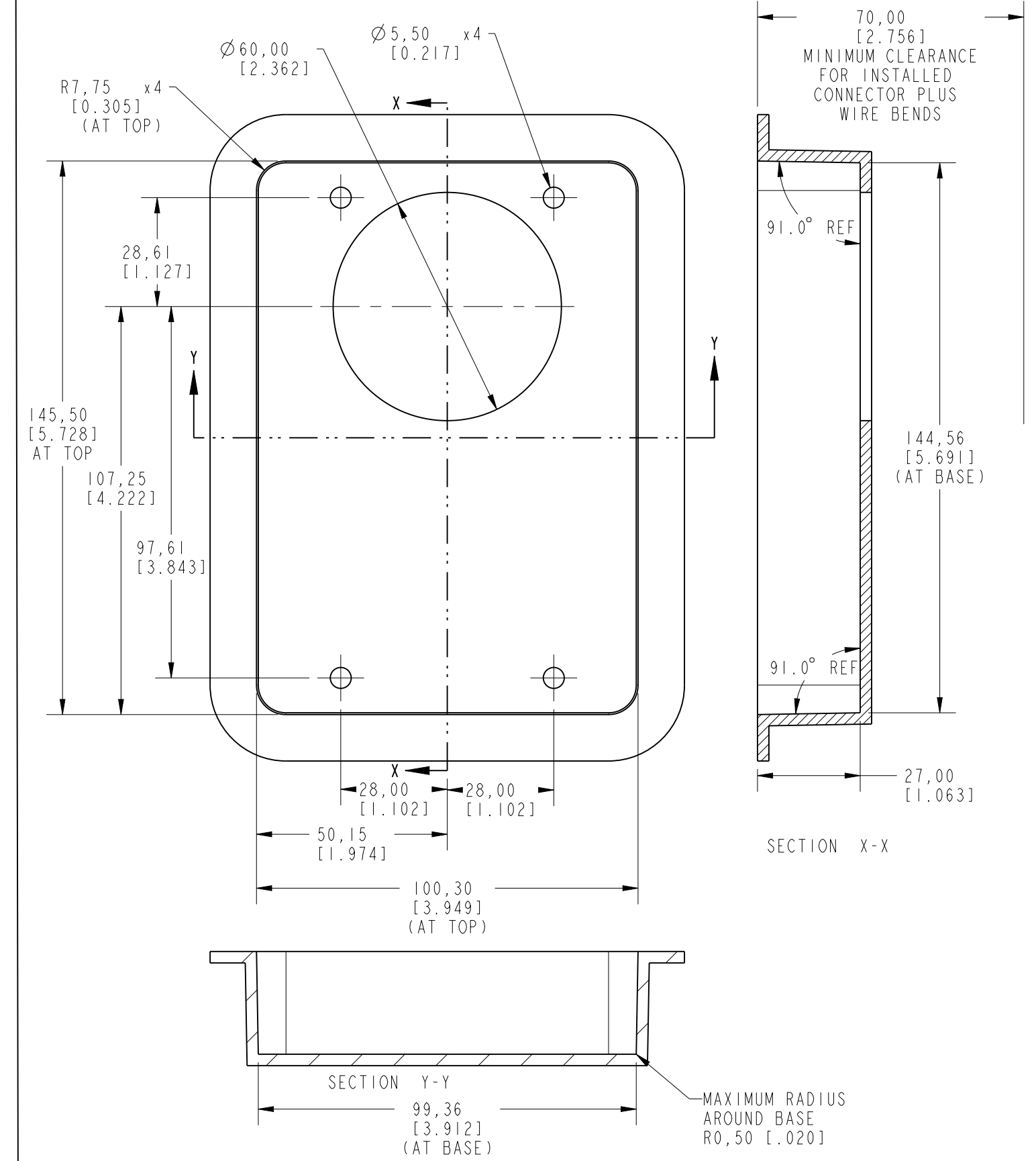
**TABLE A**

	RS232	USB 2.0	CAN1	CAN2	VIDEO1	VIDEO2	RTC	TOUCH	DIG IN	DIG OUT	DIG I/O	VUI Builder	QT 4.8.6	CODESYS
3DYY50C-247	X	X	X	X	X	X	X	X	1	1	3		X	

- NOTES:
- SAME AS 3D50VT-100 EXCEPT HAS CUSTOMER QT 4.8.6 APPLICATION 3DPR50C-281 LOADED.
  - OPERATING VOLTAGE: 8VDC TO 32VDC  
 STANDBY CURRENT: <1mA  
 POWER CONSUMPTION: 6 W (TYP)
  - OPERATING TEMPERATURE: T(MIN) = -30°C, T(MAX) = +65°C  
 STORAGE TEMPERATURE: T(MIN) = -40°C, T(MAX) = +85°C
  - MOUNTING INFORMATION:  
 MOUNTING SCREWS: M5x0.8 THREAD, 4 PLACES.  
 MAX MOUNTING SCREW LENGTH = 10MM + PANEL THICKNESS  
 RECOMMENDED INSTALLATION TORQUE = 3 N-m [26.5 in-lb]
  - LABEL TO BE PER DETAIL B.
  - SEE TABLE C FOR PINOUT AND MATING CONNECTOR INFORMATION.
  - PERFORMANCE SPECIFICATIONS SAME AS 3D50XX-XXX.
  - APPROXIMATE UNIT WEIGHT IS 0.36 KILOGRAMS



**RECOMMENDED PANEL GEOMETRY**



UNLESS OTHERWISE SPECIFIED TOLERANCES AND DIMENSIONS ARE IN MILLIMETERS LINEAR ± 0.50 DIAMETERS ± 0.12 ANGULAR ± NA RADII ± 0.12 LIMITS APPLY BEFORE FINISHING DO NOT SCALE THIS PRINT	APPROVED DATE RMO 07-11-2019
CRITICAL CHARACTERISTIC FLAGS PER GRAYHILL SPEC.SOP2338 -- CRITICAL CHARACTERISTIC FLAG	CHECKED DATE BJH 07-11-2019
THIS DRAWING SHALL MEET THE REQUIREMENTS OF GRAYHILL PPAF SPECIFICATION SOP2924 CURRENT REVISION. THIS SPECIFICATION APPLIES TO PURCHASED COMPONENTS ONLY.	DRAWN DATE LHM 07-11-2019
	FINISH SEE NOTES
	MATERIAL SEE NOTES

**Grayhill** GRAYHILL INC.  
 561 HILLGROVE AVE. PHONE (708)  
 LA GRANGE ILL. 60525 354-1040

**5 INCH, HME, SEAT BELT**

SIZE	DWG NO. <b>3DYY50C-281</b>	ISSUE <b>A</b>
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SCALE 0.750 UNIT WEIGHT 0.36 kg SHEET 1 OF 2

DWG NO. 3DYY50C-281 SH 1 ENG3100

## PERFORMANCE SPECIFICATIONS

CE COMPLIANCE: EN 13309:2010, ELECTRONIC SUBASSEMBLY		
DESCRIPTION	REFERENCE STANDARD	LEVELS / NOTES
INDUCTIVE LOAD DISCONNECT	ISO 7637-2:2004 5.6.1	LEVEL 4
WIRING HARNESS INDUCTANCE	ISO 7637-2:2004 5.6.2	LEVEL 3
SWITCHING TRANSIENTS	ISO 7637-2:2004 5.6.3	LEVEL 4
STARTING PROFILE	ISO 7637-2:2004 5.6.4	LEVEL 3
LOAD DUMP TRANSIENT	ISO 7637-2:2004 5.6.5	PULSE 5A LEVEL 4
BROADBAND RADIATED EMISSIONS	ISO 14982 6.4	
NARROWBAND RADIATED EMISSIONS	ISO 14982 6.5	
BULK CURRENT INJECTION IMMUNITY	ISO 11452-4 2005-04-01	60MA, 1KHz AM 80%
ALSE RADIATED IMMUNITY	ISO 11452-2:2004-11-01	30V/M, 1KHz AM 80% MOD, 80-2000MHZ
ESD OPERATING	ISO 10605:2008	8KV DIRECT CONTACT, 15KV AIR DISCHARGE

ELECTROMAGNETIC COMPATIBILITY		
DESCRIPTION	REFERENCE STANDARD	LEVELS / NOTES
ESD HANDLING	ANSI/ASAE EP455 5.12.2	LEVEL 1
ESD POWERED	ANSI/ASAE EP455 5.12.1	LEVEL 2
RADIATED IMMUNITY	EP455 5.16	LEVEL 1
CONDUCTED EMISSIONS	CISPR25	LEVEL 3

ELECTRICAL		
DESCRIPTION	REFERENCE STANDARD	LEVELS / NOTES
MAXIMUM LOAD	ANSI/ASAE EP455 5.1.1	T(MAX) = +65C
JUMP START FORWARD VOLTAGE	ANSI/EP455 5.10.2	36VDC FOR 5MIN
REVERSE POLARITY	ANSI/EP455 5.10.3	-36VDC FOR 5MIN
SHORT CIRCUIT	ANSI/EP455 5.10.4	36VDC FOR 5MIN
STARTING PROFILE	ISO 16750-2:2006-08-01 4.6.3	CODE C FOR 12V, CODE E FOR 24V
BATTERY-LESS OPERATION	ANSI/ASAE EP455 5.11.3	LEVEL 1
HARNESS INDUCTANCE SWITCHING	ISO 7637-3	LEVEL 4
INDUCTIVE LOAD SWITCHING	ANSI/ASAE EP455 5.11.4	LEVEL 2
MUTUAL COUPLING	ANSI/ASAE EP455 5.11.6	LEVEL 2
ALTERNATOR FIELD DECAY	ANSI/ASAE EP455 5.11.2	

ENVIRONMENTAL		
DESCRIPTION	REFERENCE STANDARD	LEVELS / NOTES
OPERATING TEMPERATURE	ANSI/ASAE EP455 5.1.1	T(MAX) = +65°C, T(MIN) = -30°C
STORAGE TEMPERATURE	ANSI/ASAE EP455 5.1.2	LEVEL 2
THERMAL SHOCK	ANSI/ASAE EP455 5.1.3	
ALTITUDE	ANSI/ASAE EP455 5.2.2	
SOLAR RADIATION	ISO 4892-2	METHOD B, CYCLE 2, 300 HOURS
WASH DOWN	ANSI/ASAE EP455 5.6	LEVEL 2
STORAGE HUMIDITY	ANSI/ASAE EP455 5.13.2	
SALT EXPOSURE	ANSI/ASAE EP455 5.9	LEVEL 1
CHEMICAL RESISTANCE	ISO 16750-5	
SAND AND DUST	IEC-60529	IP6X (MATING CONNECTOR INSTALLED)
WATER IMMERSION	IEC-60529	IPX7 (MATING CONNECTOR INSTALLED)

MECHANICAL		
DESCRIPTION	REFERENCE STANDARD	LEVELS / NOTES
MECHANICAL VIBRATION, RANDOM	ANSI/ASAE EP455 5.15.1	
MECHANICAL VIBRATION, SINUSOIDAL	ANSI/ASAE EP455 5.15.2	
OPERATING SHOCK	ANSI/ASAE EP455 5.14.1	
INSTALLATION SHOCK	ANSI/ASAE EP455 5.14.2.1	
BENCH HANDLING SHOCK	ANSI/ASAE EP455 5.14.2.2	LEVEL 2
LENS IMPACT	N/A	0.25kg MASS, 800 MM DROP, SS BALL TIP

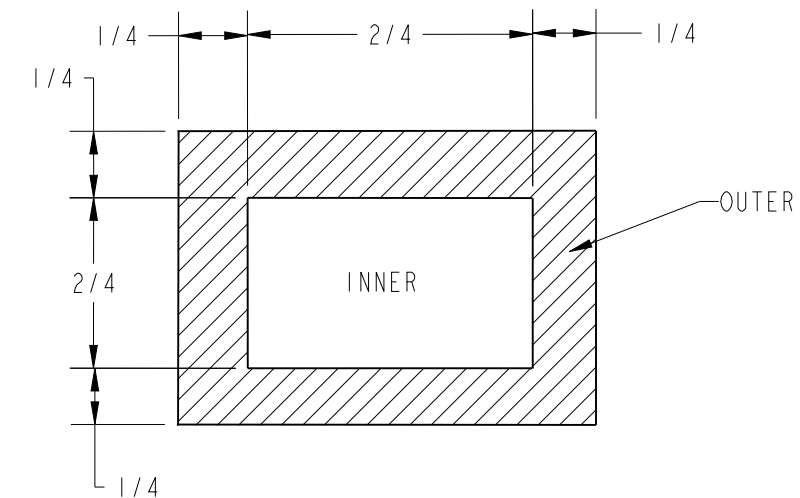
LCD SPECIFICATION	
BRIGHTNESS	700 cd/mm2 (typical)
CONTRAST RATIO	600:1 (typical)
VIEWING ANGLE LANDSCAPE	RIGHT=65degrees, LEFT=65, TOP=60, BOTTOM=50
VIEWING ANGLE PORTRAIT	RIGHT=50degrees, LEFT=60, TOP=65, BOTTOM=65

Front Glass Allowable Defects SCRATCH/DIG 80/50 PER MIL-PRF-13830B
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Optical Bonding Allowable Defects PER Grayhill SVV4187
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LCD ALLOWABLE DEFECTS				
ITEM	AREA (DIAGRAM - D)	JUDGMENT CRITERIA		
		I	O	
POINT DEFECT	BRIGHT DOT	RANDOM	2	
		2 DOTS ADJACENT	0	
		3 DOTS ADJACENT OR MORE	0	
	DARK DOT	RANDOM	2	
		2 DOTS ADJACENT	0	
		3 DOTS ADJACENT OR MORE	0	
	TOTAL DOT DEFECT		5	
	DISTANCE	DISTANCE BETWEEN BRIGHT AND BRIGHT DOT	L > 5mm	
		DISTANCE BETWEEN BRIGHT AND DARK DOT	L > 5mm	
		DISTANCE BETWEEN DARK DOT	L > 5mm	
(1) A DOT IS AN R,G, OR B PIXEL				
(2) IT IS DEFINED AS POINT DEFECT IF DEFECT AREA > 0.5 DOT				
(3) IT IS IGNORED IF DEFECT AREA < 0.5 DOT				
(4) WEAK POINT DEFECT WILL BE DEFINED AS BRIGHT DOT IF IT CAN BE OBSERVED THROUGH ND FILTER 6% (FULL SCREEN BLACK INSPECTION)				
FOREIGN MATERIAL IN SPOT SHAPE	VISIBLE UNDER: ND6% D<0.2mm: IGNORED 0.2mm<D<0.5mm: N<5 D>0.5mm: NOT ALLOWED			
FOREIGN MATERIAL IN LINE OR SPIRAL SHAPE	VISIBLE UNDER: ND6% W<0.05mm OR L<5mm: IGNORED 0.05mm<W<0.2mm AND L1.0mm <5mm: N<8 W>0.2mm OR L>5mm: NOT ALLOWED			

DIAGRAM - D: INNER/OUTER AREA DEFINITION



BATTERY SPECIFICATION	
TYPE	LITHIUM NON-RECHARGEABLE
CAPACITY	120 mAh
LIFE	designed for minimum 10 years life in typical use
MANUFACTURER PART NUMBER	PANASONIC BR-1632A/FAN

ALL SHEETS HAVE THE SAME REVISION LEVEL. ADD ALL DESCRIPTIONS OF REVISIONS FOR THIS SHEET ON SHEET 1.

**Grayhill** GRAYHILL, INC.  
561 HILLGROVE AVE.  
LA GRANGE, IL 60525  
PHONE (708) 354-1040

C SIZE	DWG. NO. <b>3DYY50C-281</b>	ISSUE <b>A</b>
SCALE 0.750	SHEET 2 OF 2	

DWG NO 3DYY50C-281 SH 2 ENG312D-2