

# **Model 20201/20201-A/20201-B**

## **Wind Sensor Heater**

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### **User's Manual**



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## INTRODUCTION

The 20201 heater series was designed to prevent ice build-up on the Micro Response Wind Sensors (Model 2020, 2030, 2031, and 2032) during cold, stormy weather. These heaters mount directly to the wind sensor body, and dissipate 20 watts of power (standard) when "ON". They produce a temperature rise near the top of the wind sensor of about 40°F above ambient temperatures with very light winds. Larger heaters are optionally available for climates requiring greater heating capability.

Three versions of the heater are available. The Model 20201 and 20201-A operate on 115 VAC 50/60 Hz and 230 VAC 50/60 Hz, respectively. The only difference between the two models is the heating cartridge part number. The Model 20201-B requires +12 VDC, and is ideally suited for use in remote locations where AC power is not available. A three-conductor power cable, T600503, supplies power to the heaters. Connectors for the heater body and cable are included with the heaters.

## SPECIFICATIONS

Temperature rise	~40°F @ 0 wind
Internal resistance	
Model 20201	710 ohms
Model 20201-A	2730 ohms
Model 20201-B	7.2 ohms
Operating voltage	
Model 20201	115 VAC 50/60 Hz
Model 20201-A	230 VAC 50/60 Hz
Model 20201-B	12 VDC
Power	20 watts standard, all models
Size	2.64" dia. x 1.5" H (67 mm dia. x 38 mm H)
Weight Shipping	1 lb./2 lbs. (0.4 kg/0.9kg)

## INSTALLATION

This instrument is thoroughly tested and fully calibrated at the factory and is ready for installation. Please refer to the return authorization card included in the packing box if damage has occurred. Also, notify All Weather Inc.

- 1 Remove the three screws in the base of the wind sensor. The base will then be free from the main body of the sensor. Discard the three screws.
- 2 Place the heater block between the main body and the base using the dowel pins for orientation. Attach the three assemblies together, using the three 6-32 x 2" screws provided.
- 3 Connect the power as shown in Schematic 20201-004, 20201-A04, or 20201-B04, depending on the particular model. It is recommended that a thermostat be placed in series with the power lines for automatic energizing of the heaters.

## THEORY OF OPERATION

When the temperature of outdoor instrumentation falls below 32°F (0°C), super-cooled water droplets may freeze on impact, creating large rime accumulations on instruments. Eventually this stops all movement in the wind sensors. The heater accessory helps prevent such ice build-up by warming the sensor body. The amount of warming depends largely on the wind flowing past the sensor, since ventilation enhances heat transfer away from the sensor body.

In addition to retarding ice formation, the heaters keep the inside of the sensor body free from condensation by keeping the sensor body temperature above ambient temperature. In cold, moist regions it is recommended that the AC heaters (20201, 20201-A) operate continuously for this purpose.

## CALIBRATION

This instrument does not require any scaling or calibration.

## MAINTENANCE

This accessory does not require any preventive maintenance. However, if a thermostat is used in series with the heater, it should be checked periodically for correct operation. The wind sensors should never exceed a temperature of 150°F (65°C). For this reason, the heaters should be off when ambient temperatures warm to 80°F (27°C) or above.

For the Model 20201-B (12 VDC), the power source (car battery, DC generator, solar panel, or combination thereof) must be maintained. The unit drains 1.67 amps when on, and the power source must be capable of supplying such a load. Also, a thermostat control is highly recommended with this model to reduce the "on" time and increase the lifetime of the battery source.

## WARRANTY

Unless specified otherwise, All Weather Inc. (the Company) warrants its products to be free from defects in material and workmanship under normal use and service for one year from date of shipment, subject to the following conditions:

- (a) The obligation of the Company under this warranty is limited to repairing or replacing items or parts which have been returned to the Company and which upon examination are disclosed, to the Company's satisfaction, to have been defective in material or workmanship at time of manufacture.
- (b) The claimant shall pay the cost of shipping any part or instrument to the Company. If the Company determines the part to be defective in material or workmanship, the Company shall prepay the cost of shipping the repaired instrument to the claimant. Under no circumstances will the Company reimburse claimant for cost incurred in removing and/or reinstalling replacement parts.

- (c) This warranty shall not apply to any Company products which have been subjected to misuse, negligence or accident.
- (d) This warranty and the Company's obligation thereunder is in lieu of all other warranties, express or implied, including warranties of merchantability and fitness for a particular purpose, consequential damages and all other obligations or liabilities.

No other person or organization is authorized to give any other warranty or to assume any additional obligation on the Company's behalf, unless made in writing and signed by an authorized officer of the Company.

## DRAWINGS AND PARTS LIST

The following pages include assembly drawings and parts list for this instrument. Please note that the parts lists are arranged in assembly/subassembly form. Each subassembly is on its own page. Subassemblies and parts are listed in the smallest economical size available from All Weather Inc.

REVISONS		DWG NO.	20201-003
REV	ECN	DESCRIPTION	DATE
A	3337	SEE ECN FOR HISTORY	10/4/89
B	3662	SEE ECN FOR HISTORY	3/13/90
C	4250	ADD ITEM #S AND CHANGE DIMENSIONS	5/13/93

NOTES: UNLESS OTHERWISE SPECIFIED;

1. APPLY HEATSINK COMPOUND IT-3 (T160009) TO HEATER BEFORE INSERTING INTO CAVITY.
2. BAG AND MARK WITH PART NUMBERS IT-5 (T210021), AND THREE EACH IT-10 (T721011), ATTACH TO ASSY.

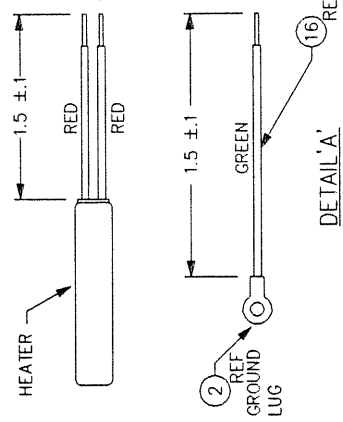
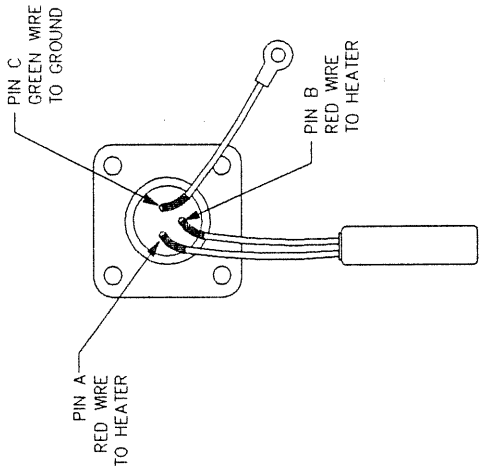
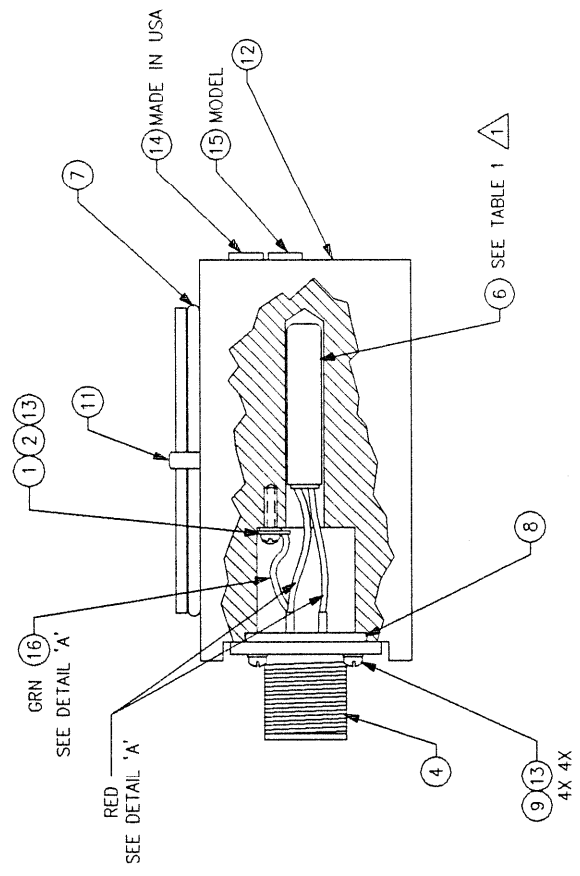
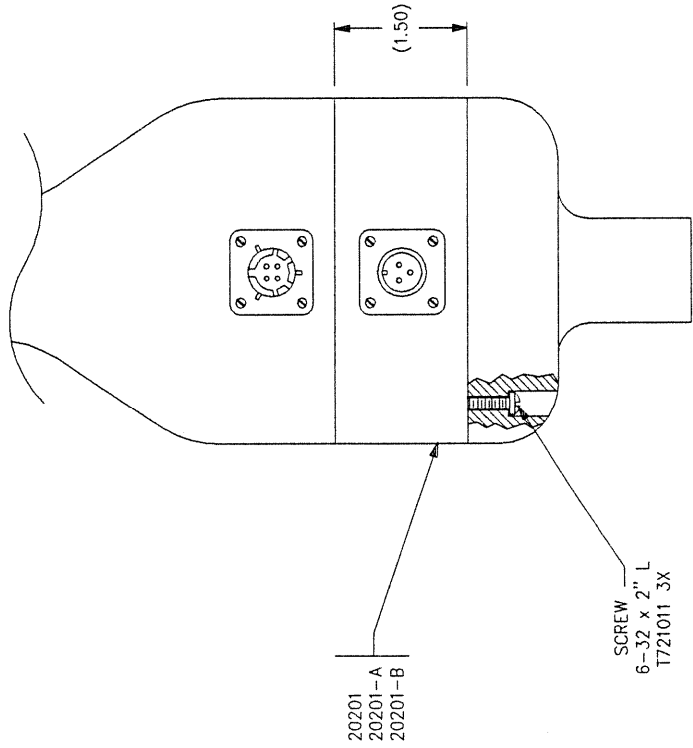


TABLE 1

MODEL	VOLTAGE	HEATER
20201	115VAC	T289000
20201-A	230VAC	T289006
20201-B	12VDC	T289005

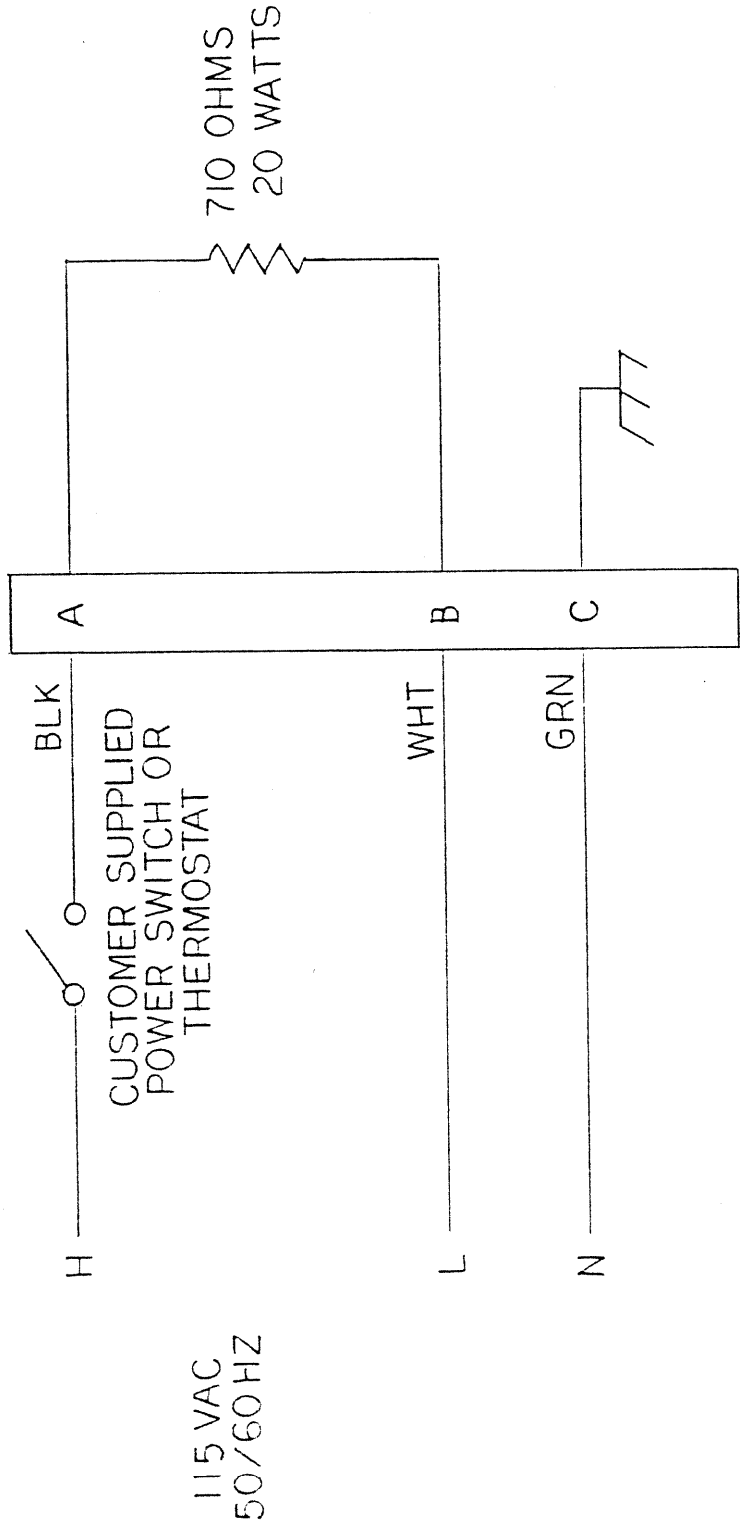
		<b>20201-003</b>	
TITLE <b>ASSEMBLY DRAWING          HEATER, WIND SYS.</b>		DWG NO. <b>C</b>	SCALE NONE
DRAWN BY: <b>PETE SANCHEZ</b>	CHECKED BY: <b>10MAT93</b>	DATE <b>5/13/93</b>	SHEET 1 OF 2
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES XX=±.010 XXX=±.005 ANGLES ±1/2° FRACTIONS=±.02 DO NOT SCALE DRAWING		PROGRAM MANAGER: <b>AS ISSUED</b>	
MATL SEE BILL OF MATERIALS		FINISH AS ISSUED	
TREATMENT AS ISSUED		APPROVALS <b>5/13/93</b>	
NEXT QTY RECD	NEXT ASSY	USED ON	APPLICATIONS

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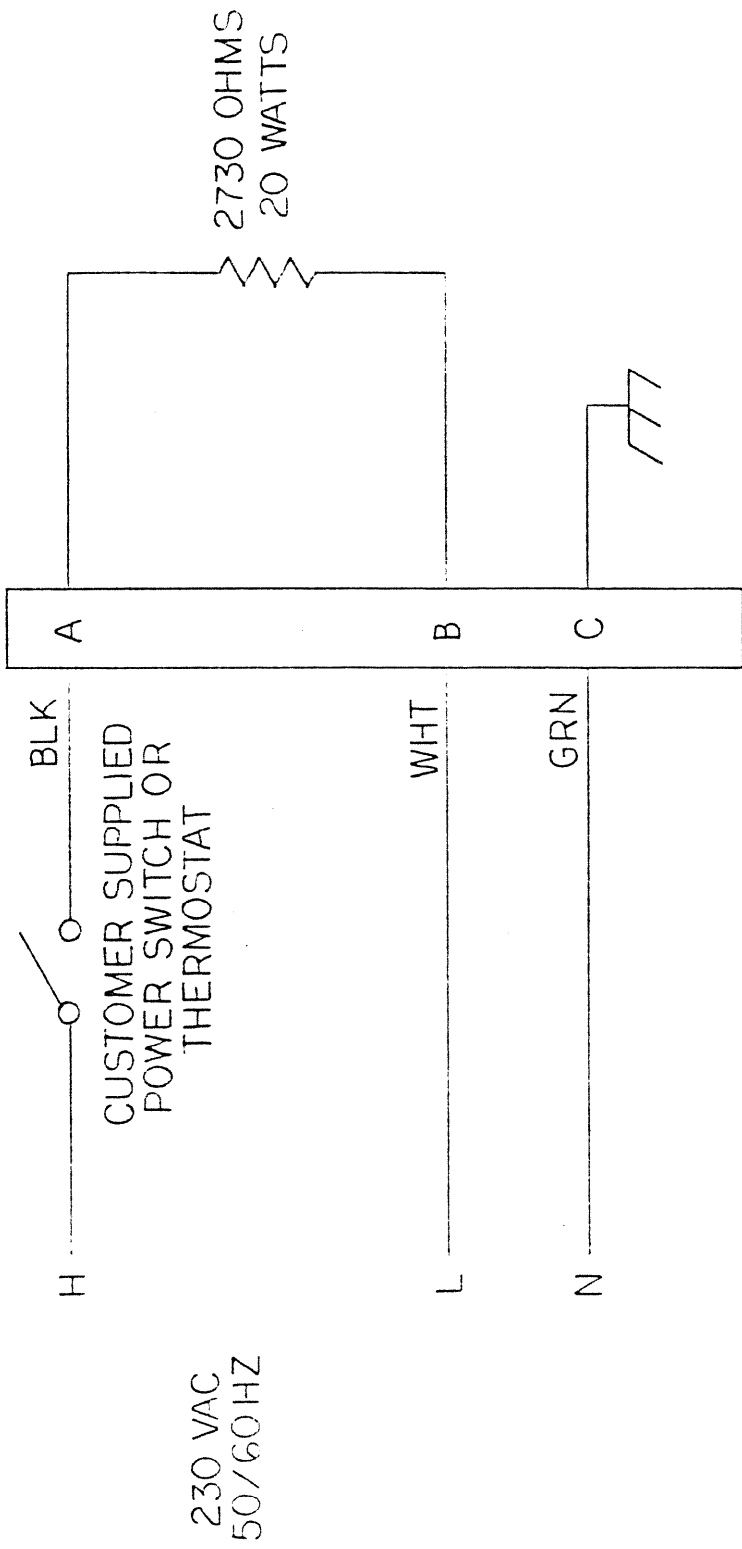
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THIS DOCUMENT AND THE DATA DISCLOSED HEREIN  
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THE WRITTEN PERMISSION OF QUALIMETRICS, INC..

SIZE	DWG. NO.	REV. LTR.	SHEET
C	20201-003	C	2 OF 2
SCALE	NONE		

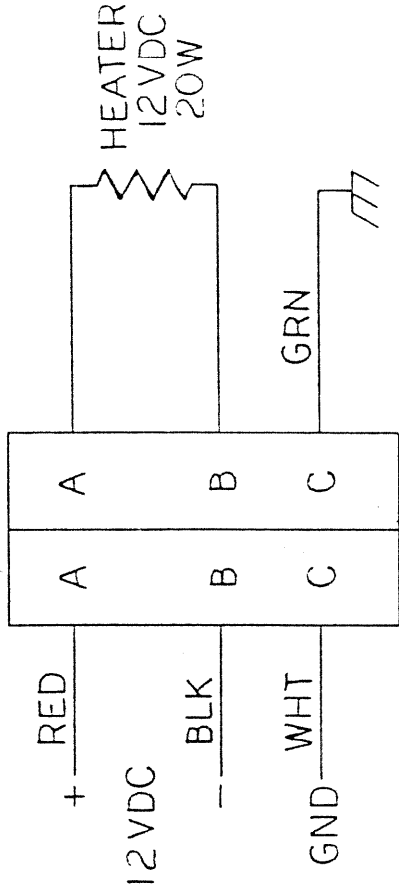


REV	ECN	DATED	QTY	NEXT	ASM	TOLERANCES UNLESS OTHERWISE NOTED: XXX = ± .005 XX = ± .010 FRACTIONS = ± .02 ANGLES ± 1/2° CONCENTRICITY = .003 TIR		WeatherMeasure <b>WEATHERtronics</b> Division of QUALIMETRICS, Inc.		A
						MATL	NOMENCLATURE		SCHEMATIC HEATER WIND SYS	
						FINISH	MOD. USAGE 2020,30,31,32		SHEET 1 OF 1	
						ENGR	BY	GT	SCALE	DWG. NO.
						APPRO	DT 9-11-84		Ø	20201-004





REV	ECN	DATED	QTY	NEXT	ASM	TOLERANCES UNLESS OTHERWISE NOTED: XXX = ± .005 XX = ± .010 FRACTIONS = ± .02 ANGLES ± 1/2° CONCENTRICITY = .003 TIR		WeatherMeasure <b>WEATHERtronics</b> Division of QUALIMETRICS, Inc.		A
						MATL	NOMENCLATURE		SCHEMATIC	
						FINISH	HEATER WIND SYS.		HEATER WIND SYS.	
						ENGR	MOD. USAGE	2020, 30, 31, 32	SHEET	1 OF
						APPRO	BY	GT	SCALE	DWG. NO.
							DT	9-20-84	Ø	20201-A0.1



REV	ECN	DATED	QTY	NEXT	ASM	 Division of QUALIMETRICS, Inc.	A
TOLERANCES UNLESS OTHERWISE NOTED: XXX = ± .005 XX = ± .010 FRACTIONS = ± .02 ANGLES ± 1/2° CONCENTRICITY = .003 TIR						NOMENCLATURE SCHEMATIC HEATER, WIND SYS.	MOD. USAGE 2020 2031 2032 SHEET 1 OF
MATL FINISH							
ENGR APPRO						DT DT 9-11 84	DT 9-5-84

05/03/93 00  
4.3.10

QUALIMETRICS, INC.  
BILL OF MATERIAL INQUIRY - 20201

PAGE 1  
8:47 AM (R0701Z)

LINE NO	RUN/SET UP	COMPONENT	QTY EACH	UOM
10		ECN ENGR CHANGE NUMBER 4250 5/7/93	.0000	EA
20		20201-001 MANUAL	1.0000	EA
30		M004027 SCR 4-40 X .250 PAN SS PHIL IT-1	1.0000	EA
50		T160009 SILICON COMP HTSNKZ9 IT-3	1.0000	AR
60		T210020 RECEPTACLE PLUG IT-4	1.0000	EA
70		T210021 PLUG, STRAIGHT IT-5	1.0000	EA
80		T289000 CARTRIDGE HEATER 120V 20W IT-6	1.0000	EA
90		T712507 O-RING .070 X 1.864ID NEOPRENE IT-7	1.0000	EA
100		T712509 O-RING .070 X .676ID IT-8	1.0000	EA
110		T721000 SCR 4-40 X .375 FIL SS IT-9	4.0000	EA
120		T721011 SCR 6-32 X2.000 FIL SS IT-10	3.0000	EA
130		T724000 PIN DOWEL .156 X.500 SS IT-11	1.0000	EA
140		T800214 BODY HEATER IT-12	1.0000	EA

(PART NO)=A4\$ OR A4\$(1,3)="ALL"

05/03/93 00  
4.3.10

QUALIMETRICS, INC.  
BILL OF MATERIAL INQUIRY - 20201

PAGE 2  
8:47 AM (R070IZ)

LINE NO	RUN/ SET UP	COMPONENT	QTY EACH	UOM
150		M419073 TERMINAL RING 26-22 AWG NON-IN IT-2	1.0000	EA
160		T723400 WASHER LOCK #4 SS SPLIT IT-13	5.0000	EA
170		T430044 LABEL "MADE IN USA" IT-14	1.0000	EA
180		T430046 LABEL "MODEL --" IT-15	1.0000	EA
190		M492089 WIRE HOOKUP 22 GA STRND IT-16	2.0000	IN
9010	.5000 .5000	ELECTRONICS	10.0000	EA

05/03/93 00  
4.3.10

QUALIMETRICS, INC.  
BILL OF MATERIAL INQUIRY - 20201-A 8:47 AM (R0701Z)

PAGE 1

LINE NO	RUN/SET UP	COMPONENT	QTY EACH	UOM
10		ASM ASSEMBLY DRAWING 20201-003	1.0000	EA
20		ECN ENGR CHANGE NUMBER 4250 5/7/93	.0000	EA
30		SCH SCHEMATIC 20201-A04	1.0000	EA
40		20201-001 MANUAL	1.0000	EA
70		M004027 SCR 4-40 X .250 PAN SS PHIL IT-1	1.0000	EA
80		M419073 TERMINAL RING 26-22 AWG NON-IN IT-2	1.0000	EA
90		T289006 CARTRIDGE HEATER 230V 20W IT-6	1.0000	EA
100		T160009 SILICON COMP HTSNKZ9 IT-3	1.0000	AR
110		T210020 RECEPTACLE PLUG IT-4	1.0000	EA
120		T210021 PLUG, STRAIGHT IT-5	1.0000	EA
130		T430044 LABEL "MADE IN USA" IT-14	1.0000	EA
140		T430046 LABEL "MODEL --" IT-15	1.0000	EA
150		T712507 O-RING .070 X 1.864ID NEOPRENE IT-7	1.0000	EA

(PART NO)=A4\$ OR A4\$(1,3)="ALL"

05/03/93 00  
4.3.10

QUALIMETRICS, INC.  
BILL OF MATERIAL INQUIRY - 20201-A

PAGE 2  
8:48 AM (R0701Z)

LINE NO	RUN/SET UP	COMPONENT	QTY EACH	UOM
160		T712509 O-RING .070 X .676ID IT-8	1.0000	EA
170		T721000 SCR 4-40 X .375 FIL SS IT-9	4.0000	EA
180		T721011 SCR 6-32 X2.000 FIL SS IT-10	3.0000	EA
190		T723400 WASHER LOCK #4 SS SPLIT IT-13	5.0000	EA
200		T724000 PIN DOWEL .156 X.500 SS IT-11	1.0000	EA
210		T800214 BODY HEATER IT-12	1.0000	EA
220		M492089 WIRE HOOKUP 22 GA STRND IT-16	2.0000	IN
9010	.4000 .5000	ELECTRONICS		EA
9020	.0000 .5000	MACHINING		
9030	.0000 .5000	ASSEMBLY		

05/03/93 00  
4.3.10

QUALIMETRICS, INC.  
BILL OF MATERIAL INQUIRY - 20201-B8:48 AM (R0701Z)

PAGE 1

LINE NO	RUN/ SET UP	COMPONENT	QTY EACH	UOM
10		ASM ASSEMBLY DRAWING 20201-003	1.0000	EA
20		ECN ENGR CHANGE NUMBER 4250 5/7/93	.0000	EA
30		SCH SCHEMATIC 20201-B04	1.0000	EA
40		20201-001 MANUAL	1.0000	EA
60		M004027 SCR 4-40 X .250 PAN SS PHIL IT-1	1.0000	EA
70		M419073 TERMINAL RING 26-22 AWG NON-IN IT-2	1.0000	EA
80		T160009 SILICON COMP HTSNKZ9 IT-3	1.0000	AR
90		T210020 RECEPTACLE PLUG IT-4	1.0000	EA
100		T210021 PLUG, STRAIGHT IT-5	1.0000	EA
110		T289005 HEATER 20W 12VDC 1/4X1-1/4 IT-16	1.0000	EA
120		T430044 LABEL "MADE IN USA" IT-14	1.0000	EA
130		T430046 LABEL "MODEL --" IT-15	1.0000	EA
140		T712507 O-RING .070 X 1.864 ID NEOPRENE IT-7	1.0000	EA

(PART NO)=A4\$ OR A4\$(1,3)="ALL"

05/03/93 00  
4.3.10

QUALIMETRICS, INC.  
BILL OF MATERIAL INQUIRY - 20201-B

PAGE 2  
8:48 AM (R0701Z)

LINE NO	RUN/SET UP	COMPONENT	QTY EACH	UOM
150		T712509 O-RING .070 X .676ID IT-8	1.0000	EA
160		T721000 SCR 4-40 X .375 FIL SS IT-9	4.0000	EA
170		T721011 SCR 6-32 X2.000 FIL SS IT-10	3.0000	EA
180		T723400 WASHER LOCK #4 SS SPLIT IT-13	5.0000	EA
190		T724000 PIN DOWEL .156 X.500 SS IT-11	1.0000	EA
200		T800214 BODY HEATER IT-12	1.0000	EA
210		M492089 WIRE HOOKUP 22 GA STRND IT-16	2.0000	IN
9010	.5000 .5000	ASM		EA





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20201-001  
ECN 4250  
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