PROPOSED SPARES TESTING STAND FOR HALL A ENERGY MEASUREMENT COMPONENTS

INTRODUCTION

The aes group is assuming the responsibilities associated with corrective and preventive maintenance of the Hall A beam energy measurement system. This system measures the bending element field and the arc angle then computes beam energy. The arc measurement is performed using optical instrumentation (semiannually) and super harp pairs. The total magnetic field (Bdl) is calculated after measuring the fringe field of the ninth dipole.

SOFTWARE

The system uses two computers, a Sun for the total field calculation and HAC (unix) for the angle. The final calculation is using a note pad and handheld calculator. Marie Keesee and the operations software group will be maintaining the software.

OPERATION

Ken Surels-Law has authored a procedure for setting up the beam prior to performing the harp scans. This procedure does not entail the scans themselves.

SPARES

A spares inventory and listing was provided by Pascal Vernin prior to departure. The hardware is scattered about but plans are in progress to place a cabinet in the magnet shed for storage of on site replacements. There are six stepper motor "Power Boxes" in the system with only one spare which is faulty. Drive mechanical couplings are on order.

PROPOSAL

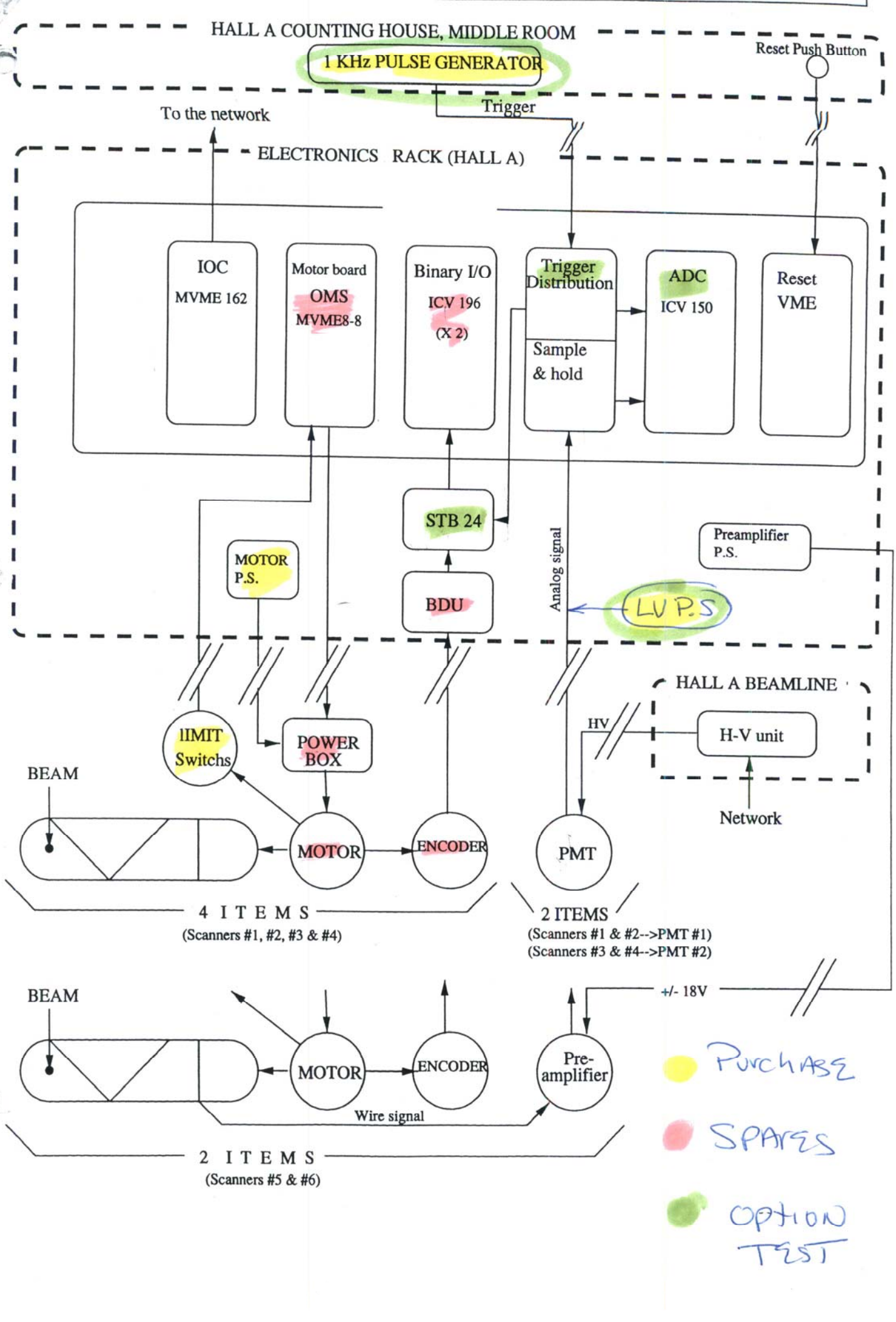
There is very limited time available to perform component testing in the field. Although that would be the most accurate way to qualify a ready spare it is not practical due to time constraints.

We have been contemplating the design and implementation of a small test stand. The stand would test the harp drive component train. The components to be tested would include:

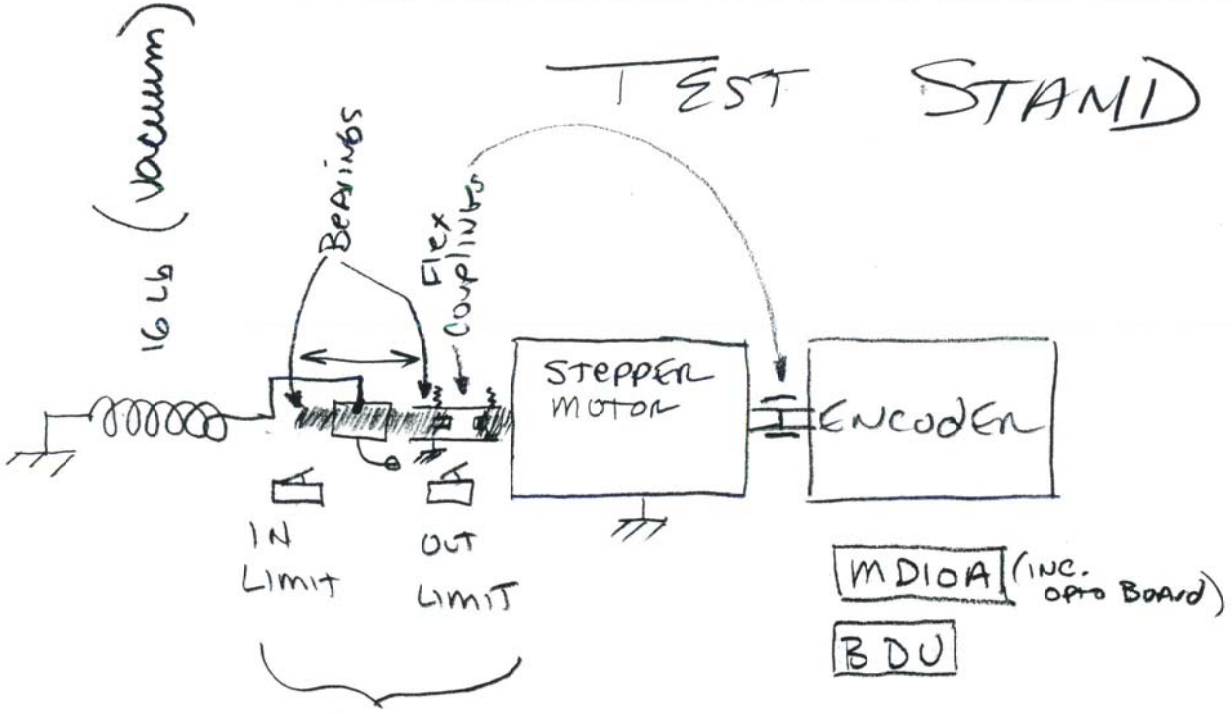
1. VME module OMS microstepper
2. VME Binary I/O IVC196
3. OMS MD10A Stepper Drive (in power box)
4. Drive signal adapter (opto coupler in power box)
5. Motor
6. Encoder
7. BDU
8. STB24 (optional)
9. Trigger distribution / sample and hold
10. ADC IVC150

The following hardware will have to be obtained:

40vdc power supply, limit switches, possibly another spare BDU
16 lb spring to simulate vacuum, mounting plate, fabricated cables


HALL A COUNTING HOUSE, MIDDLE ROOM
1 KHz PULSE GENERATOR
Reset Push Button
To the network
Trigger
ELECTRONICS RACK (HALL A)
IOC
MVME 162
Motor board
OMS
MVME8-8
Binary I/O
ICV 196
(X 2)
Trigger Distribution
Sample & hold
ADC
ICV 150
Reset VME
STB 24
BDU
MOTOR P.S.
Analog signal
Preamplifier P.S.
LV P.S
HALL A BEAMLINE
HV
H-V unit
Network
lIMIT Switchs
POWER BOX
BEAM
MOTOR
ENCODER
PMT
4 I T E M S
(Scanners #1, #2, #3 & #4)
2 ITEMS
(Scanners #1 & #2-->PMT #1)
(Scanners #3 & #4-->PMT #2)
+/- 18V
BEAM
MOTOR
ENCODER
Pre-amplifier
Wire signal
2 I T E M S
(Scanners #5 & #6)
PURCHASE
SPARES
OPTION TEST

TEST STAND for Hall A Super HARP Hardware TEST



Lead Screw assy #132-00