

IBM 1401 Restoration Project

Meeting #2, February 11, 2004

Summary by R. Garner

Attendees:

Dave Babcock,
Mike Cheponis,
Mike Falarksi,
Robert Garner,
Eric Smith,
Dag Spicer,
Kirsten Tashev

Unable to attend:

Rhonda Farrell
Grant Saviers

Purpose of Meeting:

- Delivery & logistics update, server room layout & tour, power & 50-Hz conversion status, email/web site, recruiting help, documentation and accessioning.

Meeting Minutes:

- Delivery & logistics update: Mike has spoken with Rolf. 1401 shipping freight crate had been picked up. However, according to IBM's Stefan Braun, shipment from Germany has been delayed. Mike has made arrangements for receiving crate, unpacking, and moving contents into server room. Mike needs the BOL ("Bill of Landing"); i.e., itemized contents of crate. We discussed whether the "unit record card handling equipment" (077 collator, 083 sorter, 129 punch) would initially be placed in the server room or not. There was a question as to the 1401's export valuation and how much we'll be charged.
- A/I – Mike F – Ask for BOL & updated delivery information from IBM's Stefan Braun. Also verify identity of custom's agent when shipment arrives in Oakland.
- A/I – Robert – Check with Braun on 1401 export valuation.
- Server room: Mike discussed server room and its capabilities. Handed out copy of server room floor plan (also emailed). There is generous space for the placing the 1401 equipment, and more than sufficient power and air conditioning (A/C). Noted that Museum volunteers would be cleaning its floor upcoming weekend, 2/14. Robert noted that Rhonda Farrell has agreed to produce an initial server room floor plan and placement. After the meeting adjourned, several of us inspected the empty server room, noting placement of two large "Liebert System 3" A/C units and an "EPE Technologies EPS-2000 Data Power System". One of the Liebert systems is currently continuously operating (at 70 C).

- A/I – Rhonda – Initial server room layout with 1401/2/3/6 and card units.
- A/I – Mike F – Locate any documentation associated with Liebert and EPS-2000 power systems.
- Heat, Power, A/C summary:
 - Total max 1401 system power estimate is about 14 kVA:
 - 1401/2/3/6 system (4.5 + .4) ≈ 5 kVA
 - Five 729 tape units @ 1.6 kVA each = 8 kVA, and
 - 077 / 083 / 129 card “record handling equip.” = 1 kVA ?.
 - Power delivery in to room is about 275A * 480 V = 132 kW. From Mike:
 - > The main panel into the 1401 Restoration Lab is a 400A,
 - > 480Y/277v, 3ph, 4w panel with an original Total Connected
 - > Load of 380A and Total Demand Load of 275A. The EPS2000
 - is
 - > on a 250A breaker. The 2 position (UPS<>PG&E) switch for
 - > the EPS2000 distribution panel is protected by a 200A
 - > breaker.
 - A/C Summary: Two Liebert System 3 units at 19 tons each. Under ideal conditions, both of them could cool 38 * 3500 = 133 kW. We clearly will only need one operating for the entire 14 kW 1401 system. Second unit could be utilized as a spare (or possibly removed or repositioned in room?)
- Discussed options of motor generator vs. attempting to convert the system to operate on our 60 Hz power. Noted Mike F’s quote (\$25k for a 50 kVA solid-state frequency converter from Visicomm) vs. Grant’s quote for a motor generator set (\$9.2k for 28 kVA, 14-week delivery). This is a complicated, technical issue and difficult to properly address without documentation for our particular 50-Hz 1401 system. Challenges of trying to run the system directly on our 60-Hz power include ferromagnetic transformers in the main power supplies (in 1402) and possible synchronous motors in 729 tape drives and 1402/03 and card equipment.
- A/I – Eric – Evaluate the plausibility of running the system directly on 60 Hz. Which motors or transformers, if any, may need to be replaced.
- A/I – Mike C – Ask for Rolf’s recommendation on 60 -> 50 Hz conversion.
- A/I – Grant – An updated quote for lower-power motor generator. Can we get quotes from several vendors?

- Kirsten discussed the upcoming accessioning of our 1401 materials: The receiving, inventorying, and cataloging of all the hardware, software, and documentation artifacts. She expected that this will take several months. There was a desire to get everything scanned as soon as possible. Especially to get copies made of important docs we'll be using during restoration work. Dag volunteered to gather and locate the Museum's 1401 documentation together in one place (probably a cubicle for easy access). Dag also volunteered to setup an accessioning framework for the 1401 project. (However, this may be in conflict with his other Museum responsibilities.) Once Dag has a framework setup, Mike C volunteered to enter the document info into the Museum's database (DBTextWorks). Mike also indicated he has a fair amount of 1401 documentation he can make available to the project.
- A/I – Dag – Collect 1401 docs in a cubicle and setup 1401 accessioning framework in DBTextWorks.
- A/I – Mike C – After Dag is ready, enter the Museum's current 1401 docs into DBTextWorks.
- Discussed our need to recruit help, especially to locate former IBM 1401 Customer or Field Engineers. Discussed when Rolf & Arnold should come to help with bring up. Decided that this could be after system is inventoried and ready to power up. (For instance, capacitor reformatting can take place before they arrive.)
- A/I – Robert – Contact Paul Pierce (has a 1401 in his collection), Van Synder (1401 web site's list of names), Gordon Bell, Bill Selmeier's contacts, and San Jose IBM Retirement Club (www.sjpc.org/sjrc).
- Discussed setting up a project email alias and web site. After some discussion, decided it would be beneficial to have a publicly accessible project web site, primarily as a recruiting aid and to help publicize Museum activities. However, decided to not yet seek out volunteers on large discussion groups, such www.classiccmp.org. Dag volunteered to setup an email alias 1401_team@computerhistory.org. Dag would also like to do a simple web site for project.
- A/I – Dag – Setup 1401 project email distribution list and a simple web page.
- A/I – Robert – Email out his handful of 1401 web links for web site.
- A/I – Mike C – Finish scanning 1401 photos taken in Germany by Heinz.
- Noted that April 7th is a joint IBM/CHM event regarding IBM 360 family 40th anniversary. October of this year is 45th anniversary of 1401 announcement (1959).