

ENGINEERING SPECIFICATION

SECURITY NOTATION

SPEC. NO. IT7517800

L

CAGE CODE 55939

REV LTR

REV LTR	TEST NO.	SPECIFICATION			PROCEDURE			SPECIFICATION
		OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
L	22.5	2AAAAAAA 0000		Verify the data words were received without errors. Apply ARINC 429 signal to Air Data #1 429 bus (P1A-7H/7J) and Air Data #1 575 bus (P1-6H/6J).			The two data words on the PC display shall be as specified. Type on the PC: "<ESC>" "AR 4 H"	2AAAAAAA 0000
L	22.6	2AAAAAAA 0000		Verify the data words were received without errors. Apply ARINC 429 signal to Control Data Port A bus (P1A-7A/7B).			The two data words on the PC display shall be as specified. Type on the PC: "<ESC>" "AR 5 H"	2AAAAAAA 0000
L	22.7	2AAAAAAA 0000		Verify the data words were received without errors. Apply ARINC 429 signal to Maintenance Data Input bus (P1B-6A/6B).			The two data words on the PC display shall be as specified. Type on the PC: "<ESC>" "AR 6 H"	2AAAAAAA 0000
L	22.8	2AAAAAAA 0000		Verify the data words were received without errors. Apply ARINC 429 signal to Mode S Address Input bus (P1B-3F/3G).			The two data words on the PC display shall be as specified. Type on the PC: "<ESC>" "AR 7 H"	2AAAAAAA 0000
L	22.9	2AAAAAAA 0000		Verify the data words were received without errors. Apply ARINC 429 signal to Air Data #2 429 bus (P1B-5A/5B) and Air Data #2 575 bus (P1-5C/5D).			The two data words on the PC display shall be as specified. Type on the PC: "<ESC>" "AR C H"	2AAAAAAA 0000

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		OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS	
22.10	2AAAAAAA 0000			Verify the data words were received without errors. Apply ARINC 429 signal to Control Data Port B bus (PIA-7E/7F).			The two data words on the PC display shall be as specified. Type on the PC: "<ESC>" "AR D H"	2AAAAAAA 0000	
22.11	2AAAAAAA 0000			Verify the data words were received without errors. Apply ARINC 429 signal to PDL Data Input bus (J1-1/2).			The two data words on the PC display shall be as specified. Type on the PC: "<ESC>" "AR E H"	2AAAAAAA 0000	
22.12	2AAAAAAA 0000			Verify the data words were received without errors. Apply ARINC 429 signal to ADS Input bus (PIB-6J/7K).			The two data words on the PC display shall be as specified. Type on the PC: "<ESC>" "AR 10 H"	2AAAAAAA 0000	
22.13	2AAAAAAA 0000			Verify the data words were received without errors. Apply ARINC 429 signal to ADL Data Input bus (PIA-6C/6D).			The two data words on the PC display shall be as specified. Type on the PC: "<ESC>" "AR 11 H"	2AAAAAAA 0000	
22.14	2AAAAAAA 0000			Verify the data words were received without errors. Apply ARINC 429 signal to PDL Data Input bus (J1-1/2).			The two data words on the PC display shall be as specified. Type on the PC: "<ESC>" "AR 12 H"	2AAAAAAA 0000	

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		OPR LIMITS	C TEST DESCRIPTION	SWITCH POS	C WORK STEPS	
L	22. 15	2AAAAAAA 0000	Verify the data words were received without errors. Transmit ARINC 429 words at default transmitter speeds. Set the ARINC 429 test set receive default labels. Connect ARINC 429 test set (receiver) input to COMM A/B Output to ADLP bus (P1B-5E/5F).		The two data words on the PC display shall be as specified. Type on the PC: "<ESC>" "AL 55555555" Set JC AIR to receive label 252 Connect the ARINC 429 test set (receiver) input to DATA LINK OUT A/B bus.	2AAAAAAA 0000
	22. 16	D55555	Verify ARINC 429 data is received correctly. Connect ARINC 429 test set (receiver) input to XT Coordination bus (P1A-5G/5H).		The ARINC test set Data shall be as specified. Connect the ARINC 429 test set (receiver) input to XT COORD A/B bus.	D55555
	22. 17	D55555	Verify ARINC 429 data is received correctly. Connect ARINC 429 test set (receiver) input to COMM C/D Output to ADLP bus (P1A-2E/2F).		The ARINC test set Data shall be as specified. Connect the ARINC 429 test set (receiver) input to COM C/D OUT A/B bus.	D55555
	22. 18	D55555	Verify ARINC 429 data is received correctly. Connect ARINC 429 test set (receiver) input to DGPS Data Output bus (P1A-2G/2H).		The ARINC test set Data shall be as specified. Connect the ARINC 429 test set (receiver) input to DGPS OUT A/B bus.	D55555

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		OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
K	22.19	D55555		Verify ARINC 429 data is received correctly.			The ARINC test set Data shall be as specified.	D55555
	5			Connect ARINC 429 test set (receiver) input to PDL Data Output bus (J1-8/9).			Connect the ARINC 429 test set (receiver) input to PDL OUT bus.	
L	22.20	D55555		Verify ARINC 429 data is received correctly.			The ARINC test set Data shall be as specified.	D55555
	15			Connect ARINC 429 test set (receiver) input to ADL Data Output bus (PIA-6E/6F).			Connect the ARINC 429 test set (receiver) input to ADL OUT bus.	
L	22.21	D55555		Verify ARINC 429 data is received correctly.			The ARINC test set Data shall be as specified.	D55555
	25			Set the ARINC 429 test set to default label.			Set JC AIR to receive low speed data.	
	30			Connect ARINC 429 test set (receiver) input to Maintenance Data Output bus (PIB-6C/6D).			Connect the ARINC 429 test set (receiver) input to MAINT DATA OUT A/B bus.	
L	22.22	D55555		Verify ARINC 429 data is received correctly.			The ARINC test set Data shall be as specified.	D55555
	35			Set unit to default mode			Type on PC "<ESC>"	
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				OPR LIMITS		C		TEST DESCRIPTION		SWITCH POS		C		WORK STEPS		MFG LIMITS	
L		23.0						<u>LOAD OPERATIONAL SOFTWARE</u> Set up MTS Panel/MTS Adaptor switches for loading software. Connect the ARINC 429 Test set to the Control Panel Input Port B and transmit valid control data to the unit. Connect the TCAS TX and XT busses to inhibit logging TCAS errors. Turn power to the unit OFF Wait 10 seconds for a COLD start		Test Setup #1 429 Test Set Label= 016 Parity= ODD Rate= 50ms Data= 000000 MTS Adaptor for -20xxx and -65xxx units only. ALTTYPE SEL A: DOWN ALTTYPE SEL B: DOWN GILHAM ALT 1 C4: DOWN GILHAM ALT 2 C4: DOWN MTS Panel 115VAC: OFF MTS Adaptor 115VAC: OFF MTS Adaptor (DC UNITS ONLY) 28VDC: OFF		<u>LOAD OPERATIONAL SOFTWARE</u> Set switches on MTS Panel and MTS Adaptor to settings in Table #7-3. Connect the ARINC 429 Test signal (transmitter) output to CTRL DATA B inputs On the MTS, connect the following signals: XT COORD A to TX COORD A XT COORD B to TX COORD B 115VAC on MTS Panel 115VAC on MTS Adaptor Panel +27.5 Vdc to unit Wait at least 10 seconds before re-applying power to unit.					

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REV LTR	TEST NO.	SPECIFICATION			PROCEDURE			SPECIFICATION
		OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	
				Turn power to the unit ON	MTS Panel 115VAC: ON		115VAC on MTS Panel	
					MTS Adaptor 115VAC: ON		115VAC on MTS Adaptor Panel	
					MTS Adaptor (DC UNITS ONLY) 28VDC: ON		DC UNITS ONLY (-55xxx to -99xxx) +27.5 Vdc to unit	
				Upload operational software using CMT port.			Type on PC: "UL<RET>" (upload) Select "Send File" icon on toolbar from Procomm. Select appropriate file to send. Select OK	
				Wait unit software upload completes.			Wait until software upload completes (percent complete = 100% and x-modem window closes)	
				Remove PDL Link A to execute operational software.	MTS Adaptor PDL LINK A: 0		Turn PDL LINK A to OFF to execute operational code.	
				Clear the maintenance computer setting			Type on PC: "CM<ret>". wait a minimum of 5 seconds.	
				Clear the flight ID setting			Type on PC: "CF<ret>". wait a minimum of 5 seconds.	

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REV LTR	TEST NO.	SPECIFICATION		PROCEDURE		SPECIFICATION		
		OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
	23.1	PASS		Clear the maintenance log.			Type on PC: "CL" Verify the message "Maintenance Log Cleared" is displayed.	PASS
	23.2	PASS		Verify no errors are present.			Wait for approximately 30 seconds. Verify no "Storing New Error" messages have been displayed since the maintenance log was cleared.	PASS
	23.3	PASS		Press the front panel test button and verify no errors are present.			Press the "PUSH TO TEST" button on the front panel of the unit. Verify that all LED's turn on, and after several seconds all LED's turn off except the "XPDR PASS" LED.	PASS
	23.4	PASS		Verify no errors are stored.			Verify no "Storing New Error" messages or "Finding Error" messages are displayed.	PASS
				Read the software part numbers, hardware part number and serial number.			Type on PC: "PN"	
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REV LTR	TEST NO.	SPECIFICATION			PROCEDURE			SPECIFICATION
		OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
L	23.5	PASS		Check the BOOT Software Part Number and CRC are correct for the unit part number and mod level.			Find the entry in Table #8-1, BOOT Software, which corresponds to the unit's dash number and minimum hardware mod level. Verify the BOOT SW and CRC in the table matches the BOOT SW and CRC on the PC display.	PASS
L	23.6	PASS		Check the OPER Software Part Number and CRC is correct for the units part number and mod level.			Find the entry in Table #8-2, OPER Software, which corresponds to the unit's dash number and software mod letter. Verify the OPER SW and CRC in the table matches the OPER SW and CRC on the PC display.	PASS
L	23.7	PASS		Check that the COMP CRC is correct for the units part number and mod level.			Verify from Table #8-2, the COMP CRC in the table matches the XLNX CRC on the PC display.	PASS
L	23.8	PASS		Check that the XLNX CRC is correct for the units part number and mod level.			Verify from Table #8-2, the XLNX CRC in the table matches the XLNX CRC on the PC display.	PASS
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		OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
	23.9	PASS		Check the Hardware Part Number is correct for the unit part number and mod level.			Verify the HARDWARE PN display matches the hardware part number of the unit.	PASS
	23.10	PASS		Check the Serial Number of the unit is correct.			Verify the SERIAL NUM display matches the serial number of the unit.	PASS
				Turn power to the unit off.	MTS Panel 115VAC: OFF		115VAC on MTS Panel	
					MTS Adaptor 115VAC: OFF		115VAC on MTS Adaptor Panel	
					MTS Adaptor 28VDC: OFF		+27.5 Vdc to unit	
				Set up MTS Panel/MTS Adaptor for normal operation.			Set switches on MTS Panel and MTS Adaptor to settings in Table #1.	

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10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145 150 155 160 165 170 175 180 185 190 195 200 205 210 215 220 225 230 235 240 245 250 255 260 265 270 275 280 285 290 295 300 305 310 315 320 325 330 335 340 345 350 355 360 365 370 375 380 385 390 395 400 405 410 415 420 425 430 435 440 445 450 455 460 465 470 475 480 485 490 495 500 505 510 515 520 525 530 535 540 545 550 555 560 565 570 575 580 585 590 595 600 605 610 615 620 625 630 635 640 645 650 655 660 665 670 675 680 685 690 695 700 705 710 715 720 725 730 735 740 745 750 755 760 765 770 775 780 785 790 795 800 805 810 815 820 825 830 835 840 845 850 855 860 865 870 875 880 885 890 895 900 905 910 915 920 925 930 935 940 945 950 955 960 965 970 975 980 985 990 995 1000 1005 1010 1015 1020 1025 1030 1035 1040 1045 1050 1055 1060 1065 1070 1075 1080 1085 1090 1095 1100 1105 1110 1115 1120 1125 1130 1135 1140 1145 1150 1155 1160 1165 1170 1175 1180 1185 1190 1195 1200 1205 1210 1215 1220 1225 1230 1235 1240 1245 1250 1255 1260 1265 1270 1275 1280 1285 1290 1295 1300 1305 1310 1315 1320 1325 1330 1335 1340 1345 1350 1355 1360 1365 1370 1375 1380 1385 1390 1395 1400 1405 1410 1415 1420 1425 1430 1435 1440 1445 1450 1455 1460 1465 1470 1475 1480 1485 1490 1495 1500 1505 1510 1515 1520 1525 1530 1535 1540 1545 1550 1555 1560 1565 1570 1575 1580 1585 1590 1595 1600 1605 1610 1615 1620 1625 1630 1635 1640 1645 1650 1655 1660 1665 1670 1675 1680 1685 1690 1695 1700 1705 1710 1715 1720 1725 1730 1735 1740 1745 1750 1755 1760 1765 1770 1775 1780 1785 1790 1795 1800 1805 1810 1815 1820 1825 1830 1835 1840 1845 1850 1855 1860 1865 1870 1875 1880 1885 1890 1895 1900 1905 1910 1915 1920 1925 1930 1935 1940 1945 1950 1955 1960 1965 1970 1975 1980 1985 1990 1995 2000 2005 2010 2015 2020 2025 2030 2035 2040 2045 2050 2055 2060 2065 2070 2075 2080 2085 2090 2095 2100 2105 2110 2115 2120 2125 2130 2135 2140 2145 2150 2155 2160 2165 2170 2175 2180 2185 2190 2195 2200 2205 2210 2215 2220 2225 2230 2235 2240 2245 2250 2255 2260 2265 2270 2275 2280 2285 2290 2295 2300 2305 2310 2315 2320 2325 2330 2335 2340 2345 2350 2355 2360 2365 2370 2375 2380 2385 2390 2395 2400 2405 2410 2415 2420 2425 2430 2435 2440 2445 2450 2455 2460 2465 2470 2475 2480 2485 2490 2495 2500 2505 2510 2515 2520 2525 2530 2535 2540 2545 2550 2555 2560 2565 2570 2575 2580 2585 2590 2595 2600 2605 2610 2615 2620 2625 2630 2635 2640 2645 2650 2655 2660 2665 2670 2675 2680 2685 2690 2695 2700 2705 2710 2715 2720 2725 2730 2735 2740 2745 2750 2755 2760 2765 2770 2775 2780 2785 2790 2795 2800 2805 2810 2815 2820 2825 2830 2835 2840 2845 2850 2855 2860 2865 2870 2875 2880 2885 2890 2895 2900 2905 2910 2915 2920 2925 2930 2935 2940 2945 2950 2955 2960 2965 2970 2975 2980 2985 2990 2995 3000 3005 3010 3015 3020 3025 3030 3035 3040 3045 3050 3055 3060 3065 3070 3075 3080 3085 3090 3095 3100 3105 3110 3115 3120 3125 3130 3135 3140 3145 3150 3155 3160 3165 3170 3175 3180 3185 3190 3195 3200 3205 3210 3215 3220 3225 3230 3235 3240 3245 3250 3255 3260 3265 3270 3275 3280 3285 3290 3295 3300 3305 3310 3315 3320 3325 3330 3335 3340 3345 3350 3355 3360 3365 3370 3375 3380 3385 3390 3395 3400 3405 3410 3415 3420 3425 3430 3435 3440 3445 3450 3455 3460 3465 3470 3475 3480 3485 3490 3495 3500 3505 3510 3515 3520 3525 3530 3535 3540 3545 3550 3555 3560 3565 3570 3575 3580 3585 3590 3595 3600 3605 3610 3615 3620 3625 3630 3635 3640 3645 3650 3655 3660 3665 3670 3675 3680 3685 3690 3695 3700 3705 3710 3715 3720 3725 3730 3735 3740 3745 3750 3755 3760 3765 3770 3775 3780 3785 3790 3795 3800 3805 3810 3815 3820 3825 3830 3835 3840 3845 3850 3855 3860 3865 3870 3875 3880 3885 3890 3895 3900 3905 3910 3915 3920 3925 3930 3935 3940 3945 3950 3955 3960 3965 3970 3975 3980 3985 3990 3995 4000 4005 4010 4015 4020 4025 4030 4035 4040 4045 4050 4055 4060 4065 4070 4075 4080 4085 4090 4095 4100 4105 4110 4115 4120 4125 4130 4135 4140 4145 4150 4155 4160 4165 4170 4175 4180 4185 4190 4195 4200 4205 4210 4215 4220 4225 4230 4235 4240 4245 4250 4255 4260 4265 4270 4275 4280 4285 4290 4295 4300 4305 4310 4315 4320 4325 4330 4335 4340 4345 4350 4355 4360 4365 4370 4375 4380 4385 4390 4395 4400 4405 4410 4415 4420 4425 4430 4435 4440 4445 4450 4455 4460 4465 4470 4475 4480 4485 4490 4495 4500 4505 4510 4515 4520 4525 4530 4535 4540 4545 4550 4555 4560 4565 4570 4575 4580 4585 4590 4595 4600 4605 4610 4615 4620 4625 4630 4635 4640 4645 4650 4655 4660 4665 4670 4675 4680 4685 4690 4695 4700 4705 4710 4715 4720 4725 4730 4735 4740 4745 4750 4755 4760 4765 4770 4775 4780 4785 4790 4795 4800 4805 4810 4815 4820 4825 4830 4835 4840 4845 4850 4855 4860 4865 4870 4875 4880 4885 4890 4895 4900 4905 4910 4915 4920 4925 4930 4935 4940 4945 4950 4955 4960 4965 4970 4975 4980 4985 4990 4995 5000 5005 5010 5015 5020 5025 5030 5035 5040 5045 5050 5055 5060 5065 5070 5075 5080 5085 5090 5095 5100 5105 5110 5115 5120 5125 5130 5135 5140 5145 5150 5155 5160 5165 5170 5175 5180 5185 5190 5195 5200 5205 5210 5215 5220 5225 5230 5235 5240 5245 5250 5255 5260 5265 5270 5275 5280 5285 5290 5295 5300 5305 5310 5315 5320 5325 5330 5335 5340 5345 5350 5355 5360 5365 5370 5375 5380 5385 5390 5395 5400 5405 5410 5415 5420 5425 5430 5435 5440 5445 5450 5455 5460 5465 5470 5475 5480 5485 5490 5495 5500 5505 5510 5515 5520 5525 5530 5535 5540 5545 5550 5555 5560 5565 5570 5575 5580 5585 5590 5595 5600 5605 5610 5615 5620 5625 5630 5635 5640 5645 5650 5655 5660 5665 5670 5675 5680 5685 5690 5695 5700 5705 5710 5715 5720 5725 5730 5735 5740 5745 5750 5755 5760 5765 5770 5775 5780 5785 5790 5795 5800 5805 5810 5815 5820 5825 5830 5835 5840 5845 5850 5855 5860 5865 5870 5875 5880 5885 5890 5895 5900 5905 5910 5915 5920 5925 5930 5935 5940 5945 5950 5955 5960 5965 5970 5975 5980 5985 5990 5995 6000 6005 6010 6015 6020 6025 6030 6035 6040 6045 6050 6055 6060 6065 6070 6075 6080 6085 6090 6095 6100 6105 6110 6115 6120 6125 6130 6135 6140 6145 6150 6155 6160 6165 6170 6175 6180 6185 6190 6195 6200 6205 6210 6215 6220 6225 6230 6235 6240 6245 6250 6255 6260 6265 6270 6275 6280 6285 6290 6295 6300 6305 6310 6315 6320 6325 6330 6335 6340 6345 6350 6355 6360 6365 6370 6375 6380 6385 6390 6395 6400 6405 6410 6415 6420 6425 6430 6435 6440 6445 6450 6455 6460 6465 6470 6475 6480 6485 6490 6495 6500 6505 6510 6515 6520 6525 6530 6535 6540 6545 6550 6555 6560 6565 6570 6575 6580 6585 6590 6595 6600 6605 6610 6615 6620 6625 6630 6635 6640 6645 6650 6655 6660 6665 6670 6675 6680 6685 6690 6695 6700 6705 6710 6715 6720 6725 6730 6735 6740 6745 6750 6755 6760 6765 6770 6775 6780 6785 6790 6795 6800 6805 6810 6815 6820 6825 6830 6835			

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3.0 BOOT SOFTWARE LOADING PROCEDURE

The BOOT software must be loaded using a Processor Boot Fixture (T336096-901), and a PC which has a terminal emulator such as PROCOMM. Perform the following procedure to load BOOT software into the unit:

1. Remove the unit's outside slip-on cover (if attached). Loosen the two zeus fastners (cam-locks) located on the back of the box near the Arinc 600 connector. Slide the cover off the chassis assembly.
2. With power removed from the unit, attach a 60-pin ribbon cable (P/N 7516226-1) to A2 Processor CCA connector A2J3 (test connector), and to connector P1 on the Processor BOOT Fixture.
3. Secure a good ground between the chassis of the Processor BOOT Fixture and the chassis of the XS-950 transponder (or the MTS mount which the transponder is in) using a low impedance connection such as a copper or brass strip of metal. This is important, as the lack of a good ground may cause the BOOT Software load to fail.
4. Set the switch settings on the Processor BOOT Fixture to the following positions:

<u>Switch Name</u>	<u>Position</u>
S1 VPP ON	ON
S2 VPP TO BOOT FLASH	ON
S3 VPP TO OPER FLASH BBLOCK	ON
S4 SWAP BOOT ADDRESSES	ON
S5 SELECT UART	OFF
S6 SELECT FLUKE ROM	OFF
S7 +5V RAM ON	OFF
S8 GAL PROGRAM	OFF
S9 RESET CPU	OFF
S10 XMIT/RCV	RCV
S11 XMIT	BOT
S12 RECEIVE	DIS
S13 RECEIVE	BOT

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5	5. Connect the serial port of a PC to the ARINC 615 PDL port (using the MTS or an equivalent cable). Set the PC according to the setup in Table #7-8. 6. Apply power to the unit. Typing a "<CR>" on the PC should cause the transponder to echo a "INVALID COMMAND" text if the Processor is operating correctly. 7. Type the following text on the PC: "UL<ret>" (Upload command) Select "Send File" icon on toolbar from Procomm Select appropriate boot file Select OK 8. Wait until the Percent Complete = 100% and Xmodem window closes. If the load is unsuccessful, the file transfer program will abort with an error message. 9. Remove power from the unit and remove the ribbon cable from the A2J3 connector. The BOOT Program has been loaded.				
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K 5 10 A 15 20 K 25 K K K 30 35 40 45	4.0 <u>OPERATIONAL SOFTWARE LOADING PROCEDURE</u>				
	The following procedure may be used to load either OPERATIONAL (flight code) or Product Test code (factory test and troubleshooting).				
	1. Remove power from the unit.				
	2. Connect the serial port of a PC to the ARINC 615 PDL port (using the MTS or an equivalent cable). Set the PC according to the setup in Table #7-8.				
	3. Set the PDL LINK A on the MTS (or equivalent cable harness) to ON mode to allow for software programming. Set the MTS switch settings according to Table 7-3.				
	4. Apply power to the unit. Typing a "<CR>" on the PC should cause the transponder to echo a "INVALID COMMAND" text if the Processor is operating correctly.				
	5. Type the following text on the PC:				
	"UL<ret>" (Upload command)				
	Select "Send File" icon on toolbar from Procomm				
	Select appropriate boot file				
Select OK					
6. Wait until the Percent Complete = 100% and Xmodem window closes. If the load is unsuccessful, the file transfer program will abort with an error message.					
7. Set the PDL LINK A to OFF, the program should transition to OPERATIONAL or PRODUCT TEST code.					
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5 10 15 20 25 30 35 40 45	APPENDIX B XS-950 CALIBRATION PROCEDURE			
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	1.0 <u>INTRODUCTION</u> The XS-950 Data Link Mode S Transponder module uses computer (electronic) adjustments for most of the circuitry which requires calibration. Computer adjustments are preferable to mechanical adjustments (potentiometers, variable capacitors and inductors) because they can be performed automatically by a computer remotely (without the unit opened up), and are inherently more reliable. With the exception of several variable capacitors on the Transmitter CCA, all adjustments are performed from the CMT terminal (RS-232) using the Bench Test software, which is also used for most of the IT and HASS screening. Calibration constants for parameters are stored in EEPROM memory on the A2 Processor CCA. The parameters in EEPROM have an error detection means, so that a loss of data will be detected by the computer. A loss of calibration data could result in invalid transponder operation. 2.0 CALIBRATION PROCEDURE The following calibration procedure should be performed in the following order to insure consistent results from the calibration. When a calibration command is executed, the new data is automatically saved in the EEPROM memory.		
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5 10 15 20 25 30 35 40 45	K	2.1 <u>Calibration Test Setup</u>		
		The following test setup is required prior to performing the calibration procedure:		
		1. Set up MTS and associated equipment per TEST SETUP #1 in section 7.1.		
		2. If RF transmitter alignment is required (paragraph 2.3), the unit must be disassembled to gain access to the outside of the transmitter assembly. Use the following procedure to disassemble the unit: a. Remove the unit's outside slip-on cover (if attached). Loosen the two zeus fastners (cam-locks) located on the back of the box near the Arinc 600 connector. Slide the cover off the chassis assembly. b. Remove the 11 screws securing the Processor CCA (A2) to the Transmitter assembly (A3). Without disconnecting the ribbon cable or the wire harness from the Power Supply, attach the Processor CCA to the snap post and bracket on the front plate of the transponder. The four tuning holes in the transmitter cover are now visible.		
3. Insert the unit in the MTS mount, and connect the 53 pin MTS circular connector to the ARINC 615 front panel PDL connector.				
NOTE: Prior to the calibration procedure, valid BOOT and Product Test software must be loaded into the unit. See Appendix A for software loading instructions.				
Do not attempt to transmit replies until after the RF alignment procedure in section 2.3 has been performed to avoid possible transmitter damage.				
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5	2.2 <u>Initialize EEPROM and Calibration with Default Data</u>			
10	This step puts in default CALIBRATION data in the EEPROM memory. It also clears other sections of EEPROM memory, including the maintenance log. The command should be used when the unit is initially built, a replacement Processor CCA is used, or the EEPROM memory has been replaced.			
15	<u>CMT Command</u> EEINIT<CR>			
20	<u>CMT Display</u> <status> A PASS status should be displayed if the maintenance log cleared. A FAIL status indicates a memory problem.			
25	If it is desired to only set the CALIBRATION data in EEPROM to default values, the following command may be used in place of the "EEINIT" command.			
30	<u>CMT Command</u> CSDEF<CR>			
35	<u>CMT Display</u> <status> A PASS status should be displayed if the maintenance log cleared. A FAIL status indicates a memory problem.			
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45				
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5 10 15 20 25 30 35 40 45 2.3 <u>RF Alignment - Transmitter Peak Power and Rise Time</u> To reduce the risk of damaging the Transmitter driver and final transistors upon initial power up and to insure proper calibration of pulse width, the Transmitter must be aligned for peak power and rise time prior to any other calibration. The unit must be disassembled to the level listed in paragraph 2.1 to perform this alignment. 1 With a Johanson tuning tool 8777 or equivalent, turn the tuning slug in each trimmer capacitor approximately 10 turns counter clockwise or until the tuning slug is near the top of the trimmer capacitor barrel. 2 With the oscilloscope connected to the S1403 XMTR Detector, connect the Top Transponder RF cable to the S1403 RF Connector. C MENU: 1 ANT B: ON 3 Instruct the transponder to generate 50 Long Mode S replies out of the top antenna port by typing the appropriate command through the CMT terminal. <u>CMT Command</u> XREP T L 50<CR> 4 While observing the XMTR PWR WATTS display on the IFR ATC-1400, adjust trimmer capacitors C50 and C46 for maximum power out of the transponder. See A3 Transmitter CCA drawing 7517835 for capacitor locations. Including cable losses, the power out of the transponder shall be 400 to 630 watts (56 to 58 dBm). 5 Locate the first detected RF pulse of the Long Mode S reply on the oscilloscope. Adjust C43 and C702 for maximum output power and a pulse rise time of approximately 50 to 75 nanoseconds. Verify that a pulse in the middle and at the end of the Long Mode S reply meets the requirements specified above. 6 Repeat steps 4 and 5 as required to meet the rise time and output power specification for all the pulses in the Long Mode S reply.			
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5	2.4 <u>Xmtr Pulse Width Calibration</u>				
10	<u>S1403</u> Connect the oscilloscope to S1403 XMTR Detector. Connect the Top Transponder RF Cable to the S1043 RF Connector. C MENU: 1 ANT B: ON				
15	<u>CMT Command</u> XREP T L 50<CR>				
20	Repeat the following procedure until the pulse width of the 1st pulse of the Mode S reply (50% to 50% voltage point) is set to between 460 nsec and 510 nsec:				
25	<u>CMT Command</u> CSXPW <parameter><CR> CRD				
30	<u>CMT Display</u> CALIBRATION memory data				
35	<u>NOTE:</u> The pulse width is increased by DECREASING the <parameter> number and decreased by INCREASING the <parameter>. Changing the <parameter> by 1 changes the pulse width by 42 nsec. The <parameter> is entered and displayed in hexadecimal. <parameter> range: 0=maximum width, F=minimum width.				
40					
45					
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2.5	<u>Top/Bottom MTL Autocal</u> The cable loss for the RF cable in dB at 1030MHz should be programmed in the S1403 CMENU: 1 RFLvl adjustment prior to the start of the calibration. <u>S1403</u> C MENU: 1 ANT B: OFF FUNC: 1 ATC (ATCRBS Only) RFLvl: +CABLE LOSS (dB) <u>ATC 1400A</u> PRF/SQTR: 500 XPDR MODE: A RF LEVEL: -76dBm Connect RF CABLE to TOP antenna jack on XS-950 <u>CMT Command</u> CSTAUTO<cr> <u>CMT Display</u> <status> <value> The status should indicate the status of the test. A PASS status should be displayed if the calibration passed. A FAIL status indicates a calibration problem. <u>ATC 1400A</u> Connect RF CABLE to BOTTOM antenna jack on XS-950 <u>CMT Command</u> CSBAUTO<CR> <u>CMT Display</u> <status> <value> The status should indicate the status of the test. A PASS status should be displayed if the calibration passed. A FAIL status indicates a calibration problem. <u>CMT Command</u> XON 1<CR> Set unit to reply to interrogations		
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2.6 ATCRBS Reply Delay

ATC 1400A

RF LEVEL: -67dBm

PRF/SQTR: 100

Repeat the following procedure until the RpDly: display on the S1403 reads an AVERAGE value of 3.10 micro-seconds. The current value which is set in EEPROM may be read by the "CRD" command.

CMT Command

CSATCRD <parameter>

CRD

CMT Display

CALIBRATION memory data

NOTE: The RpDly: is increased by INCREASING the <parameter>, and is decreased by DECREASING the <parameter>. Changing the ATCRBS REPLY DELAY by 1 changes the delay by 42 nsec. The <parameter> is displayed and entered in hexadecimal. <parameter> range: 0=minimum delay, 3F=maximum delay

2.7 ALLCALL Reply Delay

ATC 1400A

PRF/SQTR: 100

S1403

C MENU: 1

PUNC: 4 ACL (ATCRBS/Mode S All-Call)

Repeat the following procedure until the RpDly: display on the S1403 reads an AVERAGE value of 128.000 micro-seconds:

CMT Command

CSALLRD <parameter>

CRD

CMT Display

CALIBRATION memory data

NOTE: The RpDly: is increased by INCREASING the <parameter>, and is decreased by DECREASING the <parameter>. Changing the ALLCALL REPLY DELAY by 1 changes the delay by 42 nsec. The <parameter> is displayed and entered in hexadecimal. <parameter> range: 0=minimum delay, FF=maximum delay

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5	2.8 <u>SPR Window Delay</u>					
10	<u>S1403</u> C MENU: 1 FUNC: 2 SEQ (Mode S Only) SPR Dv: ± 0.05 AND ± 0.20					
15	Repeat the following procedure until the %Reply:S on the S1403 is 0% when SPR Dv is -0.20 and +0.20, and is 100% when SPR Dv is -0.05 and +0.05:					
20	<u>S1403</u> SPR Dv: -0.20 Check %Reply:S SPR Dv: -0.05 Check %Reply:S SPR Dv: +0.05 Check %Reply:S SPR Dv: +0.20 Check %Reply:S					
25	<u>CMT Command</u> CSSPRD <parameter> CRD					
30	<u>CMT Display</u> CALIBRATION memory data					
35	<u>NOTE:</u> The position of the SPR window relative to the start of the P6 pulse is increased by DECREASING the <parameter>, and is decreased by INCREASING the <parameter>. Changing the SPR DELAY by 1 changes the position by 42 nsec. The <parameter> is displayed and entered in hexadecimal. <parameter> range: 0=maximum delay, 3F=minimum delay					
40	At the end of the procedure, reset the S1403 to the following condition:					
45	<u>S1403</u> C MENU: 1 SPR Dv: CAL					
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5 10 15 20 25 30 35 40 45	APPENDIX C XS-950 OPERATIONAL BITE		
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1.0 Monitor Fault Logging The transponder's operational code contains a continuous performance monitor and self-test monitor. The continuous performance monitor function will monitor critical system parameters and record faults which are found during normal operation. The self-test monitor function is activated upon command from the system controller, external discrete input, front panel test switch, maintenance computer or a power-on cold start. The self-test monitor will exercise various system functions, record faults found, and annunciate the results of the test. The faults recorded by the performance monitor or self-test monitor will be contained in a non-volatile maintenance log. 2.0 Monitor Fault Summary The following table lists a summary of the fault codes which may be contained in the maintenance log, and their description.			
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Code	Description	TCAS Fail	Disc	Stby	Front Panel Lamps
2000	Operational software CRC failure	Y	Y	Y	XPDR
2001	Compatibility data CRC failure				
2002	XILINX data CRC failure	Y	Y	Y	XPDR
2003	BOOT software CRC failure	Y	Y		XPDR
2004	Calibration CRC failure	Y	Y	Y	XPDR
2005	Watchdog reset				
2006	RAM software CRC failure	Y	Y	Y	XPDR
2007	Program voltage error, normal operation				
2008	Program voltage error, program operation				
2009	XILINX/RF ASIC monitor failure	Y	Y	Y	XPDR
200A	RAM test failure	Y	Y		XPDR
200C	XILINX/RF ASIC selftest failure	Y	Y	Y	XPDR
200D	ARINC transmit selftest failure				
200E	ARINC receive selftest failure				
200F	TCAS Timer failure				
2800	TCAS Bus failure	Y			
2801	ARINC 429/575 Altitude Bus #1 failure	Y	Y		ALT
2802	ARINC 429/575 Altitude Bus #2 failure	Y	Y		ALT

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	Code	Description	TCAS Fail	Disc	Stby	Front Panel Lamps
5	2803	ADLP COMM A/B Bus failure				
	2804	ADLP COMM C/D Bus failure				
10	2805	Control Panel Bus A failure	Y	Y	Y	CTRL
	2806	Control Panel Bus B failure	Y	Y	Y	CTRL
15	2807	Maintenance Computer Bus failure				
	2808	Discrete Output Monitor Xpdr Fail #1 failure				
20	2809	Discrete Output Monitor Xpdr Fail #2 failure				
	280A	Discrete Output Monitor Altitude Fail failure				
25	280B	Discrete Output Monitor Spare				
	280C	Fan Monitor				
30	280E	Invalid Mode-S Address	Y	Y		XPDR
	280F	Mutual Suppression Bus failure				
35	2810	Gilham Altitude #1 failure	Y	Y		ALT
	2811	Gilham Altitude #2 failure	Y	Y		ALT
40	2812	Gilham Altitude compare failure	Y	Y		ALT
	2813	Synchro Altitude #1 failure	Y	Y		ALT
45	2814	Synchro Altitude #2 failure	Y	Y		ALT

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	Code	Description	TCAS Fail	Disc	Stby	Front Panel Lamps
5	2815	Mode-S Address Change				
	2816	Flight ID Bus Failure				
10	2817	WOW Failure				
	3000	Forward Power failure Bottom antenna	Y	Y		XPDR
15	3001	Forward Power failure Top antenna	Y	Y		XPDR
	3002	Synthesizer Lock detect failure				
20	3003	VCO Tune voltage error				
	3004	Local Oscillator output level failure				
25	3005	Top Pin diode, RX state failure				
	3006	Top Pin diode, TX state failure				
30	3007	Bottom Pin diode, RX state failure				
	3008	Bottom Pin diode, TX state failure				
35	3009	Mode-S self interrogation bottom failure				
	300A	Mode-S self interrogation top failure				
40	300B	ATCRBS self interrogation bottom failure				
45	300C	ATCRBS self interrogation top failure				

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Code	Description	TCAS Fail	Disc	Stby	Front Panel Lamps
3800	Bottom antenna monitor failure				BOT ANT
3801	Top antenna monitor failure				TOP ANT
3802	TCAS Dispatch Failure Bottom	Y	Y		
3803	TCAS Dispatch Failure Top	Y	Y		
4000	Power Supply +66V failure				
4001	Power Supply +36V failure				
4002	Power Supply +28V failure				
4003	Power Supply +15V failure				
4004	Power Supply -5V failure				
4005	Power Supply -15V failure				
4006	Power Supply -150V failure				
4007	Temperature out of range				
4008	Pulse Modulator voltage error				
4009	Envelope Modulator voltage error				
4800	Unexpected Power Supply Interrupt				
F000	Software Fault				

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3.0 Detailed Fault Description The following sections lists the detailed description for the faults and the associated tests which produced the faults. Flash EPROM Memory The performance monitor continuously checks the Flash EPROM Memory in the transponder. The transponder computes a CRC for each region in the Flash EPROM Memory, and compares the computed CRC against the CRC which is programmed in the Flash EPROM for that region.	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 20%;">Memory Region</th> <th style="width: 20%;">Operational Software</th> <th style="width: 20%;">Compatibility Data</th> <th style="width: 20%;">XILINX Data</th> <th style="width: 20%;">Boot Program</th> </tr> <tr> <td>Fault Code</td> <td>2000</td> <td>2001</td> <td>2002</td> <td>2003</td> </tr> <tr> <td>Fault Parameter</td> <td colspan="4"> [Prog][Calc], where: [Prog] Programmed CRC in memory (2 bytes) [Calc] Calculated CRC (2 bytes) </td> </tr> <tr> <td>Fault Limits</td> <td colspan="4">Single occurrence of comparison mis-match.</td> </tr> </table>			Memory Region	Operational Software	Compatibility Data	XILINX Data	Boot Program	Fault Code	2000	2001	2002	2003	Fault Parameter	[Prog][Calc], where: [Prog] Programmed CRC in memory (2 bytes) [Calc] Calculated CRC (2 bytes)				Fault Limits	Single occurrence of comparison mis-match.			
Memory Region	Operational Software	Compatibility Data	XILINX Data	Boot Program																			
Fault Code	2000	2001	2002	2003																			
Fault Parameter	[Prog][Calc], where: [Prog] Programmed CRC in memory (2 bytes) [Calc] Calculated CRC (2 bytes)																						
Fault Limits	Single occurrence of comparison mis-match.																						
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Calibration EEPROM Memory

The performance monitor continuously checks the portion of the EEPROM memory which contains calibration data. The transponder computes a CRC for the EEPROM Memory, and compares the computed CRC against the CRC which is programmed in the EEPROM at the time the unit was calibrated.

Fault Code	2004
Fault Parameter	[Prog][Calc], where: [Prog] Programmed CRC in memory (2 bytes) [Calc] Calculated CRC (2 bytes)
Fault Limits	Single occurrence of comparison mis-match.

Watchdog Monitor

The performance monitor contains a watchdog monitor which resets the microprocessor in the event that the software program does not execute correctly. When the microprocessor is reset, the transponder determines if the reset was due to a watchdog reset by checking the watchdog circuit. A watchdog fault will be declared if a watchdog reset has occurred AND the system is in a warm start condition.

Fault Code	2005
Fault Parameter	None, set to zero
Fault Limits	Watchdog occurred and system was in warm start mode

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RAM Software CRC Monitor

The performance monitor performs a CRC test of operational software which is loaded into RAM. If the computed CRC does not agree with the CRC calculated at the time the software is copied into RAM, a fault is declared.

Fault Code	2006
Fault Parameter	[Prog] [Calc] where, [Prog] CRC calculated at the time the software is copied (2 bytes) [Calc] Calculated CRC (2 bytes)
Fault Limits	Single occurrence of fault condition

Flash Program Voltage Monitor

The performance monitor tests the flash memory program voltage according to the following requirements:

- When in normal operation, the monitor checks that the flash program voltage does not exceed the limit for non-program mode operation.
- When in flash program mode, if the program operation fails and the voltage is not within specified limits a fault is logged.

Fault Type	Flash Program voltage fault in normal operation.	Flash Program voltage fault in program mode.
Fault Code	2007	2008
Fault Parameter	+12V Vpp voltage on flash memory device, units = 0.1VDC (2 bytes).	
Fault Limits	>+6.5V is a fault	<+10.4V or >+13.6V is a fault

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XILINX/RF ASIC Monitor

The performance monitor performs the following tests to the XILINX ASIC and RF ASIC devices to verify the devices are operational:

- The XILINX_DONE discrete from the XILINX ASIC is monitored to verify the device is operational.
- A write/read test to the internal XILINX ASIC register is performed to verify the device is operational.
- During a squitter operation, data written to the transmit register on the RF ASIC is read back to verify the data is correct.

Fault Code	2009
Fault Parameter	[RF RAM] [Xilinx Write/Read] [Xilinx_Done], where: [Xilinx Write/Read] (1 byte) 1 = XILINX write/read fault 0 = no fault [Xilinx_Done] (1 byte) 1 = Xilinx_Done fault 0 = no fault [RAM] (1 byte) 1 = RF ASIC RAM readback failure 0 = no fault
Fault Limits	Single occurrence of fault condition

ARINC 429 TCAS Bus Monitor

The performance monitor detects failures in receiving bus data from TCAS. If TCAS is not installed as part of the transponder system, the TCAS bus monitor will always pass.

Fault Code	2800
Fault Parameter	None, set to zero
Fault Limits	No bus data received from TCAS

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ARINC 429/575 Altitude Bus Monitor

The performance monitor detects failures in receiving bus data from ARINC 429 or ARINC 575 altitude sources. If the transponder is not configured for ARINC 429 or ARINC 575 Altitude Sources, the monitor will always pass. The fault code logged is based on the altitude source selected by the Alt Data Source Select input. An altitude fault for the non-selected altitude source will not be logged.

Fault Type	Altitude Source #1 Invalid	Altitude Source #2 Invalid
Fault Code	2801	2802
Fault Parameter	[Source] (1 byte) where: 0 = Strapped for ARINC 429 Data Source 1 = Strapped for ARINC 575 Data Source	
Fault Limits	No valid altitude received (label 203)	

ARINC 429 ADLP Bus Monitor

The performance monitor will monitor the status of the ARINC 429 COMM A/B ADLP and COMM C/D ADLP data busses. If the Transponder is not configured for an ADLP installed, the monitor will always pass.

Fault Type	COMM A/B ADLP Bus	COMM C/D ADLP Bus
Fault Code	2803	2804
Fault Parameter	None, set to zero	
Fault Limits	No data received on ADLP bus	

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ARINC 429 Control Panel Bus Monitor

The performance monitor will check the status of the ARINC 429 Control Panel Port A or Control Panel Port B data busses. Only the port which is selected by the Control Data Port Select discrete input will be monitored.

Fault Type	Control Panel Port A Invalid	Control Panel Port B Invalid
Fault Code	2805	2806
Fault Parameter	None, set to zero.	
Fault Limits	No control panel label 016 received	

ARINC 429 Maintenance Bus Monitor

The performance monitor will check the status of the ARINC 429 Maintenance Bus.

Fault Code	2807
Fault Parameter	None, set to zero
Fault Limits	No data received from maintenance computer

Discrete Output Monitor

The performance monitor will check the status of the discrete outputs for an over-current condition.

Discrete Output	Xpdr Fail #1	Xpdr Fail #2	Altitude Fail	Reserved Out
Fault Code	2808	2809	280A	280B
Fault Parameter	None, set to zero			
Fault Limits	Output in over-current condition for 1 second.			

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Fan Current Monitor

The performance monitor will check the Fan Driver for an over-current condition.

Fault Code	280C
Fault Parameter	None, set to zero.
Fault Limits	Fan Driver in an over-current condition for 1 second.

Invalid Mode S Address Monitor

The performance monitor will check the Mode S Address, and if it consists of all zeros or all ones, a fault will be declared.

Fault Code	280E
Fault Parameter	Mode-S Address (3 bytes)
Fault Limits	Invalid address

Mutual Suppression Monitor

The mutual suppression input is checked after a squitter transmission is generated to verify that a mutual suppression was asserted during the test. If the transponder is in standby, the monitor is inhibited from operation.

Fault Code	280F
Fault Parameter	None, set to zero.
Fault Limits	No mutual suppression asserted for 5 consecutive samples.

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Gilham Altitude Input Monitor The performance monitor will check the status of the Gilham Altitude Inputs.																				
5																				
10	<table border="1"> <tr> <th>Fault Type</th> <th>Altitude Source #1 Invalid</th> <th>Altitude Source #2 Invalid</th> <th>Altitude Compare Invalid</th> </tr> <tr> <td>Fault Code</td> <td>2810</td> <td>2811</td> <td>2812</td> </tr> <tr> <td>Fault Parameter</td> <td colspan="3"> [Compare][Source][Altitude Source 1][Altitude Source 2], where: [Compare] (1 Byte) 0 Compare Enabled 1 Compare Disabled [Source] (1 Byte) 0 Altitude Source #1 Selected 1 Altitude Source #2 Selected [Altitude Source 1] (2 Bytes), Gilham 11 Wire Input: D2 (bit 10), D4, A1, A2, A4, B1, B2, B4, C1, C2, C4 (bit 0) [Altitude Source 2] (2 Bytes), Gilham 11 Wire Input: D2 (bit 10), D4, A1, A2, A4, B1, B2, B4, C1, C2, C4 (bit 0) </td> </tr> <tr> <td>Fault Limits</td> <td colspan="3">Invalid C-Bit combination or Compare Failure per system requirements.</td> </tr> </table>				Fault Type	Altitude Source #1 Invalid	Altitude Source #2 Invalid	Altitude Compare Invalid	Fault Code	2810	2811	2812	Fault Parameter	[Compare][Source][Altitude Source 1][Altitude Source 2], where: [Compare] (1 Byte) 0 Compare Enabled 1 Compare Disabled [Source] (1 Byte) 0 Altitude Source #1 Selected 1 Altitude Source #2 Selected [Altitude Source 1] (2 Bytes), Gilham 11 Wire Input: D2 (bit 10), D4, A1, A2, A4, B1, B2, B4, C1, C2, C4 (bit 0) [Altitude Source 2] (2 Bytes), Gilham 11 Wire Input: D2 (bit 10), D4, A1, A2, A4, B1, B2, B4, C1, C2, C4 (bit 0)			Fault Limits	Invalid C-Bit combination or Compare Failure per system requirements.		
Fault Type	Altitude Source #1 Invalid	Altitude Source #2 Invalid	Altitude Compare Invalid																	
Fault Code	2810	2811	2812																	
Fault Parameter	[Compare][Source][Altitude Source 1][Altitude Source 2], where: [Compare] (1 Byte) 0 Compare Enabled 1 Compare Disabled [Source] (1 Byte) 0 Altitude Source #1 Selected 1 Altitude Source #2 Selected [Altitude Source 1] (2 Bytes), Gilham 11 Wire Input: D2 (bit 10), D4, A1, A2, A4, B1, B2, B4, C1, C2, C4 (bit 0) [Altitude Source 2] (2 Bytes), Gilham 11 Wire Input: D2 (bit 10), D4, A1, A2, A4, B1, B2, B4, C1, C2, C4 (bit 0)																			
Fault Limits	Invalid C-Bit combination or Compare Failure per system requirements.																			
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Synchro Altitude Input Monitor The performance monitor will check the status of the Synchro Altitude Inputs.		
5	Fault Type	Synchro Altitude Source #1 Synchro Altitude Source #2
10	Fault Code	2813 2814
15	Fault Parameter	[Valid][Code][Course V _{xx}][Course V _{xx}][Fine V _{xx}][Fine V _{xx}], where: [Valid] (1 Byte): 0 Synchro Altitude Flag Invalid 1 Synchro Altitude Flag valid [Code] (1 Byte): 1 (Synchro Out of Range) 2 (Synchro Voltage Error) [Course V _{xx}] (1 Byte): Course V _{xx} Voltage on A2 CCA, U52, Units = 0.1VDC, 2's complement. [Course V _{xx}] (1 Byte): Course V _{xx} Voltage on A2 CCA, U52, Units = 0.1VDC, 2's complement. [Fine V _{xx}] (1 Byte): Fine V _{xx} Voltage on A2 CCA, U52, Units = 0.1VDC, 2's complement. [Fine V _{xx}] (1 Byte): Fine V _{xx} Voltage on A2 CCA, U52, Units = 0.1VDC, 2's complement.
40	Fault Limits	Synchro Flag, Invalid Altitude, or Invalid Synchro voltages.

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Mode S Address Change Monitor

The performance monitor will check the Mode S Address, and if it changes form the value read at initialization, a fault will be declared.

Fault Code	2815
Fault Parameter	[New Address][Original Address], where: [New Address] (3 bytes): Address read by monitor [Original Address] (3 bytes): Address read at Power Up
Fault Limits	Address miscompare for 5 consecutive reads

ARINC 429 Flight ID Bus Monitor

The performance monitor will check the status of the ARINC 429 Flight ID Bus.

Fault Code	2816
Fault Parameter	None, set to zero
Fault Limits	No flight ID received when installed

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RF Forward Power

The performance monitor will check the forward power on the top and bottom antenna ports independently after a squitter reply is initiated. If the output power in either antenna is too low, the appropriate RF channel will be declared as failed. If the transponder is in standby mode, the monitor will be inhibited from operating.

Antenna	Bottom	Top
Fault Code	3000	3001
Fault Parameter	[Forward Power] [Forward Power] (2 bytes) Forward power measured in Volts DC at P1-12 (top) and P1-10 (Bottom) on A-4 Power Supply CCA. Units = 0.1VDC	
Fault Limits	< 0.7V is a fault condition.	

Local Oscillator Synthesizer Monitor

The performance monitor shall check the 1090MHz Local Oscillator Synthesizer Lock Detect signal.

Fault Code	3002
Fault Parameter	VCO Synthesizer Lock Detect at P1-33 on A-4 Power Supply CCA (2 bytes). Units = 0.1VDC
Fault Limits	<2.0V is a fault condition.

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Local Oscillator VCO Voltage Monitor

The performance monitor shall check the 1090MHz VCO Tuning Voltage signal.

Fault Code	3003
Fault Parameter	VCO Tuning Voltage measured at U6-7 on A-3 Transmitter/Receiver CCA (2 bytes). Units = 0.1VDC
Fault Limits	<1.0V or >11.0V

Local Oscillator Level Monitor

The performance monitor shall check the 1090MHz Local Oscillator Level and generate an fault if it is out of tolerance.

Fault Code	3004
Fault Parameter	Local Oscillator Voltage measured at P1-37 on A-4 Power Supply CCA (2 bytes). Units = 0.1VDC.
Fault Limits	<0.5V or >4.0V is a fault.

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Pin Diode Monitor

The performance monitor will check the Top and Bottom PIN diode voltages. The PIN diode voltages will be monitored during a squitter transmission when the diodes are in a known state. The Top and Bottom PIN diode voltages will be monitored in both the ON (Receive) and OFF (Transmit) state. If the transponder is in standby, the Bottom and Top PIN diodes will be monitored for the ON state only.

Fault Type	Top PIN ON	Top PIN OFF	Bot PIN ON	Bot PIN OFF
Fault Code	3005	3006	3007	3008
Fault Parameter	PIN Diode Voltage in units of 0.1 VDC, 2's complement (2 bytes).			
Fault Limits	<-30V or >+30V	<-190V or >-90V	<-30V or >+30V	<-190V or >-90V

RF Receiver Monitor

The performance monitor checks the status of the RF Receiver Channels according to the following requirements:

- Prior to a squitter operation, the monitor will generate a self-test interrogation which modulates the RF receiver circuitry.
- The monitor will generate 100 interrogations per channel (a total of 200 interrogation for a dual antenna installation, or 100 interrogations for a single antenna installation), and will alternate interrogation types so that both Mode S hardware interrupts are generated.
- For Mode S interrogations the monitor will fail the top or bottom antenna channel if less than 5 valid interrogations out of every 100 are not received, and at least one interrogation for each Mode S hardware interrupt is not received.
- For ATRBS Interrogations, the monitor shall fail the top or bottom antenna channel if less than 5 valid interrogations out of every 100 are not received, and at least one Mode A and Mode C interrogation is not received.

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Fault Type	RF Bottom Receiver Mode S	RF Top Receiver Mode S
Fault Code	3009	300A
Fault Parameter	[Mode S Int0][Mode S Int1] [Mode S Int0] (1 byte) Number of failures per 50 tests. [Mode S Int1] (1 byte) Number of failures per 50 tests.	
Fault Limits	Per (c)	

Fault Type	RF Bottom Receiver ATCRBS	RF Top Receiver ATCRBS
Fault Code	300B	300C
Fault Parameter	[ATCRBS ACL Mode A][ATCRBS ACL Mode C] [ATCRBS ACL Mode A] (1 byte) Number of failures per 50 tests. [ATCRBS ACL Mode C] (1 byte) Number of failures per 50 tests.	
Fault Limits	Per system requirements	

Antenna Monitor

The performance monitor will check the DC resistance to ground on the top and bottom antenna ports independently. If the measurement indicates an open circuit condition, the appropriate antenna will be declared as failed.

Antenna	Bottom	Top
Fault Code	3800	3801
Fault Parameter	Antenna Continuity test measured at P1-16 (top) or P1-14 (bottom) on A-2 Power Supply CCA (2 bytes). Units = 0.1VDC	
Fault Limits	> 2.5 V is a fault condition.	

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TCAS Dispatch Failure

The performance monitor will declare a TCAS Dispatch failure under the following conditions:

- a. Both antenna monitor failures are currently active (3800 and 3801)
or
- b. Either antenna monitor failure is active AND the sensitivity level in label 016 as received from the control panel is not Standby or TA Only (i.e. the Sensitivity Level Control is 0, or 3-7).

Antenna	Bottom	Top
Fault Code	3802	3803
Fault Parameter	None, set to zero.	
Fault Limits	Two or more consecutive occurrences of the above conditions.	

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Power Supply Voltages

The performance monitor will check the DC voltages generated by the system power supply. The following voltages are monitored.

Voltage	+66 VDC	+39 VDC	+28 VDC	+15 VDC
Fault Code	4000	4001	4002	4003
Fault Parameter	Power Supply Voltage in units of 0.1 VDC, 2's complement (2 bytes).			
Fault Limits	< 45V or > 75V	< 33V or > 45V	< 22V or > 34V	< 12V or > 18V

Voltage	-5 VDC	-15 VDC	-150 VDC	+33 VDC
Fault Code	4004	4005	4006	400A
Fault Parameter	Power Supply Voltage in units of 0.1 VDC, 2's complement (2 bytes).			
Fault Limits	< -6V or > - 3.5V	< -18V or > - 12V	< -180V or > -100V	< 25V or > 41V

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Ambient Temperature Monitor

The performance monitor will check the internal system temperature. The temperature monitor will log a fault under the following environmental conditions:

Fault Code	4007
Fault Parameter	Temperature in units of 0.1 Degree Centigrade, 2's complement (2 bytes).
Fault Limits	(Deg C) <-75 or >+120 generates a fault (Deg C) >-70 and <+115 clears a fault

Pulse and Envelope Modulation Monitor

The performance monitor will check the Pulse Modulation and Envelope Modulation voltages. The Pulse Modulation and Envelope Modulation voltages will be monitored during a squitter transmission when the signals are in a high (ON) state.

Fault Type	Pulse Modulator	Envelope Modulator
Fault Code	4008	4009
Fault Parameter	Voltage Measured at P1-32 on A4 Power Supply CCA (2 bytes). Units = 0.1 VDC	Voltage Measured at P1-36 on A4 Power Supply CCA (2 bytes). Units = 0.1 VDC
Fault Limits	<+18V or >+35V is a fault	<+18V or >+35V is a fault

Unexpected Cold Start

The performance monitor will log this error is a Cold Start is executed and the aircraft is in the airborne state.

Fault Code	4800
Fault Parameter	None, set to zero
Fault Limits	Per system requirements

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Software Fault Monitor

The 80960 Microprocessor in the transponder may generate an internal software fault from a number of conditions. If the internal fault occurs, a software event shall be recorded for that fault.

Fault Code	F000
Fault Parameter	[Fault Type][Fault Subtype][RIP] where, [Fault Type] (1 Byte) Contains fault type field generated by 80960. [Fault Subtype] (1 Byte) Contains fault subtype field generated by 80960. [RIP] (4 Bytes) Contains the return address (Return Instruction Pointer) to the code which generated the fault.
Fault Limits	Single occurrence of fault condition

RAM Memory

The self-test monitor will perform a write/read test of RAM memory to verify the RAM memory is operational. The RAM memory test will be performed after a cold start power interrupt.

Fault Code	200A
Fault Parameter	[Address][Device #3][Device #2][Device #1][Device #0], where: [Address] (4 Bytes) Address of first memory location which failed. [Device #n] (1 Byte each) Number of failures found in each memory device (maximum 255). [Device #0] RAM Device for D0-D7 [Device #1] RAM Device for D8-D15 [Device #2] RAM Device for D16-D23 [Device #3] RAM Device for D24-D31
Fault Limits	Single occurrence of comparison mis-match.

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XILINX/RF ASIC Monitor

The self-test monitor will perform the following tests in to the XILINX ASIC and RF ASIC devices to verify the devices are operational.

- The XILINX_DONE discrete from the XILINX ASIC will be monitored to verify the device is operational.
- A write/read test to the internal XILINX ASIC register will be performed to verify the device is operational.
- The monitor will generate a squitter reply with the DELM register in the XILINX ASIC set to 2 segments, and verify that the XILINX ASIC requests a DMA operation, and that the correct data was transferred into the RF ASIC transmit registers by the DMA operation.
- The monitor will perform a write/read test to the RAM memory in the RF ASIC.

Fault Code	200C
Fault Parameter	[RF RAM][DMA][Xilinx Write/Read][Xilinx_Done], where: [Xilinx Write/Read] (1 byte) 1 = XILINX write/read fault 0 = no fault [Xilinx_Done] (1 byte) 1 = Xilinx_Done fault 0 = no fault [DMA] (1 byte) 2 = No DMA operation requested 1 = Data not transferred correctly by DMA operation. 0 = no fault NOTE: The fault codes shall be prioritized in numerical order (highest to lowest) [RF RAM] (1 byte) 1 = RAM Write/Read test fault 0 = no fault
Fault Limits	Single occurrence of fault condition

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ARINC 429 Transmitter Monitor

The self-test monitor will perform an internal ARINC 429 transmitter to receiver channel loop-back test to verify the ARINC 429 transmitter channels are operational:

- The monitor will check each ARINC 429 transmitter channel by setting the ARINC 429 receiver channel for a loop-back to the transmitter, and verifying that a label which is transmitted by the ARINC 429 transmitter is received by the receiver.
NOTE: This will disrupt the normal receiver function momentarily while the test is being performed.

- The monitor will check that an interrupt was generated by the transmission and reception, and that the appropriate transmitter/receiver flags were set/cleared.

Fault Code	200D
Fault Parameter	[Test] [DL] [DGPS] [Maint] [TCAS] [COM C/D] [COM A/B], where: [] corresponds to the transmitter channel tested (1 nibble) 4 = no interrupt generated 3 = transmit flag failure 2 = receive flag failure 1 = receive data invalid 0 = no fault NOTE: The fault codes shall be prioritized in numerical order (highest to lowest) [COM A/B] ASIC #1, Channel A [COM C/D] ASIC #1, Channel B [TCAS] ASIC #1, Channel C [Maint] ASIC #1, Channel D [DGPS] ASIC #2, Channel A [DL] ASIC #2, Channel B [Test] ASIC #2, Channel C
Fault Limits	Single occurrence of fault condition

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ARINC 429 Receiver Monitor

The self-test monitor will perform an internal ARINC 429 test transmitter channel to ARINC 429 receiver channels loop-back test to verify the ARINC 429 receiver channels and ARINC 429 receiver buffers are operational:

- The monitor will set the ARINC 429 receiver buffers for test operation and transmit a label on the ARINC 429 Test transmitter output. The monitor will verify that the label was received on each receiver channel.
NOTE: This will disrupt the normal receiver function momentarily while the test is being performed.

- The monitor will check that the appropriate receiver flags were set.

Fault Code	200E
Fault Parameter	[PDL][ADL][ADS][Control B][ADC 2][Mode S][Maint] [Control A][ADC 1][Flight ID][TCAS][COM C/D][COM A/B] where: [] corresponds to the receiver channel tested (1 nibble) 4 = no interrupt generated 3 = unused (reserved for transmit flag failure) 2 = receive flag failure 1 = receive data invalid 0 = no fault NOTE: The fault codes shall be prioritized in numerical order (highest to lowest) [COM A/B] ASIC #1, Channel A0 [COM C/D] ASIC #1, Channel A1 [TCAS] ASIC #1, Channel A2 [Flight ID] ASIC #1, Channel A3 [ADC 1] ASIC #1, Channel A4 [Control A] ASIC #1, Channel A5 [Maint] ASIC #1, Channel A6 [Mode S] ASIC #1, Channel A7 [ADC 2] ASIC #1, Channel B4 [Control B] ASIC #1, Channel B5 [ADS] ASIC #2, Channel A0 [ADL] ASIC #2, Channel A1 [PDL] ASIC #2, Channel A2
Fault Limits	Single occurrence of fault condition

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TCAS Timer The self-test monitor will perform a test of TCAS 2MSEC timer which is contained in the UART to verify that the timer is operational and that an interrupt is generated. <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">Fault Code</td> <td>200F</td> </tr> <tr> <td>Fault Parameter</td> <td>None.</td> </tr> <tr> <td>Fault Limits</td> <td>Single occurrence of interrupt not generated by timer.</td> </tr> </table> Weight on Wheels Miscompare This monitor will be checked only checked when a self test request is received from an Airbus or McDonnell Maintenance computer. The weight on wheels miscompare monitor will compare the air/ground status with that from the maintenance computer. <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">Fault Code</td> <td>2817</td> </tr> <tr> <td>Fault Parameter</td> <td>None, set to zero</td> </tr> <tr> <td>Fault Limits</td> <td>Single occurrence of miscompare.</td> </tr> </table>	Fault Code	200F	Fault Parameter	None.	Fault Limits	Single occurrence of interrupt not generated by timer.	Fault Code	2817	Fault Parameter	None, set to zero	Fault Limits	Single occurrence of miscompare.			
Fault Code	200F														
Fault Parameter	None.														
Fault Limits	Single occurrence of interrupt not generated by timer.														
Fault Code	2817														
Fault Parameter	None, set to zero														
Fault Limits	Single occurrence of miscompare.														
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4.0 Fault Log Data Format

For each fault which is logged in memory, the following data parameters shall be contained with the fault. The units and data ranges for each data parameter is defined in the following list. Each fault shall be logged in a 64 byte block; each data field describes the byte location where it is logged in the block (0 = first byte in block, 63 = last byte in block). Any undefined or unused bits shall be set to zero.

Byte 0 Fault Type MSB
Byte 1 Fault Type LSB

Fault Type (code) (Units = none, Range = 0 to FFFF Hex). Contains a code for the type of fault which has occurred. Fault codes are defined using the following code to aid troubleshooting:

Fault Code Subfield	Description of Field
Bits 15-12	Probable assembly where fault occurred/was detected: 1 = A1 Interconnect Assembly 2 = A2 Processor Assembly 3 = A3 Transmitter/Receiver Assembly 4 = A4 Power Supply/Modulator Assembly 5 = A5 ARINC 629 Auxiliary Assembly 6 = Flight Leg Change Marker F = Software Event
Bit 11	Probable error source: 0 = Internal to transponder unit. 1 = External to transponder unit.
Bits 10-0	Fault code.

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REV LTR Byte 17 Aircraft ID First Character through Byte 23 Aircraft ID Seventh Character Byte 24 Aircraft ID Eighth Character / Aircraft Type Byte 25 Aircraft ID Ninth Character / Fleet Identification Aircraft Tail Number (Aircraft ID) from maintenance computer, Labels 301, 302, and 303. Airbus and Douglas use seven characters, Boeing uses nine characters. The data field shall contain the contents of bits 11 to 17 (characters 1, 4, and 7), bits 18 to 24 (characters 2 and 5 for Airbus and Douglas, characters 2, 5, and 8 for Boeing), and bits 25 to 31 (characters 3 and 5 for Airbus and Douglas, characters 3, 5, and 9 for Boeing) of each label. For Airbus only, bits 11 to 16 of Label 304 shall be placed in Byte 24 and bits 18 to 21 shall be placed in Byte 25. If label 304 is not present in the system, the data fields shall be set to all ones. If no maintenance computer is present in the system, all the bytes shall be set to all ones. Byte 26 Aircraft Flight Number First Character through Byte 35 Aircraft Flight Number Tenth Character Aircraft Flight Number from maintenance computer, Labels 233, 234, 235, 236, (Boeing and Airbus), 237 (Airbus), and 361 (Douglas). For Airbus and Boeing, the data field shall contain the contents of bits 11 to 17 (characters 1, 3, 5, 7, and 9) and bits 19 to 25 (characters 2, 4, 6, 8, and 10) of each label. Bytes 34 and 35 (character 9 and 10) shall be set to all ones for Boeing. For Airbus, if label 237 is not present in the system, the data fields for that label shall be set to all ones. For Douglas, all characters are extracted from label 261 as BCD data and converted to ASCII by adding 0x30 (ASCII 0). The first character is extracted from bit 26 to 29, the second character is extracted from bits 22 to 25, the third character is extracted from bits 18 to 24, and the fourth character is extracted from bits 14 to 17. The fields for characters 5 through 10 shall be set to all ones. If no maintenance computer is present in the system, the data fields shall be set to all ones. Byte 36 Aircraft Command Code Aircraft command code from maintenance computer, Label 227, bits 25 to 31. If no maintenance computer is present in the system, the data field shall be set to all ones.			
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5	Byte 55 Current Power On Count MSB Byte 56 Current Power On Count LSB Current power-on count (Units = none, Range = 0 to FFFF Hex).			
10	Byte 57 Time since Power On MSB Byte 58 Time since Power On LSB Time Since power-on (Units = 0.1 Hours, Range = 0 to FFFF Hex, 6553.5 hours).			
15	Byte 59 Source of Test When a fault is logged, the transponder shall log the source of the test which found the fault. The following type of tests are defined:			
20	1 Continuous Performance Monitor 2 Power On Initiated Selftest 3 Control Panel Initiated Selftest 4 Functional Test Discrete Initiated Selftest 5 Front Panel Test Switch Initiated Selftest 6 Maintenance Computer Initiated Selftest			
25				
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.396±.010

1.385±.010



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CO 103921 SH 2 OF 3

R .06±.01
6 PLACES

HONEYWELL INC. XS-950S/I

DATA LINK TRANSPONDER

HARDWARE

P/N 7519350-

S/N

WT Lbs

DATE INSP. #

DO-160D ENV CAT ((A2)(F2)Y)BBB
(SCLMY)XXXXXXZAEZ(RRR)A3E3DXXA
TSO-C112 CL043,121,F11

FCC ID GB8XS-950

A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U
V	W	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AJ	AK	AL	AM	AN	AP
AR	AS	AT	AU	AV	AW	AY											

BUS. & COMMUTER AVN SYS DIV
PHOENIX AZ USA

FSCM 55939

DO-160D ENV CAT ((A2)(F2)Y)BBB
(SCLMY)XXXXXXZAEZ(RRR)A3E3DXXA
TSO-C112 CL043,121,F11

FCC ID GB8XS-950

H/W MOD A B C D E F G H J K L M N

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USE, FOR MILITARY USE ONLY**

FIGURE 56. 7021570-45

GT7021570-45

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SEE FIRST SHEET FOR
CONTRACT NUMBER. USE OR
DISCLOSURE OF INFORMATION
ON THIS SHEET IS SUBJECT
TO THE RESTRICTIONS ON
THE FIRST SHEET OF THIS
DOCUMENT.

SIZE
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CAGE CODE
55939

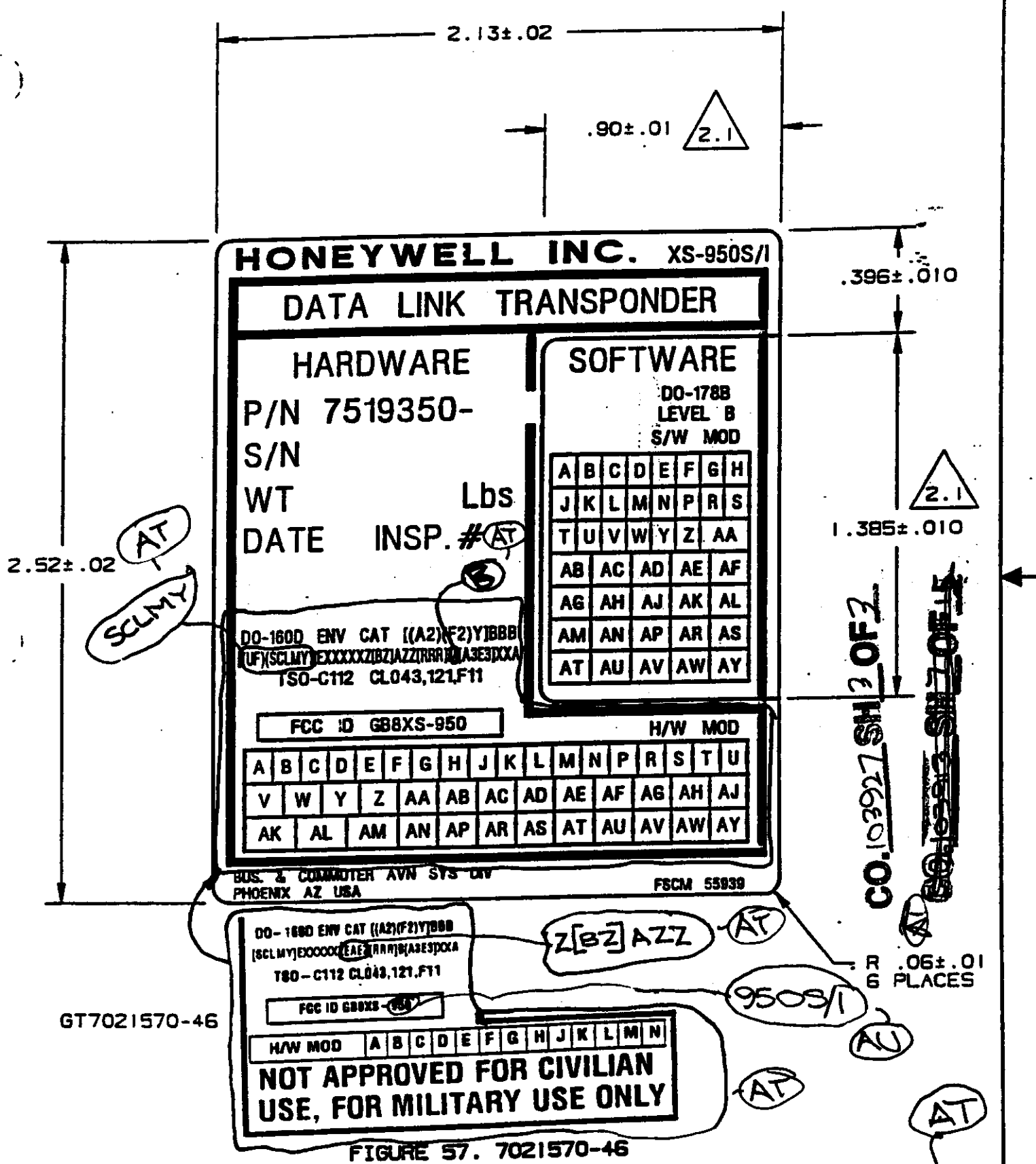
DRAWING NO.

7021570

REV
AM

SCALE 2/1

SHEET 58



Honeywell

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DOCUMENT.

SIZE

A

CAGE CODE

55939

DRAWING NO.

7021570

REV

AM

SCALE

2/1

SHEET

59

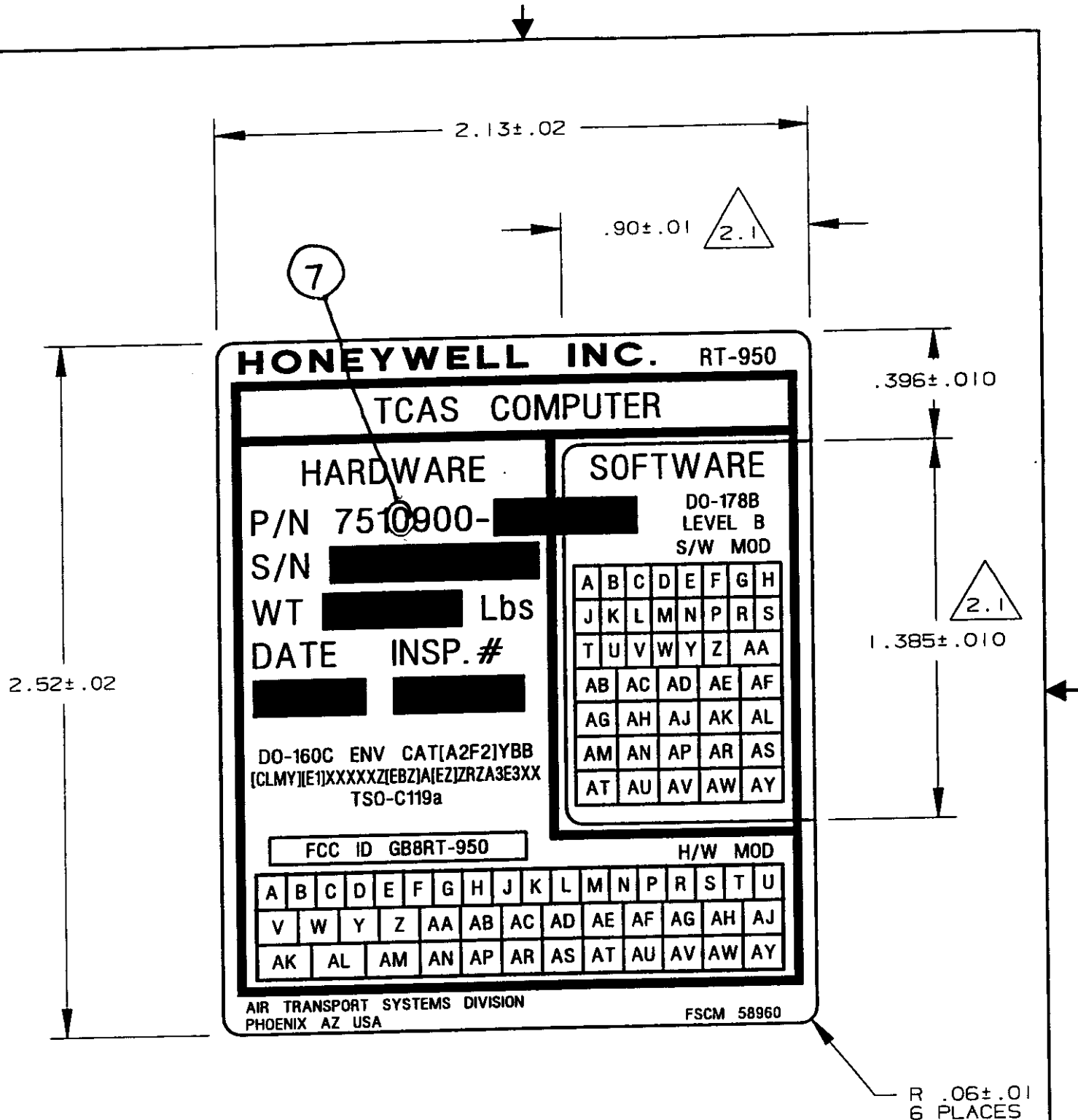
COMPUTER GENERATED

7021570-54	FIGURE 65	GT7021570-54	RT-950 HDWR S/W LEVEL B	(BLACK) 1.2.1.1	(ALUMINUM) 1.2.2.2
7021570-55	FIGURE 66	GT7021570-55	RT-951 HDWR S/W LEVEL B	(ALUMINUM) 1.2.1.2	(BLACK) 1.2.2.1
7021570-56	FIGURE 67	GT7021570-56	S/W LEVEL B	(BLACK) 1.2.1.1	(ALUMINUM) 1.2.2.2
7021570-57	FIGURE 68	GT7021570-57	S/W LEVEL B	(ALUMINUM) 1.2.1.2	(BLACK) 1.2.2.1
7021570-58	FIGURE 69	GT7021570-58	S/W LEVEL B	(BLACK) 1.2.1.1	(ALUMINUM) 1.2.2.2
7021570-59	FIGURE 70	GT7021570-59	S/W LEVEL B	(ALUMINUM) 1.2.1.2	(BLACK) 1.2.2.1

CO103913 SHEET 2 OF 15

7021570

DWG NO. SH

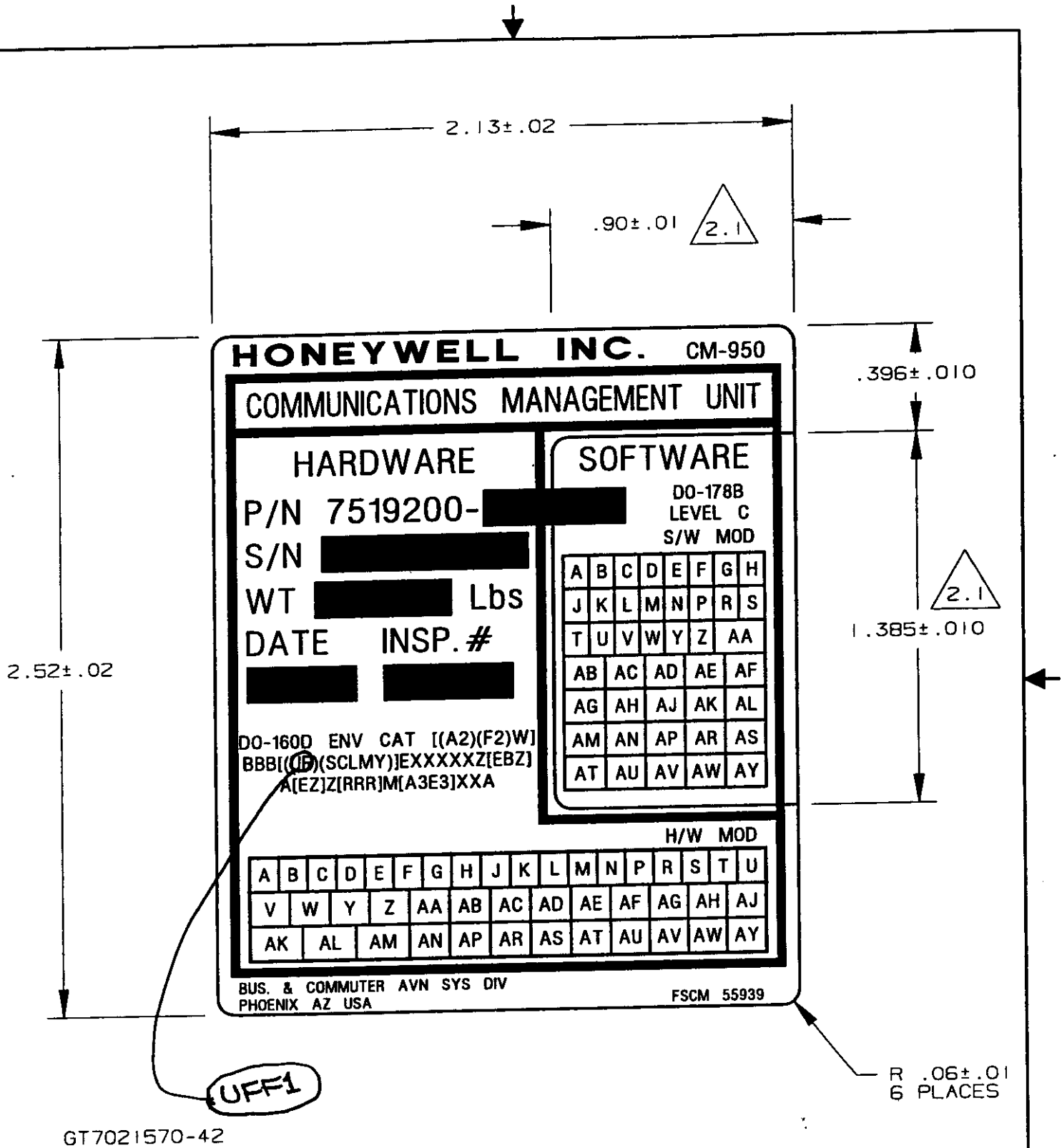


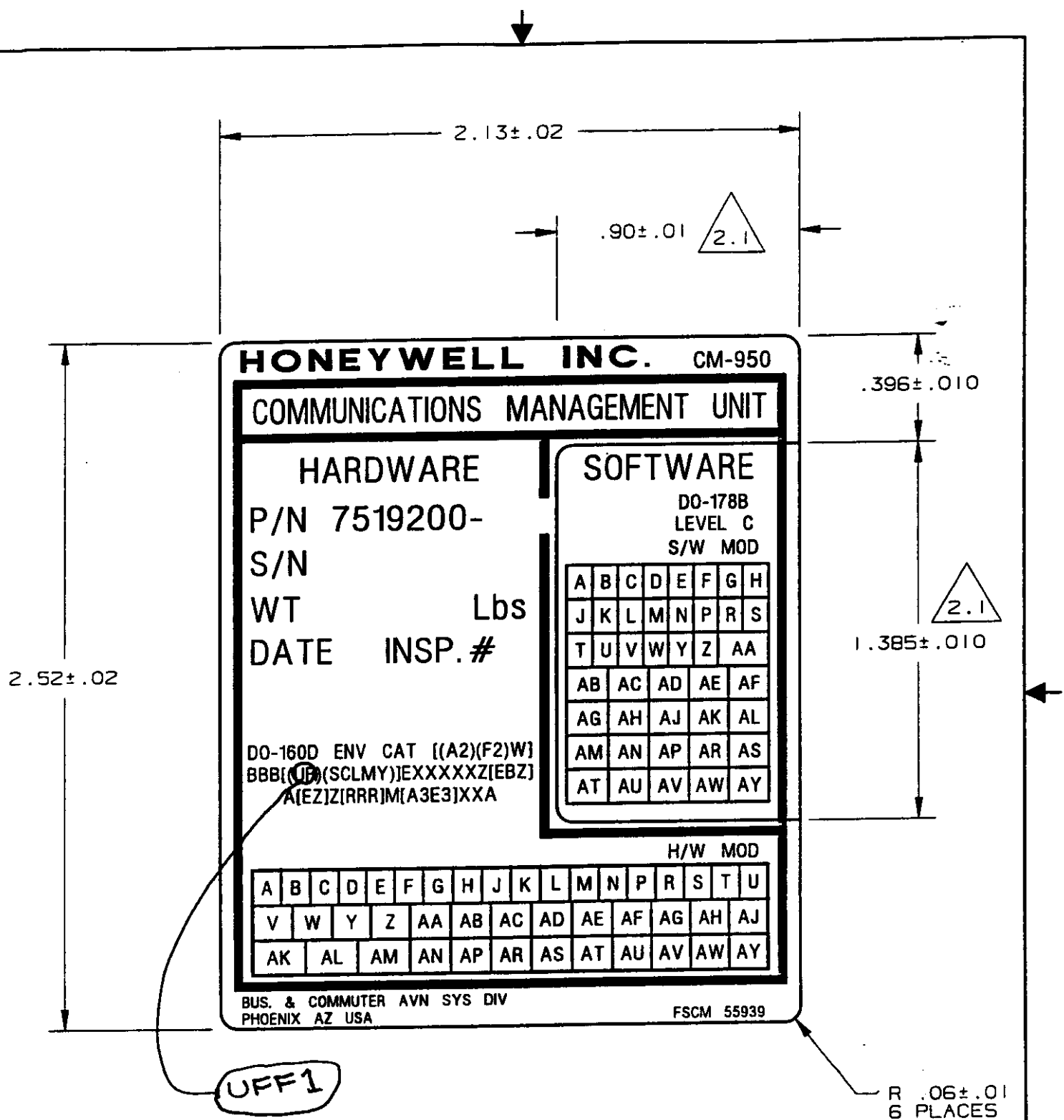
GT7021570-23

CO. 103913 SH 3 OF 15

FIGURE 23. 7021570-23

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.	SIZE	CAGE CODE	DRAWING NO.	REV
		A	55939	7021570	AM
		SCALE	2/1	SHEET	25





GT7021570-43

CO. 103913 SH 5 OF 15

AT (circled)

FIGURE 54. 7021570-43

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.	SIZE A	CAGE CODE 55939	DRAWING NO. 7021570	REV AM
		SCALE 2/1		SHEET 56	

2.13±.02

.90±.01

2.1

.396±.010

2.1

1.385±.010

2.52±.02

HONEYWELL INC. XS-950S/I**DATA LINK TRANSPONDER****HARDWARE**

P/N 7519350- [REDACTED]

S/N [REDACTED]

WT [REDACTED] Lbs

DATE INSP. # [REDACTED]

SOFTWARE

DO-178B

LEVEL B

S/W MOD

A	B	C	D	E	F	G	H
J	K	L	M	N	P	R	S
T	U	V	W	Y	Z	AA	
AB	AC	AD	AE	AF			
AG	AH	AJ	AK	AL			
AM	AN	AP	AR	AS			
AT	AU	AV	AW	AY			

DO-160D ENV CAT [(A2)(F2)Y]BBB
 [(F)(SCLMY)EXXXXXZAEZ(RRR)B(A3E3)XXA
 TSO-C112 CL043,121,F11

FCC ID GB8XS-950

H/W MOD

A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U
V	W	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AJ					
AK	AL	AM	AN	AP	AR	AS	AT	AU	AV	AW	AY						

BUS. & COMMUTER AVN SYS DIV
 PHOENIX AZ USA

FSCM 55939

DO-160D ENV CAT [(A2)(F2)Y]BBB
 (SCLMY)EXXXXXZAEZ(RRR)B(A3E3)XXA
 TSO-C112 CL043,121,F11

FCC ID GB8XS-950

H/W MOD A B C D E F G H J K L M N

**NOT APPROVED FOR CIVILIAN
 USE, FOR MILITARY USE ONLY**

FIGURE 56. 7021570-45

GT7021570-45

R .06±.01
6 PLACES

CO. 103913 SH COFIS

AT

Honeywell

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 DOCUMENT.

SIZE

A

CAGE CODE

55939

DRAWING NO.

7021570

REV

AM

SCALE

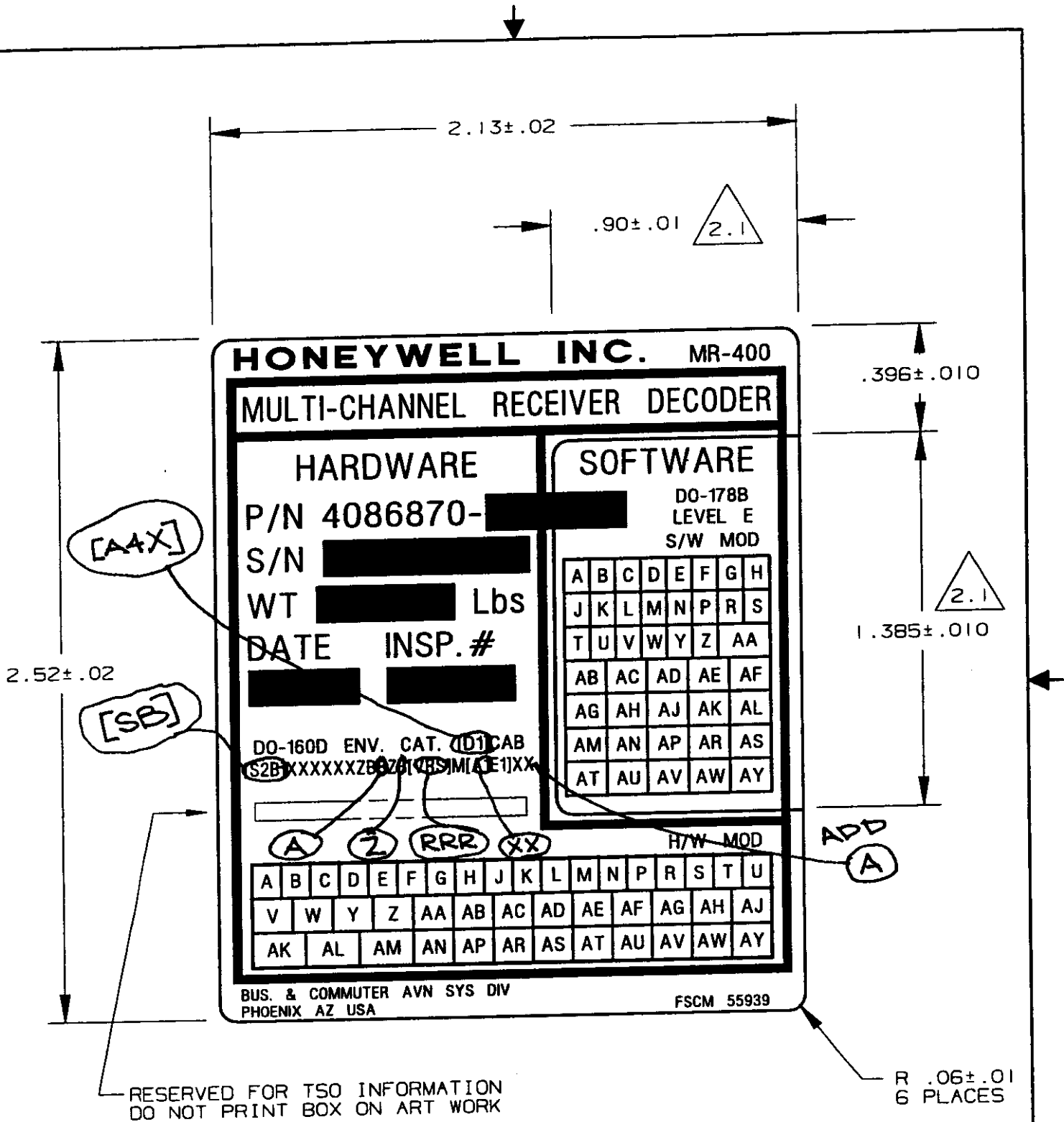
2/1

SHEET

58

COMPUTER GENERATED

DWG NO. 57



GT7021570-47

CO. 103913 SH 8 OF 15

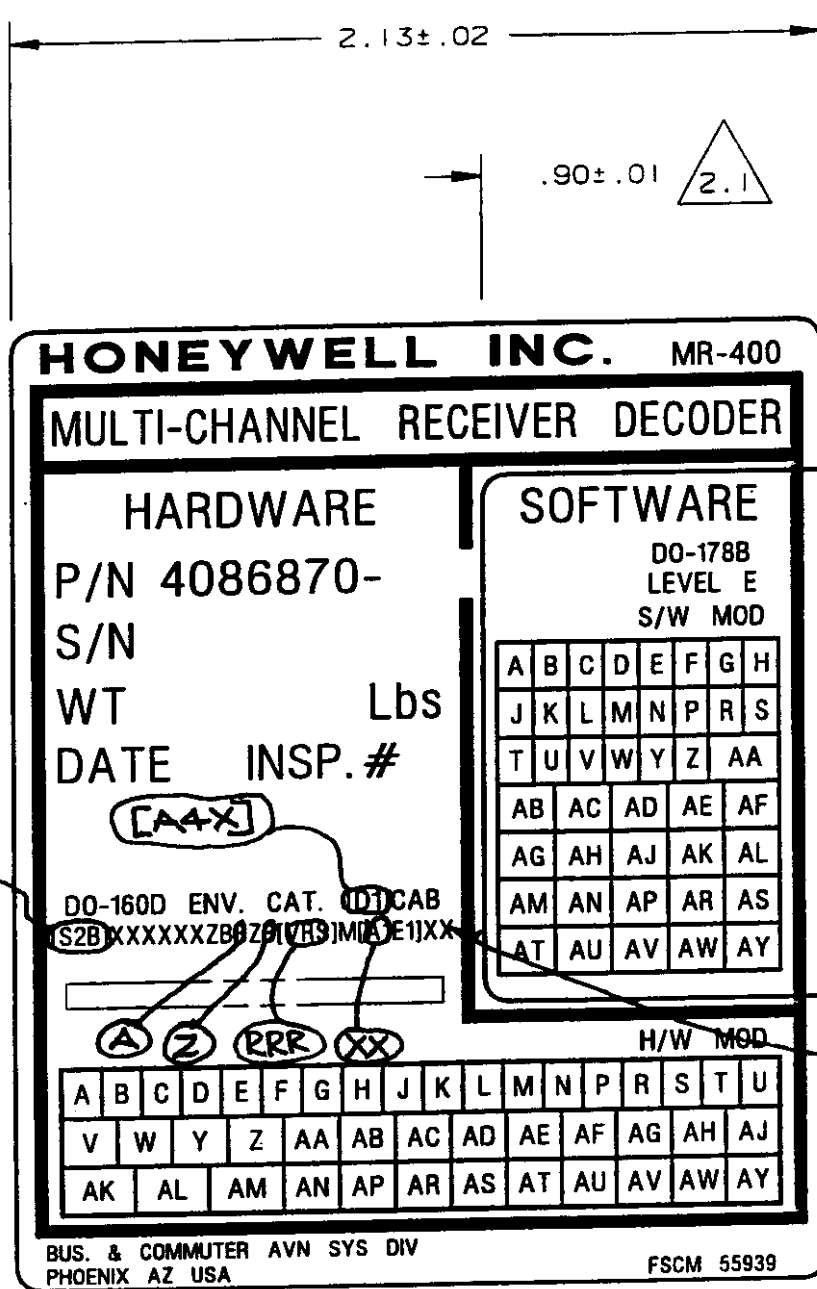
FIGURE 58. 7021570-47

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.	SIZE	CAGE CODE	DRAWING NO.	REV
		A	55939	7021570	AM
		SCALE 2/1	SHEET 60		

5231-031 (ANSI Y14.1-1980) HONEYWELL INC.
(REV 3-87)

COMPUTER GENERATED

GT REV 10-91



RESERVED FOR TSO INFORMATION
DO NOT PRINT BOX ON ART WORK

R .06 ± .01
6 PLACES

GT7021570-48

CO-103913 SH9 OF 15

FIGURE 59. 7021570-48

Honeywell

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SIZE

A

CAGE CODE

55939

DRAWING NO.

7021570

SCALE

2/1

SHEET

61

REV

AM

COMPUTER GENERATED

2.13±.02

.90±.01



7

HONEYWELL INC. RT-950

TCAS COMPUTER

HARDWARE

P/N 7510900-

S/N

WT Lbs

DATE INSP.#

DO-160C ENV CAT[A2F2]YBB
[CLMY][E1]XXXXXXZ[EBZ]A[EZ]ZRZA3E3XX
TSO-C1192

FCC ID GB8RT-950

SOFTWARE

DO-178B

LEVEL B

S/W MOD

A	B	C	D	E	F	G	H
J	K	L	M	N	P	R	S
T	U	V	W	Y	Z	AA	
AB	AC	AD	AE	AF			
AG	AH	AJ	AK	AL			
AM	AN	AP	AR	AS			
AT	AU	AV	AW	AY			

.396±.010



1.385±.010

2.52±.02

AIR TRANSPORT SYSTEMS DIVISION
PHOENIX AZ USA

FSCM 58960

6

R .06±.01
6 PLACES

GT7021570-23

CO.103913 SH 1 OF 15

ADD THIS SHEET

FIGURE 23. 7021570-23

65

54

CHG

AT

Honeywell

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A

CAGE CODE

55939

DRAWING NO.

7021570

REV

AM

SCALE

2/1

SHEET

25

HONEYWELL INC. RT-951

TCAS COMPUTER

HARDWARE
P/N 7517900-
S/N
WT Lbs
DATE INSP.#

SOFTWARE

DO-178B
LEVEL B
S/W MOD

A	B	C	D	E	F	G	H
J	K	L	M	N	P	R	S
T	U	V	W	Y	Z	AA	
AB	AC	AD	AE	AF			
AG	AH	AJ	AK	AL			
AM	AN	AP	AR	AS			
AT	AU	AV	AW	AY			

DO-160C ENV CAT(A2F2)YBB
[CLMY][E1]XXXXXZ[EBZ]A[EZ]ZRZA3E3XX
TSO-C119

FCC ID GB8RT-950

H/W MOD

A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U
V	W	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AJ					
AK	AL	AM	AN	AP	AR	AS	AT	AU	AV	AW	AY						

AIR TRANSPORT SYSTEMS DIVISION
PHOENIX AZ USA

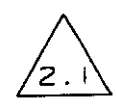
FSCM 58960

2.13±.02

.90±.01



.396±.010



1.385±.010

2.52±.02

R .06±.01
6 PLACES

ADD THIS SHEET

GT7021570-24

CO. 103913 SH 11 OF 15

FIGURE 24. 7021570-24

Honeywell

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SIZE

A

CAGE CODE

55939

DRAWING NO.

7021570

REV

AM

SCALE

2/1

SHEET

26



TSO C119b

ADD THIS SHEET

AT

56

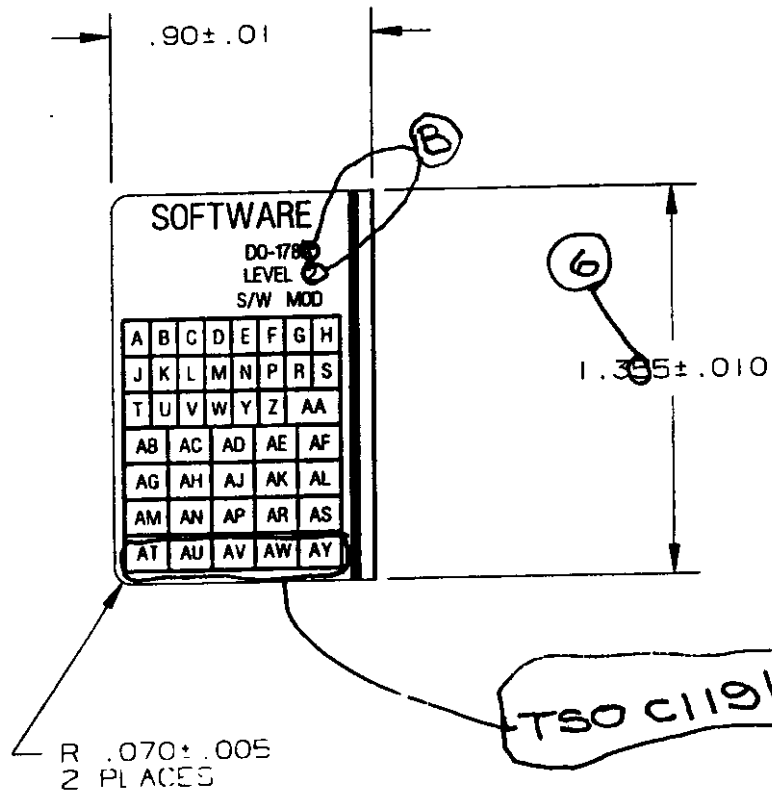
67

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		SCALE 		SHEET 10	

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(REV 3-87)

COMPUTER GENERATED

ST REV 10-91



CO-102913 SH13 OF 15

GT7021570-9

57

68

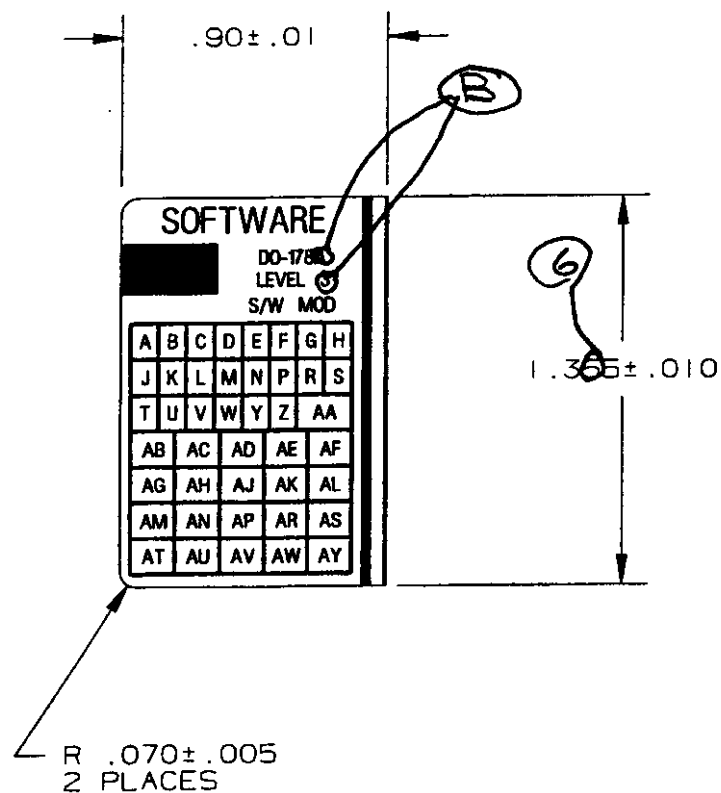
FIGURE 9 7021570-9

ADD THIS SHEET

AT

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.	SIZE	CAGE CODE	DRAWING NO.	REV
		A	55939	7021570	1
		SCALE	SHEET		11

SK
DWG NO.



CO. 103913 SH 14 OF 15

GT7021570 (B)

58

69

FIGURE (B)

7021570-B

ADD THIS SHEET

AT

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SIZE

A

CAGE CODE

55939

DRAWING NO.

7021570

REV

1

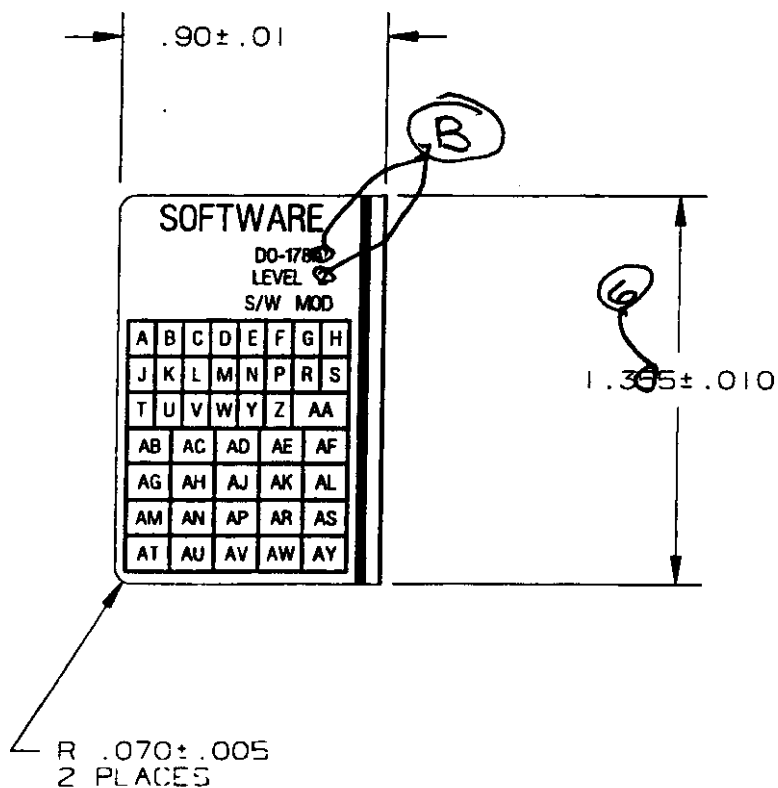
SCALE

SHEET

10

SH

DWS NO.



CO-103913 SH 50F15

GT7021570-9

59

10

FIGURE 9. 7021570-9

ADD THIS SHEET

AT

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A

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55939

DRAWING NO.

7021570

REV

9

SCALE

SHEET

18

COMPUTER GENERATED

GT REV 10-91

DWG NO.	7021570	SH	1	FOR REVISION RECORD, SEE LAST SHEET	
FOR HONEYWELL REFERENCE					
DPA NO.	A14738				
PRODUCT LINE NO.	5111				
AW/PS ANALYSIS EB	7516081				
APPLICATION					
NEXT ASSY	USED ON (SYS)				
7516100	7516100				
7516240	7516240				
7516250	7516250				
7517800	7517800				
7516251	7516251				

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SCALE	NONE	UNIT WT	SHEET 1 OF 76																																																																																																																																																																																																																																									

1. REQUIREMENTS

1.1 MATERIAL. ADHESIVE BACKED ALUMINUM FOIL PER P7015502, OR ADHESIVE BACKED METALLIZED POLYESTER PER 7006940.

1.2 COLOR. SEE TABLE I FOR APPLICABILITY.

1.2.1 BACKGROUND

1.2.1.1 BLACK MATTE SURFACE PER FED-STD-595, COLOR 37038.

1.2.1.2 NATURAL ALUMINUM, MATTE SURFACE.

1.2.1.3 METALLIZED POLYESTER.

1.2.2 CHARACTERS AND LINES

1.2.2.1 BLACK MATTE SURFACE PER FED-STD-595, COLOR 37038.

1.2.2.2 NATURAL ALUMINUM, MATTE SURFACE.

1.2.2.3 BLACK, THERMAL PRINTED.

1.3 ARTWORK

1.3.1 SEE TABLE I FOR APPLICABILITY.

1.4 LABEL CONSTRUCTION. LABELS MAY BE EITHER CONSTRUCTED OF PREPRINTED ADHESIVE BACKED ALUMINUM FOIL OR A COMPUTER GENERATED/COMPUTER PRINTED ADHESIVE BACKED METALLIZED POLYESTER. EITHER TYPE OF LABEL MUST CONFORM TO THE APPROPRIATE FIGURE AND TABLE INFORMATION.

2. 4 ID PLATES PER LINER. ID PLATES TO BE IN VERTICAL ORDER WHERE APPLICABLE.

2.1 DIE CUT SOFTWARE LABEL PER DIMENSIONS. DO NOT REMOVE SOFTWARE LABEL FROM LINER WHERE APPLICABLE.

3. APPLICATION INFORMATION (FOR REFERENCE)

3.1 INSTALL IDENTIFICATION PLATES PER M7015353.

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RESTRICTIONS ON THE FIRST
SHEET OF THIS DOCUMENT.

SIZE

A

CAGE CODE

55939

DRAWING NO.

7021570

REV

N

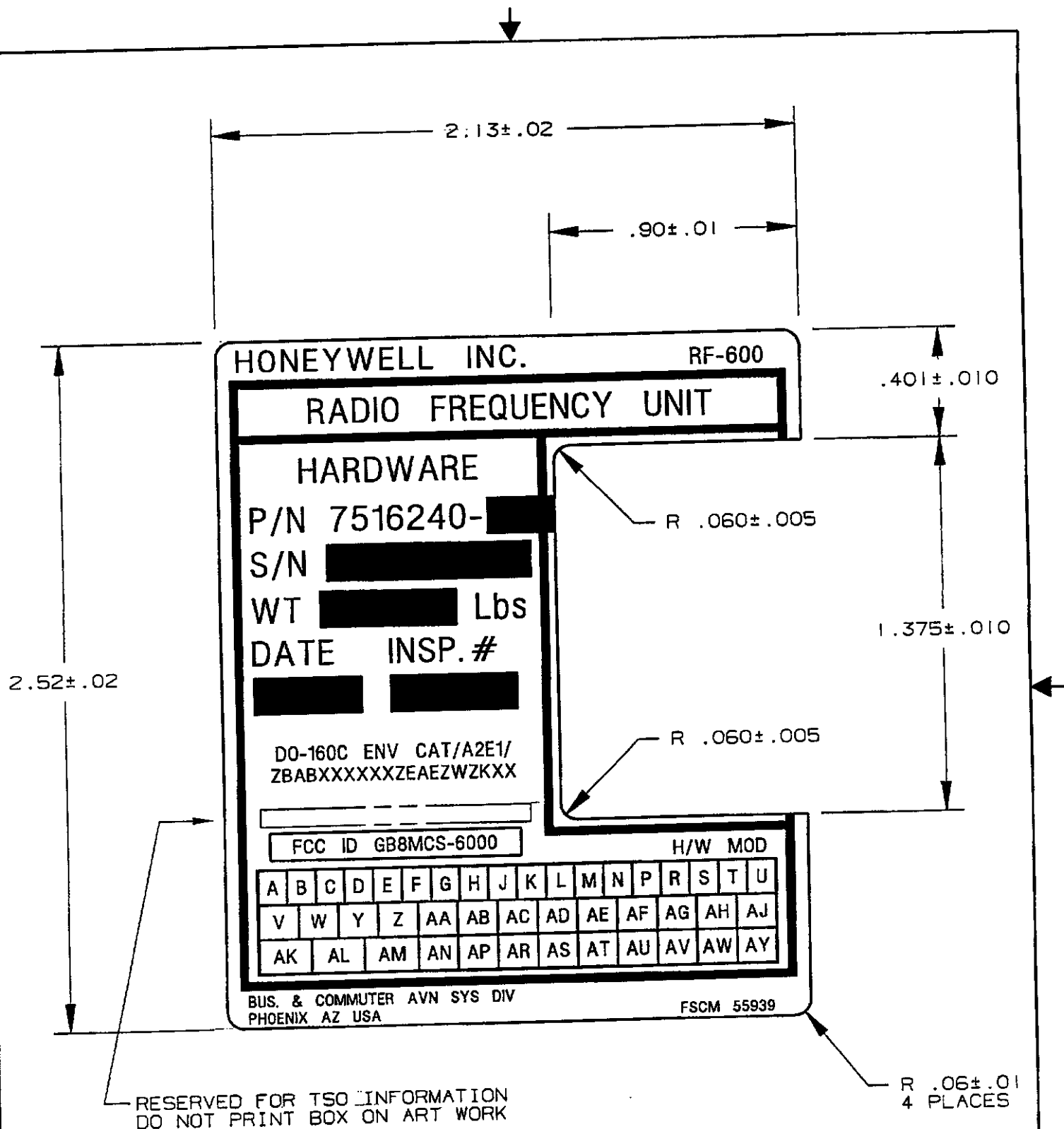
SCALE

NONE

UNIT WT

SHEET

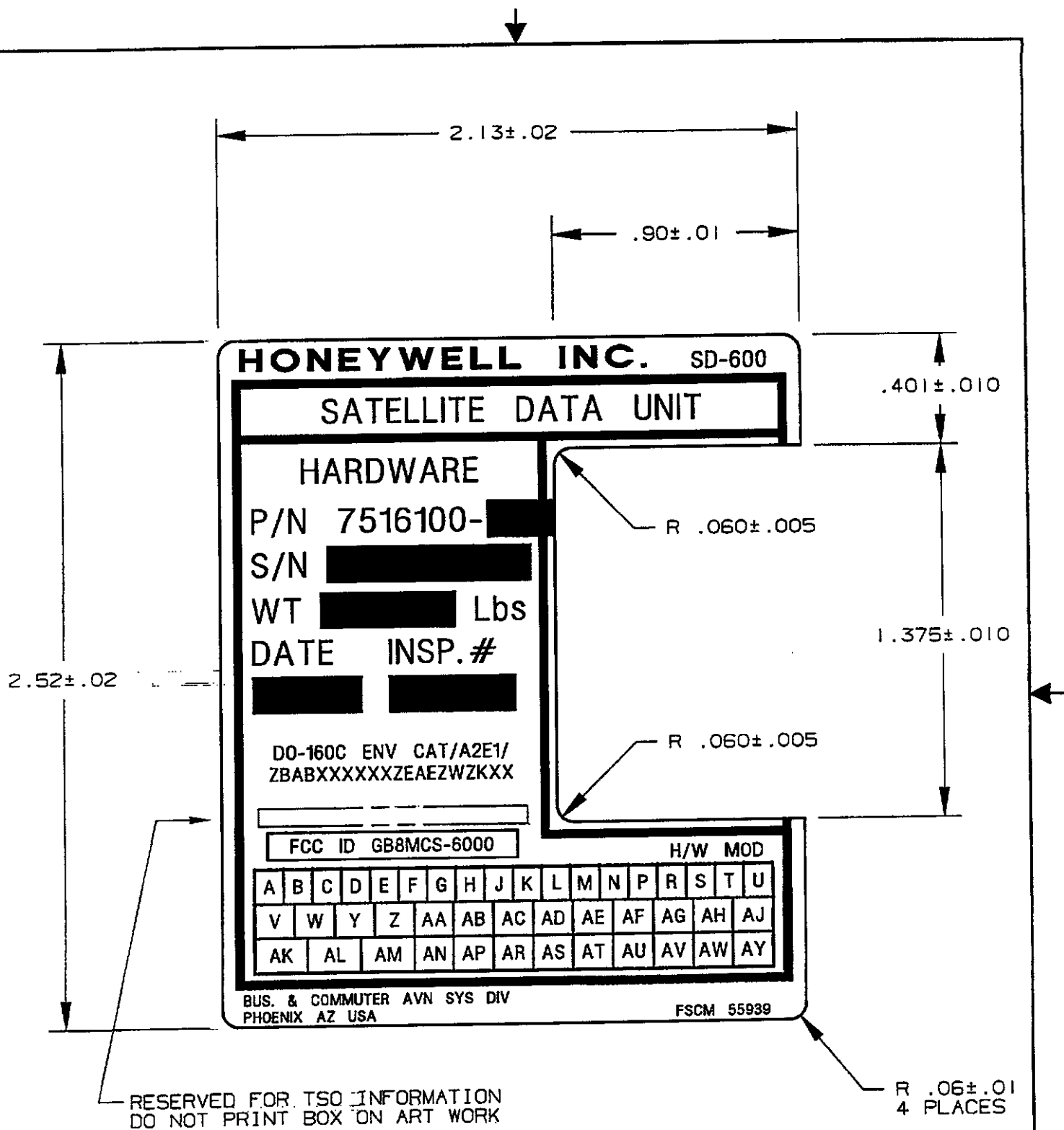
2



GT7021570-1

FIGURE 1. 7021570-1

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.	SIZE	CAGE CODE	DRAWING NO.	REV
		A	55939	7021570	AM
		SCALE 2/1	SHEET 3		



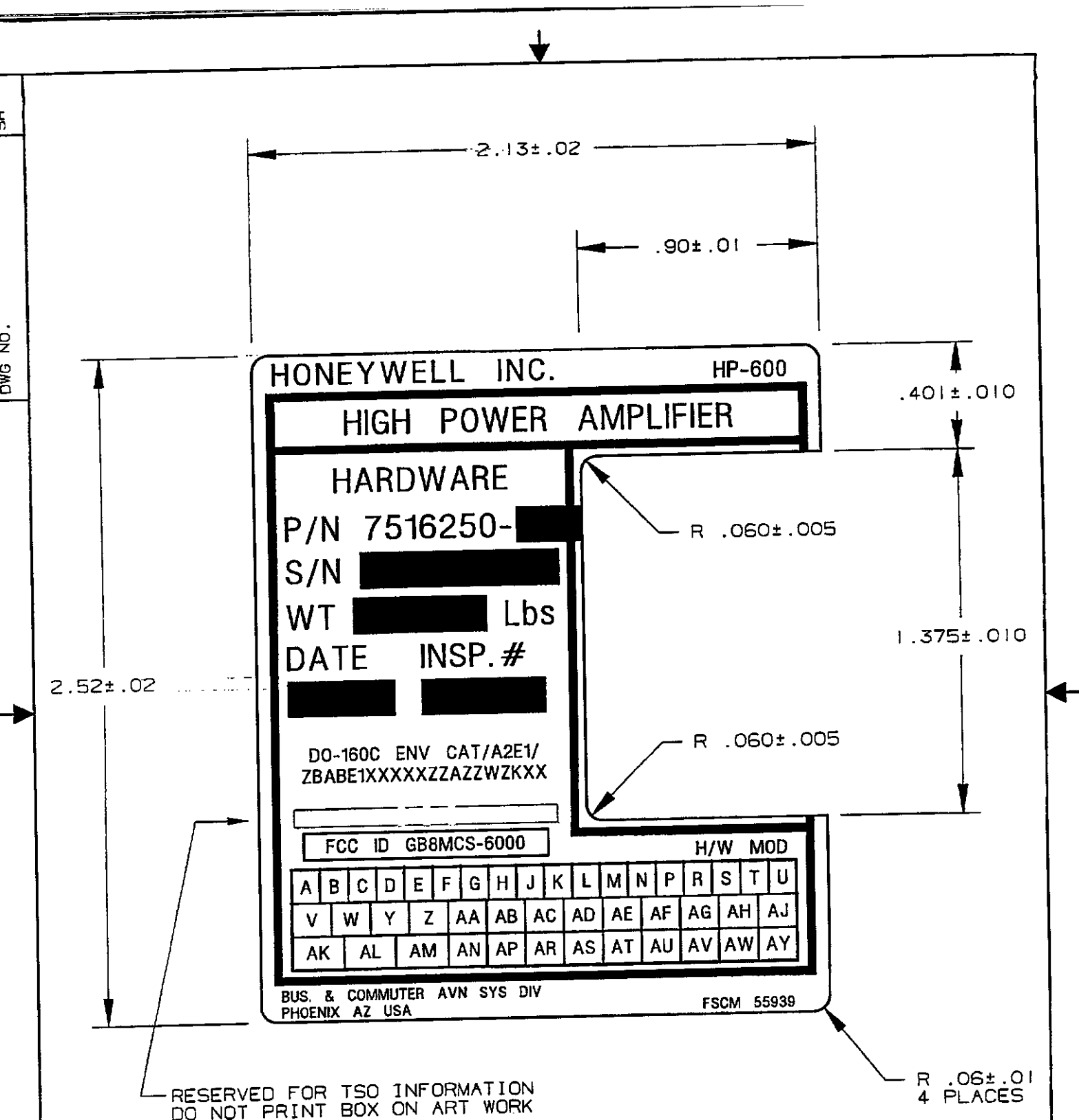
GT7021570-2

FIGURE 2. 7021570-2

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.		SIZE A	CAGE CODE 55939	DRAWING NO. 7021570	REV AM
			SCALE 2/1		SHEET 4	
	COMPUTER GENERATED					

5231-031 (ANSI Y14.1-1980) HONEYWELL, INC.
 (REV 3-87)

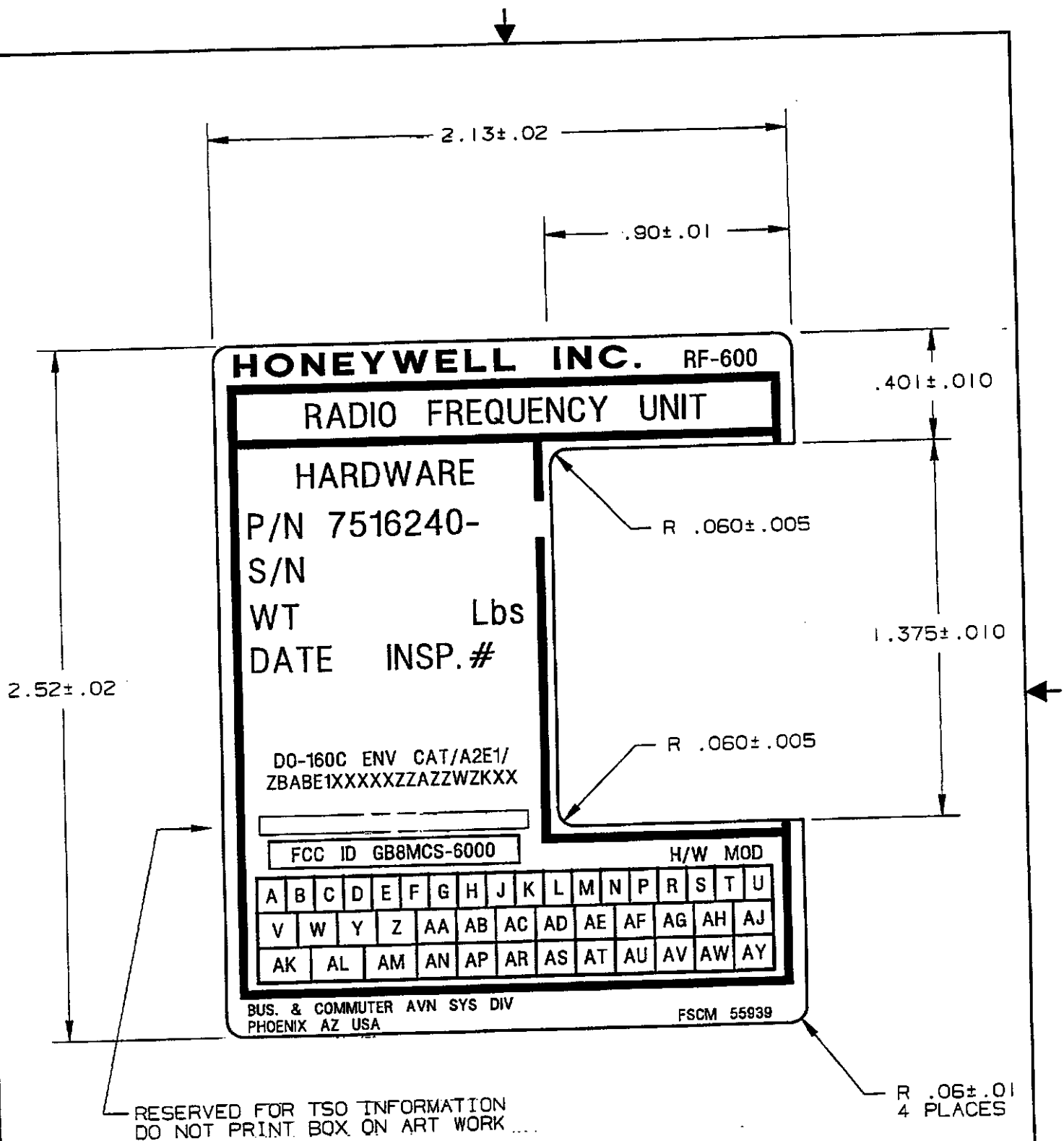
GT REV 10-81



GT7021570-3

FIGURE 3. 7021570-3

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.	SIZE	CAGE CODE	DRAWING NO.	REV
		A	55939	7021570	AM
		SCALE 2/1	SHEET 5		



GT7021570-4

FIGURE 4. 7021570-4

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.		SIZE A	CAGE CODE 55939	DRAWING NO. 7021570	REV AM
	SCALE 2/1		SHEET 6			
	COMPUTER GENERATED					

GT REV 10-91

2.52 ± .02

2.13 ± .02

.90 ± .01

HONEYWELL INC. SD-600

SATELLITE DATA UNIT

HARDWARE

P/N 7516100-

S/N

WT

Lbs

DATE

INSP.#

DO-160C ENV CAT/A2E1/
ZBABE1XXXXZZAZZWZKXX

FCC ID GB8MCS-6000

H/W MOD

A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U
V	W	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AJ					
AK	AL	AM	AN	AP	AR	AS	AT	AU	AV	AW	AY						

BUS. & COMMUTER AVN SYS DIV
PHOENIX AZ USA

FSCM 55939

.401 ± .010

1.375 ± .010

R .060 ± .005

R .060 ± .005

R .06 ± .01
4 PLACES

RESERVED FOR TSO INFORMATION
DO NOT PRINT BOX ON ART WORK

GT7021570-5

FIGURE 5. 7021570-5

Honeywell

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CONTRACT NUMBER. USE OR
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ON THIS SHEET IS SUBJECT
TO THE RESTRICTIONS ON
THE FIRST SHEET OF THIS
DOCUMENT.

SIZE

A

CAGE CODE

55939

DRAWING NO.

7021570

REV

AM

SCALE 2/1

SHEET

7

COMPUTER GENERATED

DWG NO.

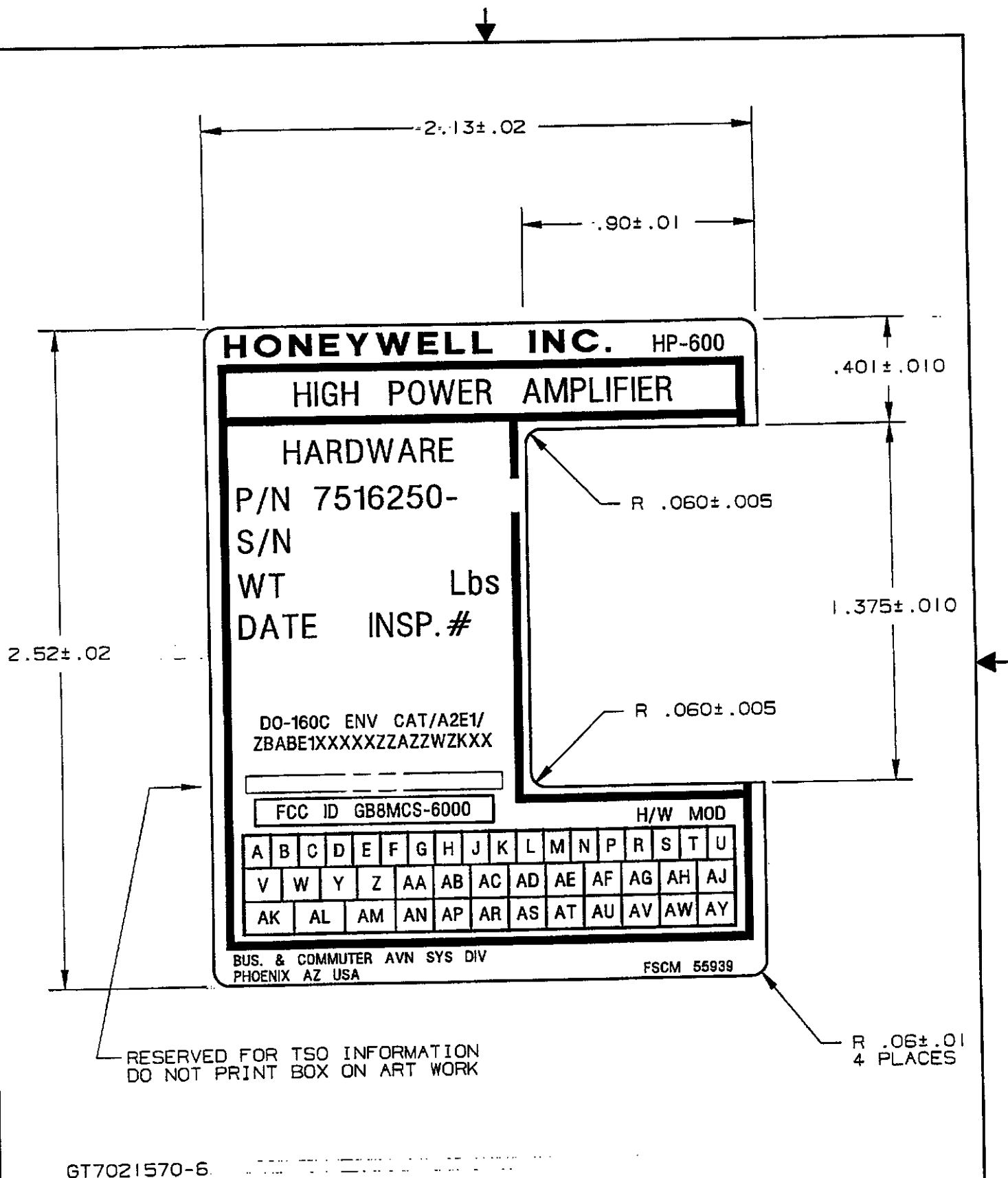


FIGURE 6. 7021570-6

Honeywell

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DISCLOSURE OF INFORMATION
ON THIS SHEET IS SUBJECT
TO THE RESTRICTIONS ON
THE FIRST SHEET OF THIS
DOCUMENT.

SIZE

A

CAGE CODE

55939

DRAWING NO.

7021570

REV

AM

SCALE

2/1

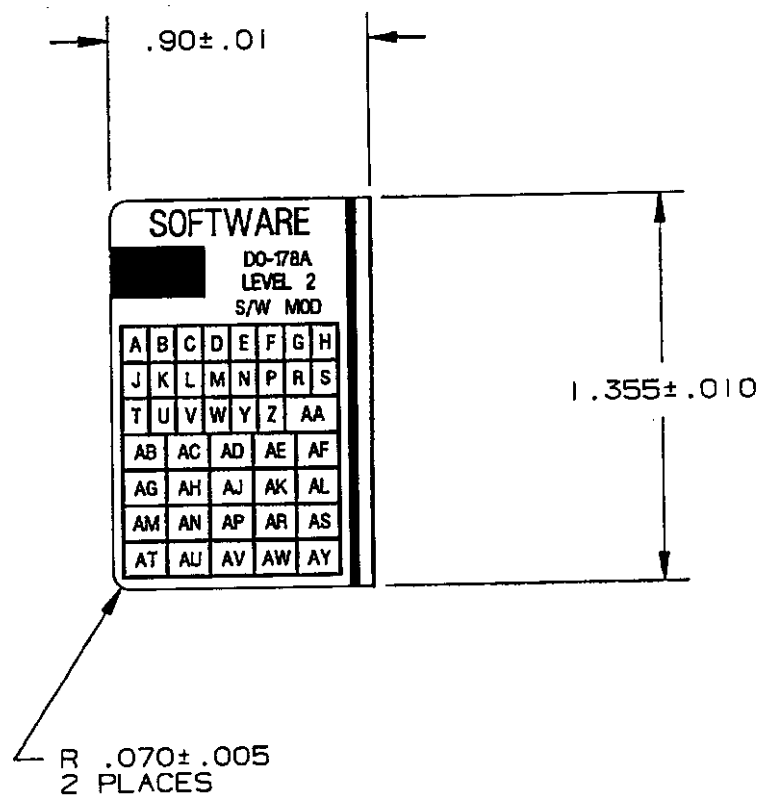
SHEET

8

GT REV 10-81

COMPUTER GENERATED

5
DWG NO.

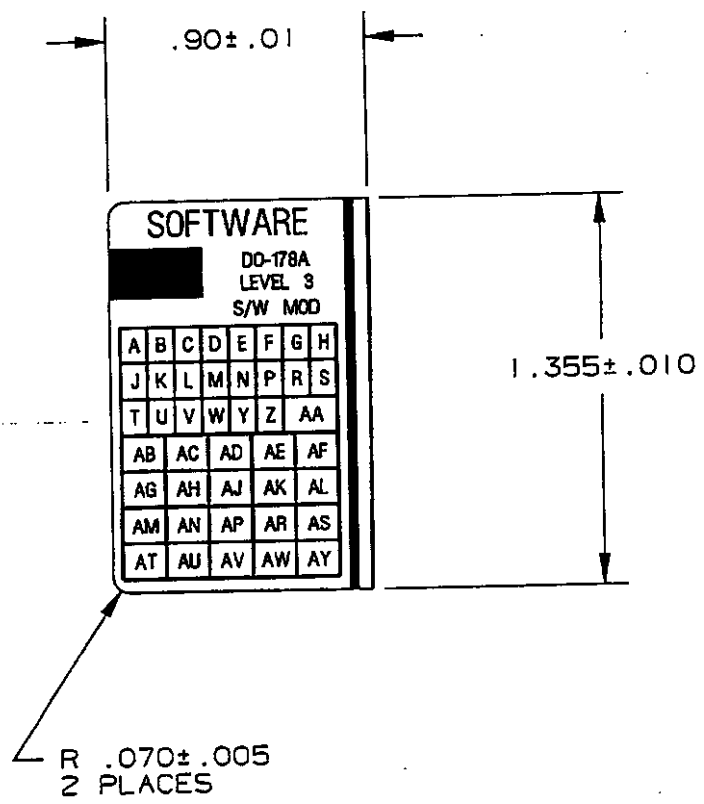


GT7021570-7

FIGURE 7. 7021570-7

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.	SIZE	CAGE CODE	DRAWING NO.	REV
		A	55939	7021570	-
		SCALE	SHEET 9		

DWG NO.



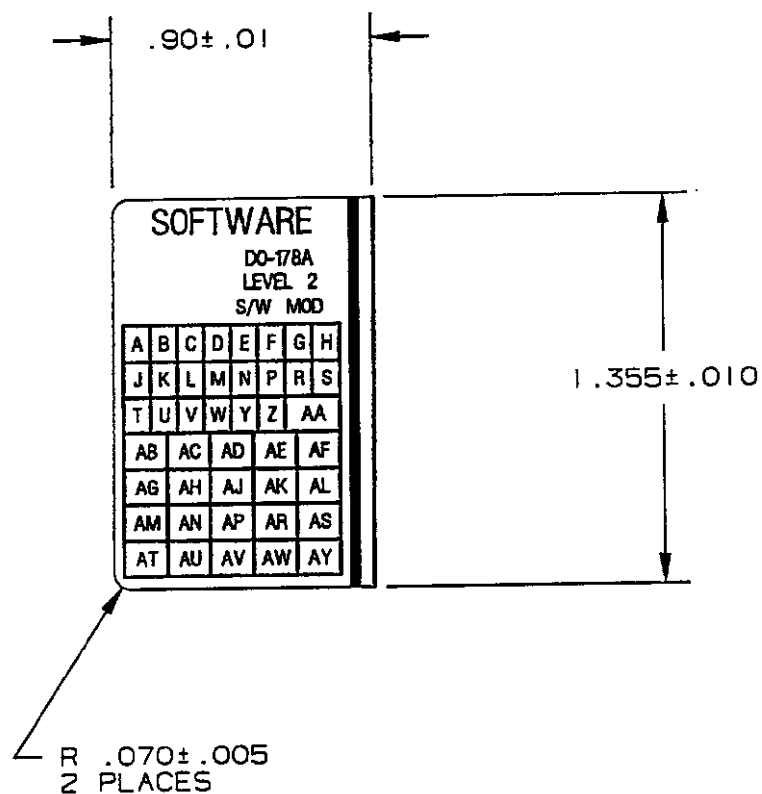
GT7021570-8

FIGURE 8. 7021570-8

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.	SIZE	CAGE CODE	DRAWING NO.	REV
		A	55939	7021570	-
		SCALE	SHEET 10		

SH

DWG NO.



GT7021570-9

FIGURE 9. 7021570-9

Honeywell

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TO THE RESTRICTIONS ON
THE FIRST SHEET OF THIS
DOCUMENT.

SIZE

A

CAGE CODE

55939

DRAWING NO.

7021570

REV

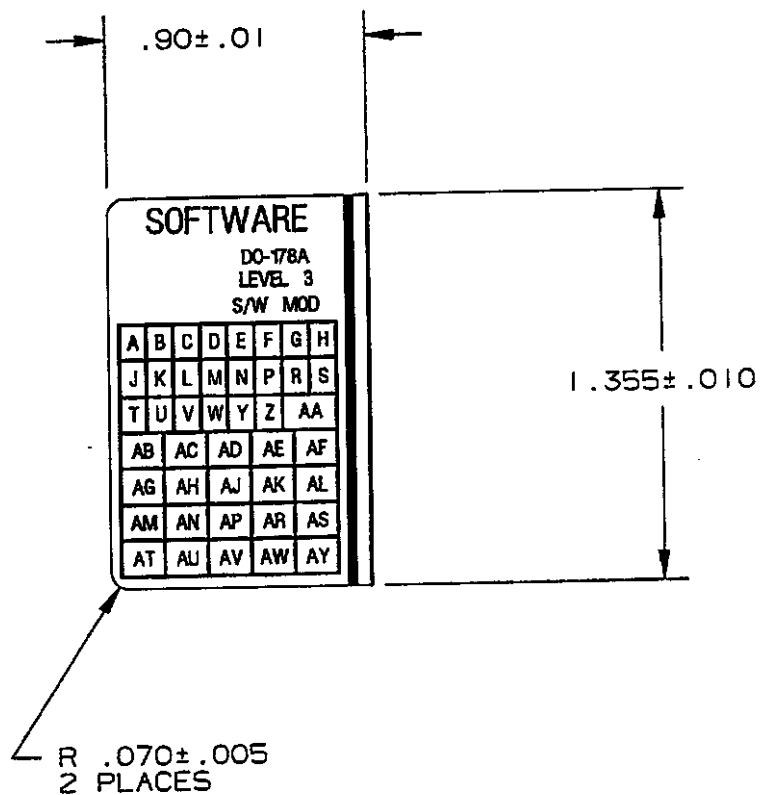
-

SCALE

SHEET

11

5
DWG NO.

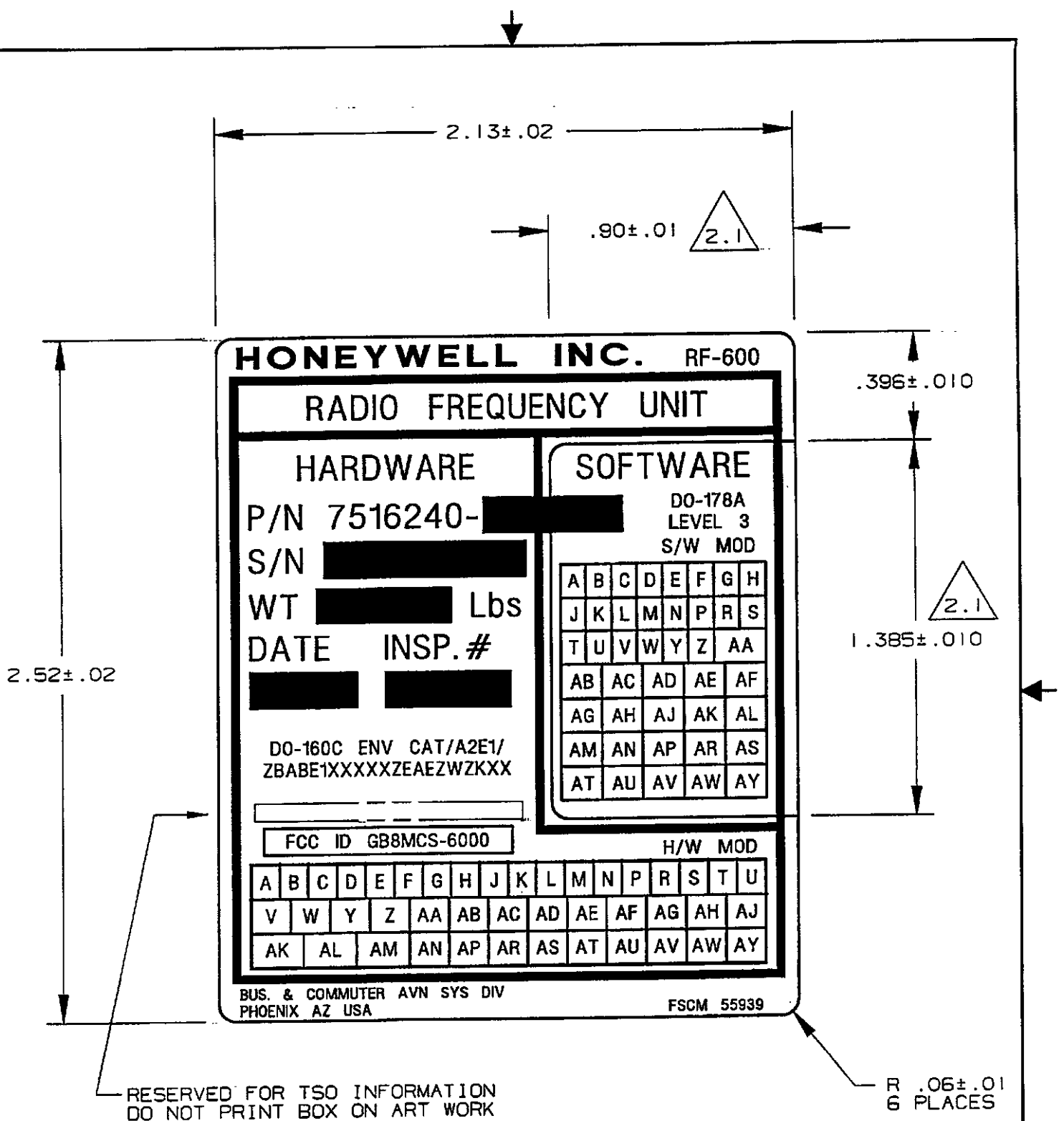


GT7021570-10

FIGURE 10. 7021570-10

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.	SIZE	CAGE CODE	DRAWING NO.	REV
		A	55939	7021570	-
		SCALE	SHEET 12		

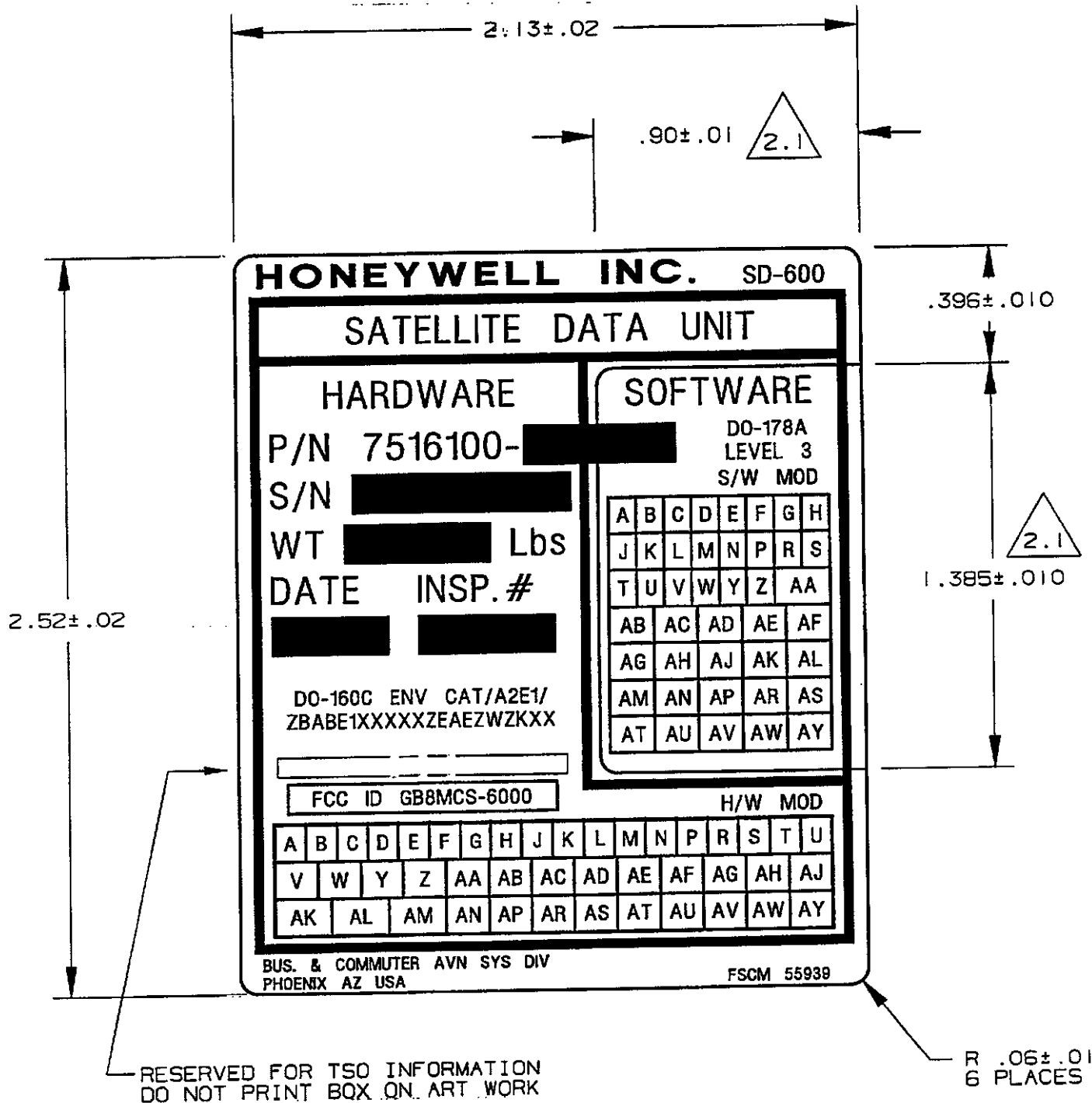
DWG NO. 51



GT7021570-11

FIGURE 11. 7021570-11

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.	SIZE	CAGE CODE	DRAWING NO.	REV
		A	55939	7021570	AM
		SCALE 2/1		SHEET 13	



GT7021570-12

FIGURE 12. 7021570-12

Honeywell

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TO THE RESTRICTIONS ON
THE FIRST SHEET OF THIS
DOCUMENT.

SIZE

A

CAGE CODE

55939

DRAWING NO.

7021570

REV

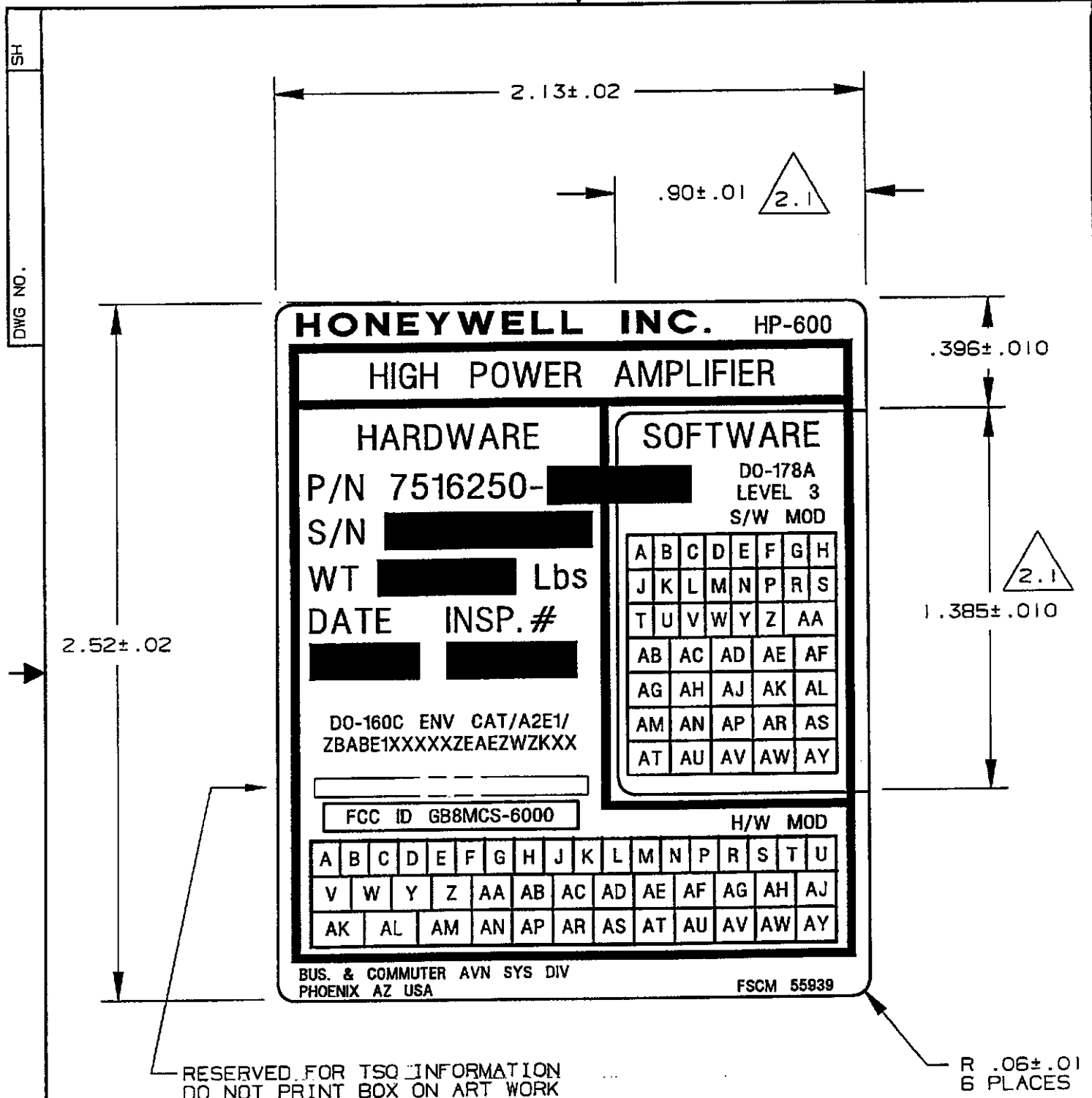
AM

SCALE

2/1

SHEET

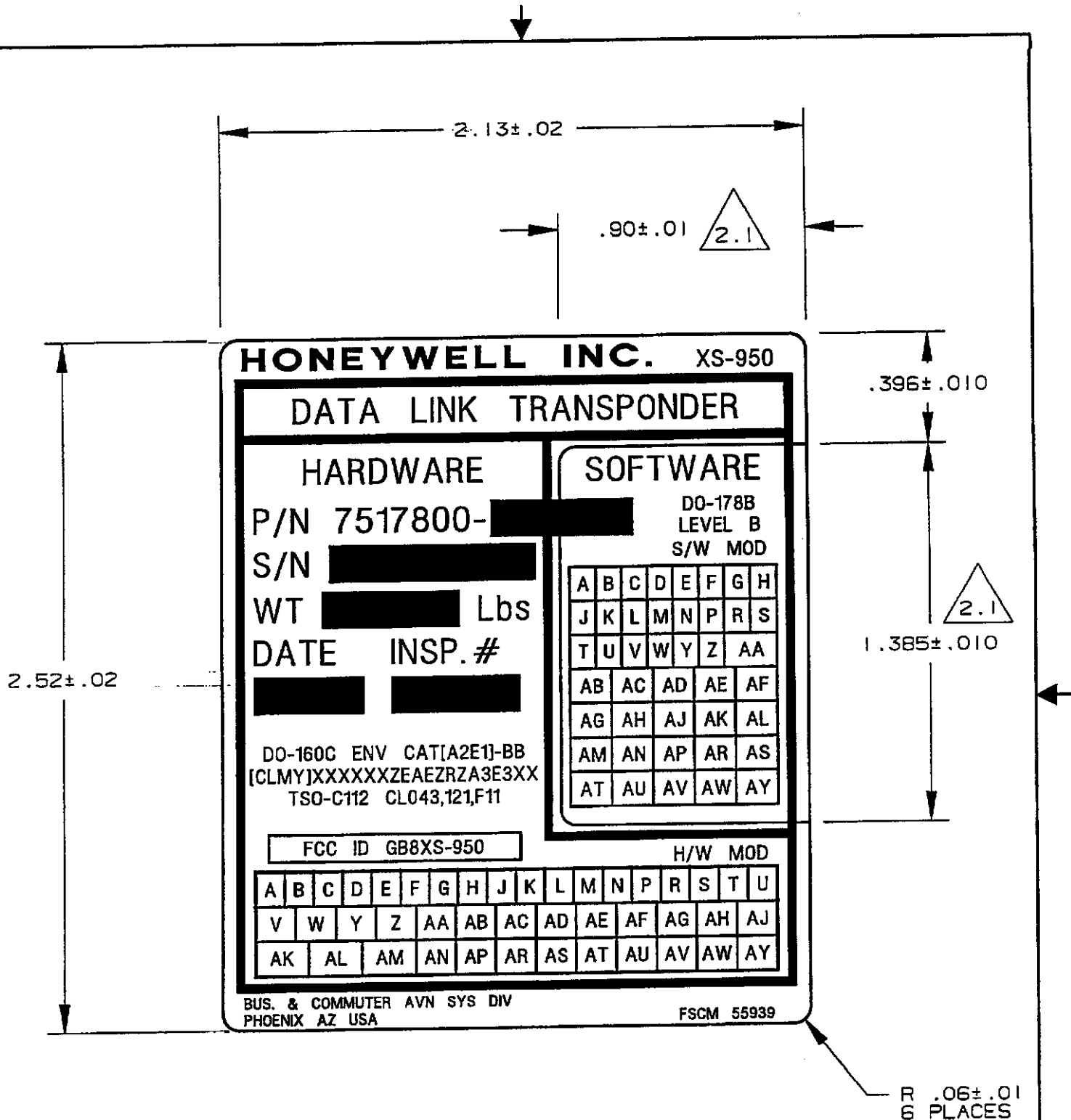
14



GT7021570-13

FIGURE 13. 7021570-13

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.	SIZE	CAGE CODE	DRAWING NO.		REV
		A	55939	7021570		AM
		SCALE	2/1		SHEET	15



GT7021570-14

FIGURE 14. 7021570-14

Honeywell

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THE FIRST SHEET OF THIS
DOCUMENT.

SIZE

A

CAGE CODE

55939

DRAWING NO.

7021570

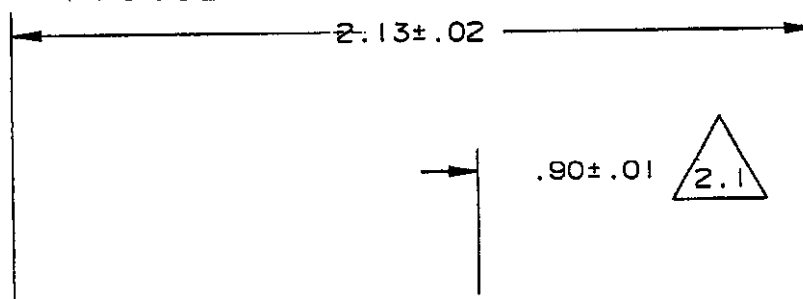
REV

AM

SCALE 2/1

SHEET 16

2.52±.02

**HONEYWELL INC.** XS-950**DATA LINK TRANSPONDER**

HARDWARE
 P/N 7517800-
 S/N
 WT Lbs
 DATE INSP.#

DO-160C ENV CAT[A2E1]-BB
 [CLMY]XXXXXXXX[BZ]AZZRZA3E3XX
 TSO-C112 CL043,121,F11

FCC ID GB8XS-950

A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U
V	W	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AJ	AK	AL	AM	AN	AP
AR	AS	AT	AU	AV	AW	AY											

BUS. & COMMUTER AVN SYS DIV
 PHOENIX AZ USA

FSCM 55939

SOFTWARE

DO-178B
 LEVEL B
 S/W MOD

A	B	C	D	E	F	G	H
J	K	L	M	N	P	R	S
T	U	V	W	Y	Z	AA	
AB	AC	AD	AE	AF			
AG	AH	AJ	AK	AL			
AM	AN	AP	AR	AS			
AT	AU	AV	AW	AY			

.396±.010

1.385±.010



R .06±.01
 6 PLACES

GT7021570-15

FIGURE 15. 7021570-15

Honeywell

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 THE FIRST SHEET OF THIS
 DOCUMENT.

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CAGE CODE

55939

DRAWING NO.

7021570

REV

AM

SCALE

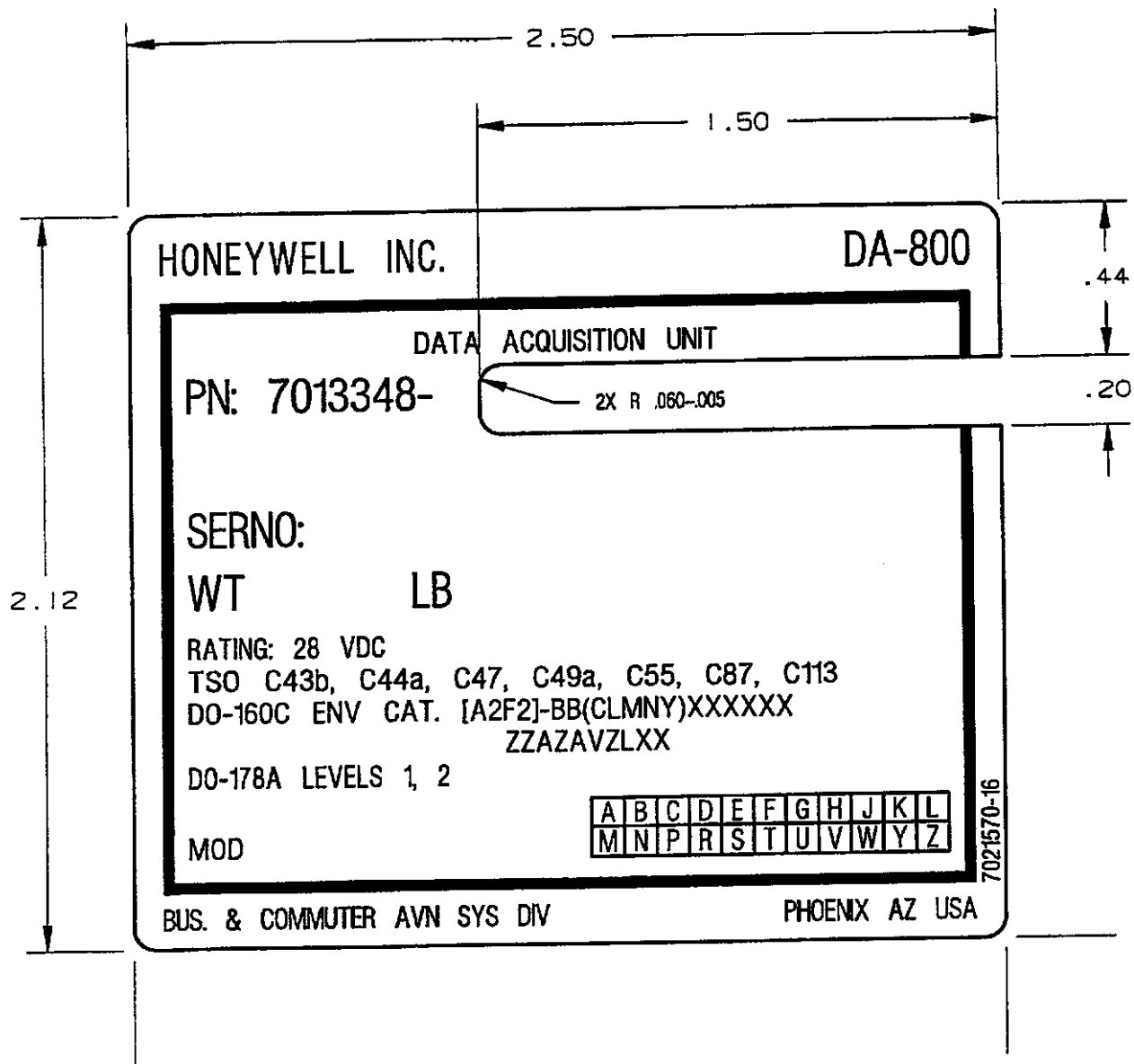
2/1

SHEET

17

SH

DWG NO.



GT7021570-16

FIGURE 16. 7021570-16

Honeywell

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SIZE

A

CAGE CODE

55939

DRAWING NO.

7021570

REV

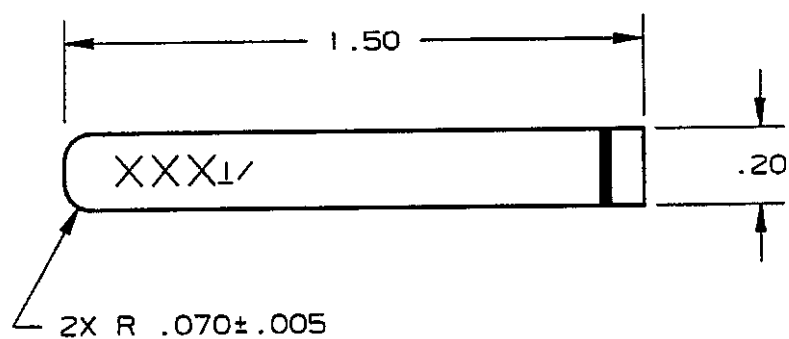
K

SCALE

2/1

SHEET

18



NOTES:

1/ SEE TABLE 2 FOR CHARACTER INFORMATION.

GT7021570-17

FIGURE 17. 7021570-17

Honeywell

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SIZE

A

CAGE CODE

55939

DRAWING NO.

7021570

REV

K

SCALE

2/1

SHEET

19

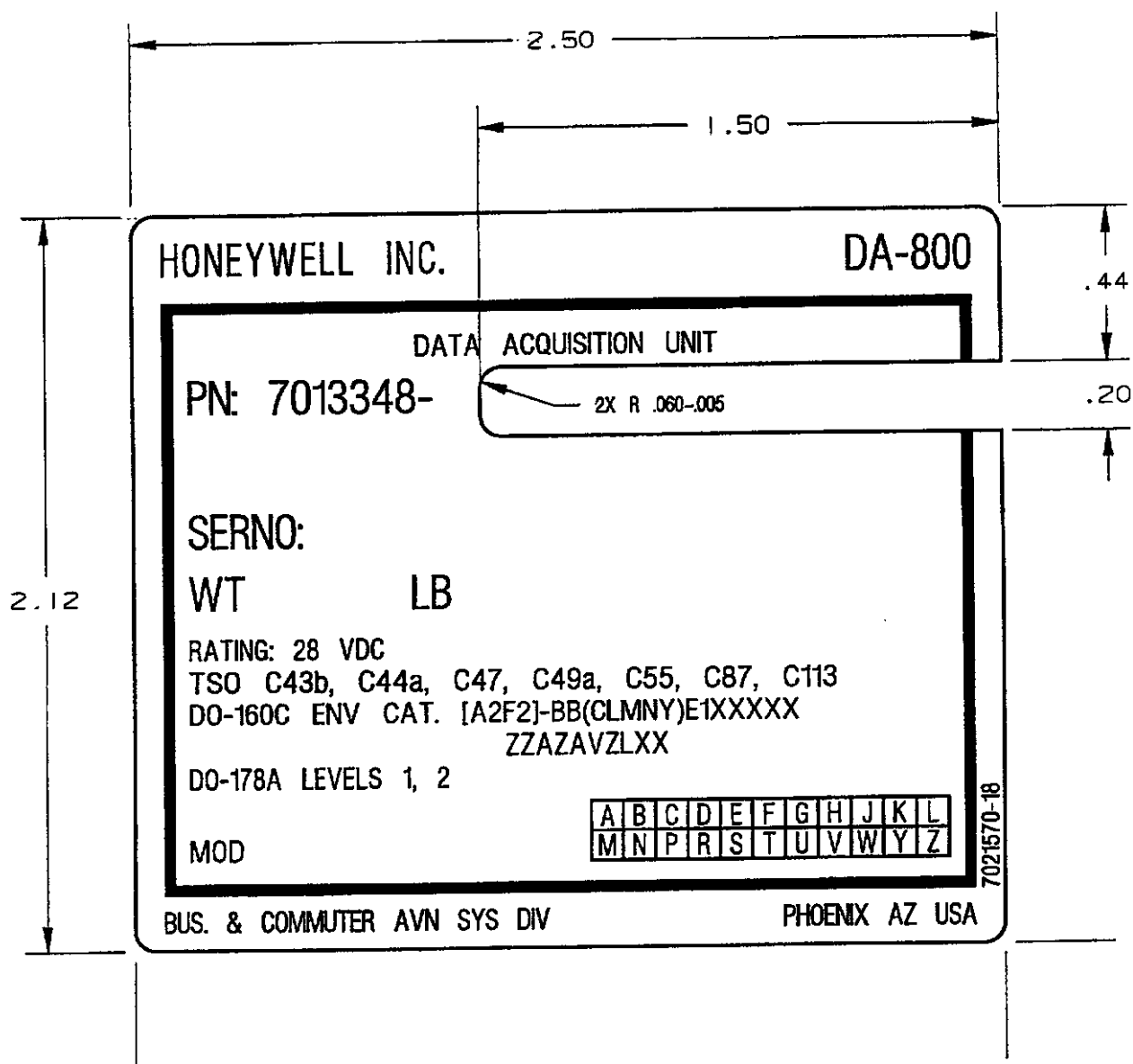


FIGURE 1B. 7021570-18

Honeywell

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SIZE

A

CAGE CODE

55939

DRAWING NO.

7021570

REV

M

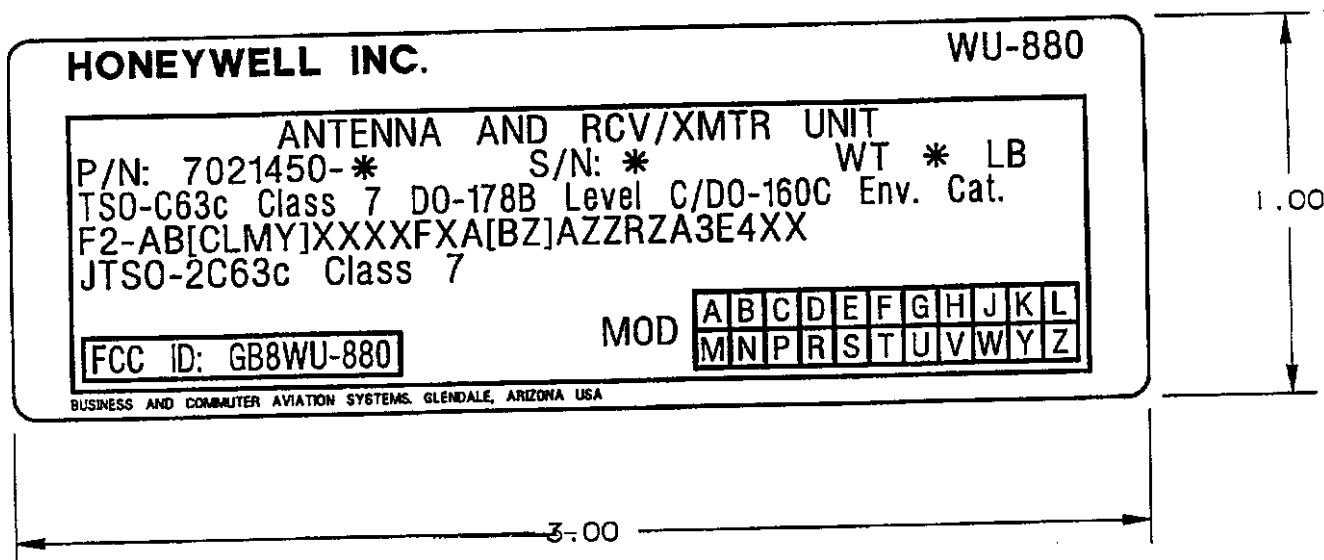
SCALE

2/1

SHEET 20

ST

DWG NO.



"*" INDICATES INFORMATION WHICH IS VARIABLE AND IS DETERMINED AS PART OF THE FINAL ASSEMBLY PROCESS.

GT7021570-10J

FIGURE 19. 7021570-10J

Honeywell

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SIZE
A

CAGE CODE
55939

DRAWING NO.

7021570

REV

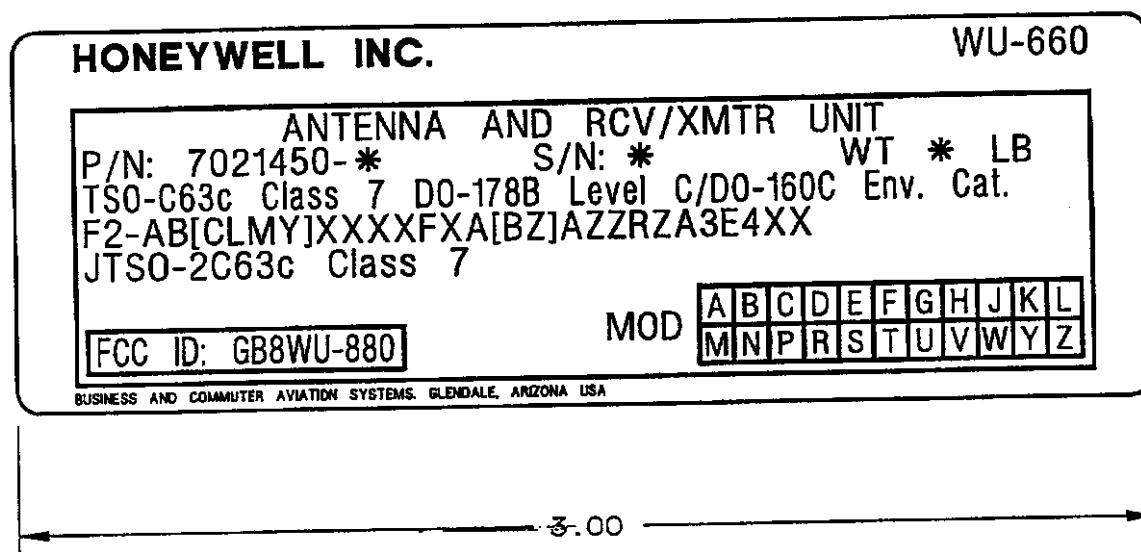
AM

SCALE **2/1**

SHEET **21**

COMPUTER GENERATED

GT REV 10-81



"*" INDICATES INFORMATION WHICH IS VARIABLE AND IS DETERMINED AS PART OF THE FINAL ASSEMBLY PROCESS.

GT7021570-102

FIGURE 20. 7021570-102

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.	SIZE A	CAGE CODE 55939	DRAWING NO. 7021570	REV AM
		SCALE 2/1	SHEET 22		

GT REV 10-81

HONEYWELL INC.

WU-440

ANTENNA AND RCV/XMTR UNIT
P/N: 7021450-* S/N: * WT * LB
TSO-C63c Class 7 DO-178B Level C/DO-160C Env. Cat.
F2-AB[CLMY]XXXXFXA[BZ]AZZRZA3E4XX
JTSO-2C63c Class 7

FCC ID: GB8WU-880

MOD

A	B	C	D	E	F	G	H	J	K	L
M	N	P	R	S	T	U	V	W	Y	Z

BUSINESS AND COMMUTER AVIATION SYSTEMS, GLENDALE, ARIZONA USA

1.00

3.00

"*" INDICATES INFORMATION WHICH IS VARIABLE AND IS
DETERMINED AS PART OF THE FINAL ASSEMBLY PROCESS.

GT7021570-103

FIGURE 21. 7021570-103

Honeywell

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SIZE

A

CAGE CODE

55939

DRAWING NO.

7021570

REV

AM

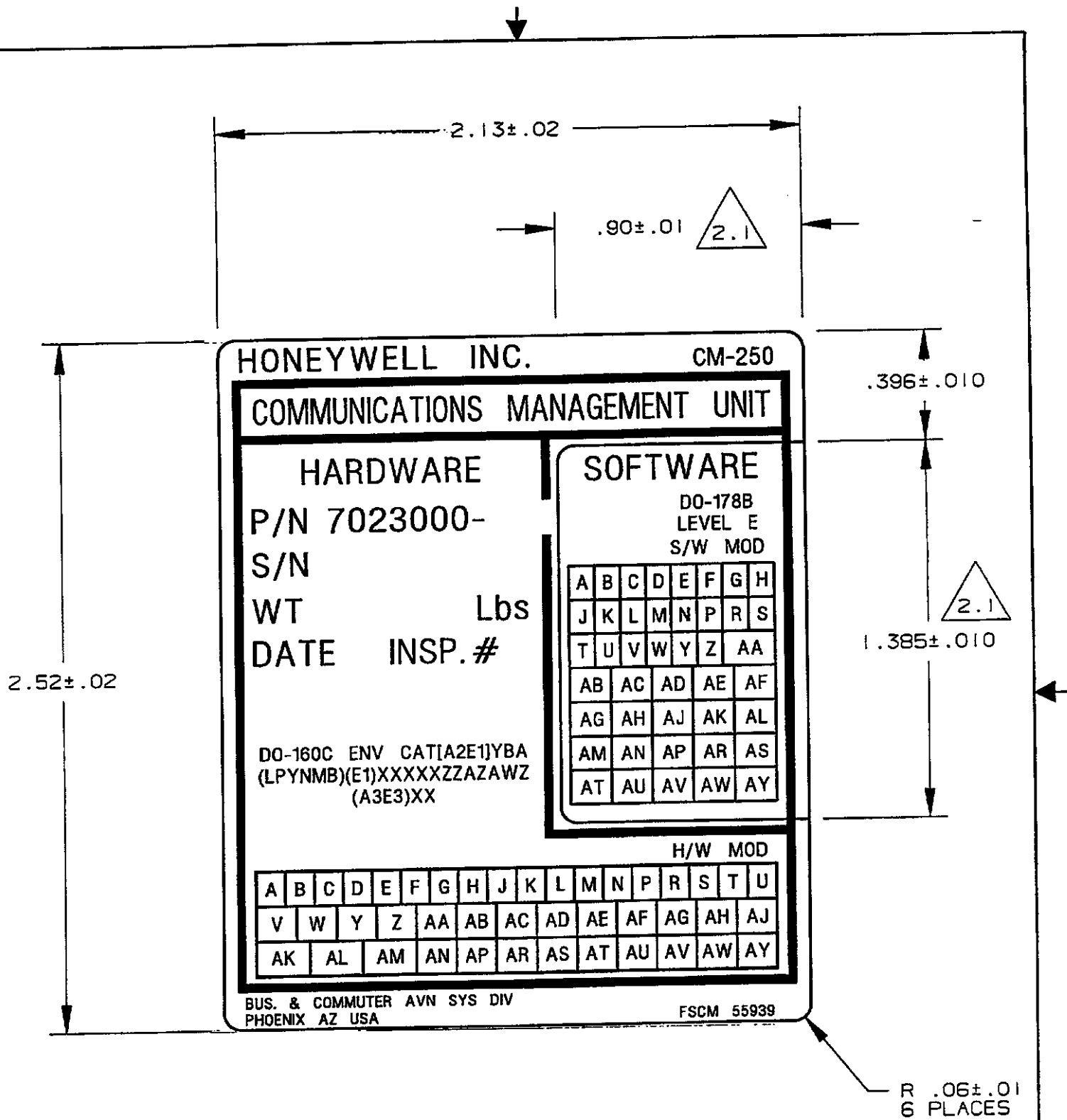
SCALE 2/1

SHEET 23

GT REV 10-91

COMPUTER GENERATED

DWG NO.



GT7021570-22

FIGURE 22. 7021570-22

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.	SIZE	CAGE CODE	DRAWING NO.	REV
		A	55939	7021570	AM
		SCALE 2/1		SHEET 24	

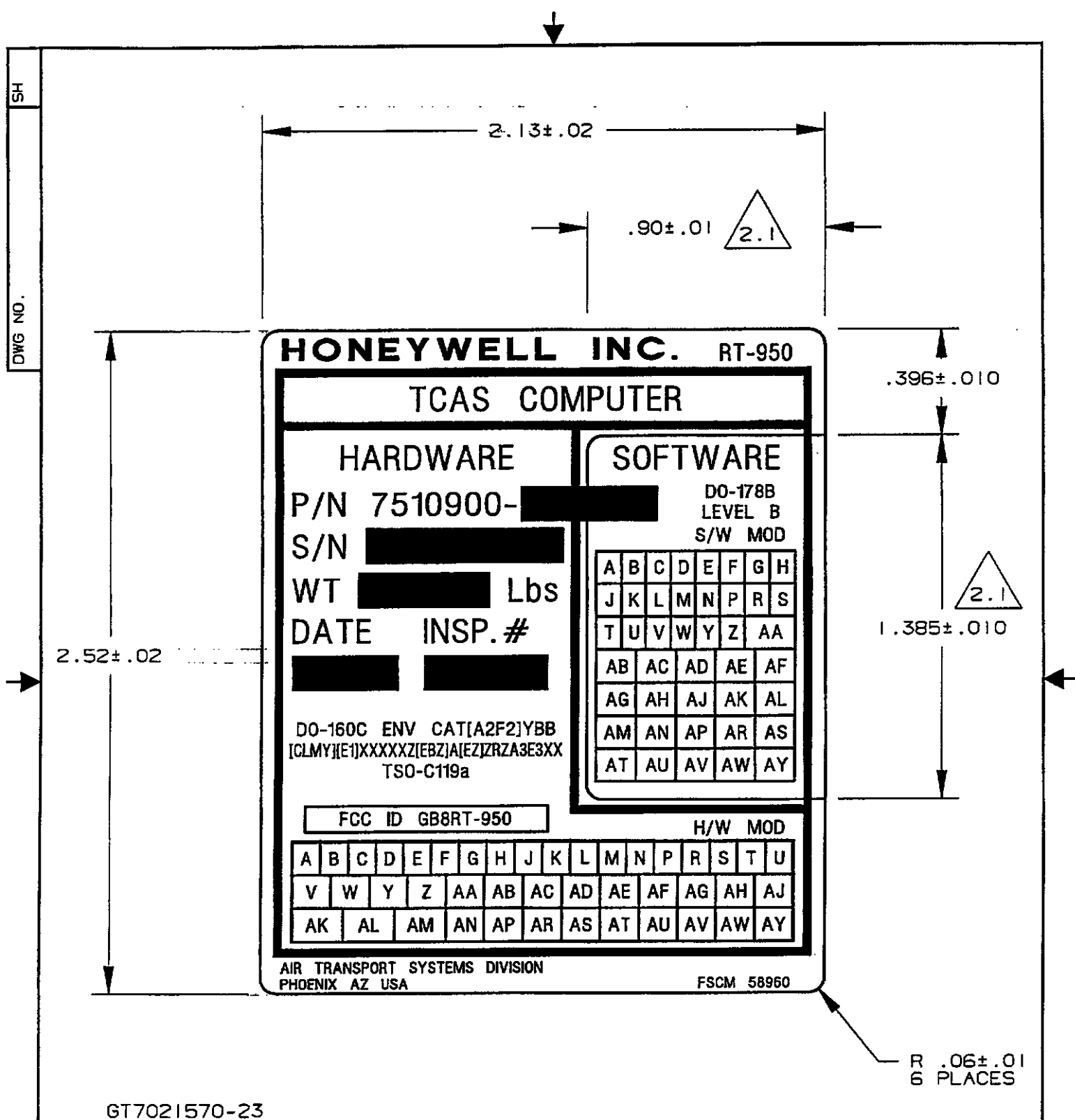


FIGURE 23. 7021570-23

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.	SIZE	CAGE CODE	DRAWING NO.	REV
		A	55939	7021570	AM
		SCALE	2/1	SHEET	25

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(REV 3-87)

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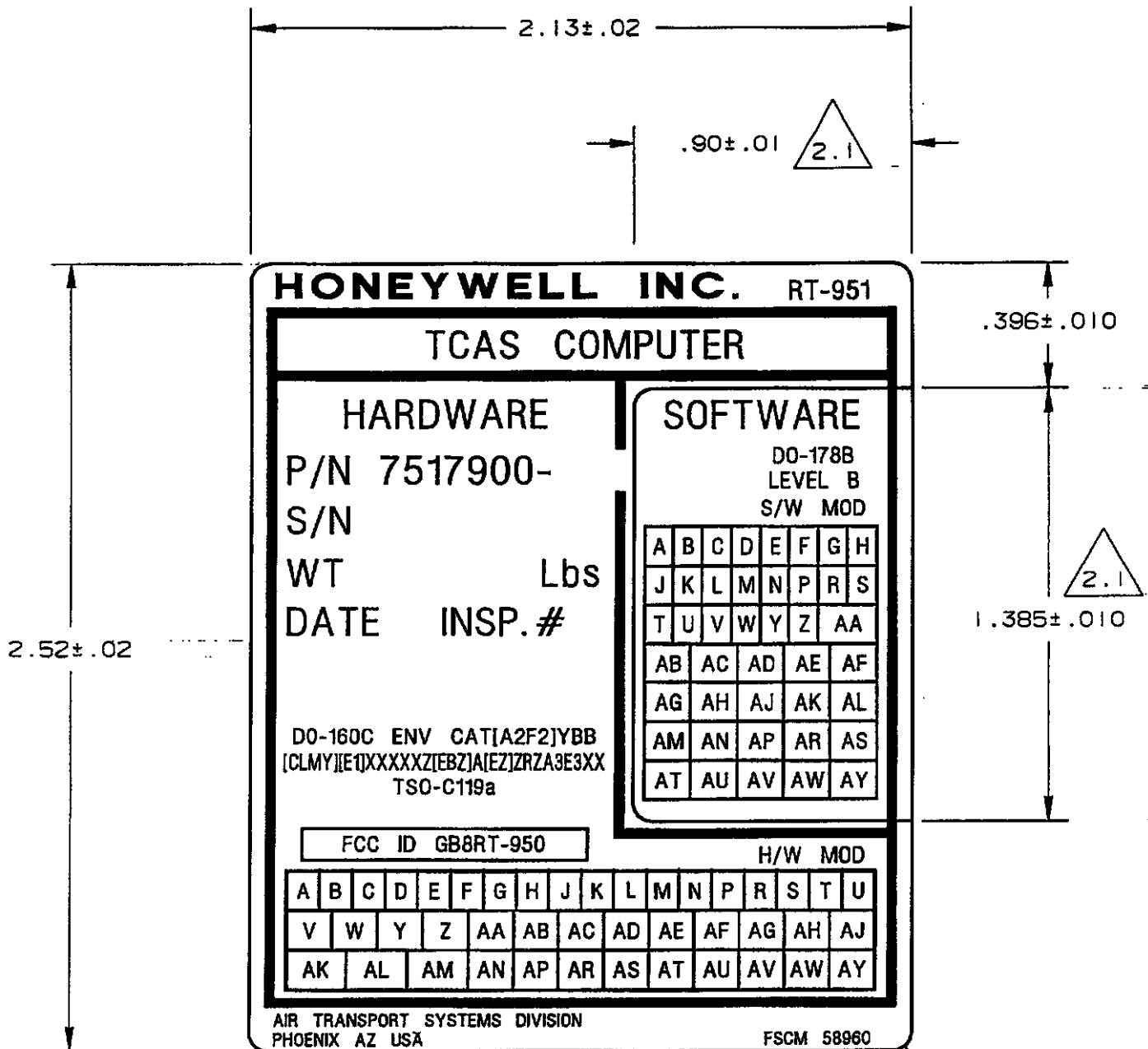
GT REV 10-91

51

DWG NO.

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GT7021570-24

FIGURE 24. 7021570-24

Honeywell

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SIZE

A

CAGE CODE

55939

DRAWING NO.

7021570

REV

AM

SCALE

2/1

SHEET

26

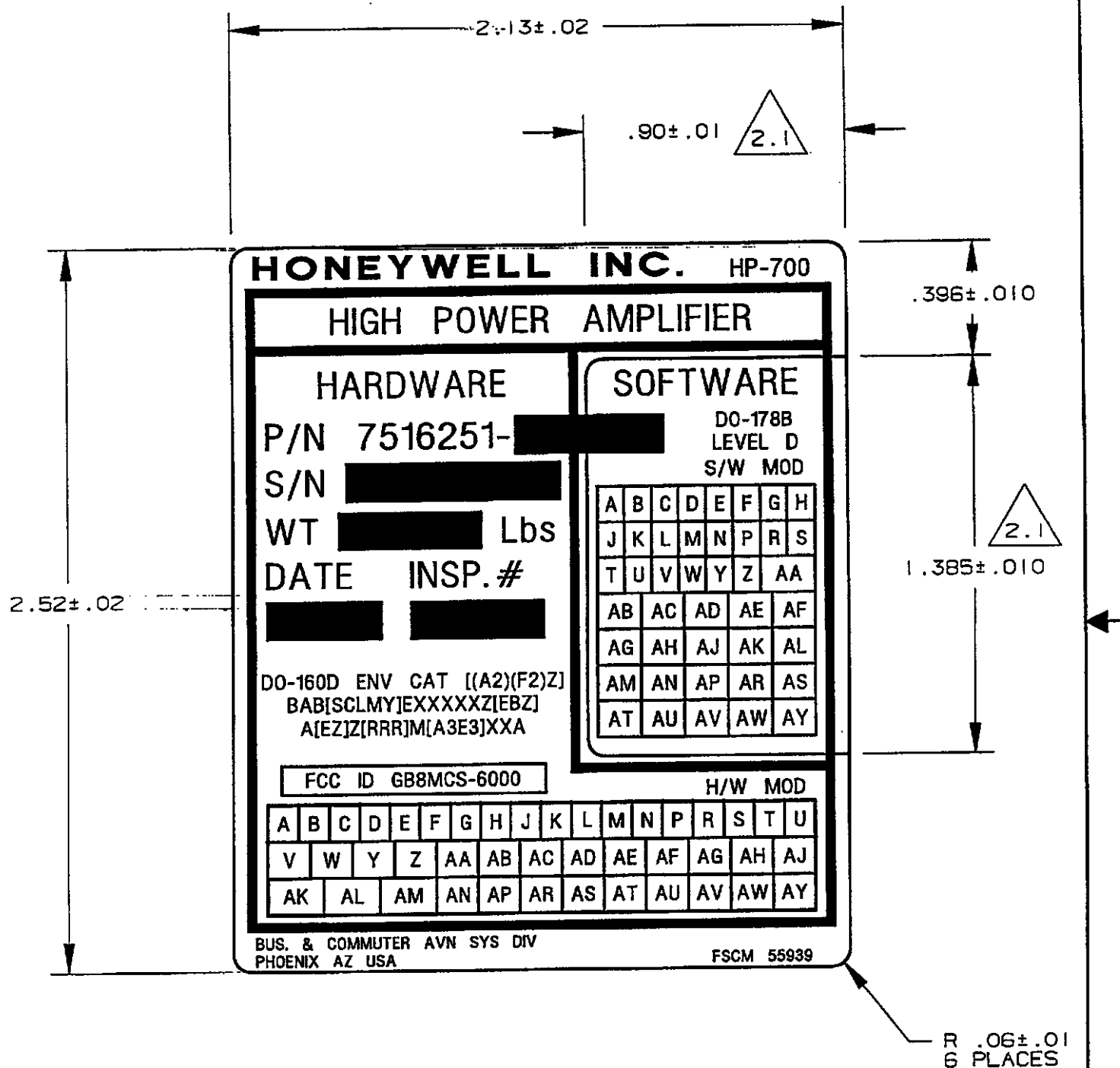


FIGURE 25. 7021570-25

Honeywell

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DISCLOSURE OF INFORMATION
ON THIS SHEET IS SUBJECT
TO THE RESTRICTIONS ON
THE FIRST SHEET OF THIS
DOCUMENT.

SIZE

A

CAGE CODE

55939

DRAWING NO.

7021570

REV

AM

SCALE

2/1

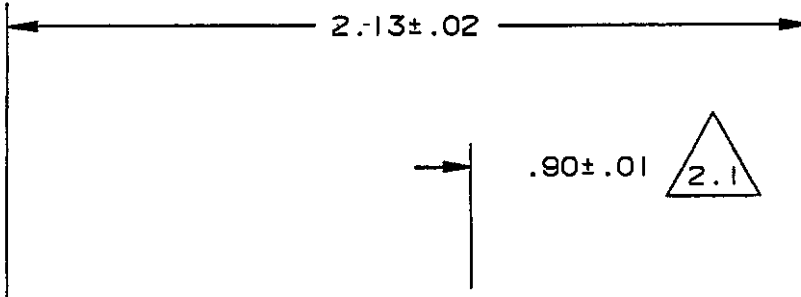
SHEET

27

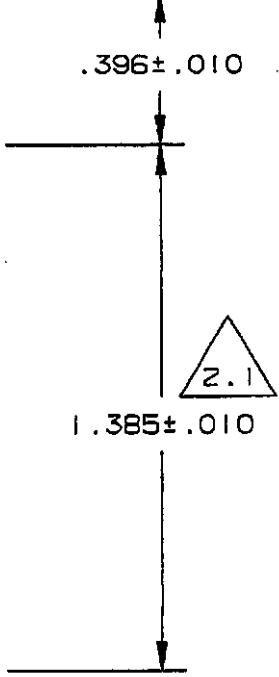
DWG NO.

→

←



HONEYWELL INC.										HP-700									
HIGH POWER AMPLIFIER																			
HARDWARE										SOFTWARE									
P/N 7516251-										DO-178B									
S/N										LEVEL D									
WT										S/W MOD									
Lbs																			
DATE										INSP. #									
DO-160D ENV CAT [(A2)(F2)Z] BAB[SCLMY]EXXXXXXZ[EBZ] A[EZ]Z[RRR]M[A3E3]XXA																			
FCC ID GB8MCS-6000										H/W MOD									
A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U		
V	W	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AJ	AK	AL	AM	AN	AP	AR	AS
AT	AU	AV	AW	AX	AY														
BUS. & COMMUTER AVN SYS DIV										FSCM 55939									
PHOENIX AZ USA																			



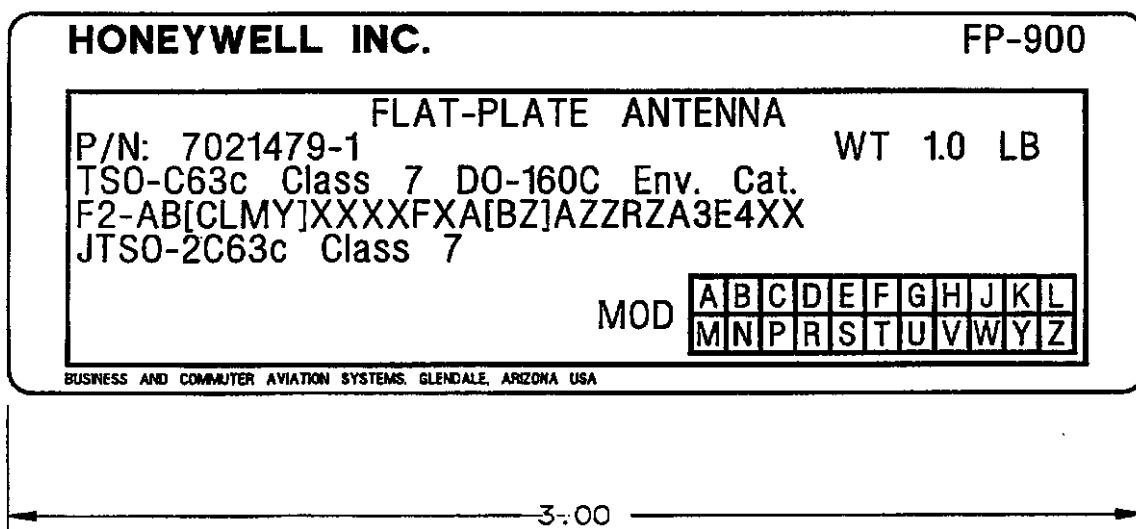
2.52 ± .02

R .06 ± .01
6 PLACES.

GT7021570-26

FIGURE 26. 7021570-26

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.	SIZE	CAGE CODE	DRAWING NO.	REV
		A	55939	7021570	AM
		SCALE	2/1	SHEET	28



GT7021570-104

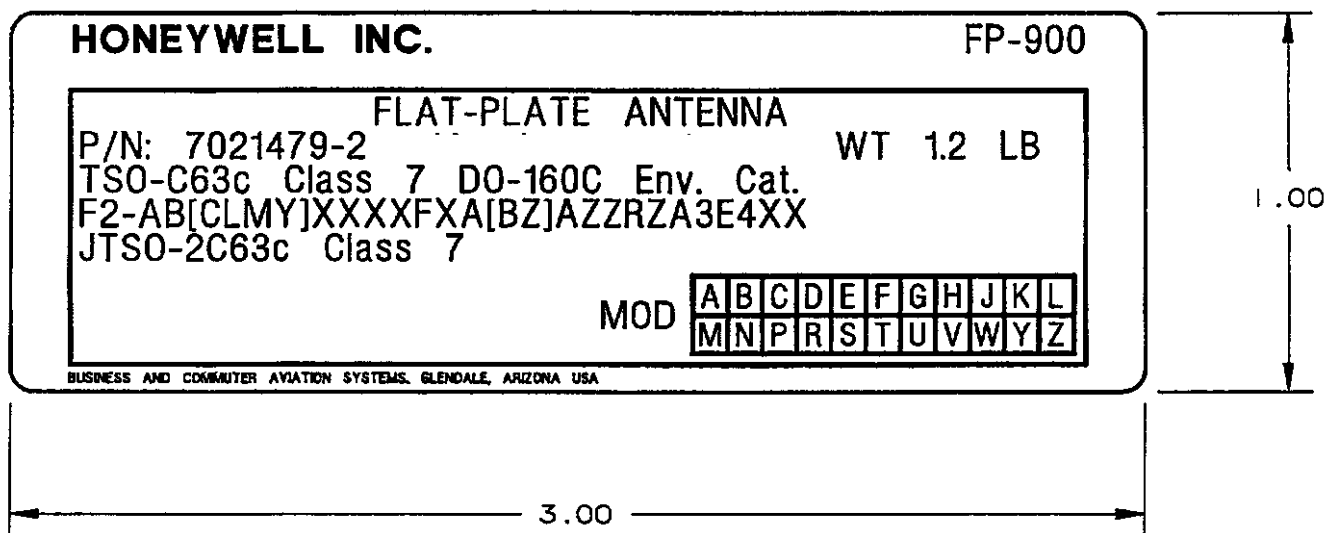
FIGURE 27. 7021570-104

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.	SIZE	CAGE CODE	DRAWING NO.	REV
		A	55939	7021570	AM
		SCALE 2/1		SHEET 29	

GT REV 10-91



COMPUTER GENERATED



GT7021570-105

FIGURE 28. 7021570-105

Honeywell

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DOCUMENT.

SIZE
A

CAGE CODE
55939

DRAWING NO.

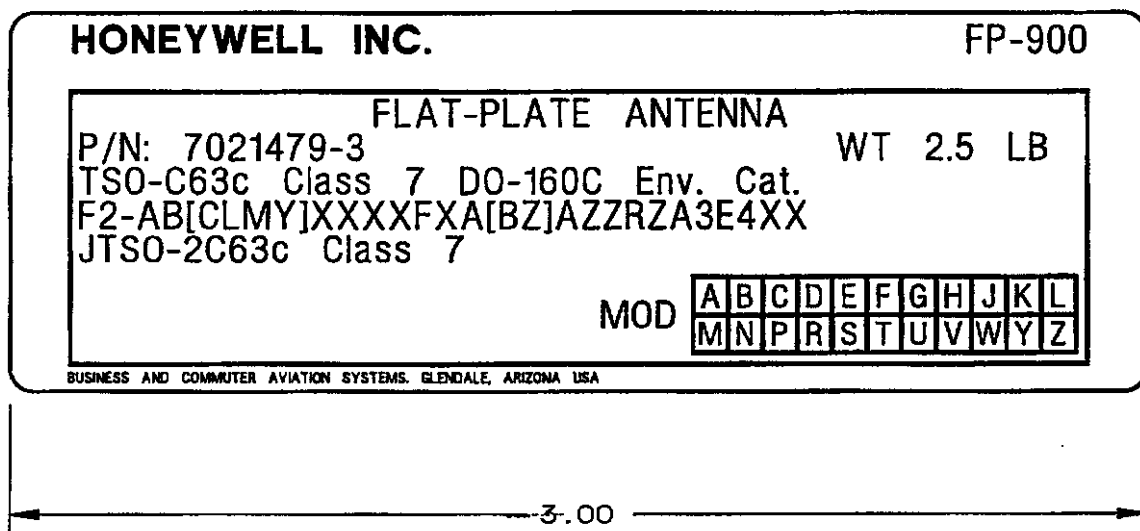
7021570

REV
AM

SCALE **2/1**

SHEET **30**

GT REV 10-91



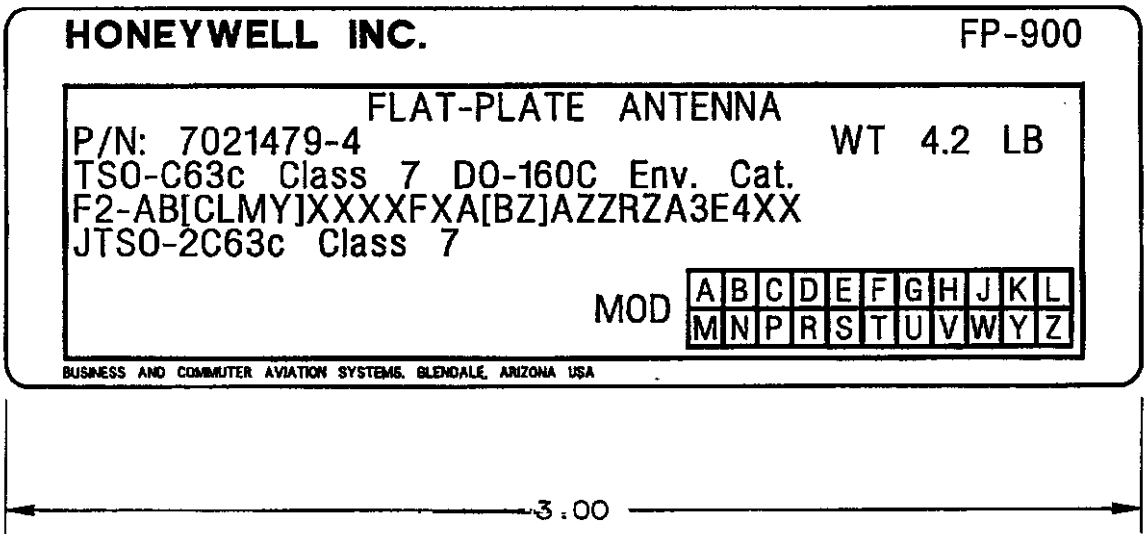
GT7021570-106

FIGURE 29. 7021570-106

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.	SIZE	CAGE CODE	DRAWING NO.	REV
		A	55939	7021570	AM
		SCALE	2/1		SHEET

GT REV 10-91

COMPUTER GENERATED



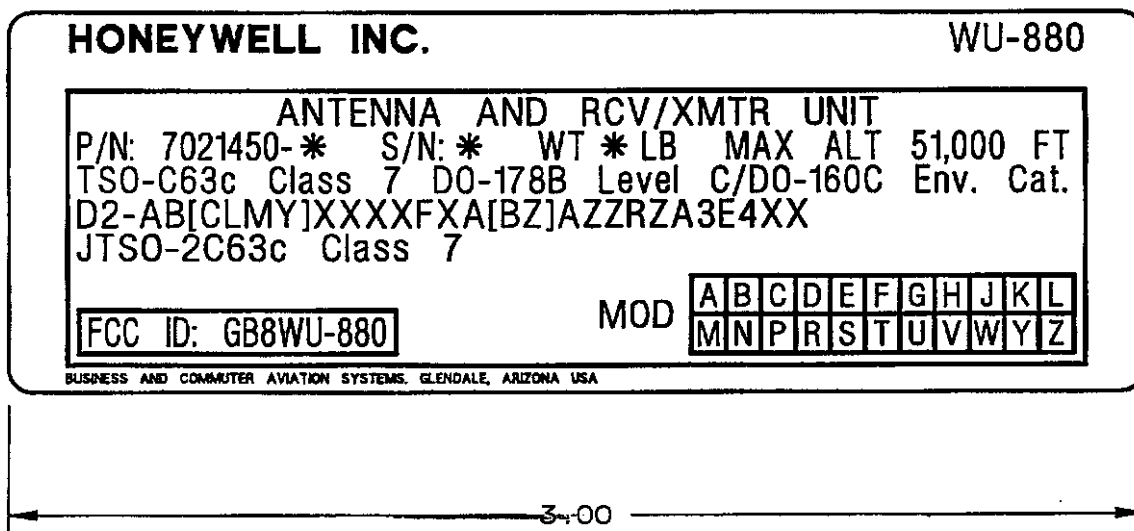
GT7021570-107

FIGURE 30. 7021570-107

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.	SIZE	CAGE CODE	DRAWING NO.	REV
		A	55939	7021570	AM
		SCALE 2/1	SHEET 32		

COMPUTER GENERATED

GT REV 10-81



"*" INDICATES INFORMATION WHICH IS VARIABLE AND IS DETERMINED AS PART OF THE FINAL ASSEMBLY PROCESS.

GT7021570-108

FIGURE 31. 7021570-108

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.	SIZE A	CAGE CODE 55939	DRAWING NO. 7021570	REV AM
		SCALE 2/1		SHEET 33	



HONEYWELL INC.

WU-660

ANTENNA AND RCV/XMTR UNIT
P/N: 7021450-* S/N: * WT * LB MAX ALT 51,000 FT
TSO-C63c Class 7 DO-178B Level C/DO-160C Env. Cat.
D2-AB[CLMY]XXXXFXA[BZ]AZZRZA3E4XX
JTSO-2C63c Class 7

FCC ID: GB8WU-880

MOD

A	B	C	D	E	F	G	H	J	K	L
M	N	P	R	S	T	U	V	W	Y	Z

BUSINESS AND COMMUTER AVIATION SYSTEMS, GLENDALE, ARIZONA USA

1.00

3.00

"*" INDICATES INFORMATION WHICH IS VARIABLE AND IS DETERMINED AS PART OF THE FINAL ASSEMBLY PROCESS.

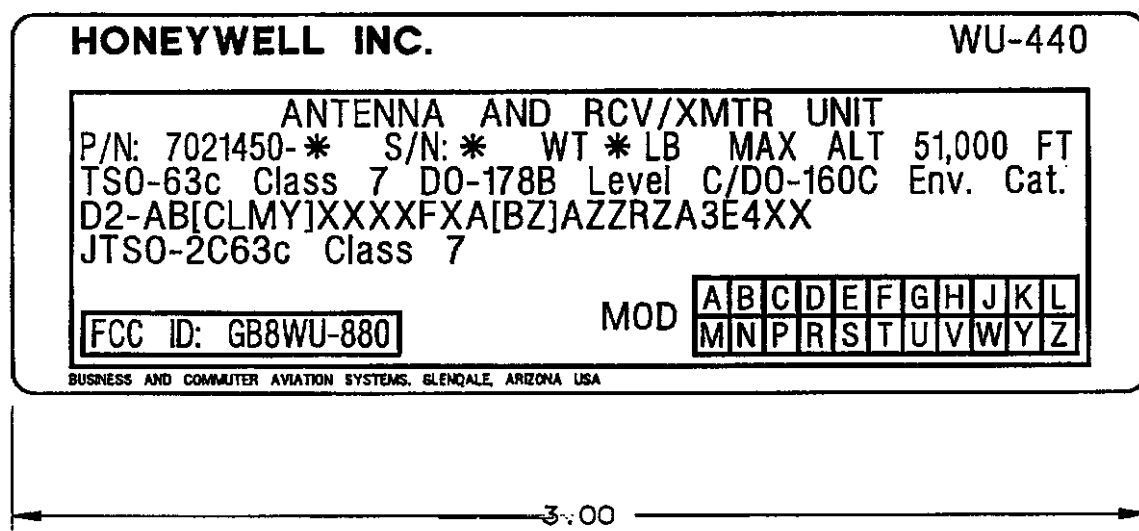
GT7021570-109

FIGURE 32. 7021570-109

Honeywell

SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.

SIZE	CAGE CODE	DRAWING NO.	REV
A	55939	7021570	AM
SCALE	2/1	SHEET	34



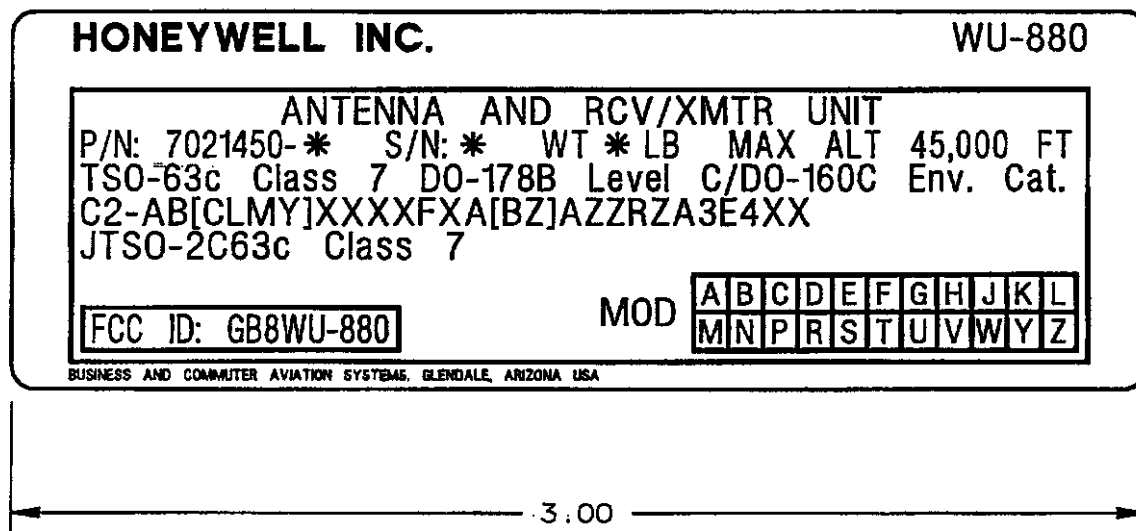
"*" INDICATES INFORMATION WHICH IS VARIABLE AND IS DETERMINED AS PART OF THE FINAL ASSEMBLY PROCESS.

GT7021570-110

FIGURE 33. 7021570-110

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT	SIZE	CAGE CODE	DRAWING NO.	REV
		A	55939	7021570	AM
		SCALE	2/1		SHEET

GT REV 10-91



"*" INDICATES INFORMATION WHICH IS VARIABLE AND IS DETERMINED AS PART OF THE FINAL ASSEMBLY PROCESS.

GT7021570-111

FIGURE 34. 7021570-111

Honeywell

SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.

SIZE

A

CAGE CODE

55939

DRAWING NO.

7021570

REV

AM

SCALE

2/1

SHEET

36

GT REV 10-91

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HONEYWELL INC.	WU-660																						
ANTENNA AND RCV/XMTR UNIT P/N: 7021450-* S/N: * WT * LB MAX ALT 45,000 FT TSO-C63c Class 7 DO-178B Level C/DO-160C Env. Cat. C2-AB[CLMY]XXXXFXA[BZ]AZZRZA3E4XX JTSO-2C63c Class 7																							
FCC ID: GB8WU-880	MOD <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td>A</td><td>B</td><td>C</td><td>D</td><td>E</td><td>F</td><td>G</td><td>H</td><td>J</td><td>K</td><td>L</td> </tr> <tr> <td>M</td><td>N</td><td>P</td><td>R</td><td>S</td><td>T</td><td>U</td><td>V</td><td>W</td><td>Y</td><td>Z</td> </tr> </table>	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U	V	W	Y	Z
A	B	C	D	E	F	G	H	J	K	L													
M	N	P	R	S	T	U	V	W	Y	Z													
BUSINESS AND COMMUTER AVIATION SYSTEMS, GLENDALE, ARIZONA USA																							

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3.00

1.00

←

"*" INDICATES INFORMATION WHICH IS VARIABLE AND IS DETERMINED AS PART OF THE FINAL ASSEMBLY PROCESS.

GT7021570-112

FIGURE 35. 7021570-112

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.	SIZE A	CAGE CODE 55939	DRAWING NO. 7021570	REV AM
		SCALE 2/1		SHEET 37	

▲ COMPUTER GENERATED

GT REV 10-91



2.4

HONEYWELL INC.

WU-440

ANTENNA AND RCV/XMTR UNIT
P/N: 7021450-* S/N: * WT * LB MAX ALT 45,000 FT
TSO-C63c Class 7 DO-178B Level C/DO-160C Env. Cat.
C2-AB[CLMY]XXXXFXA[BZ]AZZRZA3E4XX
JTSO-2C63c Class 7

1.00

FCC ID: GB8WU-880

MOD

A	B	C	D	E	F	G	H	J	K	L
M	N	P	R	S	T	U	V	W	Y	Z

BUSINESS AND COMMUTER AVIATION SYSTEMS, GLENDALE, ARIZONA USA

3.00

"*" INDICATES INFORMATION WHICH IS VARIABLE AND IS DETERMINED AS PART OF THE FINAL ASSEMBLY PROCESS.

GT7021570-T113

FIGURE 36. 7021570-113

Honeywell

SEE FIRST SHEET FOR CONTRACT NUMBER, USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.

SIZE

A

CAGE CODE

55939

DRAWING NO.

7021570

REV

AM

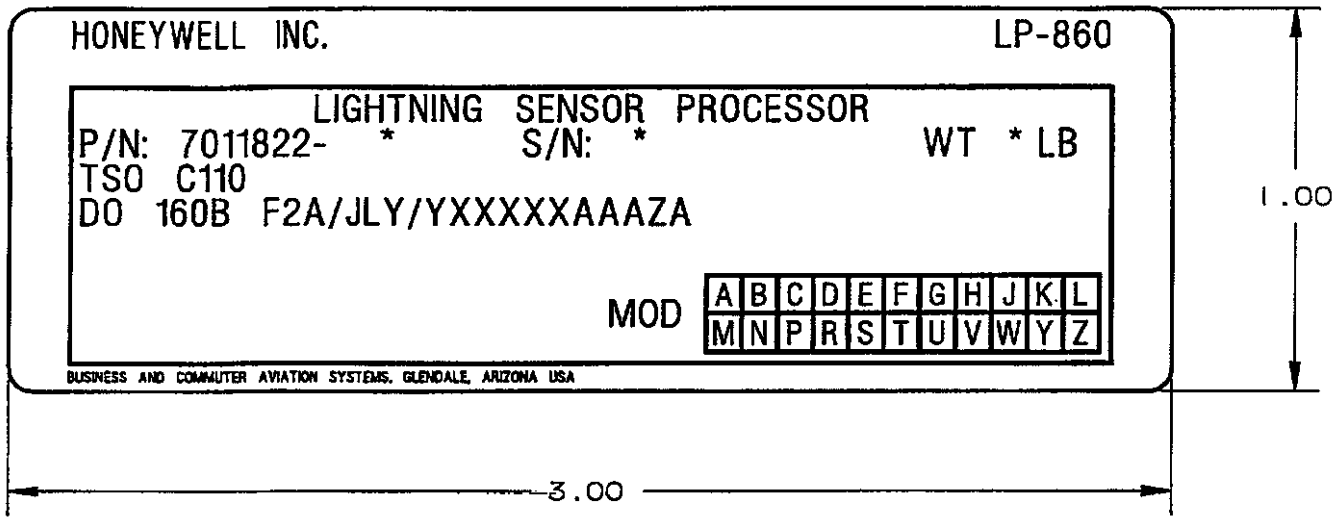
SCALE

2/1

SHEET

38



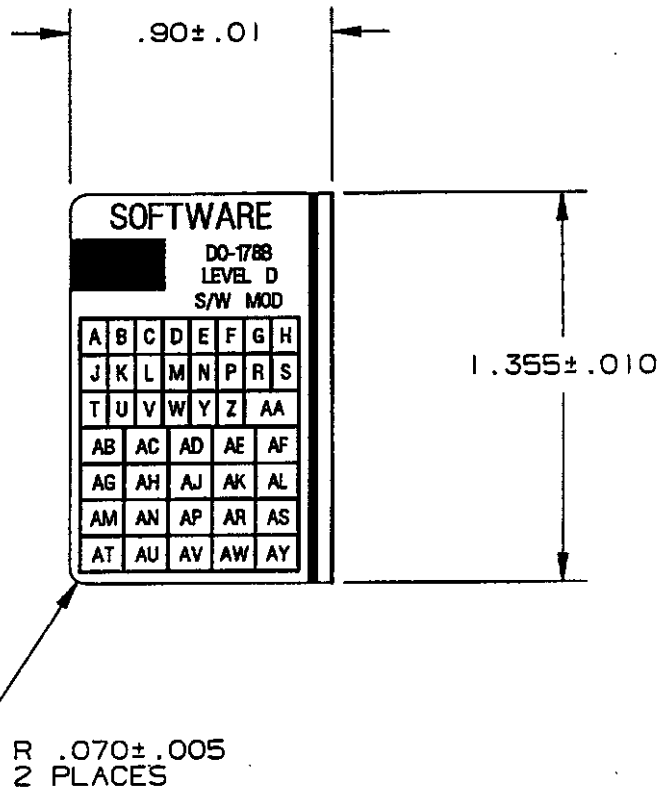


"*" INDICATES INFORMATION WHICH IS VARIABLE AND IS DETERMINED AS PART OF THE FINAL ASSEMBLY PROCESS.

GT7021570-114

FIGURE 37. 7021570-114

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.	SIZE	CAGE CODE	DRAWING NO.	REV
		A	55939	7021570	AC
		SCALE	2/1	SHEET 39	



GT7021570-27

FIGURE 38. 7021570-27

Honeywell

SEE FIRST SHEET FOR
 CONTRACT NUMBER. USE OR
 DISCLOSURE OF INFORMATION
 ON THIS SHEET IS SUBJECT
 TO THE RESTRICTIONS ON
 THE FIRST SHEET OF THIS
 DOCUMENT.

SIZE

A

CAGE CODE

55939

DRAWING NO.

7021570

REV

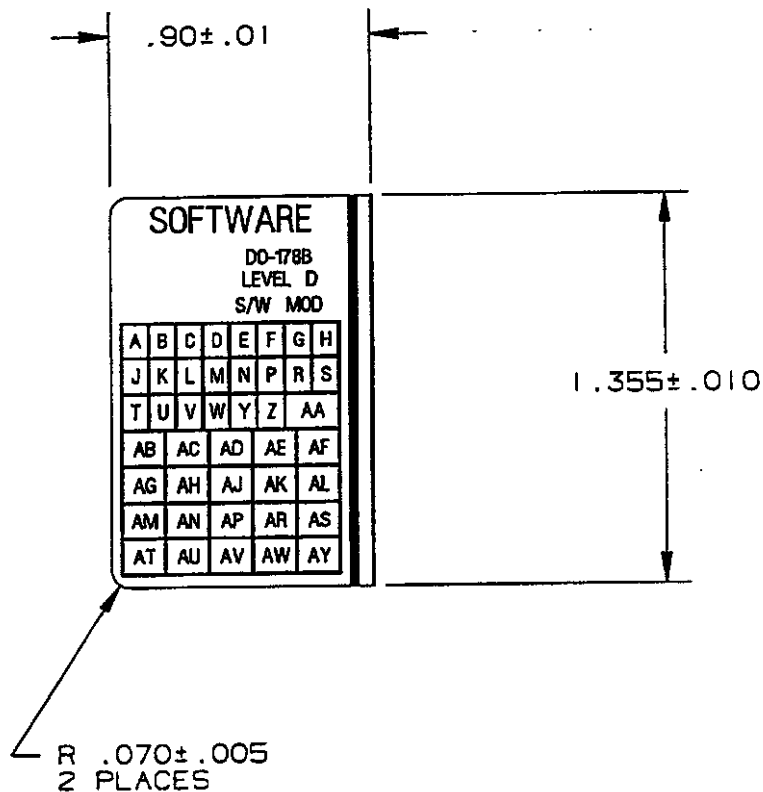
AF

SCALE

SHEET

40

5
DWG NO.



GT7021570-28

FIGURE 39. 7021570-28

Honeywell

SEE FIRST SHEET FOR
CONTRACT NUMBER. USE OR
DISCLOSURE OF INFORMATION
ON THIS SHEET IS SUBJECT
TO THE RESTRICTIONS ON
THE FIRST SHEET OF THIS
DOCUMENT.

SIZE
A

CAGE CODE
55939

DRAWING NO.

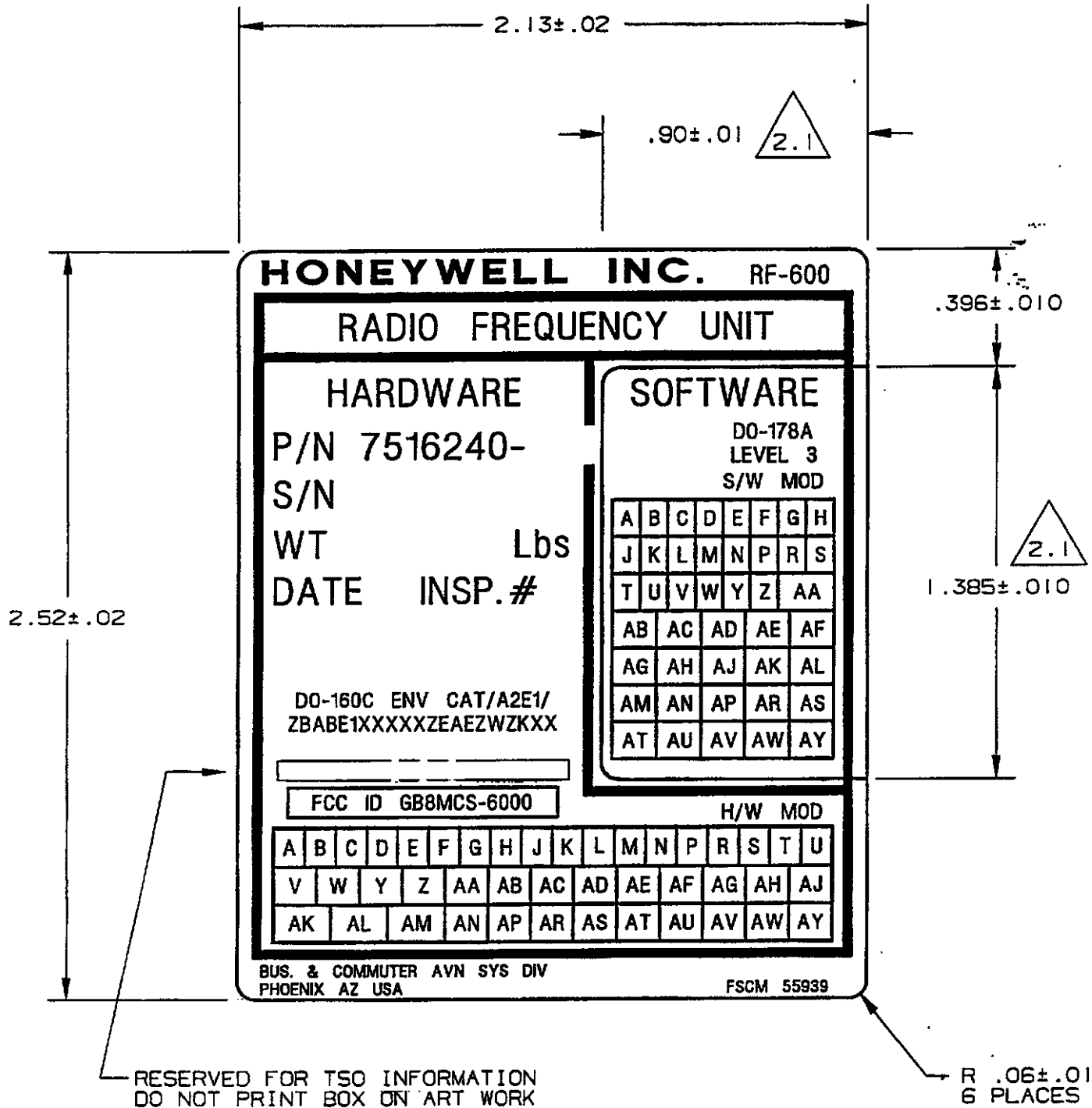
7021570

REV

AF

SCALE

SHEET 41



GT7021570-29

FIGURE 40. 7021570-29

Honeywell

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CONTRACT NUMBER. USE OR
DISCLOSURE OF INFORMATION
ON THIS SHEET IS SUBJECT
TO THE RESTRICTIONS ON
THE FIRST SHEET OF THIS
DOCUMENT.

SIZE

A

CAGE CODE

55939

DRAWING NO.

7021570

REV

AM

SCALE

2/1

SHEET

42

COMPUTER GENERATED

GT REV 10-91

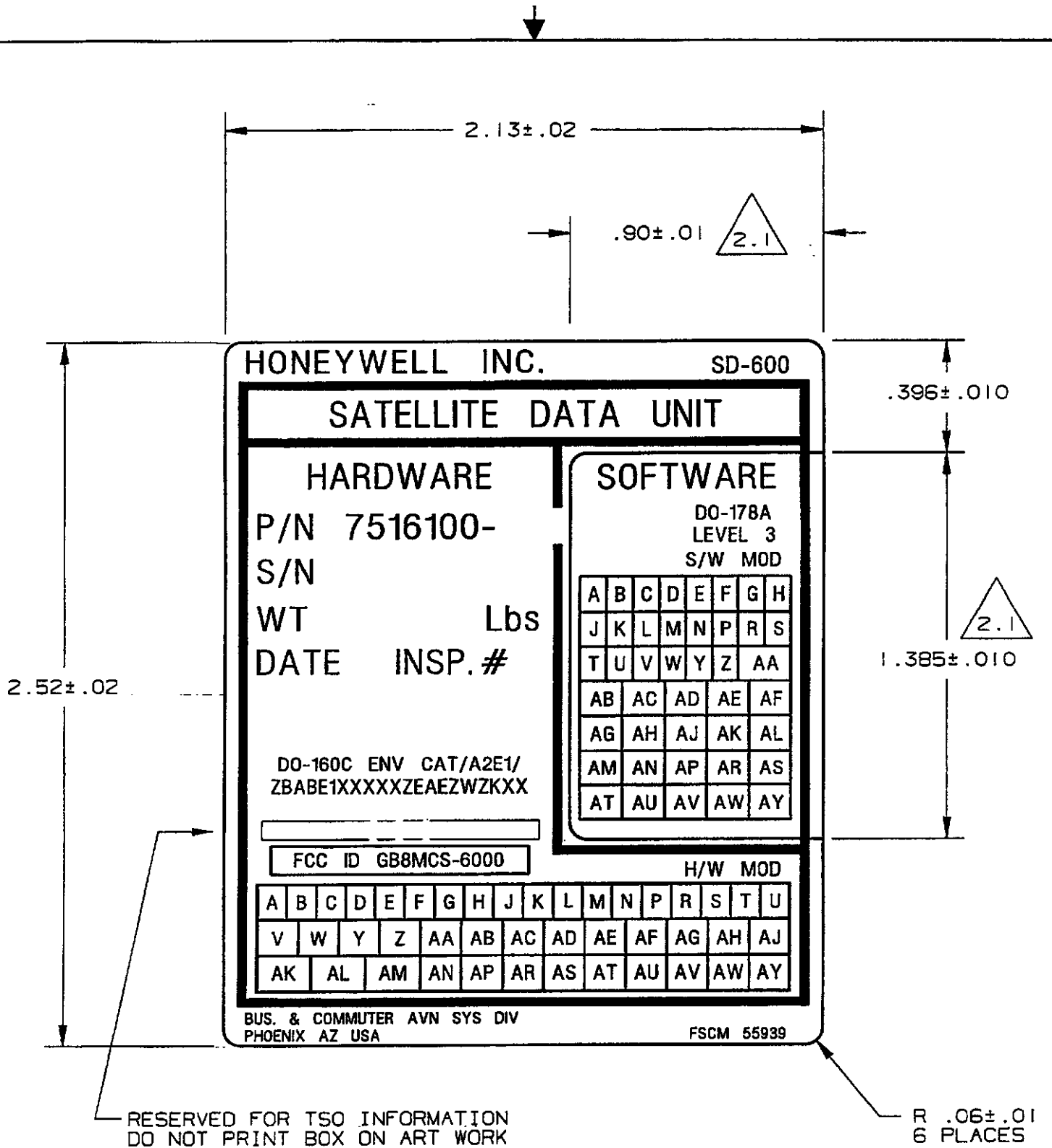


FIGURE 41. 7021570-30

Honeywell

SEE FIRST SHEET FOR
CONTRACT NUMBER. USE OR
DISCLOSURE OF INFORMATION
ON THIS SHEET IS SUBJECT
TO THE RESTRICTIONS ON
THE FIRST SHEET OF THIS
DOCUMENT.

SIZE
A

CAGE CODE
55939

DRAWING NO.

7021570

REV
AM

SCALE 2/1

SHEET 43

COMPUTER GENERATED

2.13 ± .02

.90 ± .01 2.1

HONEYWELL INC. HP-600

HIGH POWER AMPLIFIER

HARDWARE

P/N 7516250-
S/N
WT Lbs
DATE INSP.#

DO-160C ENV CAT/A2E1/
ZBABA1XXXXXZEAZWZKXX

FCC ID GB8MCS-6000

SOFTWARE

DO-178A
LEVEL 3
S/W MOD

A	B	C	D	E	F	G	H
J	K	L	M	N	P	R	S
T	U	V	W	Y	Z	AA	
AB	AC	AD	AE	AF			
AG	AH	AJ	AK	AL			
AM	AN	AP	AR	AS			
AT	AU	AV	AW	AY			

H/W MOD

A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U
V	W	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AJ					
AK	AL	AM	AN	AP	AR	AS	AT	AU	AV	AW	AY						

BUS. & COMMUTER AVN SYS DIV
PHOENIX AZ USA

FSCM 55939

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DO NOT PRINT BOX ON ART WORK

R .06 ± .01
6 PLACES

GT7021570-31

FIGURE 42. 7021570-31

Honeywell

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CONTRACT NUMBER. USE OR
DISCLOSURE OF INFORMATION
ON THIS SHEET IS SUBJECT
TO THE RESTRICTIONS ON
THE FIRST SHEET OF THIS
DOCUMENT.

SIZE

A

CAGE CODE

55939

DRAWING NO.

7021570

REV

AM

SCALE

2/1

SHEET

44

COMPUTER GENERATED

GT REV 10-91

5
DWG NO.

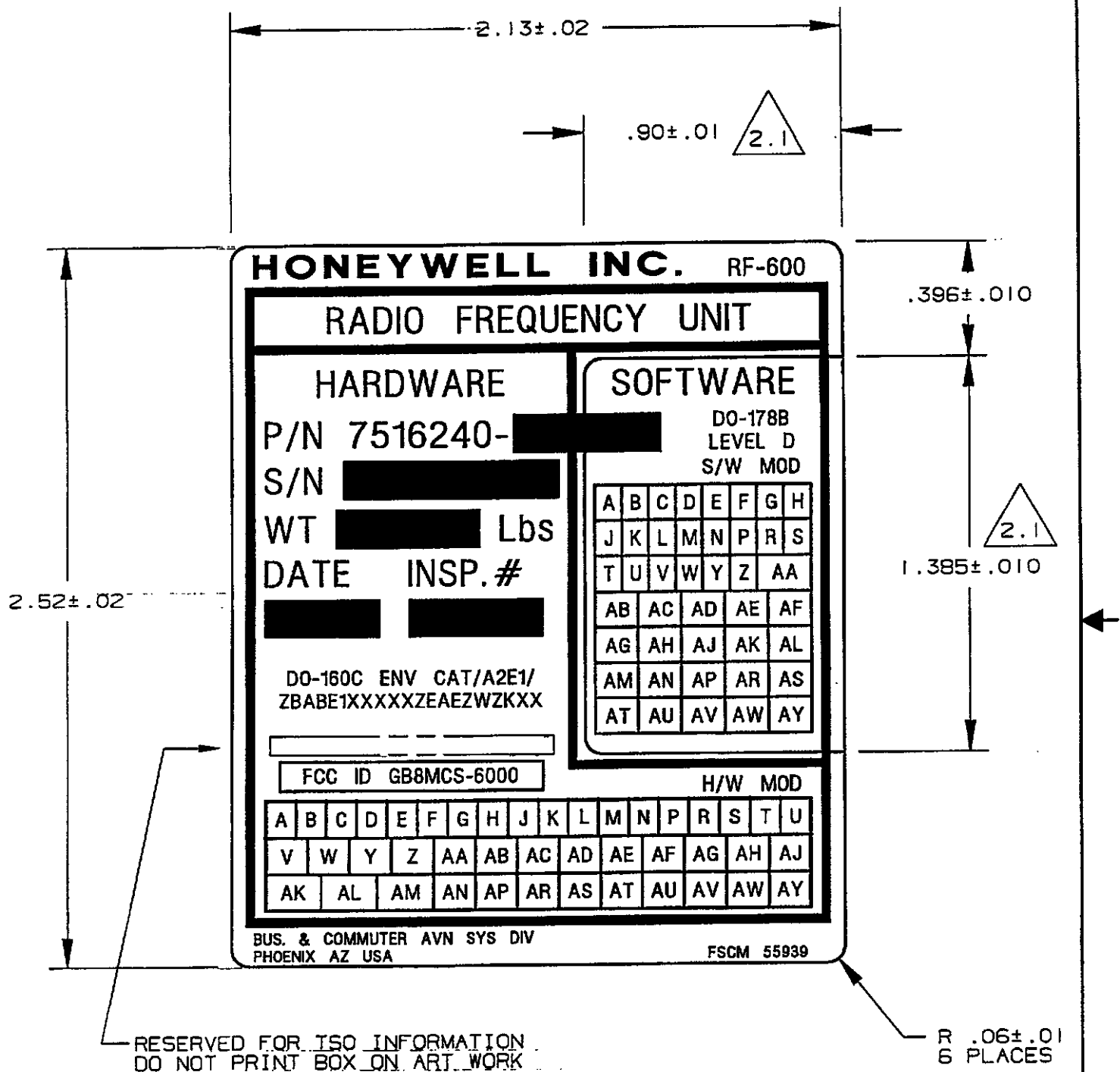


FIGURE 43. 7021570-32

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.	SIZE	CAGE CODE	DRAWING NO.	REV
		A	55939	7021570	AM
		SCALE 2/1		SHEET 45	

2.13±.02

.90±.01 

HONEYWELL INC. RF-600

RADIO FREQUENCY UNIT

HARDWARE

P/N 7516240-

S/N

WT Lbs

DATE INSP.#

DO-160C ENV CAT/A2E1/
ZBABA1XXXXXZAEZWZKXX

FCC ID GB8MCS-6000

SOFTWARE

DO-178B
LEVEL D
S/W MOD

A	B	C	D	E	F	G	H
J	K	L	M	N	P	R	S
T	U	V	W	Y	Z	AA	
AB	AC	AD	AE	AF			
AG	AH	AJ	AK	AL			
AM	AN	AP	AR	AS			
AT	AU	AV	AW	AY			

H/W MOD

A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U
V	W	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AJ					
AK	AL	AM	AN	AP	AR	AS	AT	AU	AV	AW	AY						

BUS. & COMMUTER AVN SYS DIV
PHOENIX AZ USA

FSCM 55939

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DO NOT PRINT BOX ON ART WORK

R .06±.01
6 PLACES

GT7021570-33

FIGURE 44. 7021570-33

Honeywell

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DISCLOSURE OF INFORMATION
ON THIS SHEET IS SUBJECT
TO THE RESTRICTIONS ON
THE FIRST SHEET OF THIS
DOCUMENT.

SIZE

A

CAGE CODE

55939

DRAWING NO.

7021570

REV

AM

SCALE

2/1

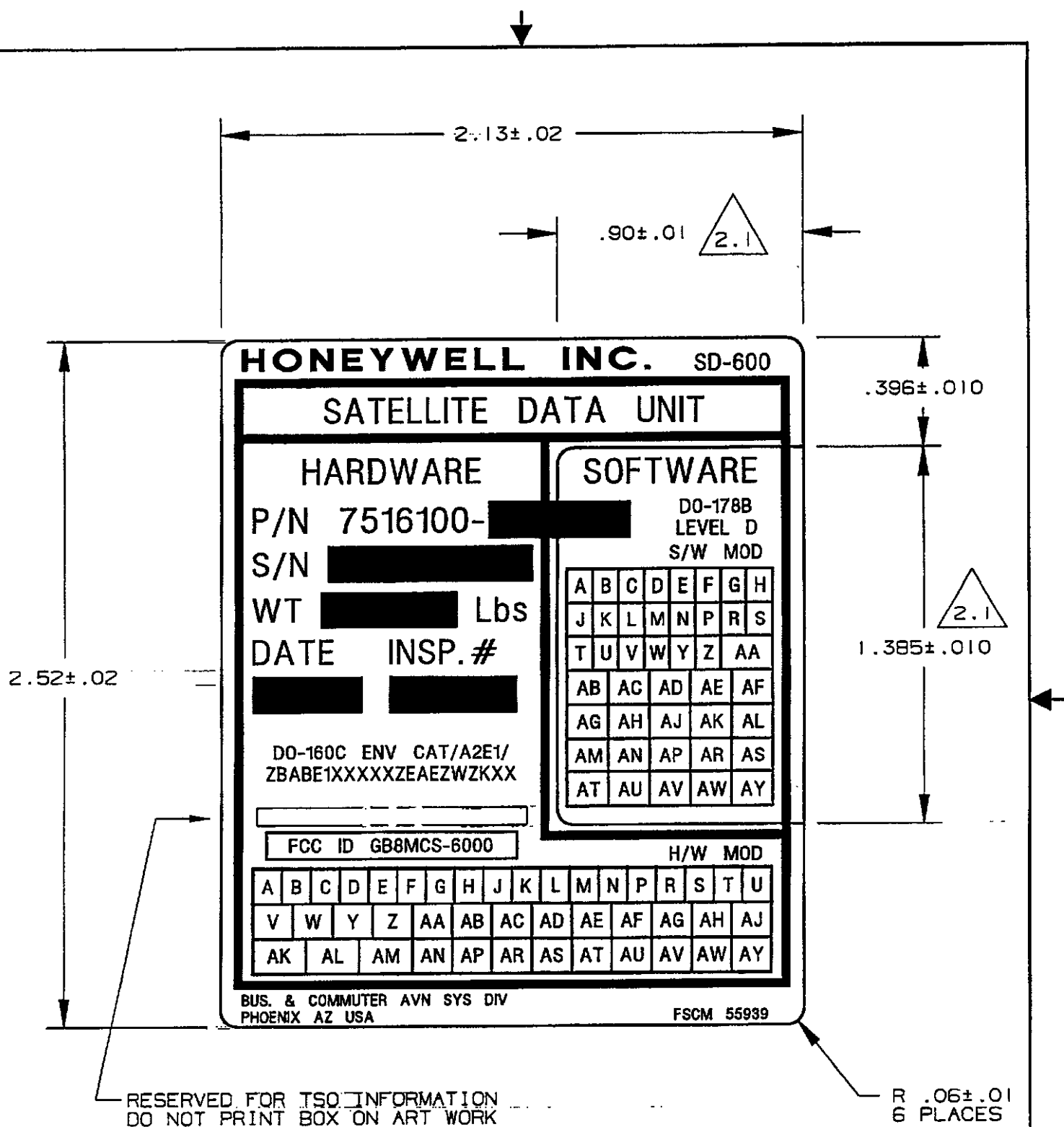
SHEET

46

5231-031 (ANSI Y14.1-1980) HONEYWELL INC.

COMPUTER GENERATED

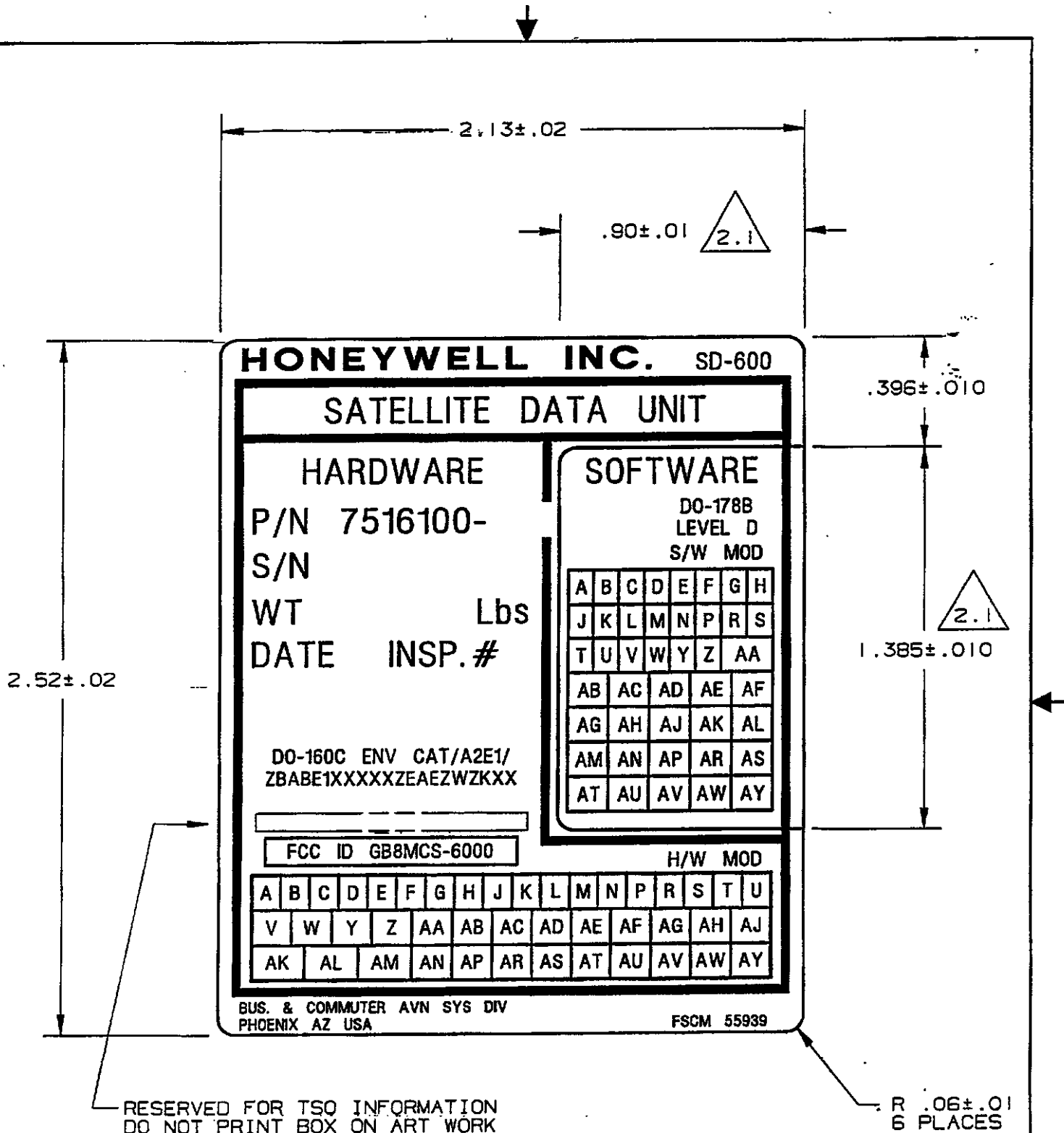
GT REV 10-91



GT7021570-34

FIGURE 45. 7021570-34

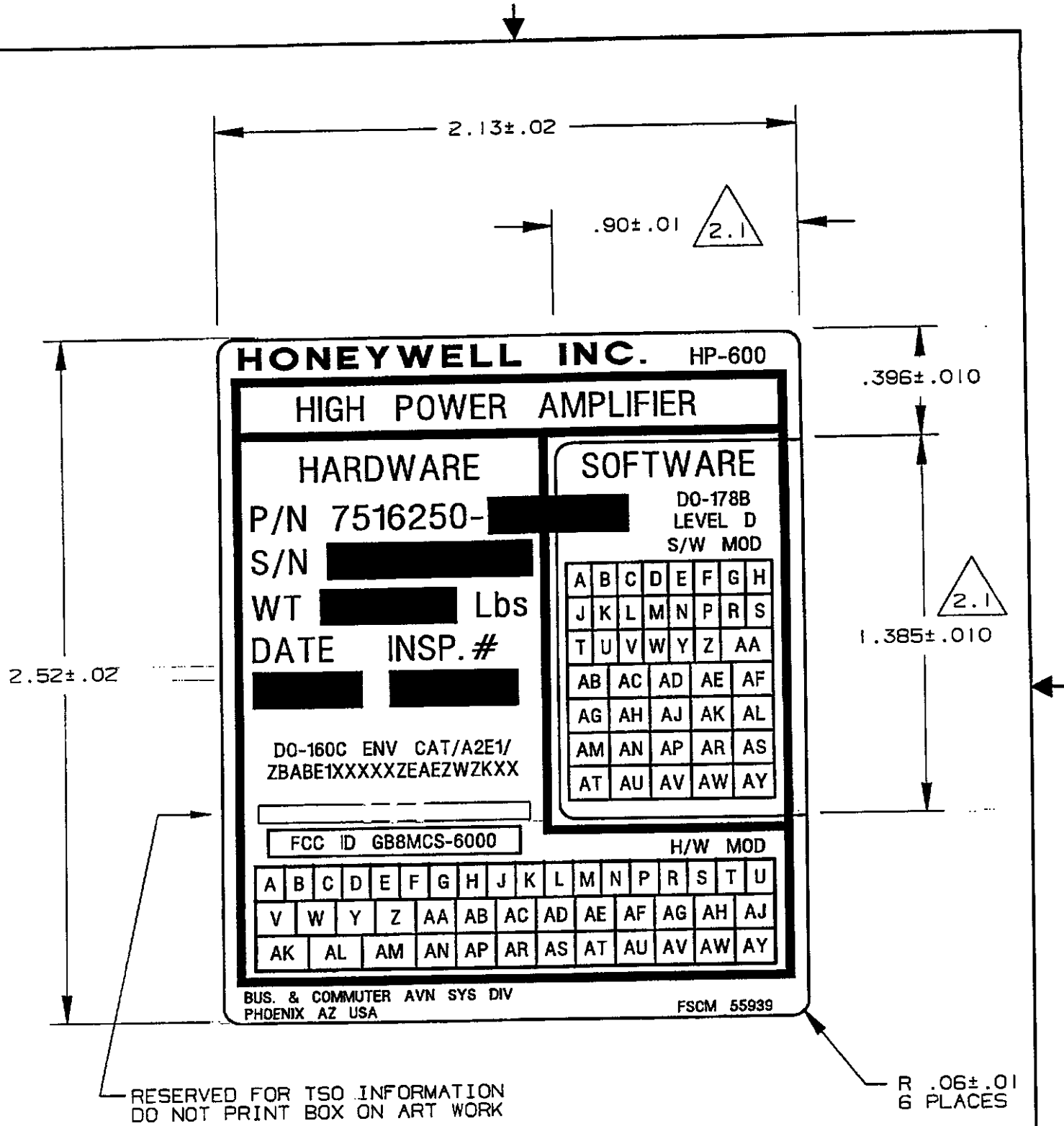
Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.	SIZE A	CAGE CODE 55939	DRAWING NO. 7021570	REV AM
		SCALE 2/1	SHEET 47		



GT7021570-35

FIGURE 46. 7021570-35

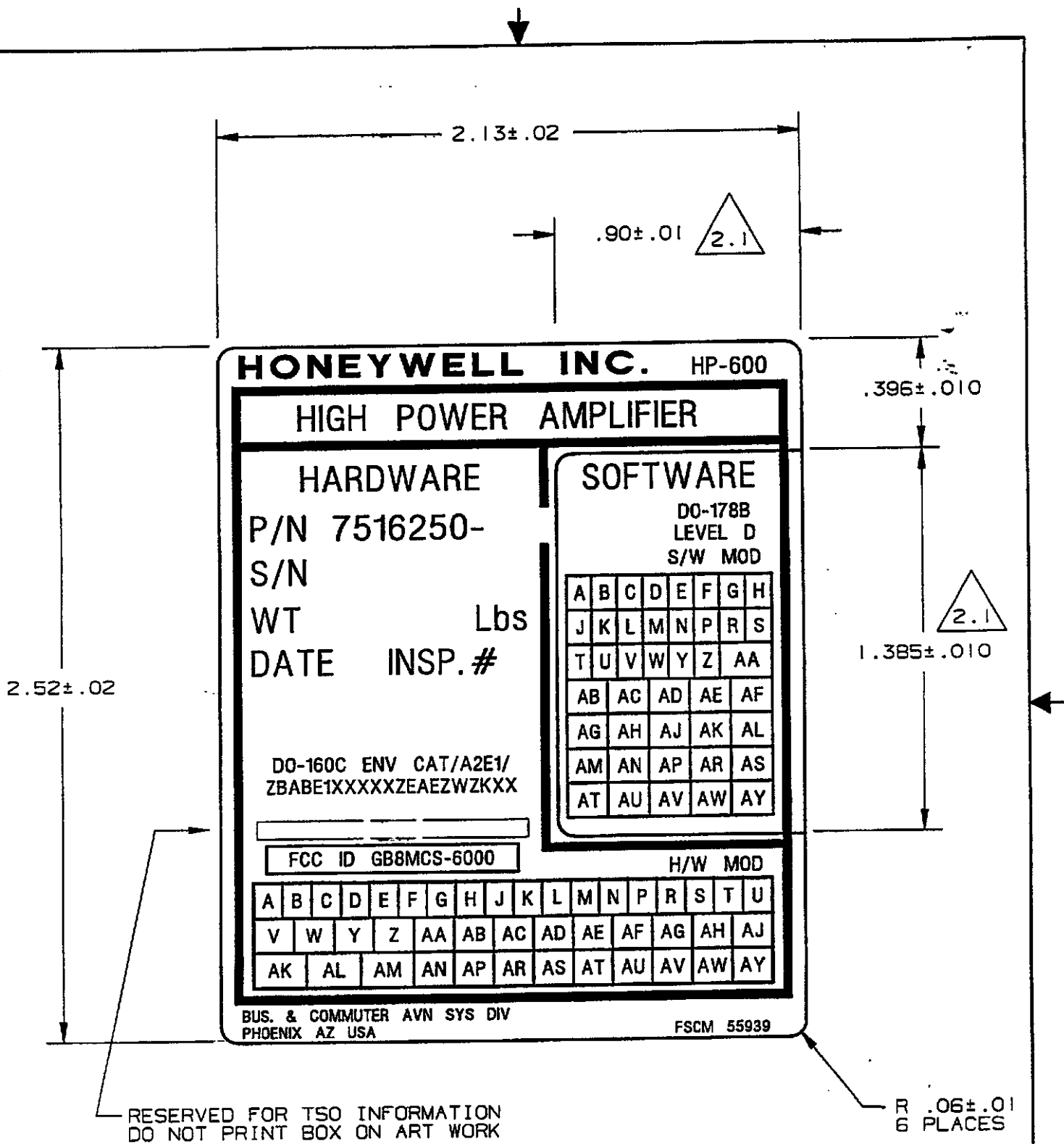
Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT	SIZE	CAGE CODE	DRAWING NO.	REV
		A	55939	7021570	AM
		SCALE 2/1		SHEET 48	



GT7021570-36

FIGURE 47. 7021570-36

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.	SIZE	CAGE CODE	DRAWING NO.	REV
		A	55939	7021570	AM
		SCALE 2/1		SHEET 49	



GT7021570-37

FIGURE 48. 7021570-37

Honeywell

SEE FIRST SHEET FOR
CONTRACT NUMBER. USE OR
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ON THIS SHEET IS SUBJECT
TO THE RESTRICTIONS ON
THE FIRST SHEET OF THIS
DOCUMENT.

SIZE

A

CAGE CODE

55939

DRAWING NO.

7021570

REV

AM

SCALE

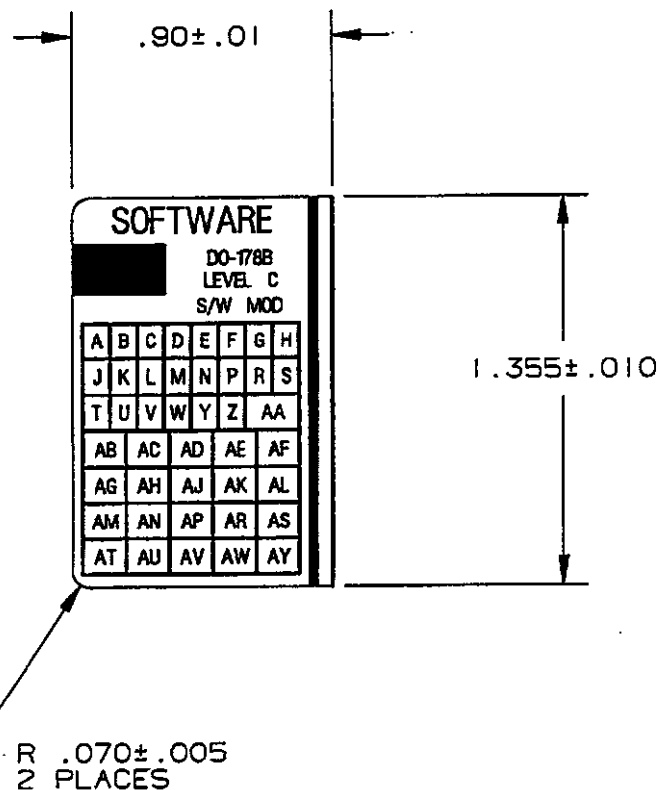
2/1

SHEET

50

COMPUTER GENERATED

GT REV 10-91



GT7021570-38

FIGURE 49. 7021570-38

Honeywell

SEE FIRST SHEET FOR
 CONTRACT NUMBER. USE OR
 DISCLOSURE OF INFORMATION
 ON THIS SHEET IS SUBJECT
 TO THE RESTRICTIONS ON
 THE FIRST SHEET OF THIS
 DOCUMENT.

SIZE

A

SCALE

CAGE CODE

55939

DRAWING NO.

7021570

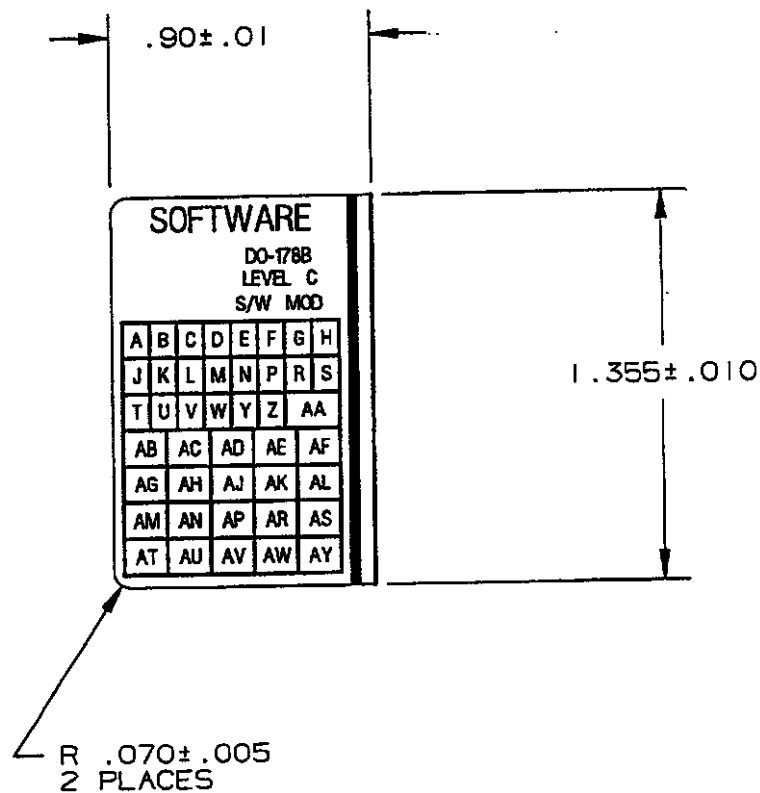
SHEET

51

REV

AF

SE
DWG NO.



GT7021570-39

FIGURE 50. 7021570-39

Honeywell

SEE FIRST SHEET FOR
CONTRACT NUMBER. USE OR
DISCLOSURE OF INFORMATION
ON THIS SHEET IS SUBJECT
TO THE RESTRICTIONS ON
THE FIRST SHEET OF THIS
DOCUMENT.

SIZE

A

CAGE CODE

55939

DRAWING NO.

7021570

REV

AF

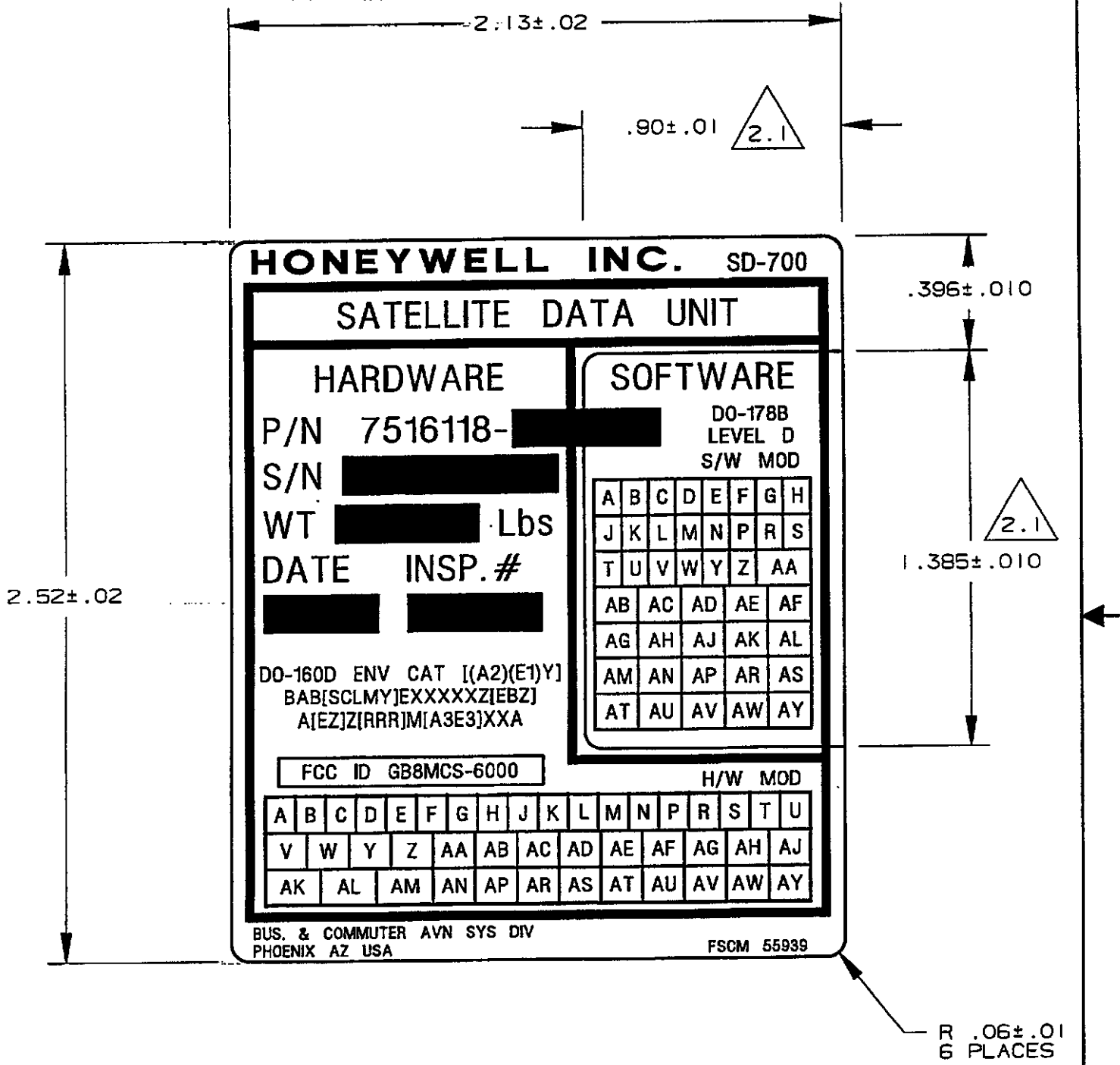
SCALE

SHEET

52

COMPUTER GENERATED

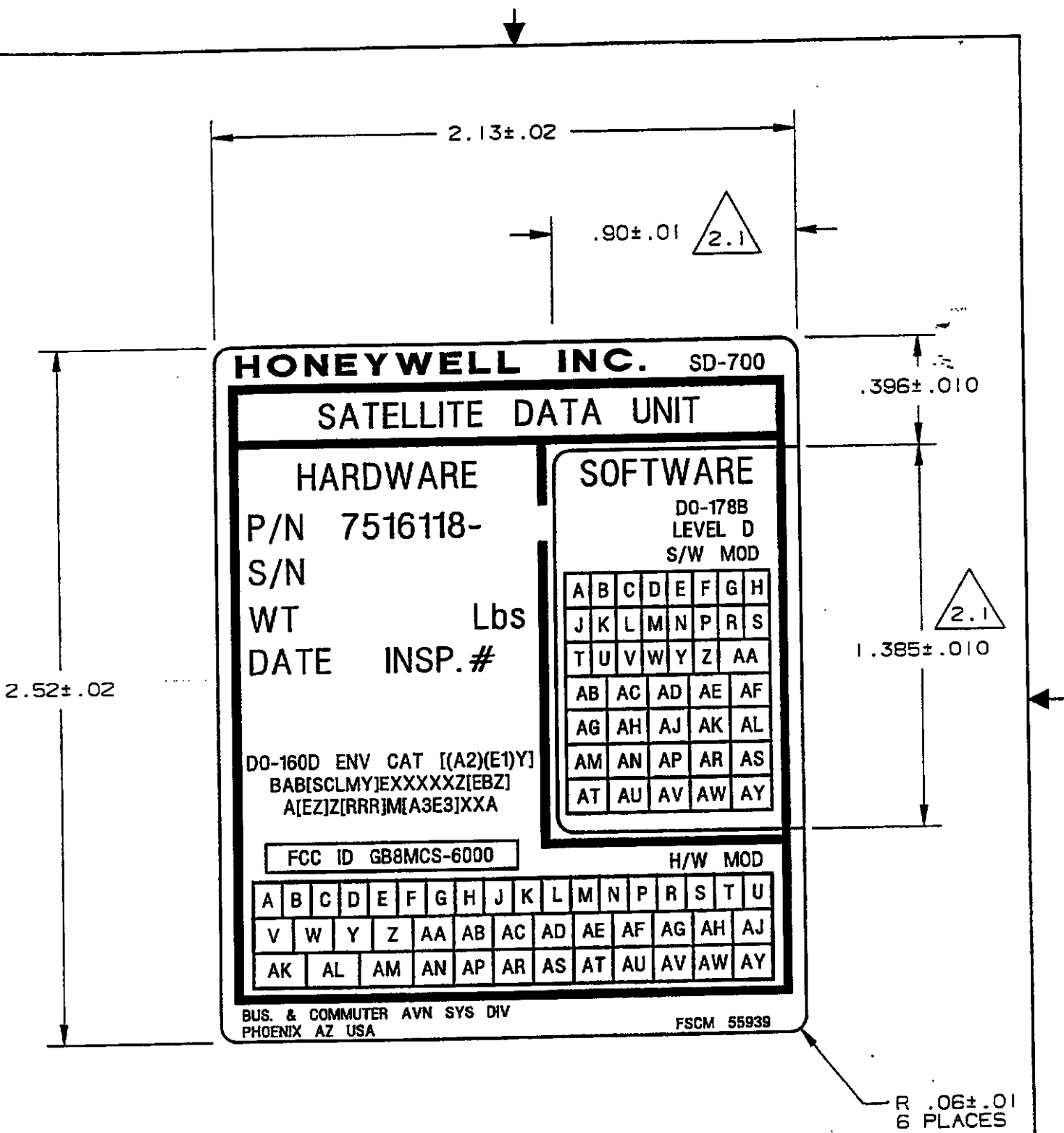
5
DWG NO.



GT7021570-40

FIGURE 51. 7021570-40

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.	SIZE	CAGE CODE	DRAWING NO.		REV
		A	55939	7021570		AM
		SCALE 2/1		SHEET 53		



GT7021570-41

FIGURE 52. 7021570-41

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.	SIZE	CAGE CODE	DRAWING NO.	REV
		A	55939	7021570	AM
		SCALE	SHEET		
		2/1	54		

SH

DWG NO.

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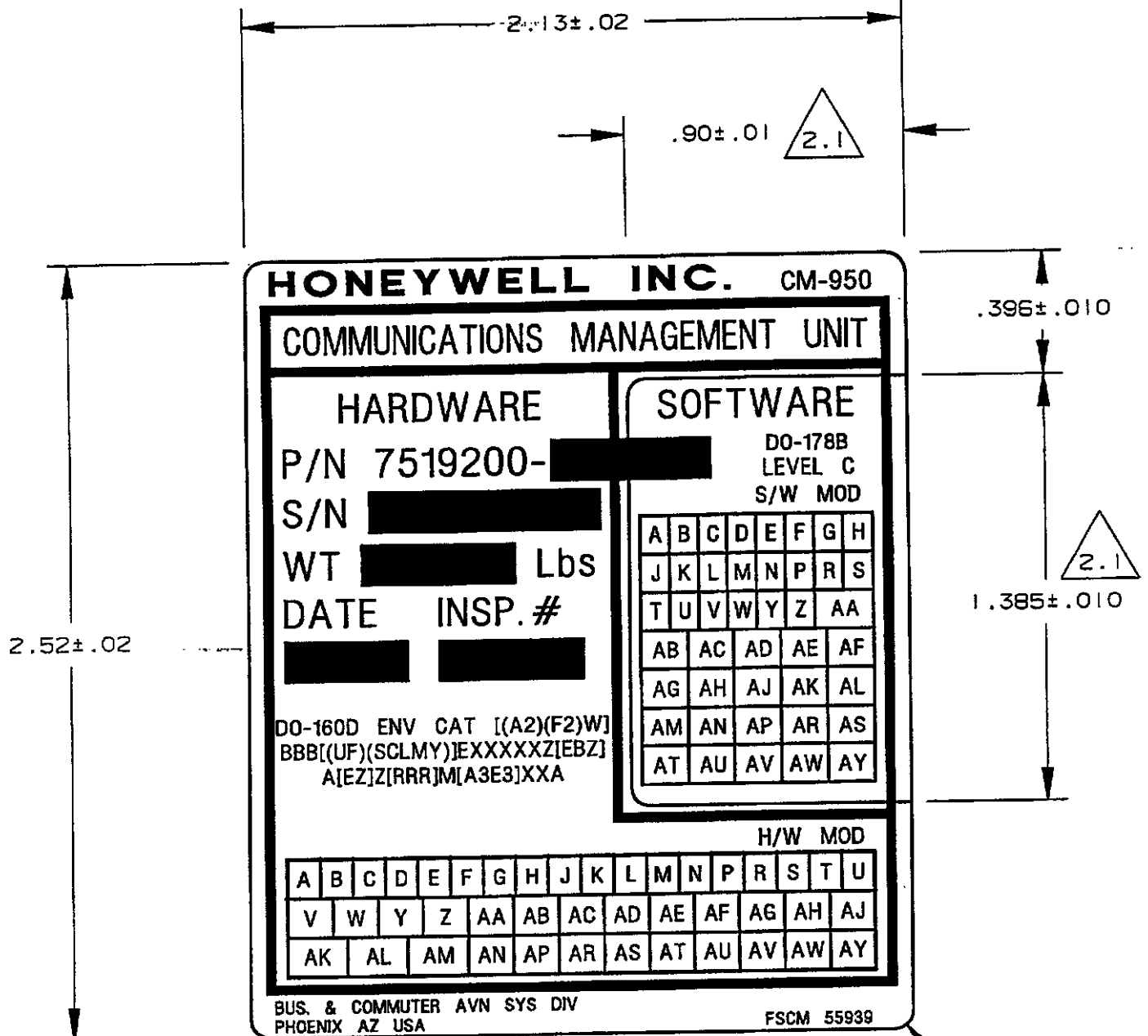


FIGURE 53. 7021570-42

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.	SIZE	CAGE CODE	DRAWING NO.	REV
		A	55939	7021570	AM
		SCALE	2/1	SHEET	55

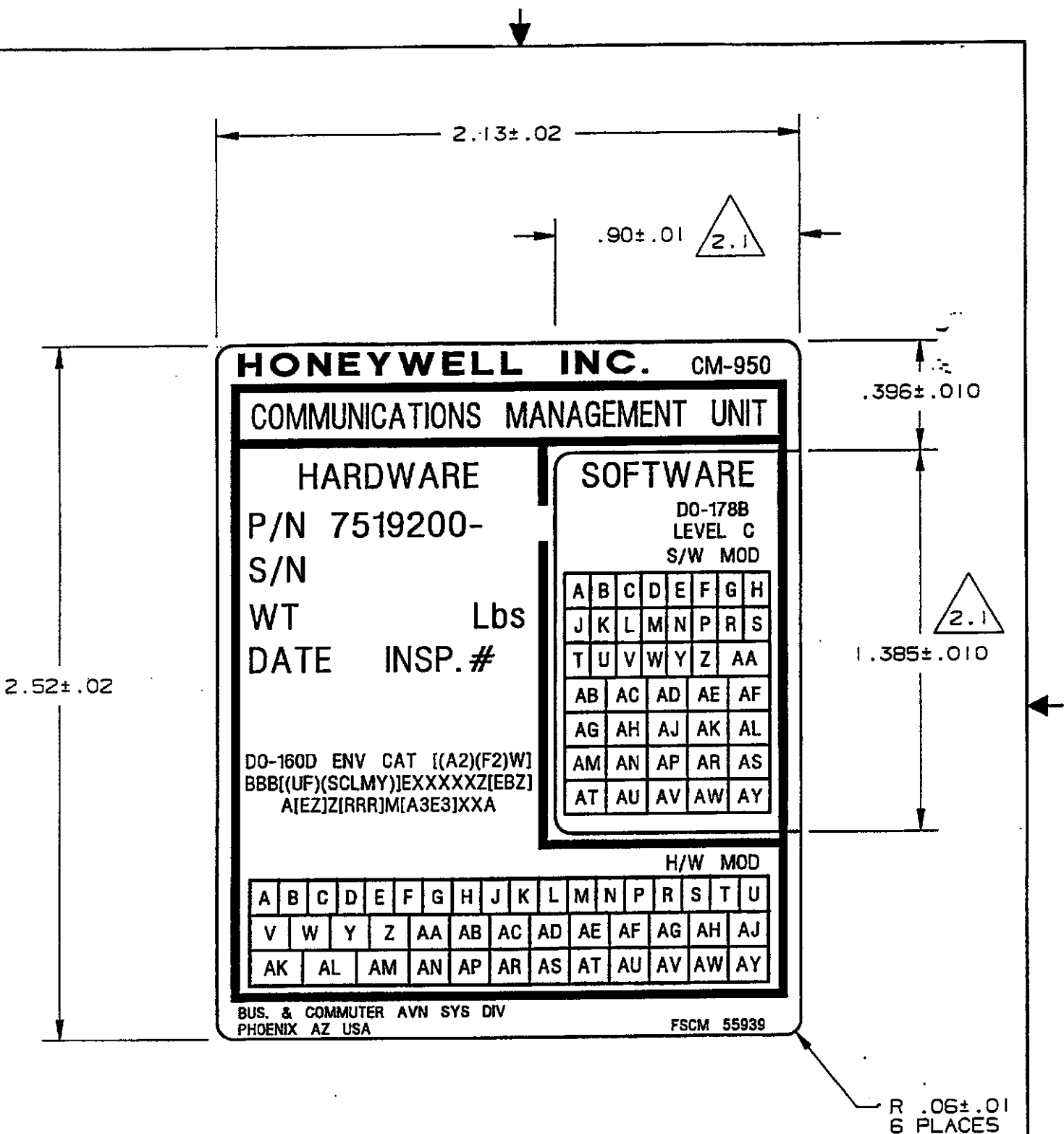


FIGURE 54. 7021570-43

Honeywell

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TO THE RESTRICTIONS ON
THE FIRST SHEET OF THIS
DOCUMENT.

SIZE

A

CAGE CODE

55939

DRAWING NO.

7021570

REV

AM

SCALE

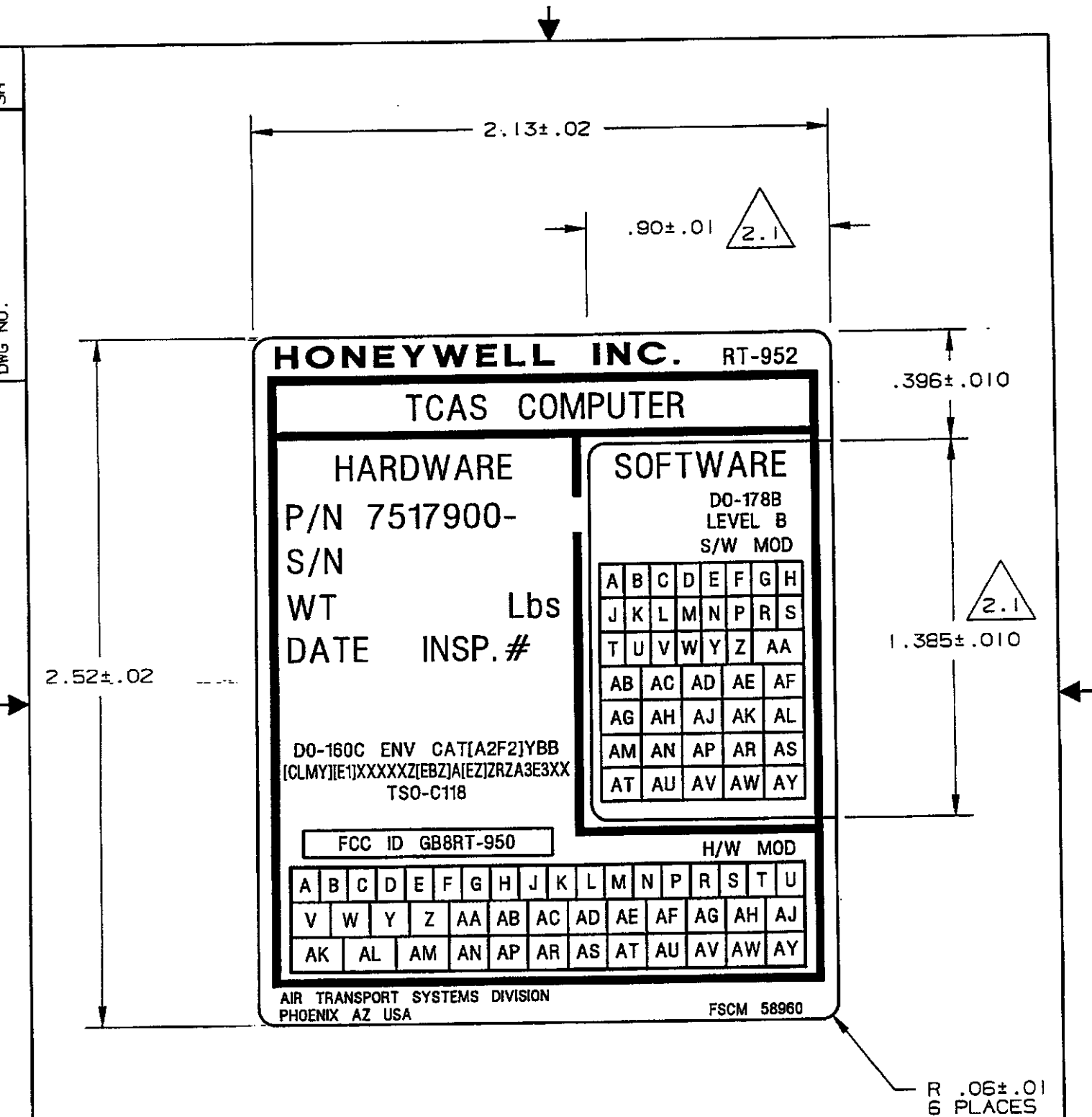
2/1

SHEET

56

COMPUTER GENERATED

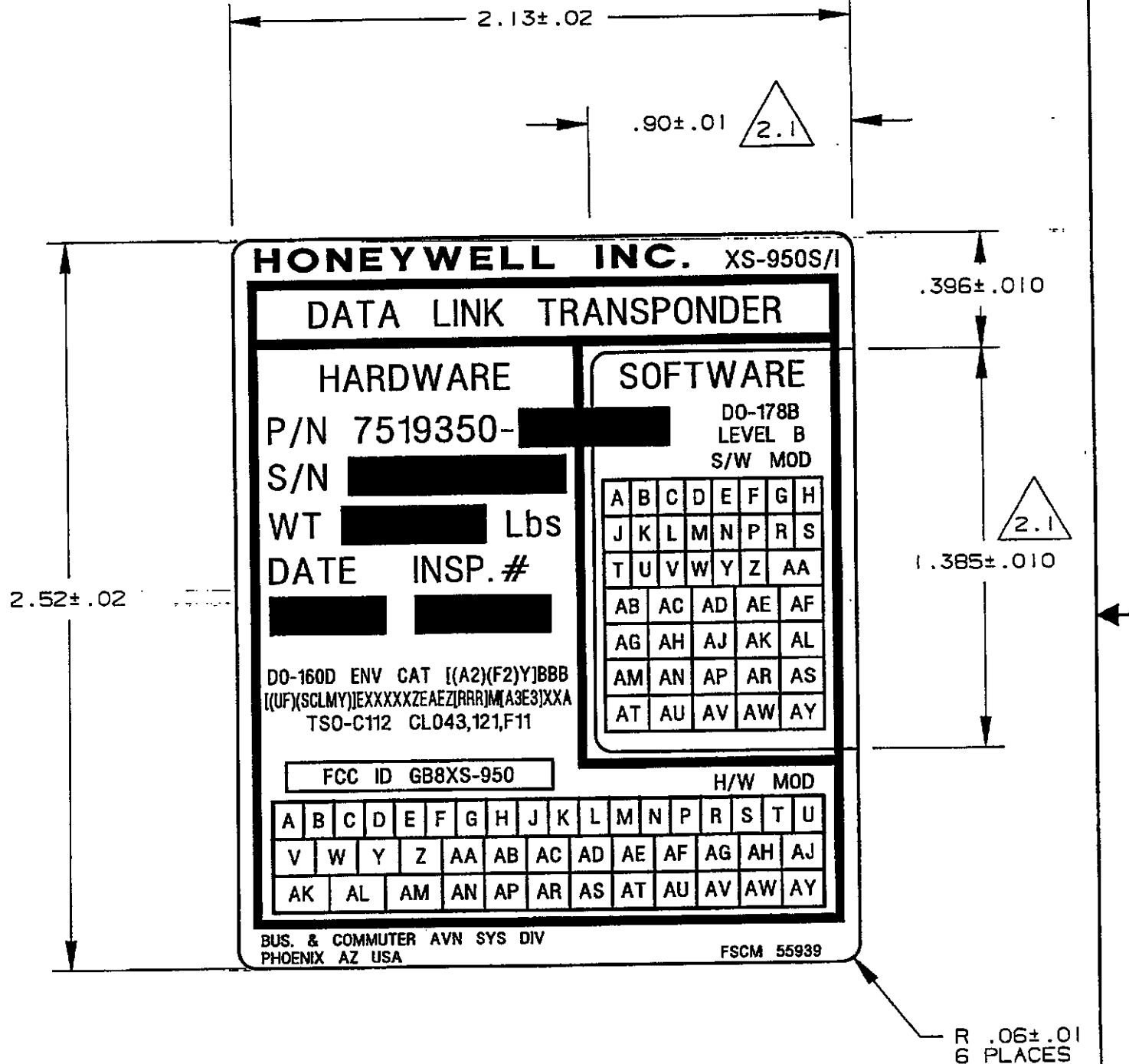
GT REV 10-81



GT7021570-44

FIGURE 55. 7021570-44

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.	SIZE	CAGE CODE	DRAWING NO.	REV
		A	55939	7021570	AN
		SCALE	2/1		SHEET



GT7021570-45

FIGURE 56. 7021570-45

Honeywell

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DISCLOSURE OF INFORMATION
ON THIS SHEET IS SUBJECT
TO THE RESTRICTIONS ON
THE FIRST SHEET OF THIS
DOCUMENT.

SIZE
A

CAGE CODE
55939

DRAWING NO.

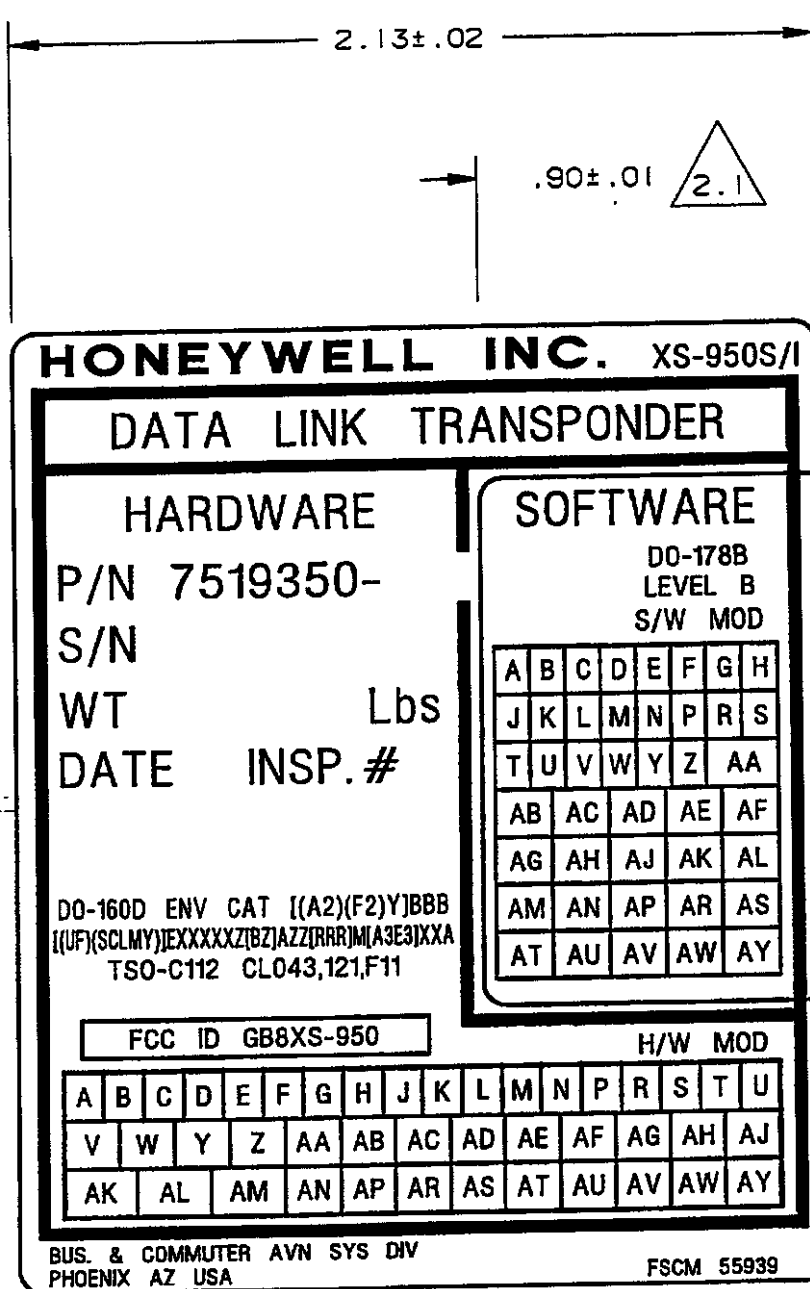
7021570

REV
AM

SCALE 2/1

SHEET 58

COMPUTER GENERATED

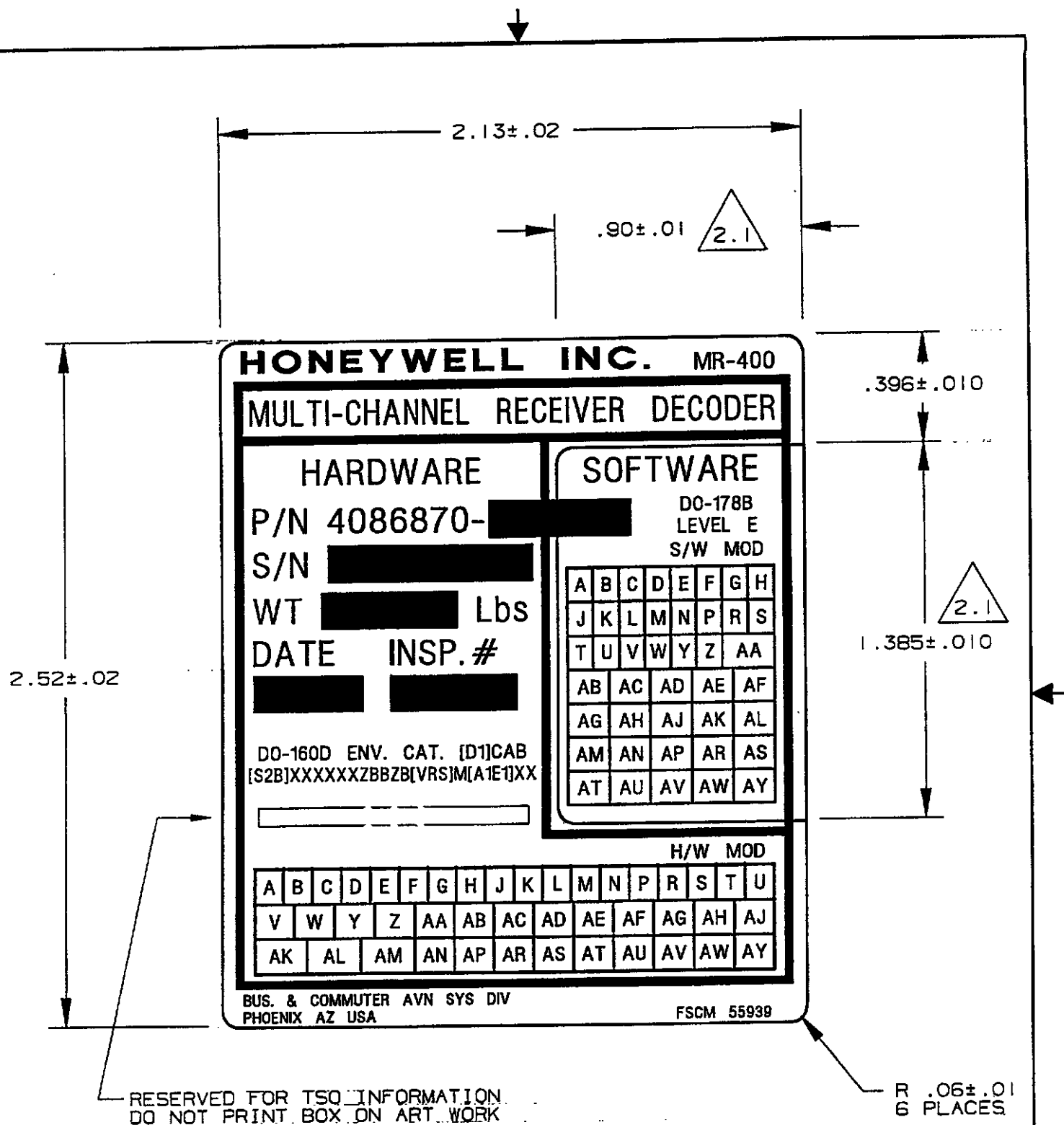


GT7021570-46

FIGURE 57. 7021570-46

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.	SIZE	CAGE CODE	DRAWING NO.	REV
		A	55939	7021570	AM
		SCALE	2/1		SHEET 59

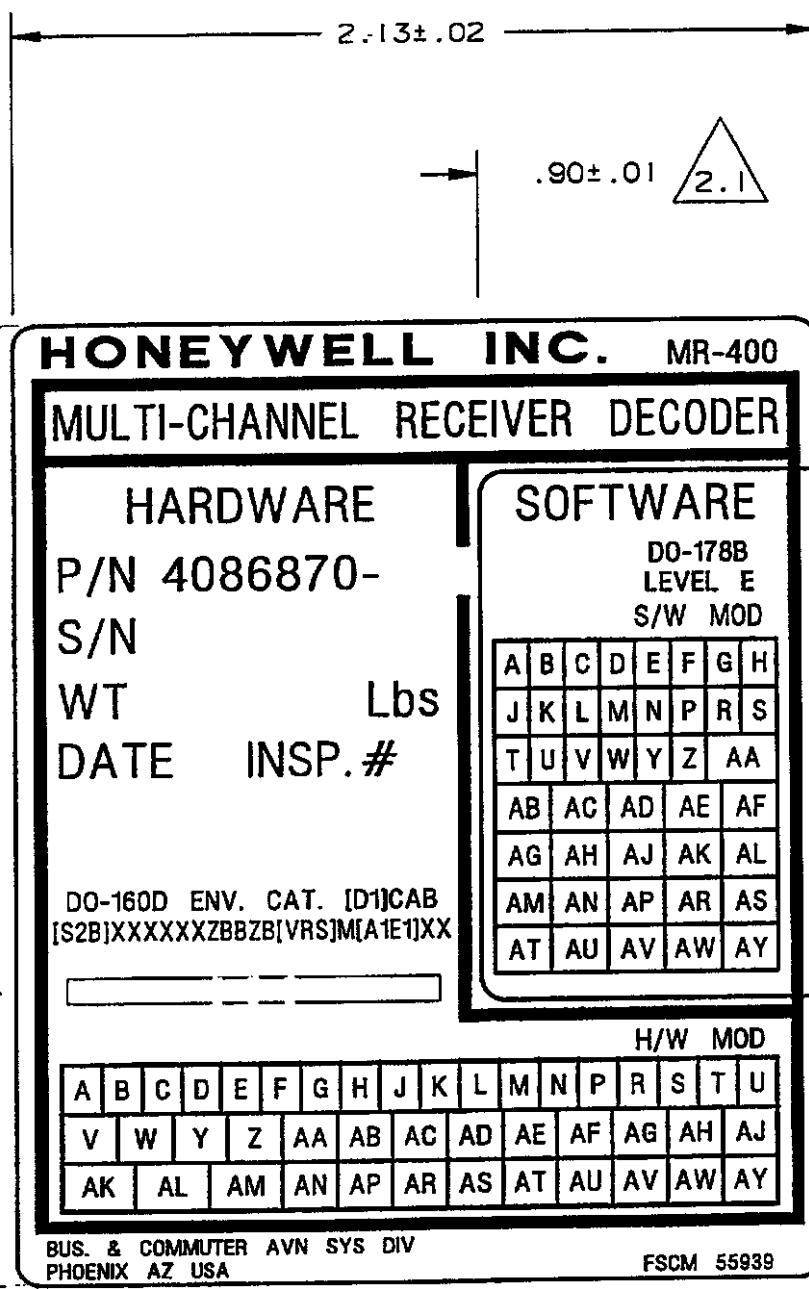
SH
DWG NO.



GT7021570-47

FIGURE 58. 7021570-47

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.	SIZE	CAGE CODE	DRAWING NO.	REV
		A	55939	7021570	AM
		SCALE	2/1	SHEET	60



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6 PLACES

GT7021570-48

FIGURE 59. 7021570-48

Honeywell

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ON THIS SHEET IS SUBJECT
TO THE RESTRICTIONS ON
THE FIRST SHEET OF THIS
DOCUMENT.

SIZE

A

CAGE CODE

55939

DRAWING NO.

7021570

REV

AM

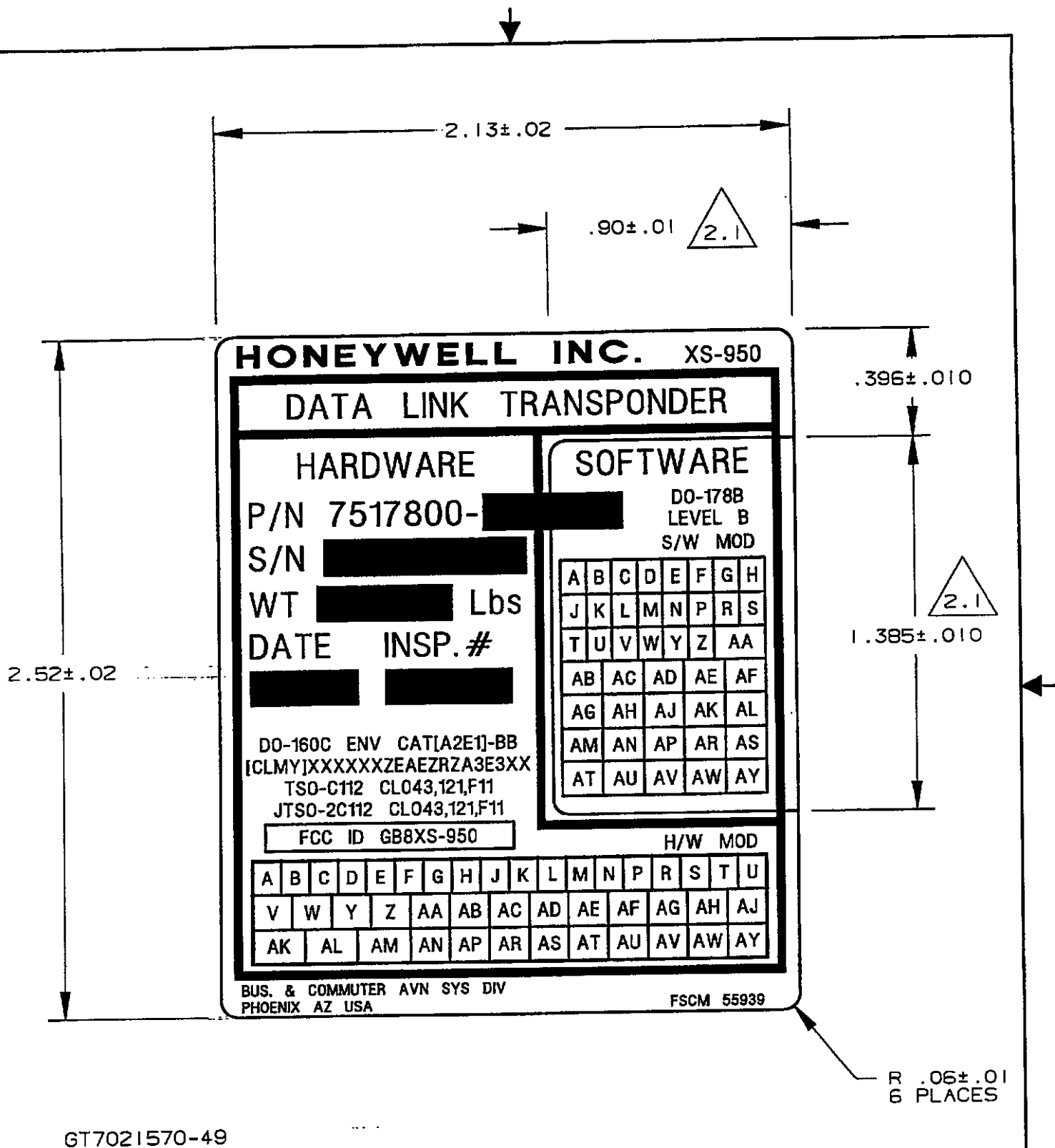
SCALE

2/1

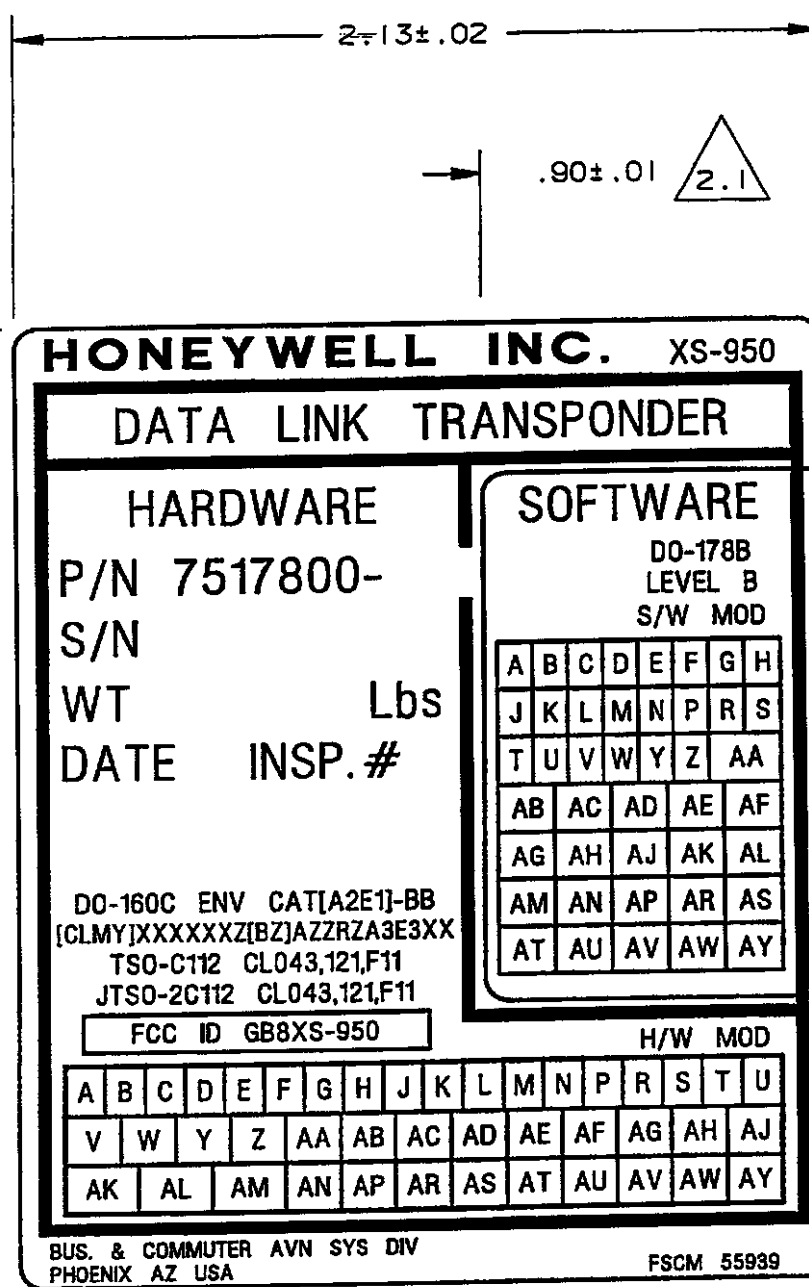
SHEET

61

DWG NO.



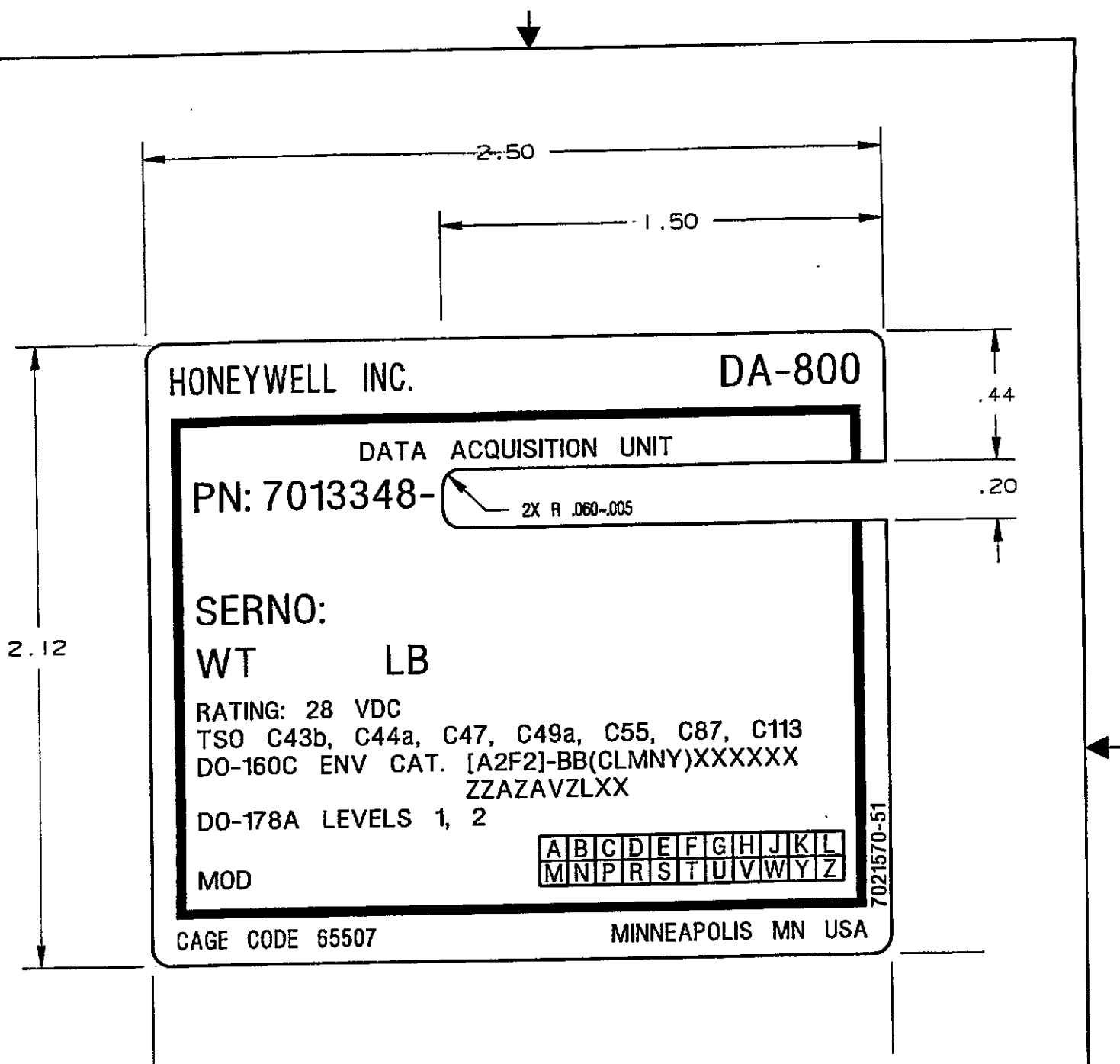
Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.	SIZE	CAGE CODE	DRAWING NO.	REV
		A	55939	7021570	AM
		SCALE	2/1		SHEET



GT7021570-50

FIGURE 61. 7021570-50

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		A	55939	7021570	AM
		SCALE 2/1		SHEET 63	



GT7021570-51

FIGURE 62. 7021570-51

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.	SIZE	CAGE CODE	DRAWING NO.	REV
		A	55939	7021570	AP
		SCALE	2/1		SHEET 64

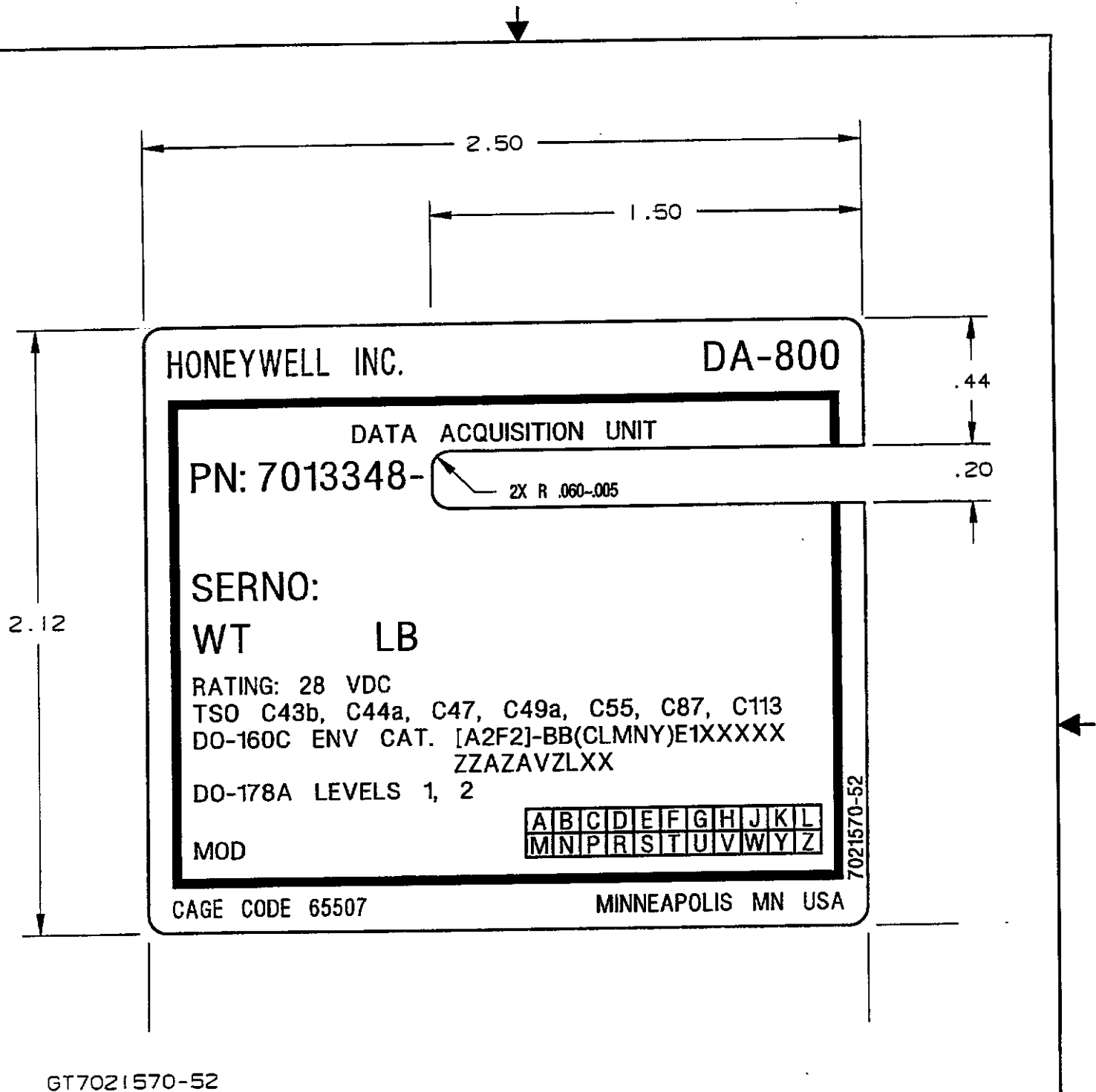


FIGURE 63. 7021570-52

Honeywell	SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.	SIZE	CAGE CODE	DRAWING NO.		REV
		A	55939	7021570		AP
		SCALE 2/1		SHEET 65		

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5.60

2.40

RECEIVER DECODER AND ACCESS CARD CONFIGURATION

MULTI-CHANNEL RECEIVER DECODER UNIT SERIAL NUMBER

RECEIVER DECODER ASSEMBLY			ACCESS CARD	
REF. DESIG.	PART NUMBER	SERIAL NUMBER	PART NUMBER	SERIAL NUMBER
A2A1	4086852-1		4086915-1	
A3A1	4086852-1		4086915-1	
A4A1	4086852-1		4086915-1	
A5A1	4086852-1		4086915-1	

4X R .06

GT7021570-53.

FIGURE 64. 7021570-53

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DWG NO.	7021570	SH	67
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**TABLE I
FIGURE AND COLORS**

HONEYWELL PART NUMBER	FIGURE NUMBER	ARTWORK NUMBER	DESCRIPTION	BACKGROUND COLOR	CHARACTER & LINE COLOR
7021570-1	FIGURE 1	GT7021570-1	RF-600, HDWR	(BLACK) 1.2.1.1	(ALUMINUM) 1.2.2.2
7021570-2	FIGURE 2	GT7021570-2	SD-600, HDWR	(BLACK) 1.2.1.1	(ALUMINUM) 1.2.2.2
7021570-3	FIGURE 3	GT7021570-3	HP-600, HDWR	(BLACK) 1.2.1.1	(ALUMINUM) 1.2.2.2
7021570-4	FIGURE 4	GT7021570-4	RF-600, HDWR	(ALUMINUM) 1.2.1.2	(BLACK) 1.2.2.1
7021570-5	FIGURE 5	GT7021570-5	SD-600, HDWR	(ALUMINUM) 1.2.1.2	(BLACK) 1.2.2.1
7021570-6	FIGURE 6	GT7021570-6	HP-600, HDWR	(ALUMINUM) 1.2.1.2	(BLACK) 1.2.2.1
7021570-7	FIGURE 7	GT7021570-7	S/W, LEVEL 2	(BLACK) 1.2.1.1	(ALUMINUM) 1.2.2.2
7021570-8	FIGURE 8	GT7021570-8	S/W, LEVEL 3	(BLACK) 1.2.1.1	(ALUMINUM) 1.2.2.2
7021570-9	FIGURE 9	GT7021570-9	S/W, LEVEL 2	(ALUMINUM) 1.2.1.2	(BLACK) 1.2.2.1
7021570-10	FIGURE 10	GT7021570-10	S/W, LEVEL 3	(ALUMINUM) 1.2.1.2	(BLACK) 1.2.2.1
7021570-11	FIGURE 11	GT7021570-11	RF-600 HDWR, S/W LEVEL 3	(BLACK) 1.2.1.1	(ALUMINUM) 1.2.2.2
7021570-12	FIGURE 12	GT7021570-12	SD-600 HDWR, S/W LEVEL 3	(BLACK) 1.2.1.1	(ALUMINUM) 1.2.2.2
7021570-13	FIGURE 13	GT7021570-13	HP-600 HDWR, S/W LEVEL 3	(BLACK) 1.2.1.1	(ALUMINUM) 1.2.2.2
7021570-14	FIGURE 14	GT7021570-14	XS-950 HDWR, S/W LEVEL B	(BLACK) 1.2.1.1	(ALUMINUM) 1.2.2.2
7021570-15	FIGURE 15	GT7021570-15	XS-950 HDWR, S/W LEVEL B	(ALUMINUM) 1.2.1.2	(BLACK) 1.2.2.1
7021570-16	FIGURE 16	GT7021570-16	DA-800	(ALUMINUM) 1.2.1.2	(BLACK) 1.2.2.1
7021570-17	FIGURE 17	GT7021570-17	DA-800 DASH NO.	(ALUMINUM) 1.2.1.2	(BLACK) 1.2.2.1
7021570-18	FIGURE 18	GT7021570-18	DA-800	(ALUMINUM) 1.2.1.2	(BLACK) 1.2.2.1
7021570-22	FIGURE 22	GT7021570-22	CM-250 HDWR S/W LEVEL	(METALLIZED) 1.2.1.3	(BLACK) 1.2.2.3
7021570-23	FIGURE 23	GT7021570-23	RT-950 HDWR S/W LEVEL B	(BLACK) 1.2.1.1	(ALUMINUM) 1.2.2.2
7021570-24	FIGURE 24	GT7021570-24	RT-951 HDWR S/W LEVEL B	(ALUMINUM) 1.2.1.2	(BLACK) 1.2.2.1
7021570-25	FIGURE 25	GT7021570-25	HP-700 HDWR S/W LEVEL C	(BLACK) 1.2.1.1	(ALUMINUM) 1.2.2.2
7021570-26	FIGURE 26	GT7021570-26	HP-700 HDWR S/W LEVEL C	(ALUMINUM) 1.2.1.2	(BLACK) 1.2.2.1
7021570-27	FIGURE 27	GT7021570-27	S/W LEVEL D	(BLACK) 1.2.1.1	(ALUMINUM) 1.2.2.2

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		A	55939	7021570	AR
		SCALE	NONE	UNIT WT	SHEET

TABLE I (CONT)
FIGURE AND COLORS

HONEYWELL PART NUMBER	FIGURE NUMBER	ARTWORK NUMBER	DESCRIPTION	BACKGROUND COLOR	CHARACTER & LINE COLOR
7021570-28	FIGURE 39	GT7021570-28	S/W LEVEL D	(ALUMINUM) 1.2.1.2	(BLACK) 1.2.2.1
7021570-29	FIGURE 40	GT7021570-29	RF-600 S/W LEVEL 3	(ALUMINUM) 1.2.1.2	(BLACK) 1.2.2.1
7021570-30	FIGURE 41	GT7021570-30	SD-600 S/W LEVEL 3	(ALUMINUM) 1.2.1.2	(BLACK) 1.2.2.1
7021570-31	FIGURE 42	GT7021570-31	HP-600 S/W LEVEL 3	(ALUMINUM) 1.2.1.2	(BLACK) 1.2.2.1
7021570-32	FIGURE 43	GT7021570-32	RF-600 S/W LEVEL D	(BLACK) 1.2.1.1	(ALUMINUM) 1.2.2.2
7021570-33	FIGURE 44	GT7021570-33	RF-600 S/W LEVEL D	(ALUMINUM) 1.2.1.2	(BLACK) 1.2.2.1
7021570-34	FIGURE 45	GT7021570-34	RF-600 S/W LEVEL D	(BLACK) 1.2.1.1	(ALUMINUM) 1.2.2.2
7021570-35	FIGURE 46	GT7021570-35	SD-600 S/W LEVEL D	(ALUMINUM) 1.2.1.2	(BLACK) 1.2.2.1
7021570-36	FIGURE 47	GT7021570-36	HP-600 S/W LEVEL D	(BLACK) 1.2.1.1	(ALUMINUM) 1.2.2.2
7021570-37	FIGURE 48	GT7021570-37	HP-600 S/W LEVEL D	(ALUMINUM) 1.2.1.2	(BLACK) 1.2.2.1
7021570-38	FIGURE 49	GT7021570-38	S/W LEVEL C	(BLACK) 1.2.1.1	(ALUMINUM) 1.2.2.2
7021570-39	FIGURE 50	GT7021570-39	S/W LEVEL C	(ALUMINUM) 1.2.1.2	(BLACK) 1.2.2.1
7021570-40	FIGURE 51	GT7021570-40	SD-700 S/W LEVEL D	(BLACK) 1.2.1.1	(ALUMINUM) 1.2.2.2
7021570-41	FIGURE 52	GT7021570-41	SD-700 S/W LEVEL D	(ALUMINUM) 1.2.1.2	(BLACK) 1.2.2.1
7021570-42	FIGURE 53	GT7021570-42	CM-250 S/W LEVEL C	(BLACK) 1.2.1.1	(ALUMINUM) 1.2.2.2
7021570-43	FIGURE 54	GT7021570-43	CM-250 S/W LEVEL C	(ALUMINUM) 1.2.1.2	(BLACK) 1.2.2.1
7021570-44	FIGURE 55	GT7021570-44	RT-952 HDWR S/W LEVEL B	(ALUMINUM) 1.2.1.2	(BLACK) 1.2.2.1
7021570-45	FIGURE 56	GT7021570-45	XS-950S/I HDWR, S/W LEVEL B	(BLACK) 1.2.1.1	(ALUMINUM) 1.2.2.1
7021570-46	FIGURE 57	GT7021570-46	XS-950S/I HDWR, S/W LEVEL B	(ALUMINUM) 1.2.1.2	(BLACK) 1.2.2.1
7021570-47	FIGURE 58	GT7021570-47	MR-400 S/W LEVEL E	(BLACK) 1.2.1.1	(ALUMINUM) 1.2.2.2
7021570-48	FIGURE 59	GT7021570-48	MR-400 S/W LEVEL E	(ALUMINUM) 1.2.1.2	(BLACK) 1.2.2.1
7021570-49	FIGURE 60	GT7021570-49	XS-950 HDWR, S/W LEVEL B	(BLACK) 1.2.1.1	(ALUMINUM) 1.2.2.2
7021570-50	FIGURE 61	GT7021570-50	XS-950 HDWR, S/W LEVEL B	(ALUMINUM) 1.2.1.2	(BLACK) 1.2.2.1
7021570-51	FIGURE 62	GT7021570-51	DA-800	(ALUMINUM) 1.2.1.2	(BLACK) 1.2.2.1
7021570-52	FIGURE 63	GT7021570-52	DA-800	(ALUMINUM) 1.2.1.2	(BLACK) 1.2.2.1
7021570-53	FIGURE 64	GT7021570-53	N/A	(ALUMINUM) 1.2.1.2	(BLACK) 1.2.2.1

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TABLE I (CONT)
FIGURE AND COLORS

HONEYWELL PART NUMBER	FIGURE NUMBER	ARTWORK NUMBER	DESCRIPTION	BACKGROUND COLOR	CHARACTER & LINE COLOR
7021570-101	FIGURE 19	GT7021570-101	WU-880	(METALLIZED) 1.2.1.3	(BLACK) 1.2.2.3
7021570-102	FIGURE 20	GT7021570-102	WU-660	(METALLIZED) 1.2.1.3	(BLACK) 1.2.2.3
7021570-103	FIGURE 21	GT7021570-103	WU-440	(METALLIZED) 1.2.1.3	(BLACK) 1.2.2.3
7021570-104	FIGURE 27	GT7021570-104	FP-900	(METALLIZED) 1.2.1.3	(BLACK) 1.2.2.3
7021570-105	FIGURE 28	GT7021570-105	FP-900	(METALLIZED) 1.2.1.3	(BLACK) 1.2.2.3
7021570-106	FIGURE 29	GT7021570-106	FP-900	(METALLIZED) 1.2.1.3	(BLACK) 1.2.2.3
7021570-107	FIGURE 30	GT7021570-107	FP-900	(METALLIZED) 1.2.1.3	(BLACK) 1.2.2.3
7021570-108	FIGURE 31	GT7021570-108	WU-880	(METALLIZED) 1.2.1.3	(BLACK) 1.2.2.3
7021570-109	FIGURE 32	GT7021570-109	WU-660	(METALLIZED) 1.2.1.3	(BLACK) 1.2.2.3
7021570-110	FIGURE 33	GT7021570-110	WU-440	(METALLIZED) 1.2.1.3	(BLACK) 1.2.2.3
7021570-111	FIGURE 34	GT7021570-111	WU-880	(METALLIZED) 1.2.1.3	(BLACK) 1.2.2.3
7021570-112	FIGURE 35	GT7021570-112	WU-660	(METALLIZED) 1.2.1.3	(BLACK) 1.2.2.3
7021570-113	FIGURE 36	GT7021570-113	WU-440	(METALLIZED) 1.2.1.3	(BLACK) 1.2.2.3
7021570-114	FIGURE 37	GT7021570-114	LP-860	(METALLIZED) 1.2.1.3	(BLACK) 1.2.2.3

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DWG NO.

7021570

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70TABLE II
CHARACTERS

PART NUMBER	CONFIGURATION FIGURE NUMBER	CHARACTER INFORMATION
7021570-501	17	901
7021570-502	17	902
7021570-503	17	903
7021570-504	17	904
7021570-505	17	905
7021570-506	17	906
7021570-507	17	907
7021570-508	17	908
7021570-510	17	910
7021570-511	17	911
7021570-512	17	912
7021570-513	17	913
7021570-514	17	914
7021570-515	17	915
7021570-516	17	916
7021570-517	17	917
7021570-518	17	918
7021570-519	17	919
7021570-520	17	920
7021570-521	17	921
7021570-522	17	922
7021570-523	17	923
7021570-524	17	924
7021570-525	17	925
7021570-526	17	926
7021570-527	17	927
7021570-528	17	928
7021570-529	17	929
7021570-530	17	930

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TABLE II (CONT)
CHARACTERS

[illegible]

SOURCE(S) OF SUPPLY. PER P7015502 FOR PREPRINTED LABELS ONLY.

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		A	55939	7021570	AR
		SCALE	NONE	UNIT WT	SHEET
					72

DWG NO. 7021570		SH 73					
REVISIONS							
REV	DESCRIPTION					APPROVED BY/DATE (YY-MM-DD)	
—	INITIAL RELEASE					G. BEILER 94-03-03	
A	SH1: SH IDX REV. SH3 THRU 8: UDTD VIEW. 82163(M) AFFECTS PARTS IN HOUSE AND IN STOCK.					T. EUROPA 94-04-29 J. GHER WHISLER SJ	
B	SH1: SH IDX REV. C.O. NOT EXECUTED. 82347(NA)					J. GHER 94-04-29 WHISLER SJ	
C	SH1: SH IDX REV. WAS SH1 OF 15. SH2: ADD PARA 2 AND 2.1. PARA 3 AND 3.1 WAS PARA 2 AND 2.1 RESP. ADD SH13, 14 AND 15. SH16, 17 AND 18 WAS SH13, 14 AND 15 RESP. SH16: TBL1; ADD -11, -12 AND -13 VAR. 83257(NA)					J. KEISTER 94-10-06 J. GHER WHISLER SJ	
D	SH1: ADD CREATING FIGURES AND PRINTING INSTRUCTIONS NOTES. SH IDX REV. SH2: RMV PARA 1.4, 1.4.1 AND 1.4.2. 84560(NA)					J. GHER 94-10-06 WHISLER SJ	
E	SH1: APPLICATION BLK; NEXT ASSY ADD 7516250 AND 7517800. USED ON (SYS) ADD 7516100, 7516240 AND 7517800. SH IDX REV. WAS SH1 OF 18. SH6, 7 AND 8: UDTD FIG4, 5 AND 6. ADD SH16. SH17, 18 AND 19 WAS SH16, 17 AND 18 RESP. SH17: TBL1; ADD -14 VAR. 83236(U) USE ALL PARTS IN HOUSE, IN STOCK AND CURRENTLY ON ORDER (EFFECTIVITY IS NEXT BUY).					T. EUROPA 94-12-14 J. GHER WHISLER SJ	
F	SH1: SH IDX REV. WAS SH1 OF 19. ADD SH 17. SH18, 19 AND 20 WAS SH17, 18 AND 19 RESP. SH18: TBL1; ADD -15 VAR. 83246(NA)					T. EUROPA 95-03-17 J. GHER WHISLER SJ	
G	SH1: SH IDX REV. SH 16 AND 17: UDTD PLATE MARKING. 83359(M) AFFECTS PARTS IN HOUSE AND IN STOCK.					T. EUROPA 95-03-17 J. GHER WHISLER SJ	
H	SH1: SH IDX REV. SH16: UDTD FIG 14. SH17: UDTD FIG 15. 89181(U) USE ALL PARTS IN HOUSE, IN STOCK AND CURRENTLY ON ORDER. (EFFECTIVITY IS NEXT BUY).					T. EUROPA 95-07-26 J. GHER WHISLER CW	
J	SH1: SH IDX REV. C.O. NOT EXECUTED. 90980(NA)					N. CROWELL 96-03-20 WHISLER RR	
Honeywell		SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.		SIZE	CAGE CODE	DRAWING NO.	REV
				A	55939	7021570	AR
		SCALE	NONE	UNIT WT	SHEET		73

DWG NO. 7021570		SH 74			
REVISIONS					
REV	DESCRIPTION				APPROVED BY/DATE (YY-MM-DD)
K	SH1: WAS SH 1 OF 20. SH IDX REV. ADD NEW SH 18, 19, 20 AND 22. SH21, 23 AND 24 WAS SH 18, 19 AND 20. 91006(NA)				N. CROWELL 96-03-20 WHISLER RR
L	SH1: SH IDX REV. WAS SH1 OF 24. SH20: ADD NEW FIGURE 18. ADD SH21 AND 22; FOR NEW FIG. 19 AND 20. SH23 THRU 26 WAS SH21 THRU 24 93861(NA)				B. BUNCH 95-05-13 N. CROWELL WHISLER LH
M	SH1: SH IDX REV. WAS SH1 OF 26. ADD NEW SH20 FIGURE 18. SH21 THRU 27 WAS SH20 THRU 26; FIGURE 19, 20 AND 21 WAS FIGURE 18, 19, AND 20. SH24: TBL 2 ADD NEW FIG 18; FIGURE 19, 20 AND 21 WAS FIGURE 18, 19, AND 20. ADD NEW SH28. 94150(NA)				R. MAY 96-09-06 N. CROWELL LH
N	SH1: SH IDX REV. SH2: PARA 1.1 WAS MATERIAL --- P7015502. FOR DASH 1XX ADHESIVE --- 7006940, DASH 72 OR 73 FOR DASH 2XX. ADD PARA 1.4. SH26: SCE OF SPLY WAS PER P7015502. 94612(NA)				N. CROWELL 96-12-18 LH
P	SH1: SH IDX REV. WAS SH1 OF 28. ADD NEW SH24. SH25 THRU 29 WAS SH24 THRU 28 RESP. SH25: TBL1; ADD -22 VAR. 95941(NA)				N. CROWELL 97-02-07 K. JELLISON LH
R	SH1: SH IDX REV. SH24: UDTD FIGURE 22. 96384(M) AFFECTS KITS NOT YET IN-BUILD AND ASSEMBLIES IN BUILD, IN STOCK, IN RELATED ASSEMBLIES LISTED ON C.O., AND IN ASSEMBLIES THRU END ITEM LEVEL, EXCLUDING SALES STOCK.				N. CROWELL 97-02-07 K. JELLISON LH
T	SH1: APPL BLOCK; ADD 7516251. SH IDX REV. WAS SH1 OF 29. SH5, 7, 21, 22, AND 23: UDTD FIGURE 3, 5, 19, 20 AND 21 RESP. ADD NEW SH25 THRU 32. SH33: TBL1; ADD -23 THRU -26, WAS SH25. ADD NEW SH34. SH35 THRU 38 WAS SH26 THRU 29 RESP. 96411(M) AFFECTS PARTS IN HOUSE, IN STOCK, IN KITS NOT YET IN BUILD AND IN RELATED ASSEMBLIES LISTED ON C.O. (EXCLUDING END ITEMS).				N. CROWELL 97-04-18 BEGAY LH
U	SH1: SH IDX REV. SH6 AND 8: UDTD DO- --- X MARKING. 96316(NA)				N. CROWELL 97-06-03 K. MANSOORI BEGAY LH
V	SH1: SH IDX REV. SH25 AND 26: UDTD FIG 23 AND 24. SH33: TBL1; -24 VAR; DESCRIPTION WAS RT-950 HDWR S/W LEVEL B. 46491(M) AFFECTS PARTS IN HOUSE, IN STOCK, IN KITS NOT YET IN BUILD, IN RELATED ASSEMBLIES, AND IN ASSEMBLIES THRU END ITEM LEVEL INCLUDING SALES STOCK.				N. CROWELL 97-08-19 BEGAY LH
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DWG NO. 7021570		SH 75					
REVISIONS							
REV	DESCRIPTION				APPROVED BY/DATE (YY-MM-DD)		
W	SH1: SH IDX REV. SH35: TBL2; ADD VAR -521 THRU -530. 94847(NA)				N.CROWELL 97-08-19 BEGAY LH		
Y	SH1: SH IDX REV. SH25 AND 26: UDTD FIGURE 23 AND 24. 97708(M) AFFECTS ONLY KITS NOT YET IN BUILD.				N. CROWELL 97-08-19 BEGAY LH		
AA	SH1: SH IDX REV. SH27 AND 28: UDTD FIGURE 27 AND 28. 98677(M) AFFECTS PARTS IN HOUSE, IN STOCK, IN KITS NOT YET IN BUILD, IN RELATED ASSEMBLIES, AND IN ASSEMBLIES THRU END ITEM LEVEL EXCLUDING SALES STOCK.				T. EUROPA 98-02-24 BEGAY DM		
AB	SH1: SH IDX REV. SH25 AND 26: UDTD FIGURE 23 AND 24. 98683(M) AFFECTS PARTS IN HOUSE, IN STOCK, IN KITS NOT YET IN BUILD, IN RELATED ASSEMBLIES, AND IN ASSEMBLIES THRU END ITEM LEVEL INCLUDING SALES STOCK.				T. EUROPA 98-02-24 BEGAY DM		
AC	SH 1: SH IDX REV. WAS SH 1 OF 39. ADD SH 33 THRU 39. SH 40 THRU 46 WAS SH 33 THRU 39 RESP. SH 41: TBL 1; ADD -108 THRU -114 VAR. 99396(NA)				B. BUNCH 98-02-24 HAYWOOD CB		
AD	SH1: SH IDX REV. SH27 AND 28: UDTD FIGURE 25 AND 26. 98688(M) AFFECTS PARTS IN HOUSE, IN STOCK, IN KITS NOT YET IN BUILD, IN RELATED ASSEMBLIES THRU END ITEM LEVEL EXCLUDING SALES STOCK.				T. EUROPA 98-06-08 D. BREWER BEGAY DM		
AE	SH1: WAS SH1 OF 46. SH IDX REV. ADD SH40. SH41: TABLE I; ADD -27 VAR. RELOC -101, -102, AND -103 VAR TO SH42. SH41 THRU 47 WAS SH40 THRU 46 RESP. 98700(NA)				T. EUROPA 98-06-08 D. BREWER BEGAY DM		
AF	SH1: WAS SH1 OF 47. SH IDX REV. SH27 AND 28: UDTD FIG 25 AND 26 RESP. ADD SH 40 THRU 56. SH57 AND 58 WAS SH40 AND 41 RESP. SH57: FIGURE 55. 7021570-44 REF WAS FIGURE 38. 702150-27. SH58: TBL1; ADD -27 VAR. ADD SH59; -44 VAR WAS -27 VAR. SH60 THRU 65 WAS 42 THRU 47 RESP. 98703(M) AFFECTS PARTS IN HOUSE, IN STOCK, IN KITS NOT YET IN BUILD, IN RELATED ASSEMBLIES LISTED ON C.O., AND IN ASSEMBLIES THRU END ITEM LEVEL, EXCLUDING SALES STOCK.				T. EUROPA 98-06-08 K. MANSOORI D. BREWER BEGAY DM		
AG	SH1: SH IDX REV. SH27 AND 28: UDTD FIG 25 AND 26 RESP. 98710(M) AFFECTS PARTS IN HOUSE, IN STOCK, IN KITS NOT YET IN BUILD, IN RELATED ASSEMBLIES LISTED ON C.O., AND IN ASSEMBLIES THRU END ITEM LEVEL, EXCLUDING SALES STOCK.				T. EUROPA 98-10-15 HAYWOOD CB		
Honeywell		SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.		SIZE A	CAGE CODE 55939	DRAWING NO. 7021570	REV AR
				SCALE NONE	UNIT WT	SHEET 75	

DWG NO. 7021570		SH 76			
REVISIONS					
REV	DESCRIPTION				APPROVED BY/DATE (YY-MM-DD)
AH	SH1 SH IDX REV. WAS SH1 OF 65. ADD SH62. SH63 THRU 66 WAS SH62 THRU 65 RESP. ADD SH67. 100102(U) USE ALL PARTS IN HOUSE, IN STOCK AND CURRENTLY ON ORDER (EFFECTIVITY IS NEXT BUY).				C. M. COMBS 99-01-14 FORD CB
AJ	SH1: SH IDX REV. WAS SH1 OF 67. ADD SH58 AND 59. SH60 THRU 69 WAS SH58 THRU 67 RESP. SH61: TBL1; ADD -45 AND -46 VAR. ADD SH 70. 101931(NA)				C. PUGH 99-01-14 FORD CB
AK	SH1: SH IDX REV. SH55 AND 56: UDTD FIG 53 AND 54 RESP. 101941(NA) AFFECTS PARTS IN HOUSE AND IN STOCK.				C. PUGH 99-01-14 FORD CB
AL	CONVERTED TO WORD DOC FORMAT. SH1: WAS SH 1 OF 70. SH IDX REV. ADD SH 60 AND SH61. SH62 THRU SH72: WAS SH60 THRU 70. SH63: ADD VAR -47 AND -48. 101955(NA)				12 Aug 99 A. SANTIVASCI F. VOSS
AM	SH1: WAS SH1 OF 71. SH IDX REV. UDTD SH2 THRY SH61. ADD SH62 AND SH63. SH64 THRU SH73 WAS SH62 THRU SH71. SH66: ADD VAR -49 AND -50. 101962(U) USE ALL PARTS IN HOUSE, IN STOCK AND CURRENTLY ON ORDER (EFFECTIVITY IS NEXT BUY).				12 Aug 99 A. SANTIVASCI F. VOSS
AN	SH1: SH IDX REV. SH57: WAS 750-0198. 78164(M) AFFECTS PARTS IN HOUSE AND IN STOCK.				12 Aug 99 A. SANTIVASCI F. VOSS
AP	SH1: WAS SH1 OF 74. SH IDX REV. ADD SH64 AND SH65. SH66 THRU SH75: WAS SH64 THRU SH73. SH67: ADD VAR -51 AND -52. 104382(NA)				12 Aug 99 A. SANTIVASCI F. VOSS
AR	SH1: WAS SH1 OF 75. SH IDX REV. SH66: ADD FIG 63. SH68: ADD VAR -53. 101985(NA)				12 Aug 99 A. SANTIVASCI F. VOSS
Honeywell SEE FIRST SHEET FOR CONTRACT NUMBER. USE OR DISCLOSURE OF INFORMATION ON THIS SHEET IS SUBJECT TO THE RESTRICTIONS ON THE FIRST SHEET OF THIS DOCUMENT.		SIZE A	CAGE CODE 55939	DRAWING NO. 7021570	REV AR
		SCALE NONE	UNIT WT	SHEET 76	