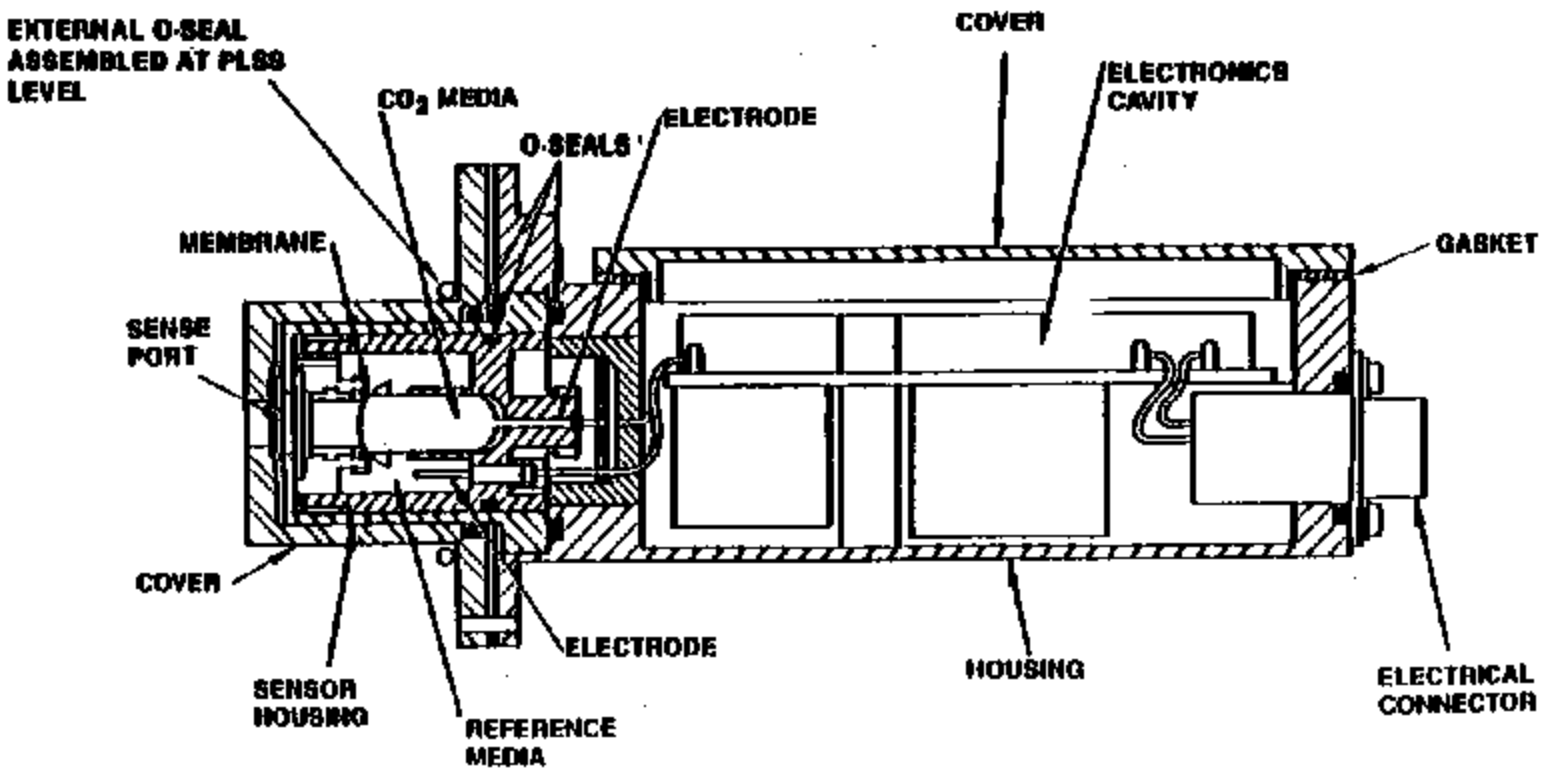
12/24/94 SUPERSEDES 12/24/91 ANALYST:

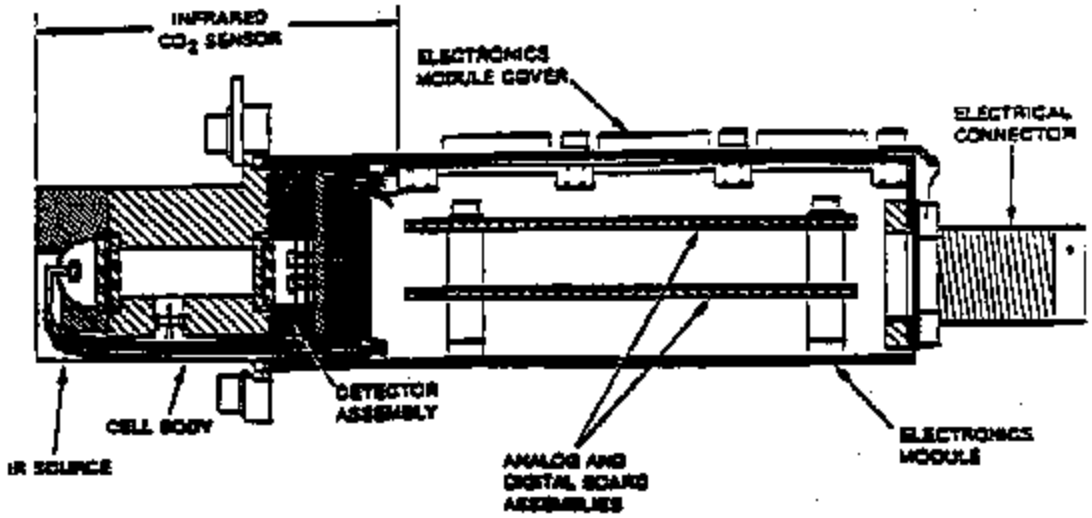
NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
CHECK VALVE/VENT FLOW SENSOR, ITEM 121 --- SV771836-29 (1)	2/1R	121FM05: External leakage, gas. CAUSE: Seal failure.	END ITEM: Suit gas leakage to ambient. GFE INTERFACE: Excessive consumption of the primary oxygen supply. The SOP is automatically activated during EVA if the suit pressure drops to 3.33 psid. MISSION: Terminate EVA. Loss of one EMU. CREW/VEHICLE: None for single failure. Possible loss of crewman with loss of SOP.	A. Design - The design of the elastomeric face and radial O-ring seals utilizes materials and dimensions which ensure sealing is achieved through elastomer compressed between parallel surfaces and restrained from extrusion. The connector is a standard hemetically sealed device in which the electrical connector terminals are sealed by glass encapsulation. B. Test - Component Acceptance Test - The item is proof pressure tested at 8.25-8.75 psig for 5 minutes minimum. Following proof pressure the item is externally leakage tested 5.5 - 5.7 psig GH2 for 5 minutes minimum. There shall be no bubbles in a 5 minute period. CEI PDA Test - The vent loop is proof pressure tested at 8.25 - 8.45 psig for 5 minutes minimum. Sequentially total system leakage is verified per ventilation loop leakage testing. The vent loop is pressured at ports T2, T3, and T11 to 18.9 - 19.1 psia with GO2, leakage shall not exceed 4.66 scc/min O2. Certification Test - The item completed 3,655 flow and 1,983 check cycles which fulfilled the 15 year requirement during 3/85. No engineering changes have been incorporated since this time. C. Inspection - All details, gases and test facilities are cleaned and inspected to MIL-STD-1330 EMSOA to preclude contamination clogging. Details, including the O-ring, O-ring grooves, and sealing surfaces, are 100% inspected per drawing dimensions and surface finish characteristics. Details are manufactured from material with certified physical and chemical properties. D. Failure History - H-EMU-121-0002 (5-3-84) - External leakage due to a slight indentation crossing the seal parting line added external leakage test to IPI.

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
	2/1R	121FM05:		H-EMU-100--601 (5/14/90) - A breakthrough hole was discovered in the aluminum valve module housing from the vent loop to ambient at the drainport "H" housing wall. Investigation revealed an existing thin wall housing bore was overstressed during drainport "H" removal/installation. The thin wall condition (.011 inch) was caused by a drawing error corrected by EC 42806-771 (7/19/85). Existing bores will be illuminated and inspected before each flight during preflight drainport removal and draining. E. Ground Turnaround - Tested per FEMU-R-001, See Structural and Leakage. F. Operational Use - Crew Response - Trouble shoot problem, if no success, consider EMU 3 if available. EMU no go for EVA. EVA: When CWS data confirms an accelerated primary O2 use rate, terminate EVA. If CWS data confirms loss of suit pressure regulation coupled with an accelerated primary O2 use rate, abort EVA. Training - Standard EMU training covers this failure mode. Operational Considerations - Flight rules define go/no go criteria related to EMU suit pressure regulation. Flight rules require termination of EVA upon activation of SOP. EVA checklist and FDF procedures verify hardware integrity and systems operational status prior to EVA. Real time Data System allows ground monitoring of EMU systems.

ITEM 122
CO_2 TRANSDUCER

P/N SV767798 OR P/N SV809145

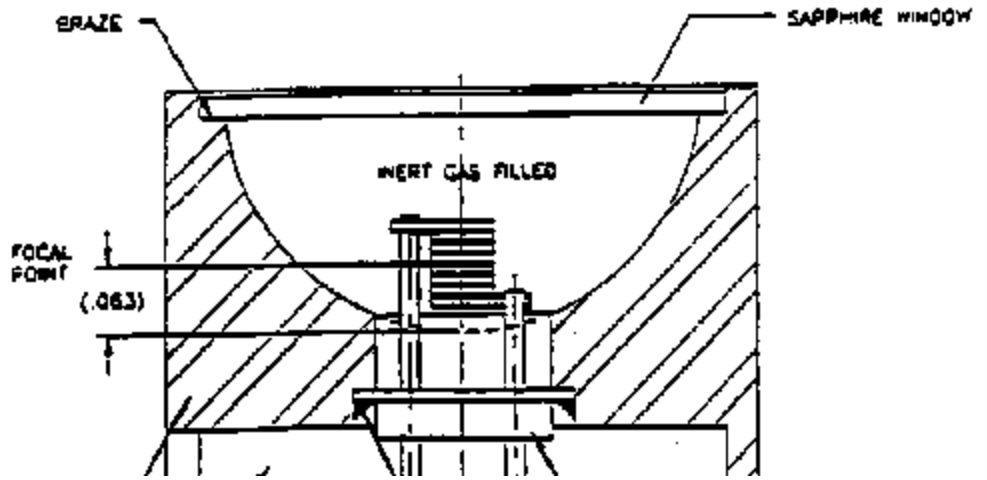


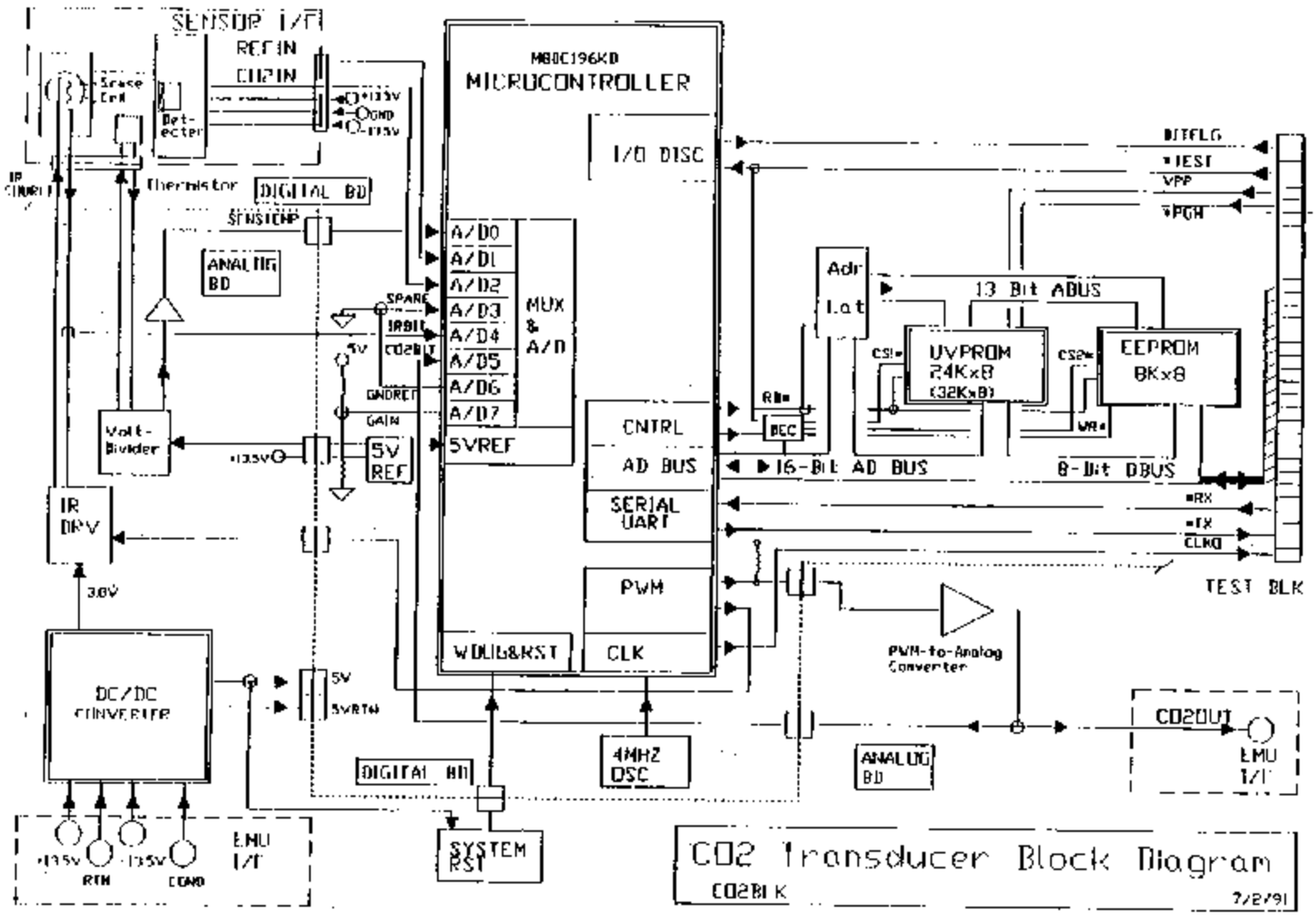


IR CO_2 TRANSDUCER

P/N SV809286

ITEM 122




SENSOR I/F
REF IN
CO2IN
Space Cell
Detecter
+13.5V
GND
-13.5V
IR DRIVE
Thermistor
DIGITAL BD
SENSTEMP
ANALOG BD
MBBC196KB
MICROCONTROLLER
I/O DISC
A/D0
A/D1
A/D2
A/D3
A/D4
A/D5
A/D6
A/D7
MUX & A/D
SPARE
IRBIT
CO2BIT
5V
GNDREF
GAIN
5VREF
Volt-Divider
+13.5V
5V REF
IR DRV
30V
DC/DC CONVERTER
5V
5VRTN
CNTRL
AD BUS
SERIAL UART
PWM
WDTIB&RST
CLK
4MHZ OSC
DIGITAL BD
SYSTEM RST
+13.5V
-13.5V
RTN
COMD
EMU I/F
BITFLG
*TEST
VPP
*PGM
Adr Lat
13 Bit ABUS
CS1*
UVPROM 24Kx8 (32Kx8)
CS2*
EEPROM 8Kx8
WR*
RD*
REC
16-Bit AD BUS
8-Bit DBUS
*RX
*TX
CLKO
TEST BLK
PWM-to-Analog Converter
ANALOG BD
CO2OUT
EMU I/F
CO2 Transducer Block Diagram
CO2BLK
7/2/91