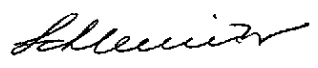
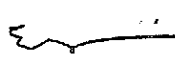



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15. Remarks <i>Trabalho apresentado ao pessoal do INPE e da NASA nos dias 12, 13 e 14 de março de 1984, em São José dos Campos, com o propósito de iniciarem entendimentos conjuntos que deverão levar à implementação do "Brazilian Remote Sensing Experiment - BRESEX".</i>			

RESUMO

ESTE RELATÓRIO DOCUMENTA A PARTE DA MATÉRIA RELATIVA AO SUBSISTEMA DE SUPERVISÃO DE BORDO QUE FOI APRESENTADA E CONSIDERADA NAS CONVERSACIONES LEVADAS A EFEITO ENTRE O PESSOAL DO INPE E DA NASA, NOS DIAS 12,13 E 14 DE MARÇO DE 1984, EM SÃO JOSÉ DOS CAMPOS, COM O PROPÓSITO DE INICIAR ENTENDIMENTOS CONJUNTOS QUE DEVERÃO LEVAR À IMPLEMENTAÇÃO DO "BRAZILIAN REMOTE SENSING EXPERIMENT - BRESEX". O EXPERIMENTO BRESEX DEVE CONSTAR, BASICAMENTE, DE UMA CÂMARA MULTIESPECTRAL DE OBSERVAÇÃO DA TERRA, A SER TESTADA EM UM DOS FUTUROS VÔOS DO "SPACE SHUTTLE", DE ACORDO COM PROGRAMA A SER EXECUTADO PELA NASA EM COLABORAÇÃO COM O INPE.

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CUS ANTONIUS A. SIQUEIRA AND PAULO CAMILLI FOR THE DATA
FURNISHED IN RELATION TO THE OTHER BRESEX SUBSYSTEMS AND
THE SPACE SHUTTLE AVIONICS, RESPECTIVELY.

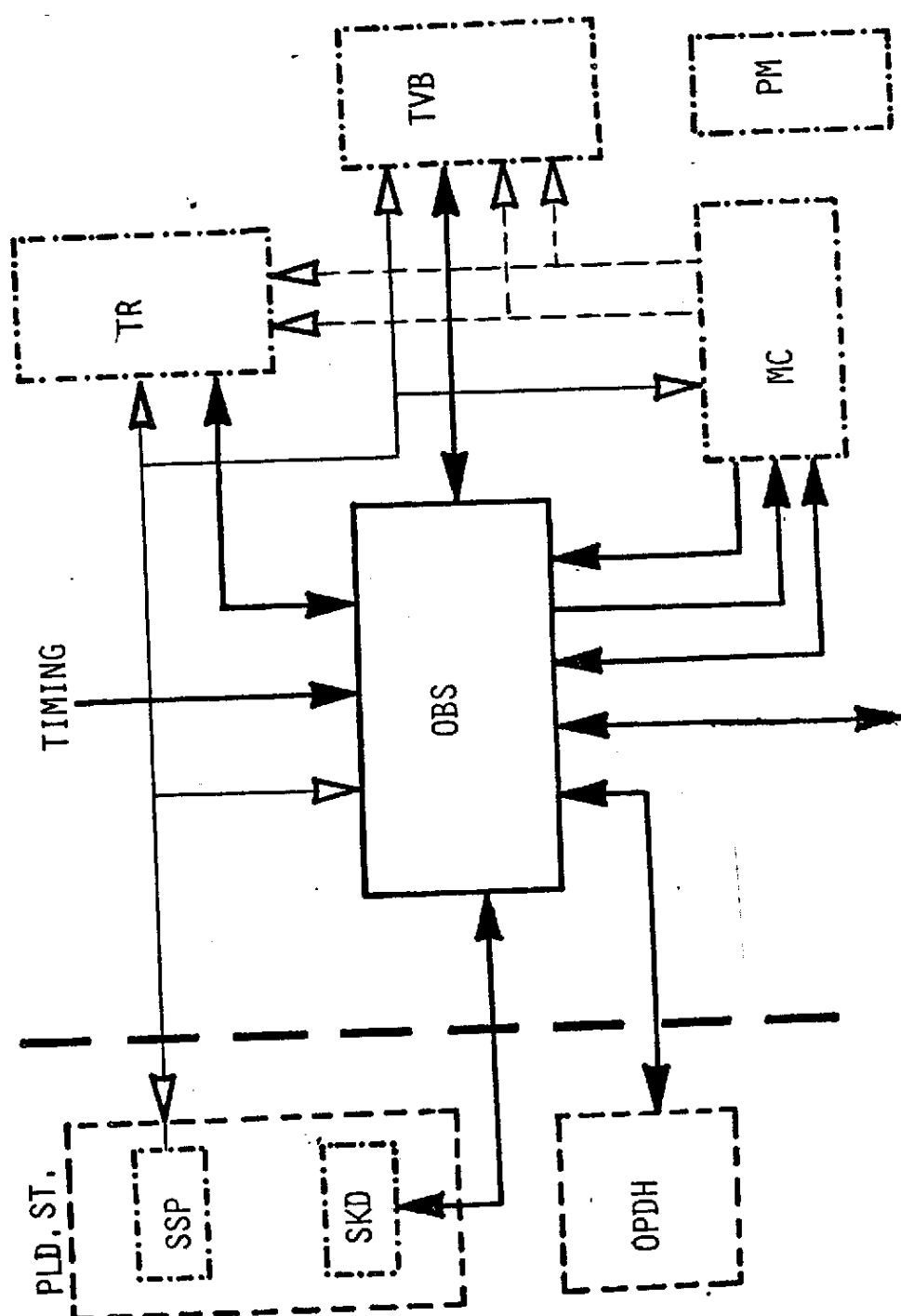
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- BRESEX ON BOARD SUPERVISION GLOSSARY -

- OBS: ON BOARD SUPERVISION
- MC: MULTISPECTRAL CAMERA
- TR: TAPE RECORDER
- SKD: SUPERVISION KEYBOARD AND DISPLAY
- TVB: TV BUFFER
- PM: POWER MODULE
- PLD,ST.: PAYLOAD STATION
- SSP: STANDARD SWITCH PANEL
- OPDH: ORBITER PAYLOAD DATA HANDLING
- GPC: GENERAL PURPOSE COMPUTER
- MDM: MULTIPLEXER DEMULTIPLEXER
- PSP: PAYLOAD SIGNAL PROCESSOR
- MTU: MASTER TIMING UNIT
- CCTV SYSTEM: CLOSED CIRCUIT TV SYSTEM
- TC/TM: TELECOMMAND/TELEMETRY
- C/DSN: CONSOLIDATED DEEP SPACE NETWORK

- BRESEX ON BOARD SUPERVISION ARCHITECTURE -



PRELAUNCH TEST

09.03.84

- BASIC FUNCTIONS OF THE OBS-MC BUSES -

. DATA ACQUISITION BUS:

SENSORS RELATED DATA (CALIBRATION, TEMPERATURE,
VIDEO SIGNAL, ETC.)

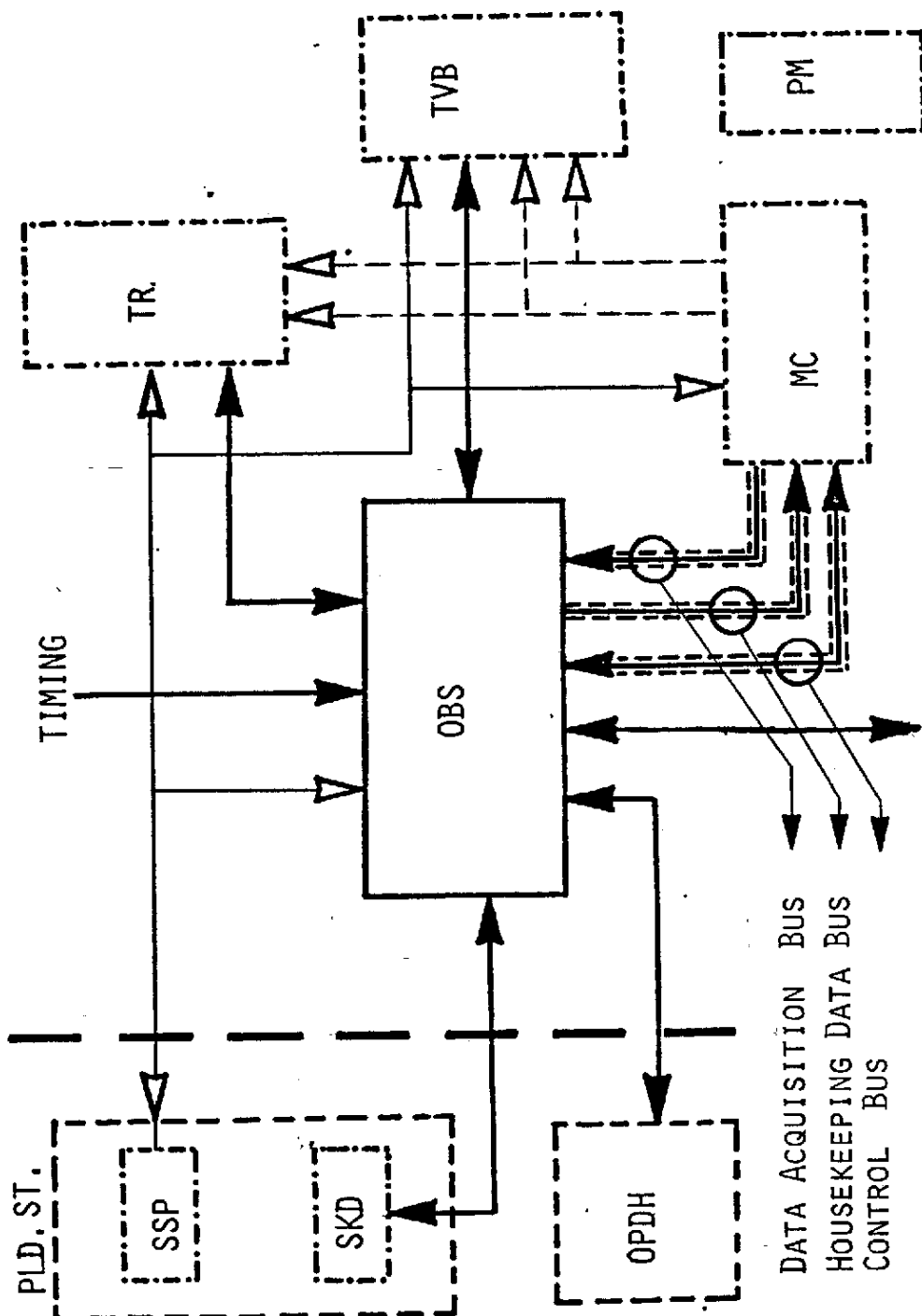
. HOUSEKEEPING DATA BUS:

MESSAGE CONTAINING ACQUISITION,
CONTROL, TESTING, ANCILLARY, TIMING,
SYNCHRONIZATION, TESTING, KEYBOARD AND OTHER
POSSIBLE SUPERVISING DATA, FOR RECORDING,
UNDER MC FRAME FORMATTING.

. CONTROL BUS:

COMMANDS AND ACQUISITION RELATED TO:
CAMERA READINESS; MIRROR POSITION NG;
CALIBRATION AND AMPLIFICATION STATUS;
SHUTTER ACTUATION;
CAMERA POWER SUPPLY, ETC.

- BRESEX ON BOARD SUPERVISION ARCHITECTURE -



PRELAUNCH TEST

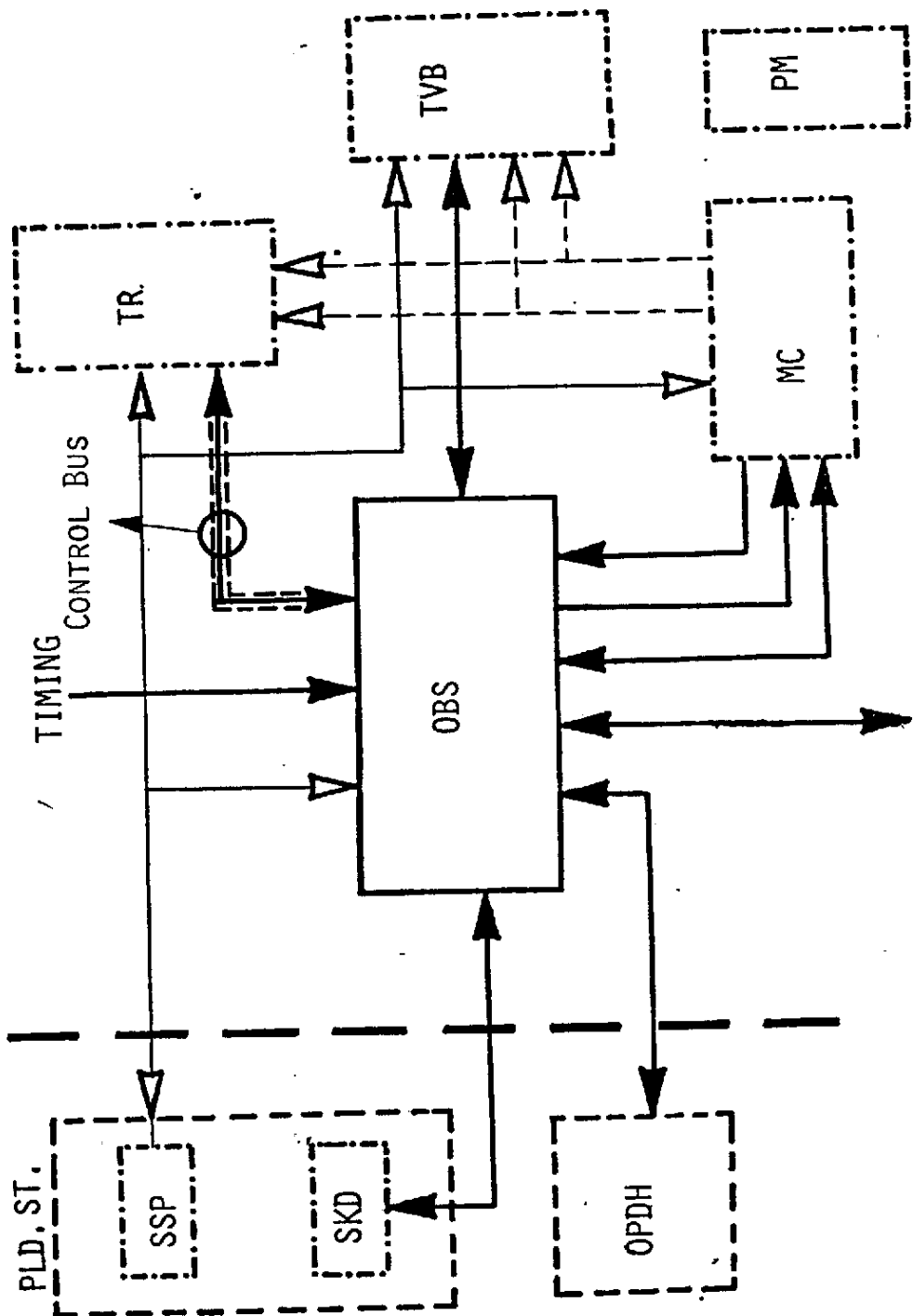
09.03.84

- BASIC FUNCTIONS OF THE OBS-TR BUS -

. CONTROL BUS:

TAPE RECORDER COMMAND AND ACQUISITION:
POWER SUPPLY, STATUS, ACTIVATION, RUN, ETC.

- BRESEX ON BOARD SUPERVISION ARCHITECTURE -



PRELAUNCH TEST

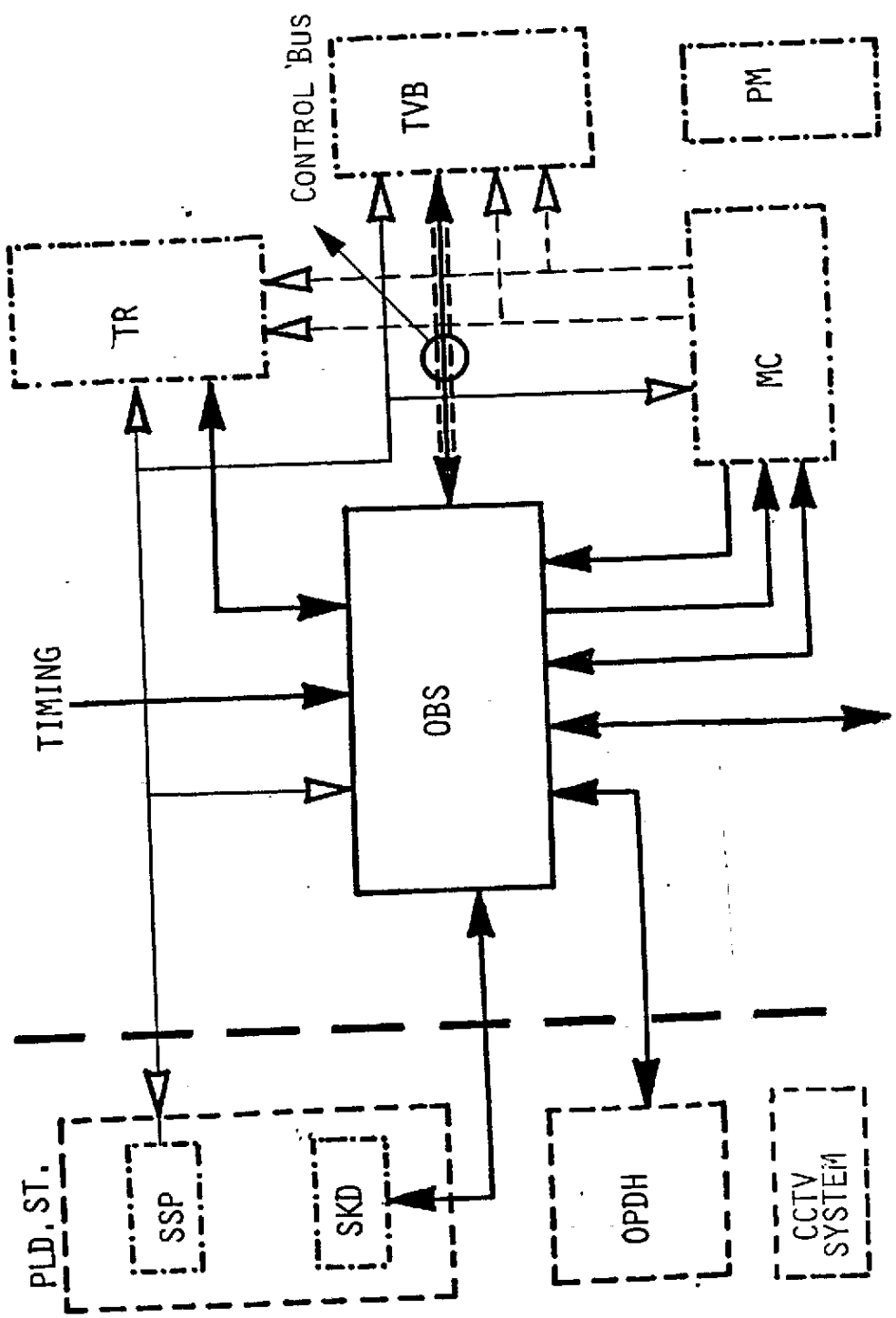
09.03.84

- BASIC FUNCTIONS OF THE OBS-TV B BUS -

. CONTROL BUS:

TV BUFFER COMMAND AND ACQUISITION:
POWER SUPPLY, STATUS, ACTIVATION, ETC.

- BRESEX ON BOARD SUPERVISION ARCHITECTURE -



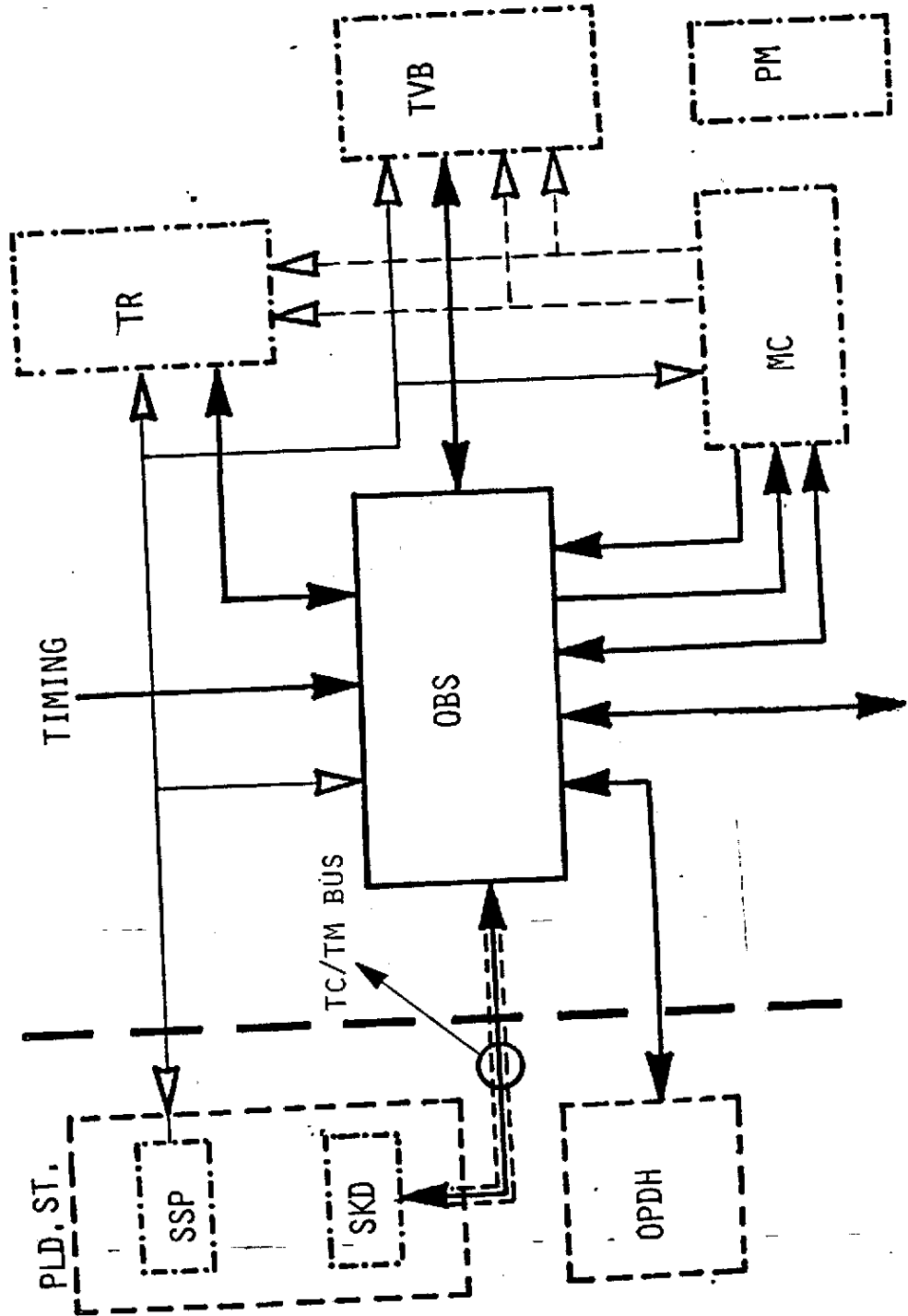
PRELAUNCH TEST

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- BASIC FUNCTIONS OF THE TC/TM BUS -

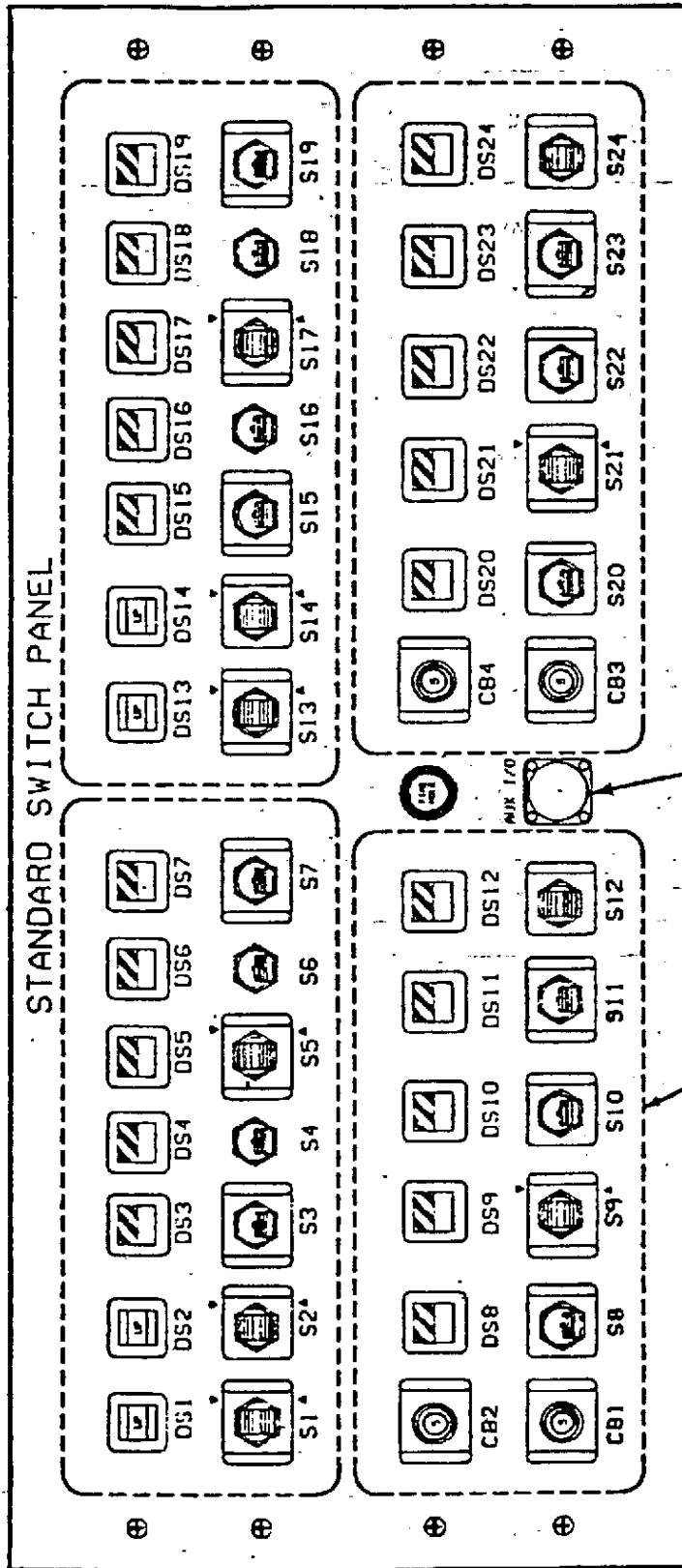
THE TC/TM BUS IS CONSIDERED TO IMPLEMENT A DIRECT CONNECTION BETWEEN THE SUPERVISOR KEYBOARD AND DISPLAY (SKD) AND THE ON BOARD SUPERVISOR (OBS) ITSELF. THE EXCHANGE OF APPROPRIATE COMMAND AND TELEMETRY MESSAGES THROUGH THE TC/TM BUS WOULD ENABLE THE PAYLOAD SPECIALIST TO MONITOR THE OPERATION OF THE EXPERIMENT. THE SKD COULD BE IMPLEMENTED USING SOME SPECIAL INPUT/OUTPUT ELECTRONICS OR, IN A PRIMITIVE FASHION, USING THE STANDARD SWITCH PANEL (SSP) IN ITS UNIQUE VERSION, WITHOUT FURTHER SOPHISTICATION.

- BRESEX ON BOARD SUPERVISION ARCHITECTURE -



09.03.84

- SPACE SHUTTLE STANDARD SWITCH PANEL -



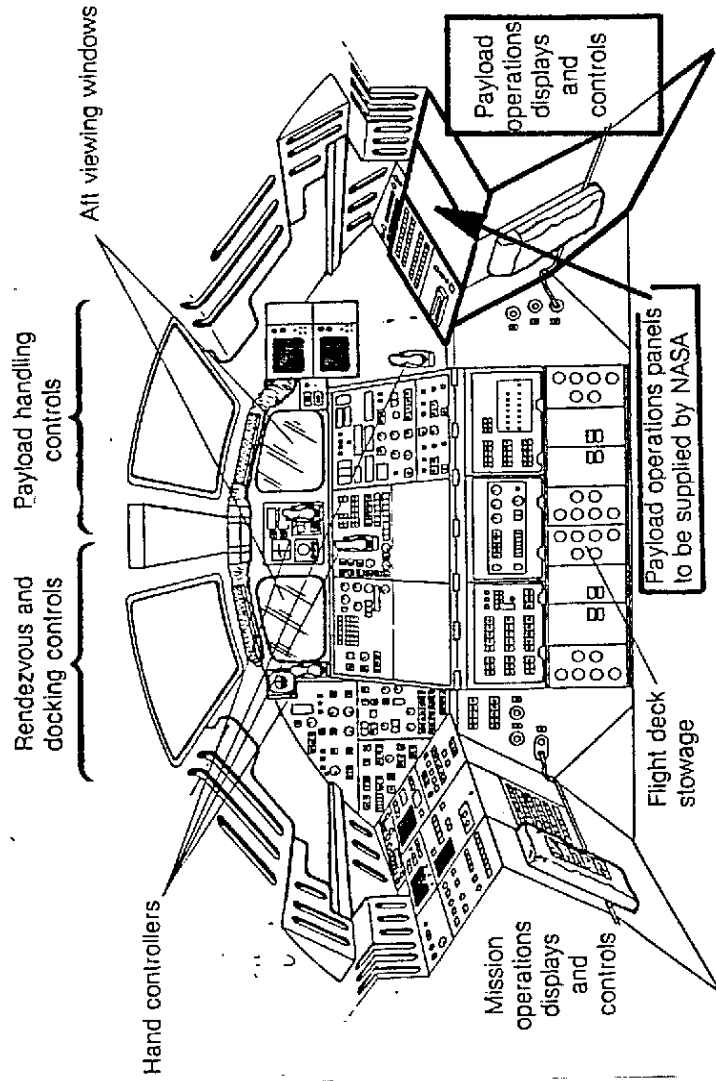
J14 (NBOEB-98SN) ①

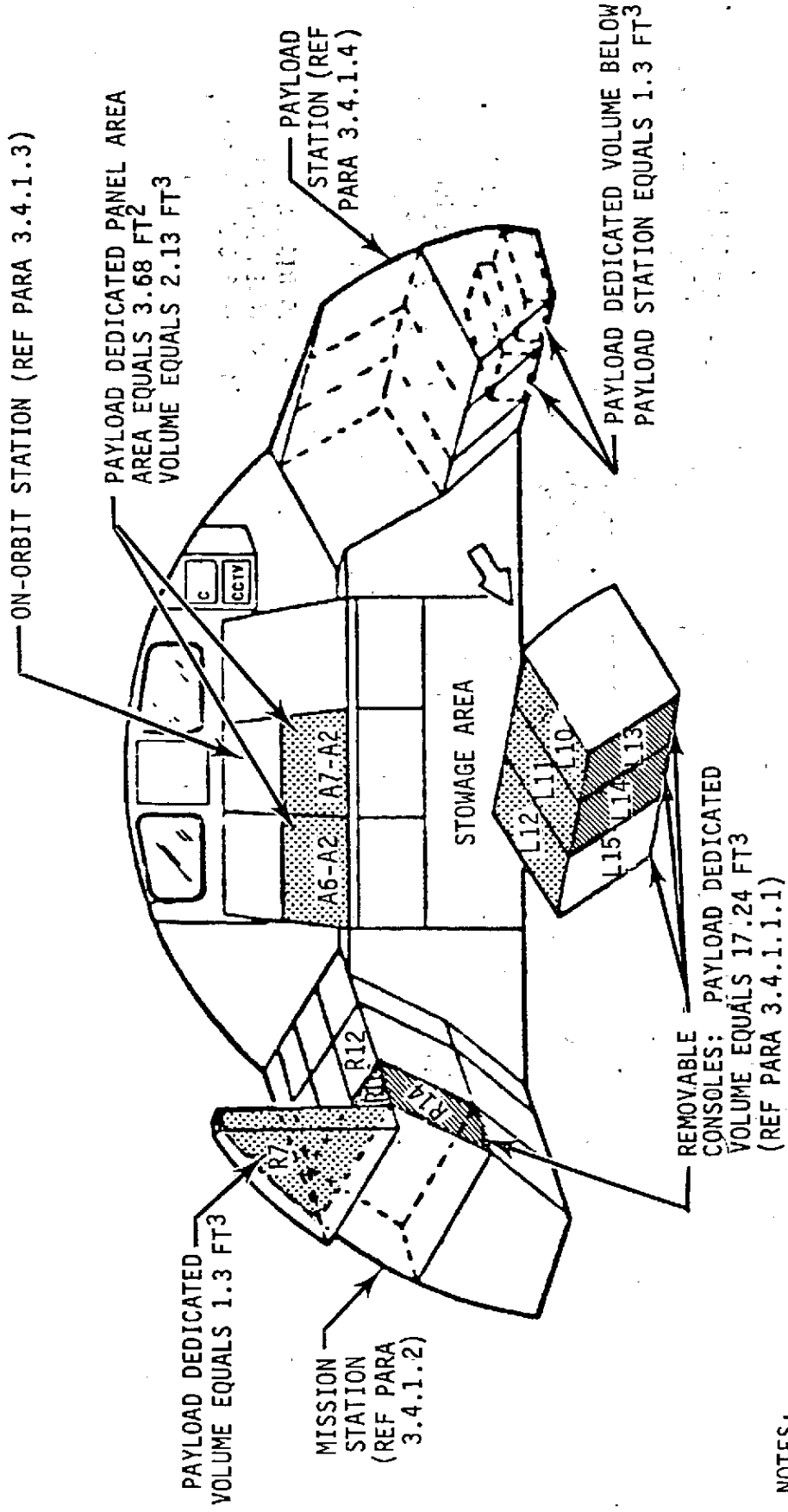
MARKING OF FOUR OVERLAYS TO BE DONE BY JSC PER INDIVIDUAL CARGO ELEMENT REQUIREMENTS (OVERLAY WILL COVER COMPONENT DESIGNATORS)

NOTES:

- ① CONFORMS TO NASA SPECIFICATION 40M39569
2. PANEL IS PANEL SIZE E AS DEFINED IN PARAGRAPH 3.4.1.1.1

- SPACE SHUTTLE AFT FLIGHT DECK PAYLOAD AVIONICS -





VIEW LOOKING AFT

NOTES:

1. LEGEND
 - ▨ PAYLOAD DEDICATED PANEL AREA EQUALS 16.85 FT². PANELS ARE DEFINED IN FIGURE 3.4.1.1.1-1.
 - ▨ ADDITIONAL PAYLOAD DEDICATED D&C PANELS ON INBOARD SURFACES OF THREE EQUIPMENT CONSOLES REQUIRE ALLOWANCE OF SIX (6) INCHES DEPTH OF NORMAL PANEL AREA. ALL COMPONENTS ON THESE SURFACES MUST BE FULLY RECESSED. ADDITIONAL PANEL SURFACE AREA IS 5.5 FT²
2. TOTAL PAYLOAD DEDICATED VOLUME IS 21.64 FT³

Figure 3.2.1.1(A) Shuttle Orbiter Payload Physical Interface Locations - Aft Flight Deck General Arrangement

- BASIC FUNCTION OF THE DATA HANDLING BUS -

FOUR POSSIBLE CONNECTIONS BETWEEN OPDH
AND OBS:

1. GPC - OBS:

- SPECIAL INTERFACE IS NEEDED;
- RELATIVELY HIGH (1 MBITS/SEC) DATA RATE;
- ANCILLARY, TIME, COMMAND AND TELEMETRY DATA CAN BE EXCHANGED, ALTHOUGH THROUGH A POLLED LINE.

2. MDM - OBS:

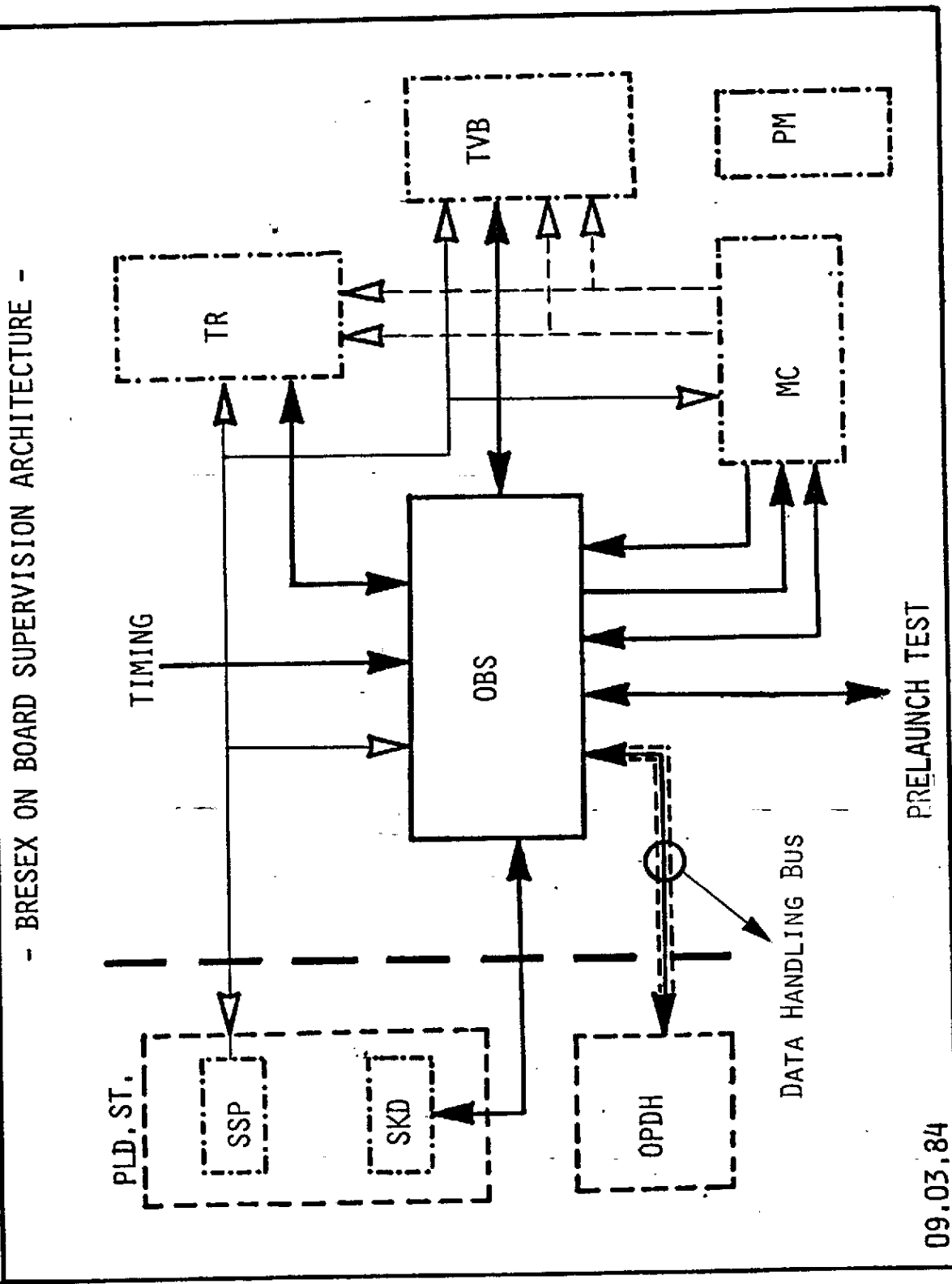
- POINT-TO-POINT SERIAL COMMUNICATION;
- APPARENTLY NO SPECIAL INTERFACING ELECTRONICS IS NEEDED;
- COMMAND DATA;
- RELATIVELY HIGH DATA RATE (1 MBITS/SEC).

3. PSP - OBS:

- LOW SPEED DATA RATE;
- PARALLEL LINES;
- COMMANDS ONLY

4. MTU - OBS:

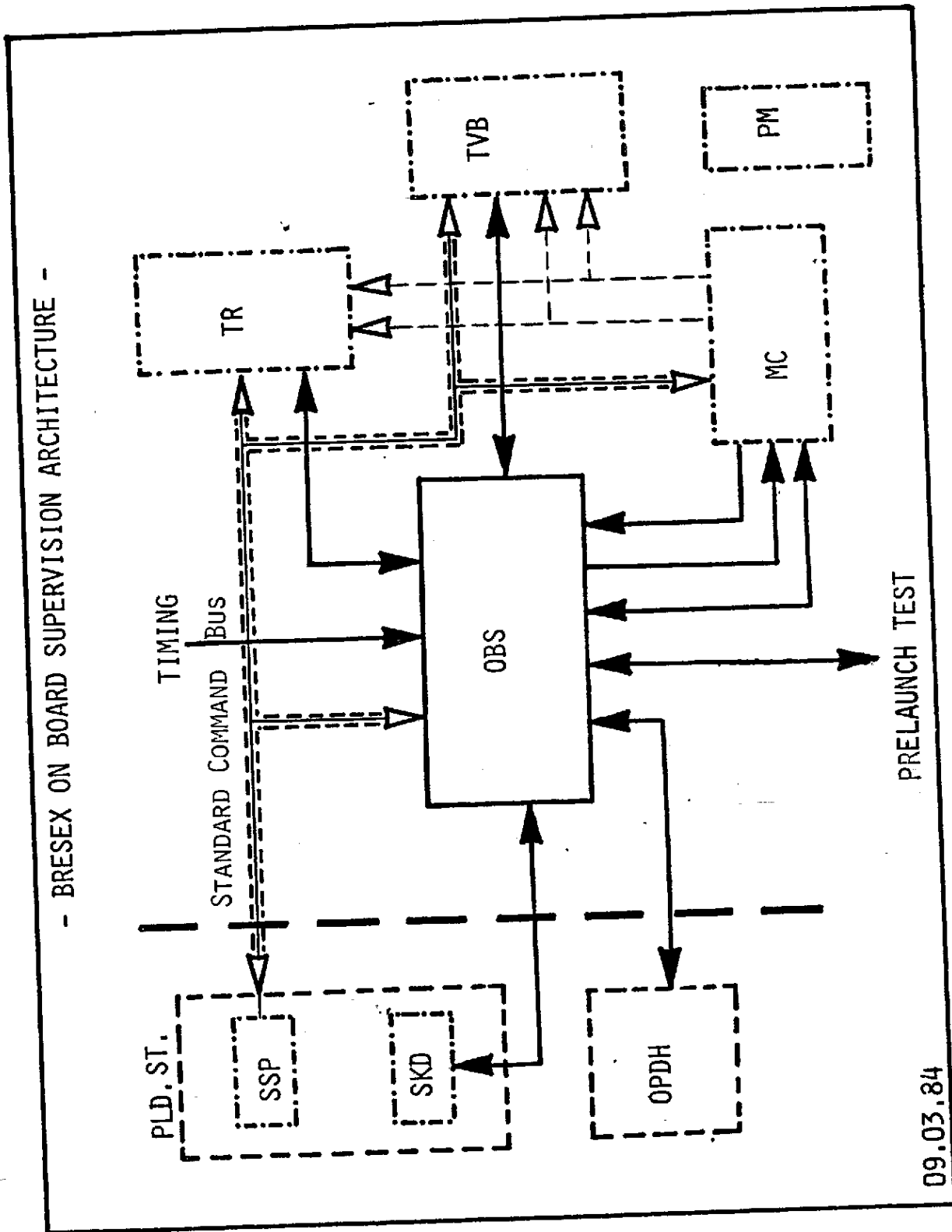
- MASTER TIMING.



09.03.84

- BASIC FUNCTIONS OF THE STANDARD COMMAND BUS -

THE STANDARD COMMAND BUS IS INTENDED FOR MANUAL USE, NOT ONLY FOR SOME REDUNDANT FUNCTIONS, NORMALLY EXECUTED BY THE ON BOARD SUPERVISION SUBSYSTEMS, BUT FOR SUBSTITUTING IT, IN CASE OF FAILURE, WHILE PRESEVING THE ESSENTIAL OPERATION OF THE OTHER SUBSYSTEMS OF THE EXPERIMENT.



09.03.84

- SOME VERY BASIC QUESTIONS TO BE TREATED -

1. DETAILED DOCUMENTATION (HARDWARE AND SOFTWARE) ON THE FOUR OPDH - OBS POSSIBLE CONNECTIONS FOR BETTER UNDERSTANDING OF THE ALTERNATIVES FOR INTERFACING THROUGH THESE BUSES;
2. DETAILED DOCUMENTATION ON THE SSP AND PAYLOAD STATION ELECTRONIC HARDWARE;
3. NASA EVALUATION AND COUNSELING ON THE ALTERNATIVES FOR INTERFACING THE ON BOARD SUPERVISOR WITH THE SPACE SHUTTLE AVIONICS;
4. NEED TO GET KNOWLEDGE ON QUALIFICATION CONSTRAINTS OF THE PAYLOAD FOR MISSION APPROVAL.
5. POSSIBLE MEANS OF ON BOARD AND GROUND MESSAGE EXCHANGE IN VIEW OF THE DESIRED FUTURE CONNECTION BETWEEN INPE SPACE DATA NETWORK AND THE C/DSN FOR CROSS-SUPPORTED SPACE MISSIONS.