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**OPTIONS FOR OV-105  
WASTE COLLECTOR SUBSYSTEM**

ERB	3-24-88
PMR	4-6-88
TSR	<del>4-8-88</del>
CCB	<u>5-24-88</u>

MCR 12738 *R1*  
PCIN *R76155*  
WBS 1.1.4.18  
CAR # N/A

**PRESENTED BY  
M. J. FULLER**

## **BASELINE DEFINITION IS REQUIRED**

### **BACKGROUND**

- o OV-105 CONTRACT CALLS FOR A WCS OF THE PRESENT DESIGN IE; ALL DEFINED IMPROVEMENTS
- o HAMILTON STANDARD MANAGEMENT SERVICES IS THE PROPOSED SUBCONTRACTOR
- o HAMILTON STANDARD (A SEPARATE DIVISION) HAS SUBMITTED A PROPOSAL FOR AN OV-105 WASTE COLLECTION SUBSYSTEM DERIVED FROM SPACE STATION PROTOTYPE
- o TWO DEVELOPEMENT/DEMONSTRATION UNITS HAVE BEEN CONSTRUCTED FOR SPACE STATION
- o NASA JSC RELEASED TWX NO. VA-87-135 REQUESTING INFORMATION RE: OV-105 SCHEDULE AND NEED DATES
- o STUDY OPTIONS FOR IMPROVING OPERATIONS
- o CONSIDER SPACE STATION DESIGN OPTIONS
- o OV-105 SCHEDULE AND DATES

242-5

## **IMPROVEMENTS AND ADVANTAGES OF THE SPACE STATION DERIVATIVE**

242-8

### **o FAN/SEP**

- o LOWER SPEED SEPARATOR TO REDUCE URINE FOAMING**
- o HIGHER CAPACITY DRUM TO PREVENT FLOODING BY SLUG FLOW**

### **o FECAL COLLECTION**

- o INCREASED AIRFLOW TO SIMPLIFY USE**
- o INCREASED OPENING SIZE TO SIMPLIFY USE**

### **o TURNAROUND**

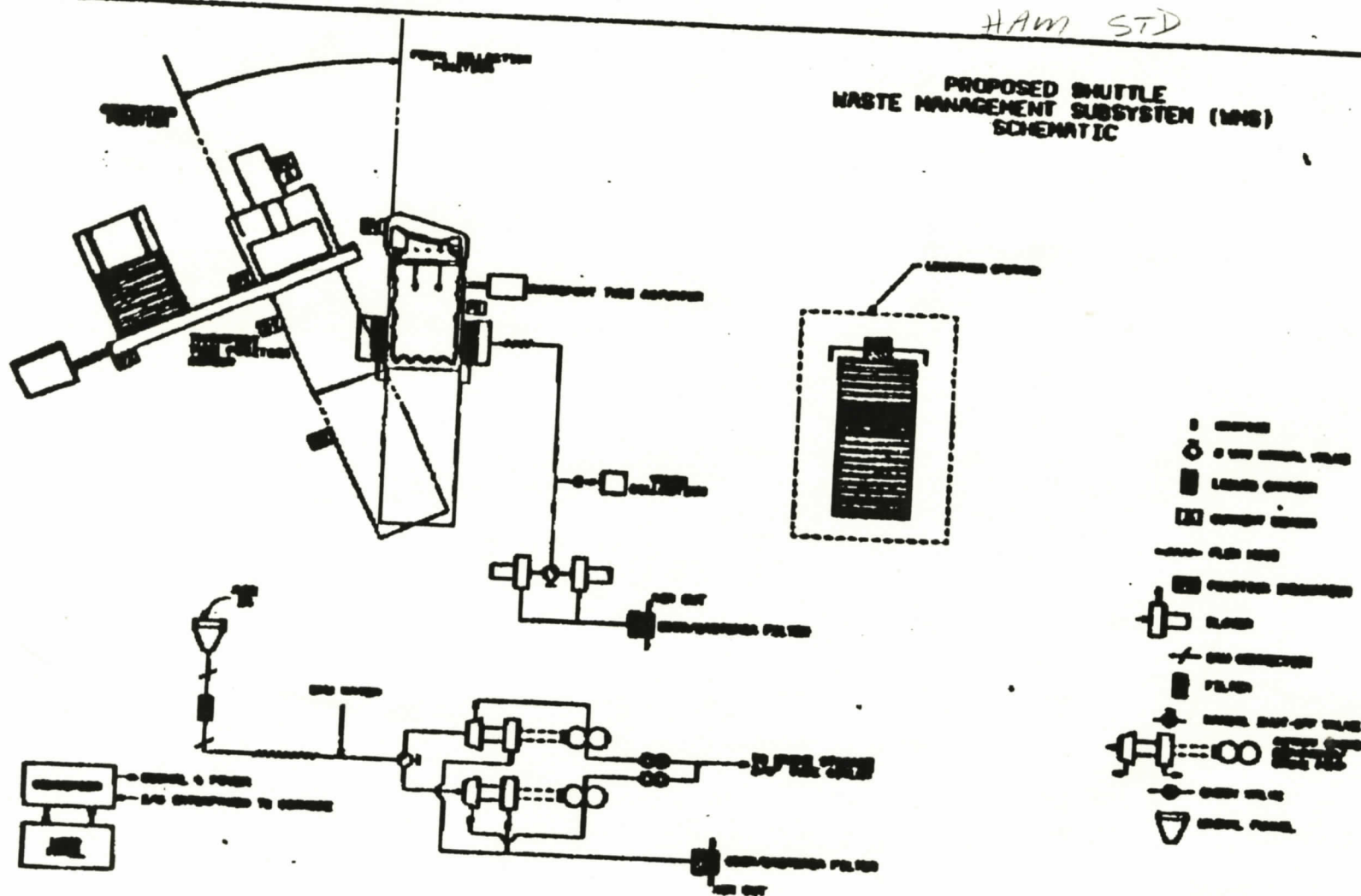
- o UNIT SERVICED IN VEHICLE FOR GREATLY REDUCED TURNAROUND TIME**

### **o MANNED SPACE PROGRAM**

- o DEVELOPS AND TESTS SPACE STATION CONCEPT**
- o SUPPORTS EXTENDED DURATION ORBITER MISSION REQUIREMENT**

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## PROPOSED WCS SCHEMATIC



**LEGEND**

RECORDED 20, 1967

## HAM STD

**PROPOSED SHUTTLE  
WASTE MANAGEMENT SUBSYSTEM (WMS)  
SCHEMATIC**

5-67-6

**METHOD OF OPERATION - SPACE STATION DERIVATIVE**

**o FECAL COLLECTION**

FECAL MATTER COLLECTED BY AIRFLOW  
TRANSPORT TUBE ROTATES TO COMPACTION POSITION  
LID IS POSITIONED OVER WASTE BAG  
COMPACTOR FORCES LID AND WASTE BAG INTO WASTE CAN  
COMPACTOR RETRACTS AND CAN ROTATES TO USE POSITION  
USER INSTALL NEW BAG FOR NEXT USAGE

**o URINE COLLECTION**

COLLECTED BY AIRFLOW  
SEPARATED BY FAN SEPARATOR  
PUMPED AT 2 PSI TO URINE PUMP  
PUMPED AT WASTE WATER SYSTEM PRESSURE INTO WASTE  
TANK BY URINE PUMP

**o AIR RETURN**

SEPARATE ODOR/BACTERIA FILTERS FOR URINE AND FECAL  
SYSTEMS

242-10

**DELTA FUNDS ARE REQUIRED**

242-18

	<b>NEW DESIGN</b>	<b>EXISTING DESIGN</b>	<b>DELTA COST</b>
<b>MATERIAL COSTS</b>	<b>\$ 6.7 M</b>	<b>4.0 M</b>	<b>2.7 M</b>
<b>ENGINEERING COSTS</b>	<b>\$ .85</b>	<b>.19 M</b>	<b>.66 M</b>
			<b>-----</b>
			<b>3.3 M</b>

RESPONSES TO TSR REQUESTS

COST FOR NASA REQUESTED DTO FLIGHT TEST

\$310K

- o URINAL ONLY
- o HAMILTON STANDARD CONCEPT
- o 17 MONTHS REQUIRED FOR DELIVERY (STS-35)