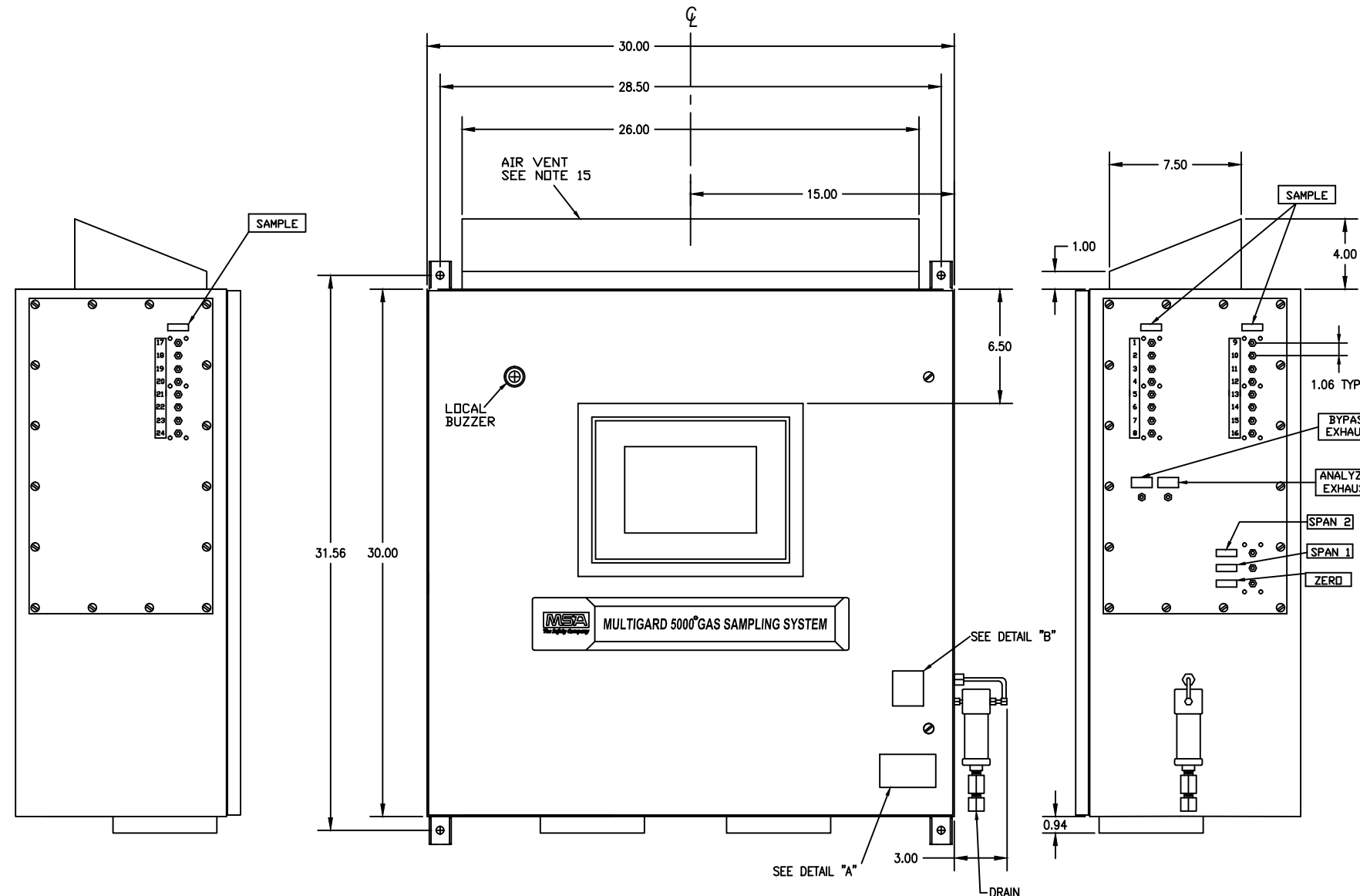


REVISIONS	
①	7-21-17 REVISED ITEM 17 ON PARTS LIST.
F.N.M.	B.L.
②	8-16-17 REVISED PAGE 4 WIRING.
F.N.M.	B.L.
③	8-23-17 REVISED ITEM 4 ON PAGE 2.
F.N.M.	B.L.



NOTES:

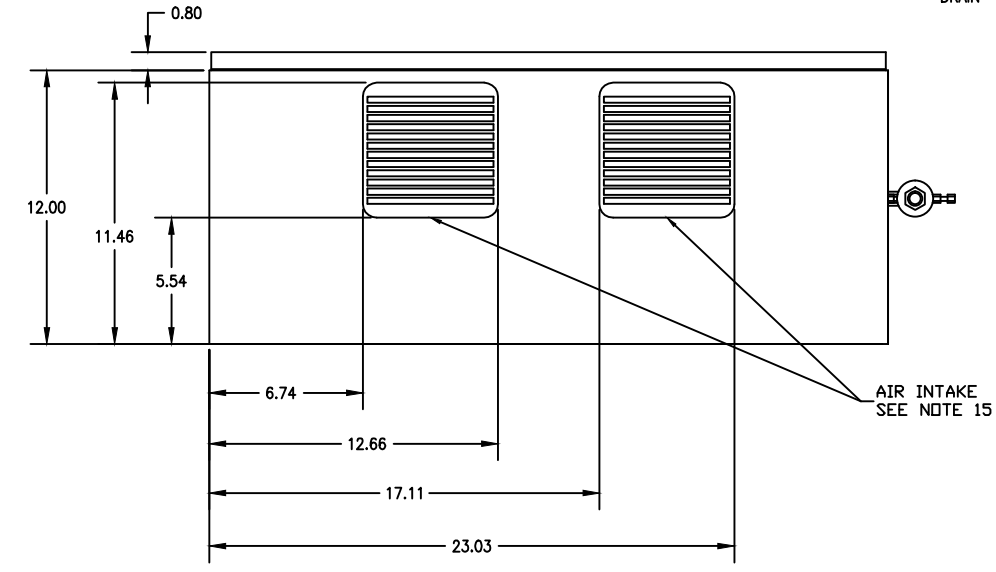
- REFERENCE INSTRUCTION MANUALS: MULTIGARD MANUALS (3103-1001); ULTIMA X SERIES GAS MONITORS (P/N 10036101); ULTIMA/ULTIMA X SERIES CONTROLLER AND CALIBRATOR (P/N 813379); CHEMGARD INFRARED GAS MONITOR (P/N 10031540); CHILLGARD RT REFRIGERANT MONITOR (P/N 814073).
- DIMENSIONS IN INCHES FOR REFERENCE ONLY.
- INDICATES CUSTOMER CONNECTIONS.
- MOUNT ENCLOSURE AT EYE LEVEL.
- NEMA 1 ENCLOSURE.
- DOOR IS HINGED ON THE LEFT SIDE WITH MAX OPENING OF 115" AND A RADIUS OF 29.5".
- INSTRUMENTS WEIGHT IS APPROXIMATE 150 LBS, (68KG).
- AMBIENT TEMPERATURE RANGE: 32° TO 95°F (0° TO 35°C). SUITABLE FOR OUTDOOR USE WITH NO SOLAR HEAT LOAD. INSTALL IN COMPLETE SHADE ONLY. BOTH AMBIENT AND GAS SAMPLE TEMPERATURES ARE TO BE THE SAME. IF MOISTURE IN SAMPLE, KEEP ABOVE FREEZING TEMPERATURES.
- SINGLE PHASE 115 VAC/15 AMPS.
- ALL WIRING #18 AWG UNLESS OTHERWISE NOTED.
- KEEP A.C. CABLES ISOLATED (2 OR MORE INCHES) FROM SENSOR, SIGNAL AND DATA CABLES.
- COMMON RELAY MODULE CONTACTS RATED 250 VAC, 8 AMP RESISTIVE AND 6 AMP INDUCTIVE LOAD.
- COMMON RELAY MODULE WARNING AND ALARM RELAYS MAY BE CONFIGURED AS NORMALLY ENERGIZED OR NORMALLY DE-ENERGIZED. TROUBLE RELAYS ALWAYS NORMALLY ENERGIZED. HORN RELAYS ALWAYS NORMALLY DE-ENERGIZED.
- SAMPLE MANIFOLD JP1 TO JP4 ON PCB 815534, ODD NUMBERED TERMINALS, RED WIRE, EVEN NUMBERED TERMINALS, BLACK WIRE.
- DO NOT RESTRICT AIR FLOW TO AIR INTAKE OR FROM AIR VENT. REPLACEMENT FILTER, PART NUMBER PFF2000.
- ALL FITTINGS ARE BRASS OR NYLON WITH BUNA-N O-RING SEALS. ALL MANIFOLDS ARE ALUMINUM OR BLACK ANODIZED ALUMINUM. SAMPLE/BYPASS VALVES WETTED PARTS ARE CELCON, VITON, VALOX AND STAINLESS STEEL. CALIBRATION MANIFOLD VALVES ARE BRASS WITH BUNA-N O-RINGS SEALS. FLOWMETER BODY IS ACRYLIC WITH STAINLESS STEEL VALVE AND BUNA-N O-RINGS SEALS. FLOW SWITCHES ARE STAINLESS STEEL.
- ALL SAMPLE, EXHAUST AND CALIBRATION GAS PORTS 1/8 NPTF, 1.06" (26.9) CTR. TO CTR. SPACING BETWEEN ADJACENT PORTS/DRAIN PORT, 1/4 NTPF.
- KEEP SAMPLE PRESSURE BETWEEN -1 TO +1 PSIG..
- EXHAUST TO A SAFE AREA. DO NOT COMBINE ANY EXHAUST LINES. INCREASE SYSTEM EXHAUST LINE DIAMETER A MINIMUM OF 1/8" O.D. SIZE PER 20 FT. OF EXHAUST LINE LENGTH.
- 1/4 O.D., 3/16 I.D. SAMPLE LINE TUBING. LINE LENGTH NOT TO EXCEED 500 FT. TUBING NOT SUPPLIED.
- TO SET FLOW, PLACE UNIT IN MANUAL MODE AND STEP THROUGH TO SAMPLE LINE WITH LONGEST LENGTH OF TUBING/LOWEST FLOW ON THE FLOWMETER. SET TO 3 CFH.
- ADJUST CALIBRATION GAS REGULATOR OUTPUT PRESSURE'S TO OBTAIN DESIRED ANALYZER FLOW (APPROX. 2 PSI).
- OPTIONAL REMOTE HORN ACKNOWLEDGE SWITCH: USE NORMALLY OPEN SWITCH AND 2 CONDUCTOR CABLE, #18AWG. DO NOT EXCEED 250FT.
- FACTORY USE ONLY: WIRE ADDED ON 24 POINT, 32 POINT AND DUAL 16 POINT SYSTEMS ONLY.
- CAUTION** COMPONENTS IN THIS SYSTEM ARE ELECTROSTATIC DISCHARGE SENSITIVE (ESDS). USE PROPER PERSONAL GROUNDING PROCEDURES WHEN REMOVING, HANDLING OR MAKING ADJUSTMENTS TO THE ELECTRONIC MODULES AND CIRCUIT BOARDS IN THIS SYSTEM. THESE PROCEDURES MUST ALSO BE FOLLOWED WHEN WIRE CONNECTIONS ARE MADE AT TERMINAL STRIPS THAT ULTIMATELY CONNECT TO MODULES/CIRCUIT BOARDS. FAILURE TO FOLLOW PROPER PROCEDURES MAY RESULT IN DAMAGE TO THE EQUIPMENT.

28

WARNING

- This is a general-purpose (GP) monitor and can be a source of ignition. Install, locate, and operate in an unclassified (non-hazardous) location and in accordance with all applicable codes.
- If sampling from and/or exhausting into a separate hazardous (classified) location, the following apply:
 - Install flashback arrestors between monitor and hazardous (classified) location, to prevent the propagation of a flame front.
 - Internal seals are not gas/vapor tight. If ignition capable gas/vapor enters the monitor, it can create an explosive environment.
 - Prevent ignition capable atmosphere in unclassified (non-hazardous) locations by using ventilation, engineering controls, or other suitable means.
- Read and follow all instruction, warnings, and cautions pertaining to this gas monitor. Failure to follow this warning can cause ignition of explosive environments resulting in death or serious injury.

If you have questions, contact your local manufacturer's representative or MSA at 1-800-MSA-INST or www.msasafety.com



13

DANGER

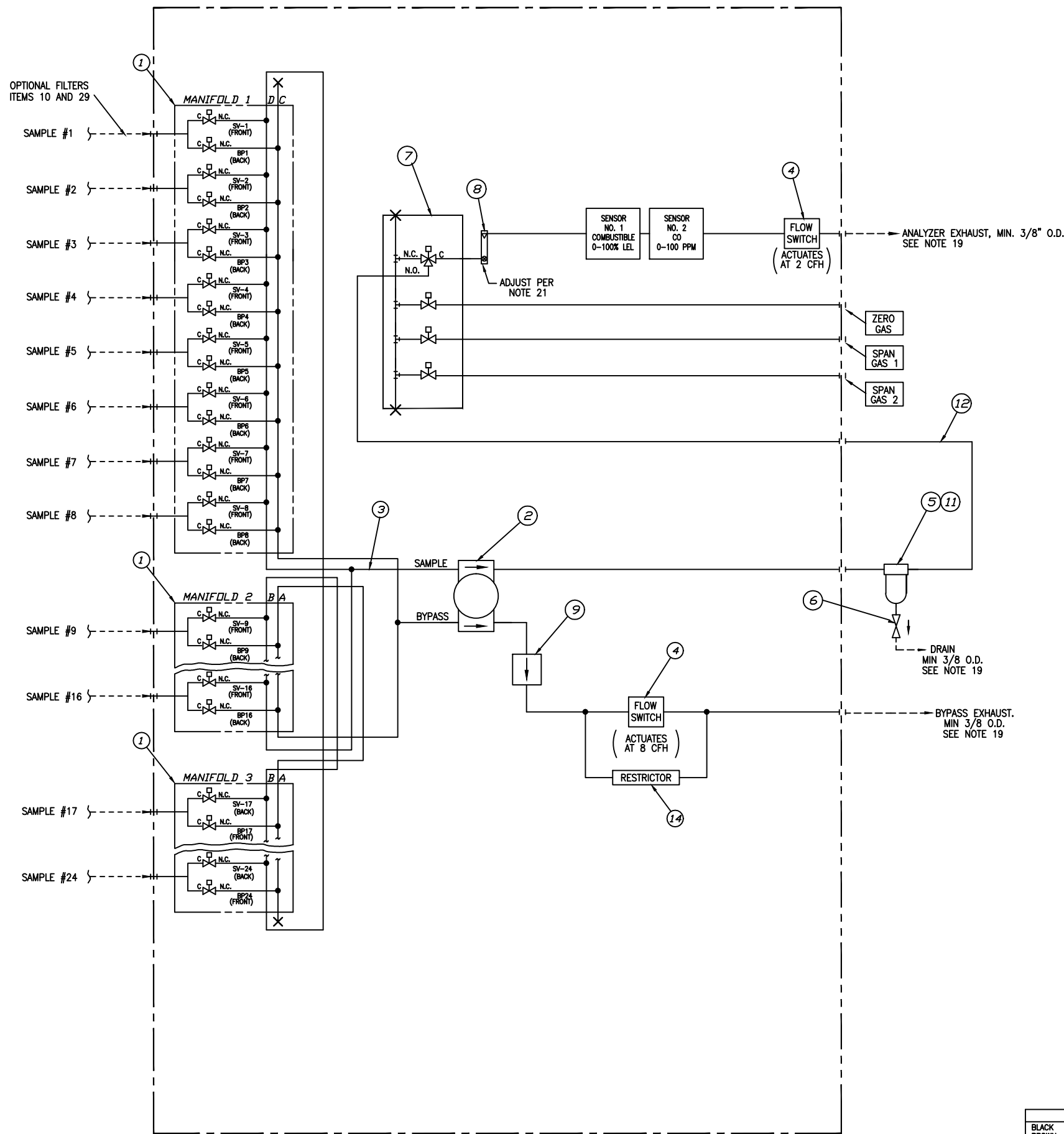
High voltage
Disconnect power
before servicing

DETAIL "B"

COLOR CODE			
BLACK = K	GREEN = G	BROWN = N	BLUE = B
RED = R	VIOLET = V	ORANGE = O	GRAY = A
YELLOW = Y	WHITE = W	PINK = P	TAN = T

AUTHORIZED COUNTRY	MSA MINE SAFETY APPLIANCES CO. PITTSBURGH, PA 15230, USA	THIS DRAWING IS THE PROPERTY OF MSA AND IS MADE AVAILABLE TO YOU IN CONFIDENCE AND SUBJECT TO THE FOLLOWING: NO PERMISSION IS GRANTED TO PUBLISH, USE, REPRODUCE, TRANSMIT OR DISCLOSE THIS DRAWING, OR ANY INFORMATION CONTAINED THEREIN TO OTHERS WITHOUT THE PRIOR WRITTEN CONSENT OF MSA EXCEPT FOR THE MANUFACTURE OF ARTICLES FOR MSA. SCHUTZMERK NACH DIN 34 BEACHTEN. MSA AUER GmbH.	DO NOT SCALE DWG.
MSA STANDARD SHOP PRACTICES APPLY		JOB NO. 400913267/10187292	APPROVAL AGENCY CODE: NO NIOSH ATTR. DOC.:
CRITICAL	MAJOR A	MAJOR B	100% INSPECTION
CODE SYMBOLS	MINOR (NO MARK)	DATE	
		F.N.M. 7-17-17	
		CHECKED BY	
		B.L. 7-19-17	
TOLERANCES UNLESS OTHERWISE SPECIFIED		QUALITY ASSURANCE	
FRACTIONAL	± 1/64	MANUFACTURING	
2 PL. DEC.	± 0.01		
3 PL. DEC.	± 0.005		
ANGULAR	± 1 deg.		
SEE MSA STANDARD SHOP PRACTICES FOR DRILLED HOLE TOLERANCES			
		DOCUMENT NO.	
		DSK 3103-1045	
		CADD REF: 3103-1045-R03-P01	SCALE: NTS
			SHEET 1 OF 4

MULTIGARD 5000,
24 POINT SYSTEM,
LEL, CO

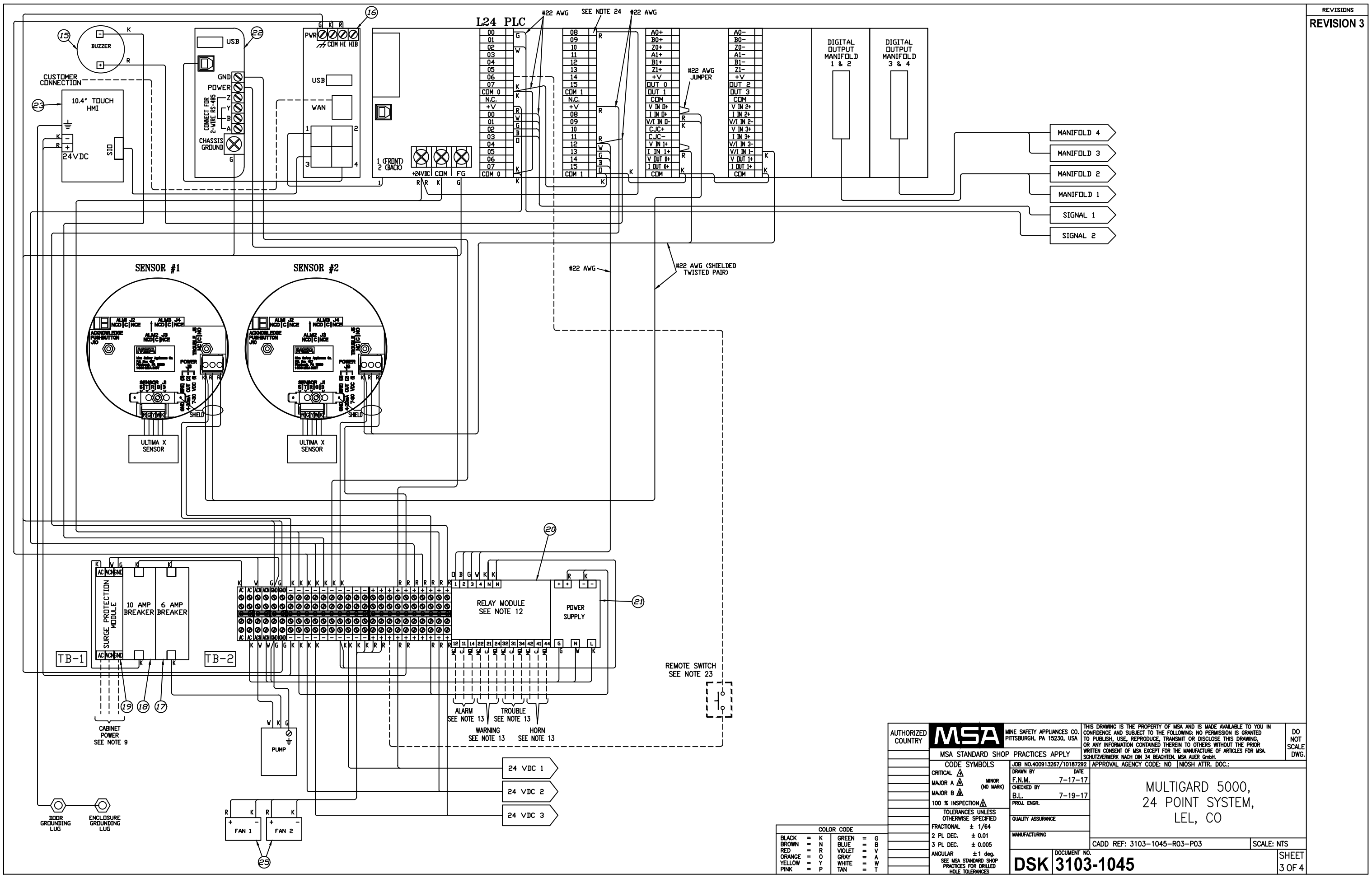


PARTS LIST				REVISIONS
ITEM NO.	MAT'L MASTER NO. DOCUMENT NO.	REQ'D	DESCRIPTION	REVISION 3
1	815614	3	MANIFOLD ASSEMBLY	
2	10185040	1	PUMP, DUAL HEAD	
3	29207	10FT.	TUBING, 1/4 O.D.	
4	10186549	2	SWITCH, FLOW	
5	CP30540574	1	FILTER, COALESCING	
6	10019371	1	VALVE, RELIEF, 2 PSI	
7	10176085	1	MANIFOLD, CALIBRATION	
8	453895	1	FLOWMETER, RANGE 0.5-5 CFH	
9	10011857	1	FILTER, DISPOSABLE	
10	CSK3103-329	24	KIT, FILTER, END OF LINE	
11	CP30540575	1	ELEMENT, FILTER	
12		BIN.	1/4" O.D. TUBING, S.S.	
13	10179632	1	LABEL, DANGER	
14	10015405	1	RESTRICTOR, ORIFICE, 0.06, STN. STL.	
15	637123	1	BUZZER	
16	10179209	1	ROUTER, ETHERNET IP	
17	CP32110047	1	CIRCUIT BREAKER, 6A	
18	CP32110048	1	CIRCUIT BREAKER, 10A	
19	812400	1	MODULE, SURGE PROTECTOR	
20	638441	1	RELAY MODULE, COMMON	
21	10176040	1	POWER SUPPLY, 240W	
22	10176037	1	GATEWAY	
23	10176046	1	HMI, 10.4 INCH	
24	815534	3	PCBA, SAMPLE MANIFOLD	
25	10176034	2	FAN, 24 VDC	
26	631044	4	DIODE	
27				
28	CP30900661	1	LABEL, WARNING	
29	10091646	24	KIT, FILTER, IN-LINE	

- TO REPLACE FILTER OR ABSORBER, ORDER 2 SETS OF FITTINGS, MSA P/N'S 62839, 62842 AND 62845.
- △ OPTIONAL KIT, KIT INCLUDES FILTER, AND FITTINGS FOR 1/4 O.D. OR 3/8 O.D. TUBING, AND REPLACEMENT FILTER P/N 10018819
- ▲ OPTIONAL KIT, KIT INCLUDES FILTER, AND FITTINGS FOR 1/4 O.D. OR 3/8 O.D. TUBING, AND REPLACEMENT FILTER P/N 10011857

COLOR CODE			
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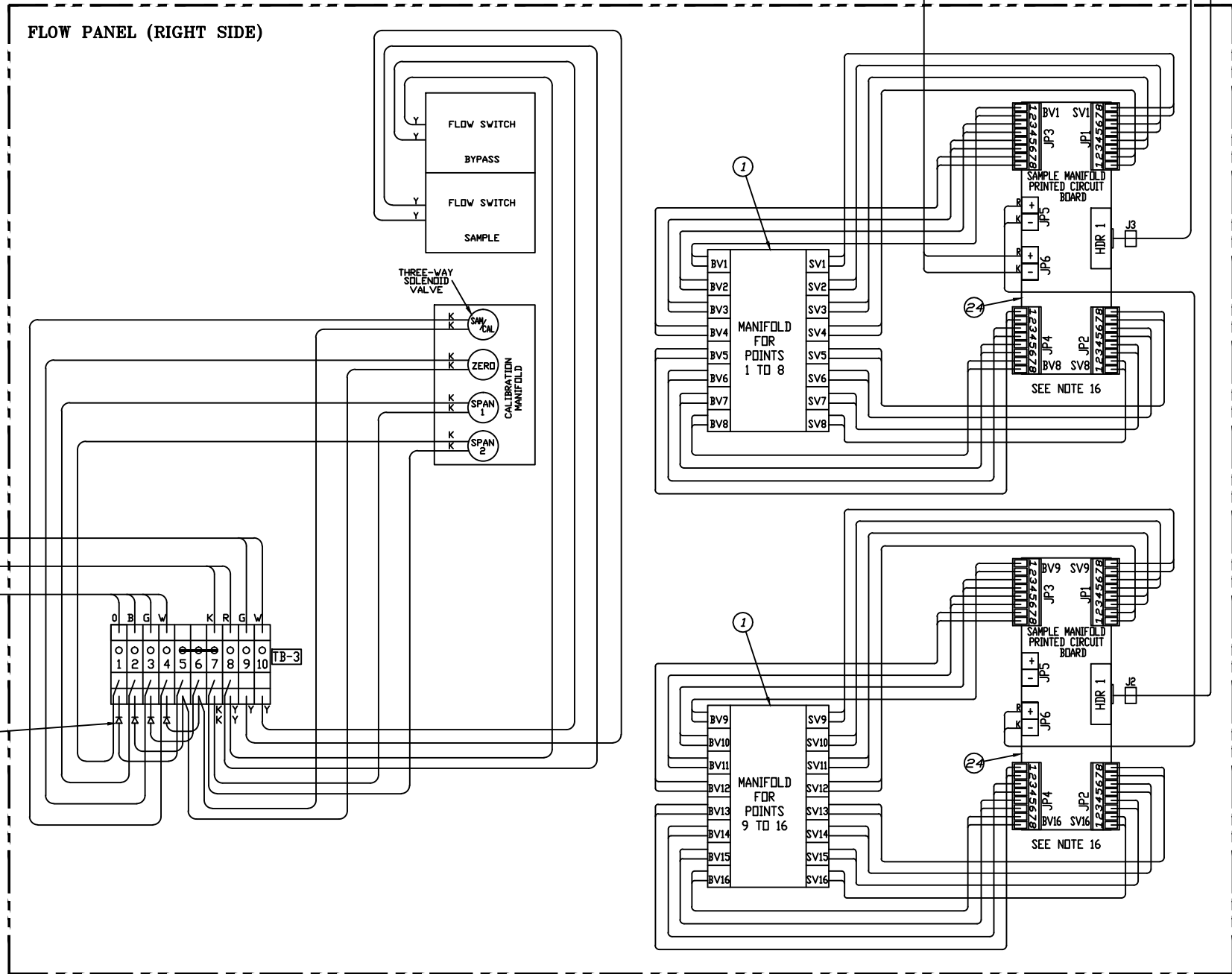
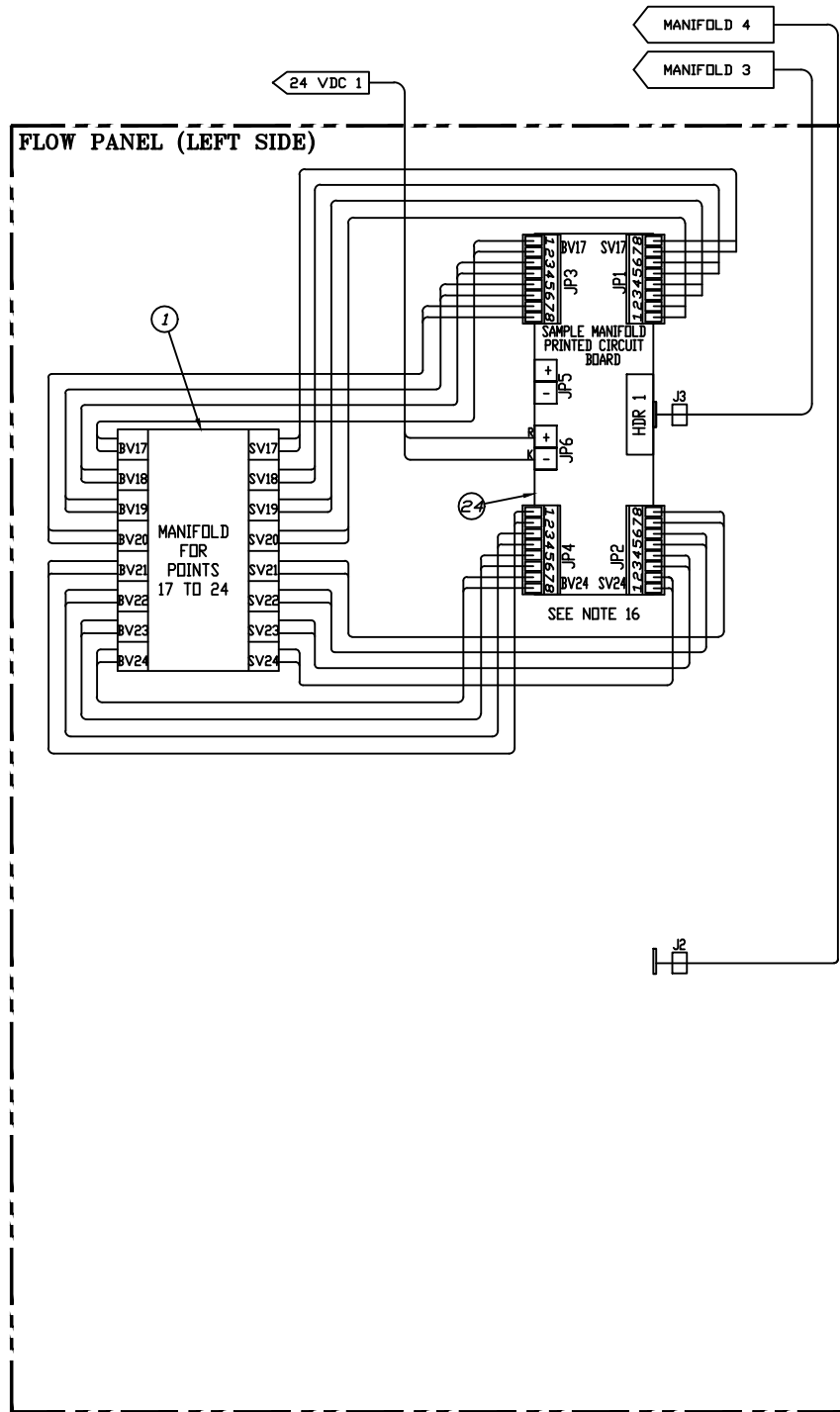
AUTHORIZED COUNTRY	MSA MINE SAFETY APPLIANCES CO. PITTSBURGH, PA 15230, USA	THIS DRAWING IS THE PROPERTY OF MSA AND IS MADE AVAILABLE TO YOU IN CONFIDENCE AND SUBJECT TO THE FOLLOWING: NO PERMISSION IS GRANTED TO PUBLISH, USE, REPRODUCE, TRANSMIT OR DISCLOSE THIS DRAWING, OR ANY INFORMATION CONTAINED THEREIN TO OTHERS WITHOUT THE PRIOR WRITTEN CONSENT OF MSA EXCEPT FOR THE MANUFACTURE OF ARTICLES FOR MSA. SCHUTZVERMERK NACH DIN 34 BEACHTEN. MSA AUER GmbH.	DO NOT SCALE DWG.
MSA STANDARD SHOP PRACTICES APPLY		APPROVAL AGENCY CODE: NO NIOSH ATTR. DOC.:	
CODE SYMBOLS	JOB NO.400913267/10187292	DATE	
CRITICAL △		7-17-17	
MAJOR A △	MINOR (NO MARK)	F.N.M.	
MAJOR B △		7-19-17	
100% INSPECTION △		CHECKED BY	
TOLERANCES UNLESS OTHERWISE SPECIFIED		B.L.	
FRACTIONAL ± 1/64		PROJ. ENGR.	
2 PL. DEC. ± 0.01		QUALITY ASSURANCE	
3 PL. DEC. ± 0.005		MANUFACTURING	
ANGULAR ± 1 deg.			
SEE MSA STANDARD SHOP PRACTICES FOR DRILLED HOLE TOLERANCES			
MULTIGARD 5000, 24 POINT SYSTEM, LEL, CO		CADD REF: 3103-1045-R03-P02	SCALE: NTS
DOCUMENT NO. DSK 3103-1045			SHEET 2 OF 4



COLOR CODE

BLACK = K	GREEN = G
BROWN = N	BLUE = B
RED = R	VIOLET = V
ORANGE = O	GRAY = A
YELLOW = Y	WHITE = W
PINK = P	TAN = T

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CODE SYMBOLS	CRITICAL Δ	MINOR (NO MARK)	
MAJOR A Δ	F.N.M.	7-17-17	
MAJOR B Δ	B.L.	7-19-17	
100% INSPECTION Δ	PROJ. ENGR.		
TOLERANCES UNLESS OTHERWISE SPECIFIED		QUALITY ASSURANCE	
FRACTIONAL $\pm 1/64$	MANUFACTURING		
2 PL DEC. ± 0.01	CADD REF: 3103-1045-R03-P03		
3 PL DEC. ± 0.005	SCALE: NTS		
ANGULAR ± 1 deg.	DOCUMENT NO.		
SEE MSA STANDARD SHOP PRACTICES FOR DRILLED HOLE TOLERANCES	DSK 3103-1045		
MULTIGARD 5000, 24 POINT SYSTEM, LEL, CO			SHEET 3 OF 4



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100% INSPECTION Δ	TOLERANCES UNLESS OTHERWISE SPECIFIED	FRACTIONAL $\pm 1/64$	2 PL. DEC. ± 0.01
		3 PL. DEC. ± 0.005	ANGULAR ± 1 deg.
		SEE MSA STANDARD SHOP PRACTICES FOR DRILLED HOLE TOLERANCES	
DRAWN BY F.N.M. 7-17-17		DATE	
CHECKED BY B.L. 7-19-17		DATE	
PRGJ. ENGR.		QUALITY ASSURANCE	
MANUFACTURING		MANUFACTURING	
CADD REF: 3103-1045-R03-P04		SCALE: NTS	
DOCUMENT NO. DSK 3103-1045		SHEET 4 OF 4	

MULTIGARD 5000,
24 POINT SYSTEM,
LEL, CO