Box 3 Memos from Olsen
Folder 1

**Ken Olsen memoranda, 1962, 1962-01-02-1962-12-31**
Digital Equipment Corporation records
Executives' papers: Ken Olsen papers: Memoranda
X2675.2004, *Box 3* 102737384

1 of 6

THE COMPUTER HISTORY MUSEUM
1 027 3738 4

# INTEROFFICE MEMORANDUM

DATE May 31st, 1962

SUBJECT

TO Ben Gurley
Ed Harwood
Al Blumenthal
Jon Fadiman
Dick Mills

FROM Kenneth H. Olsen

We are now stocking a large number of special items for computers and special systems. This amounts to many dollars worth. Some of this I know is obsolete now and we are keeping them on our books as profit. It is very important that we eliminate obsolete material from our inventory as soon as it is obsolete.

I would like to have each of you go through the stock room and inspect all the items which we are now keeping as inventory and make sure that we eliminate those items which are obsolete. Those items which have potential value we should keep in our obsolete stock room. This stock room should be well kept so that the units are available if we ever do need them.

We should be careful to show due respect for units which are obsolete but still have potential value. The round 50 pin Amphenol connector which we originally used on the ADX systems is a good example. After we stopped using them they were treated like junk but they are expensive items and we may use them someday and they should be kept neatly and given due respect.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE May 31st, 1962

SUBJECT

TO Dick Best
Ben Gurley

FROM Kenneth H. Olsen

It is my understanding that we agreed to have a Works Committee meeting Friday morning at 8:30 at which time the man in charge of the drum projects will report to the Works Committee on the status of the project. We would like to see a copy of this schedule and a review of the financial status of the project.

I suspect that the man in charge does not realize that there is financial data available on the project but this in itself would be worthwhile.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE May 31st, 1962

SUBJECT

TO Ep Toumi

FROM Kenneth H. Olsen

My new office is not as important as taking care of delivering to customers, but I do want to let you know that the tables are the only thing holding up the use of this office.

I would like to have you look into the possibility of putting one long continuous top on the wall mounted desks. They also should be bolted together.

We should have a kick board nailed to the floor around the walls in the lobby to protect the walls from furniture.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE May 31st, 1962

SUBJECT

TO Henry Crouse
Dick Best
Bob Hughes

FROM Kenneth H. Olsen

I received a call on Tuesday, May 29th from Philip Seidenberg from National Transistor Company in Lawrence, Massachusetts. His phone number is MUrdock 8-1881.

He said that he just received notification that he lost out on a bid to us for diodes because his price was too low. He called me because he couldn't get in touch with our purchasing agent and he wanted to know what his meant. He said he had been turned down because his price was too high, but never because the price was too low.

I told him that I didn't know either but that I would check into it and call him by Thursday, May 31st. Will you let me know what the situation is on this so I can give him the answer.

He said that he is one of four people who left Clevelight a year and a half ago to start this business. They now have 400 people and make 7 million diodes a month. They are a sole source for a certain diode for Remington Rand which they received an order for a million units.

This is the limit of my knowledge about the organization but because he did call me I feel I should give him a good answer.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE May 31st, 1962

SUBJECT

TO Dick Best

FROM Kenneth H. Olsen

Our Board of Directors is very much interested in the size of our inventory. We assured them that there will be a very small write off at the end of the year but because of their interest we have to be sure that this is the case.

Several weeks ago I asked you to make sure that all the transistors we have in stock are current types.

If this job is not complete, will you do it immediately so that we can write them off in the month of May rather than the end of June.

It would be worthwhile going through the inventory to see what else is obsolete that we should assign to the obsolete stock room.

Kenneth H. Olsen

cc: Bob Hughes
Dick Mills

dec INTEROFFICE MEMORANDUM

DATE May 28th, 1962

SUBJECT

TO Henry Crouse

FROM Kenneth H. Olsen

The Audio Products Division of the Radio Corporation of America, Camden, New Jersey have a line of modular audio components which I would like to consider for our audio system. These are described in a brochure, number S.3184. Will you get a copy of this brochure and any other information they may have on these units. I would also like to have some feeling as to whether these are obsolete or nearly obsolete. I would also like to have the prices on the units which are numbers 12506, 12172-A, 12174-A and 12173-A.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE May 25th, 1962

SUBJECT

TO Maynard Sandler

FROM Kenneth H. Olsen

I received a call on Thursday, May 24th from Ed McLaughlin at Raytheon asking if he could have access to our lavatory facilities from Monday noon until Tuesday morning. I, of course, told him that we would cooperate and there would be no problem at all.

There is one problem which I did not think of and that is that we should agree to lock it at night so that there is no interchange between our two facilities at that time.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE May 25th, 1962

SUBJECT National Convention on Military Electronics

TO Dick Best
Ben Gurley
Stan Olsen

FROM Kenneth H. Olsen

Many people are showing concern about miniaturized modules because they may be competition for us some day. I don't see these as being competitive, so long as the circuit techniques that we use are one of the best. The thing which I am most concerned about is the possibility of better circuit techniques. Microminiaturization at our speed is impossible if you dissipate at the same power that we do. If, however, somebody can propose a system which dissipates very little power, then I think we may have serious competition. At the National Convention on Military Electronics, June 25 - 27 in Washington, D. C. there is a paper titled "Tunnel Diode - Coupled Transistor Circuits for High Speed Micro-Energy Digital Systems" by J. A. Ekiss and P. Spiegel from Philco Corp., Lansdale, Pennsylvania. We should consider having someone listen to this paper, or we should ask Philco in Lansdale for a copy of it. This might come from their Transistor Application group as a means for selling their transistors.

According to the list of exhibitors, DEC is going to be there. We could certainly have someone who is going to man the booth listen to this particular paper.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE May 22nd, 1962

SUBJECT Storage Shelves

TO Henry Crouse

FROM Kenneth H. Olsen

We have been buying a fabulous amount of storage shelves from Standard Press Steel Company. I have a feeling that people do not realize how expensive these are. In addition they are capitalized which makes them all the more costly to us. Because they are capitalized I think we have to put very strict control on them. I would like to see all requisitions for shelves from now on and approve them personally.

The thing which disappoints me most of all is the large stack of shelving which we have in building 5. There are several dozen 36" x 36" shelves in original packages, and yet every week we seem to be buying new ones. In addition, there is a 5 or 6 foot stack of 36" x 20" shelves which apparently people do not like the looks of because it doesn't match what they already have and all the attempts I make to encourage people to use these is of no avail and no one will tell me exactly why they don't use them. There are hundreds of dollars worth of capital equipment here which maybe we should write off and throw them away if we are not going to use them because they are awfully expensive to keep when they are capitalized. Maybe we should give them to a school if there is something inherently wrong with a 36" x 20" shelf.

Kenneth H. Olsen

cc: Jack Atwood
Maynard Sandler

# INTEROFFICE MEMORANDUM

DATE May 22nd, 1962

SUBJECT

TO Bob Savell
Henry Crouse

FROM Kenneth H. Olsen

When we were at the Bedford Air Show and after we had an electrical accident, we lifted the cover off one of our 16" scopes and I was quite surprised to see that there was no marker saying that there was high voltage inside. Will you immediately obtain markers which we can put inside and which very clearly identify the high voltage. One thing we might do would be to order stick-on labels from No-Lick Products Company which we could put several places within the hood. It might be better to have a large number of smaller labels put many places rather than get one large one. The label might say DANGER 20,000 VOLTS or DANGER HIGH VOLTAGE. These then could be used in all the scopes that we sell.

Kenneth H. Olsen

cc: Dick Best
Ben Gurley

# INTEROFFICE MEMORANDUM

DATE May 22nd, 1962

SUBJECT Electronic Associates

TO Stan Olsen

FROM Harlan E. Anderson

On Tuesday, May 15th, Dr. Harries of Electronic Associates telephoned me to get more information about the job at Minneapolis-Honeywell in Minneapolis. Dr. Harries telephone number is CA 9-1100, extension 309 in Asbury Park, New Jersey. He had learned of this situation from Tom Truitt who is at their Princeton laboratory. They plan to make a proposal to Minneapolis-Honeywell to take on system responsibility. They would either buy the PDP-1 from us, or they would arrange for Minneapolis-Honeywell to buy it and have it delivered to E. A.

Dr. Harries visited us on Thursday, May 17th to find out more about the interface between the PDP-1 and their equipment. E. A. is particularly interested in this because this would allow them to get experience on a hybrid digital-analog system which Tom Truitt is very interested in.

Harlan E. Anderson

# INTEROFFICE MEMORANDUM

DATE May 17th, 1962

SUBJECT

TO Stan Olsen

FROM Kenneth H. Olsen

We have loose, but fairly good control over most small expenditures. However, it turns out that we have very loose control over many truly significant expenditures and I would like to bring these under control. These are areas where I don't think the people would feel bad by losing some freedom, but I think they would enjoy having someone in the front office to blame the decision on. One of these expenditures is the computer course which I understand we are committed to give to CRC on the PDP computer. Spreading this over a five week period of two days a week is a significant expenditure and it is one which should have been considered by the front office.

Kenneth H. Olsen

cc: John Koudela
Ben Gurley

dec INTEROFFICE MEMORANDUM

DATE May 17th, 1962

SUBJECT Remote Memories

TO Gordon Bell
Dick Best
Ben Gurley
Nick Massarese
Stan Olsen

FROM Kenneth H. Olsen

I have a feeling that because people know of my fear and disinterest in producing remote memories, they bypass me when decisions are made to quote on remote memories. Because of this I am asking, by edict, that all future quotations for memories which will need long cable be approved by myself in writing before we become obligated to produce.

We may get away with the two systems we are now making with remote memories, but I am shocked to find out the gamble and risk we have been taking by committing ourselves to these tremendous systems and not being able to try out the remote memories until a week before they are being delivered. This reminds me of playing Russian roulette. If we are going to play this game with the company's future, I at least want to be in on it.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE May 17th, 1962

SUBJECT

TO Roland Boisvert
George Brown

FROM Kenneth H. Olsen

I noticed that there is a layer of sawdust on some of our magnetic tape units because of the proximity of the Carpenter Shop in building 5. I think we should consider covering those tape units which are not in use with plastic covers to keep the dust away and we should also consider moving the Carpenter Shop. I would like to hear your ideas on this.

We should try to find a use for the Ampex tape reader. If it is any good at all, maybe we should put it on the PDP-4 which we will use for automatic testing of modules.

Kenneth H. Olsen

cc: Maynard Sandler
Ben Gurley

dec INTEROFFICE MEMORANDUM

DATE

May 17th, 1962

SUBJECT

TO

Roland Boisvert

FROM

Kenneth H. Olsen

I have heard many ideas as to what projects we should carry on in the area of magnetic tapes. I would like to have you collect in one memo all the possible projects which we may want to go into.

While you are doing this, you might consider which one or ones you may want to take on in addition to your present tasks.

Kenneth H. Olsen

cc: Ben Gurley

dec INTEROFFICE MEMORANDUM

DATE May 17th, 1962

SUBJECT

TO Harlan Anderson

FROM Kenneth H. Olsen

I received a telephone call on Wednesday, May 16th, from Melvin Gardner who I knew when we were undergraduates at MIT. He is now with Baer Stearns & Company who are investment brokers. He asked if we would be interested with a merger with Electro Instruments Company in California. I told him that we were not, but he is going to send their literature along anyway. They are now a 9-10 million dollar outfit and are making money again. They are, however, short of management. I told him that we are too.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE May 15th, 1962

SUBJECT Conveyors for automatic etching machine.

TO Loren Prentice
Ken Fitzgerald
Jack Smith

FROM Kenneth H. Olsen

It seems to me that there are three ways in which we can automatically convey boards into the automatic etching machine:

1. A hanging type conveyor like we use for our painting booth, but power driven, which use plastic or stainless steel hooks to support the boards would be relatively straightforward because the parts are so standard. This type conveyor would make it very easy to drop the boards into a vapor degreasing tank. Because the boards are vertical it allows most liquids to drip off readily. It has a disadvantage in that it takes a little while to place the board on the conveyor. It makes power brushing somewhat more difficult to do, but we may be able to skip this stage.

2. A rubber conveyor belt has the advantage of being easier for the operator because he simply has to drop the board on. This type belt is available from Hope Rubber Company, Fitchburg who carry the Goodrich belts and from A. C. Tracy Company in Cambridge who carry the Globe belts. It is possible to have cleats laminated or sewn to the belts. It is probably desirable to have these belts pitched slightly lengthwise and sideways to allow the liquid to drop off. We have to be sure that the belt material will not be effected by trichloridethylene.

3. Another way would be to have a single roller chain used as a conveyor. A plastic fixture would snap into the holes on the etch board and fit between the grooves on the chain to carry the board along. Stainless steel chains of this type are available from Acme Chain Corporation in Holyoke, Atlas Chain and Manufacturing Company in West Pittston, Pennsylvania and from Morris Chain Company, Ithaca, New York. The 1/2" pitch chain is the most economical and because it costs about $6.00 a foot it is important to use the most economical type chain. These chain manufacturers offer chain with flanges for use in conveyor systems, but they are not listed in their catalogs in stainless steel. Acme Chain Corporation sells stainless steel chain with extended pins. Atlas has stainless steel chain available with conveyor type attachments.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE May 15th, 1962

SUBJECT Capital Equipment definition.

TO Dick Mills
Henry Crouse

FROM Kenneth H. Olsen

I suggest that we need a simple and commonly agreed on definition of Capital Equipment. It is very important that the people who buy the equipment understand what will be capitalized. There are many things which we are buying now which the people putting in the order do not believe is Capital Equipment, but after payment is made, the Accounting Department defines it as such.

I don't claim to know what this definition should be, but it would seem to me that any purchase beyond $200.00 is Capital Equipment. It would also seem to me that anything which is Capital Equipment should be able to be found a year later. Only by shelving it, it indeed comes to a large amount of money, and the parts get mixed up with interchanges and some never get used because they come almost as requisite parts, only to move from one building to another and some end up never being used again. All one can say about shelving is that we bought that much, paid for it, and unless someone stole it, it is still in the building, but no one can possibly prove that we still have it.

The $35.00 gray cabinets which we buy in large numbers now are so cheap and so flimsy that I can't imagine this being Capital Equipment, even though we do buy them in fairly large dollar quantities. Electric clocks are also somewhat doubtful. There must be some value at which it is not worth capitalizing them even though the total purchase order comes to over $200.00.

There also has to be some feedback as to what the Accounting Department has defined as Capital Equipment so that people have a chance to make corrections. For example, we have some odd $500.00 worth of heat sinks on our Capital Equipment list. From the Accounting Departments point of view this seems reasonable because that much plumbing should be capitalized, but in truth this is raw material components which go into the power supplies for our PDP computers. If accountants are the only ones who look over the Capital Equipment list we might develop even stranger bits of Capital Equipment. If our auditors were suspicious that we were trying to inflate our profits, they would be very critical of some of these decisions.

I suggest that each month we list all our Capital Equipment acquisitions in the Bi-Weekly Report and suggest that people who do not agree with the category in which these items are put, speak up.

In addition, I suggest that we have special purchase orders and special purchase requisitions for Capital Equipment. We now have the Purchasing Department sign many

purchase orders which appear to be straightforward, but if these are different or at least rubbed stamped with large red letters, they would receive more respect and we could insist on all of these being signed by certain people.

Before we approach the end of the year, I think we should go over our definitions of Capital Equipment to make sure that we have them all because I am quite sure that many of the items are gone now and that our Capital Equipment account is unduly inflated. This might be very small from a percentage point of view, but I think it would be worth the effort to go over it.

Kenneth H. Olsen

cc: Harlan Anderson
Bob Dill
Alma Pontz

dec INTEROFFICE MEMORANDUM

DATE May 15th, 1962

SUBJECT

TO Gordon Bell
Bob Beckman
Ben Gurley
Stan Olsen
Harlan Anderson

FROM Kenneth H. Olsen

Gordon Bell has suggested that we use a PDP-4 as our internal accounting computer. This does have several interesting advantages. It costs less and it might be the machine which we someday will suggest for this type application.

Using a PDP-4 for this application seems to be a good idea, but no one is clear just as to what this machine will be used for and what its relationship will be to the prototype PDP-1. Before making a final commitment, I would like to hear from Gordon as to how he thinks the machine should be used and I would also like to hear the same from Bob Beckman on the prototype machine. I think that each should assume a reasonable amount of equipment. I would suggest the following list of equipment for each of the machines.

Prototype PDP-1

1. One type 51 tape control.
2. One type 58 handler.
3. One Burroughs card reader.
4. One 16" oscilloscope.
5. Maybe, one color display.

PDP-4

1. One tape control.
2. One type 50 tape handler.
3. One 523 card reader.
4. One anelex line printer.
5. One 16" display oscilloscope.
6. One 523 card punch.

In addition there should be two more type 50 tape handlers which can be used on the machine which needs them the most. I think that we should give the PDP-1 first pass at the Burroughs card reader because they are almost ready to use it. But, if they don't appear to have a good proposal or are not ready to use it right away, we may give it to the PDP-4.

We should include in the proposal time for modernizing the order code of the PDP-1 prototype. We should probably immediately order the list of In-Out equipment

which we want. It would be good to get as much of it delivered before July 1st, so that we can take this years depreciation on it.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE May 8th, 1962

SUBJECT

TO Bob Lassen

FROM Kenneth H. Olsen

I received a call from a Mr. Guy who we had talked about hiring several years ago. At that time we felt that we didn't have a need for him and he is now out selling. He called me to ask if we had a place for his son this summer and I told him to contact you. The son's name is Gardner Guy and he will start MIT as a freshman next fall. He has been one of the top winners in the high school science contests for the last two years and has done computer type work in these projects.

I think we should consider him with others for summer labor type work and there is a possibility he might be able to do some of our module checkout work.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE May 7th, 1962

SUBJECT

TO Loren Prentice

FROM Kenneth H. Olsen

Raytheon is moving out early in June from the fourth floor of building 5 and are moving down to half of the third floor of building 5. This will be very nice because we will be able to get the space a little early, but because they are planning to still use the present entrance way we may have a problem in using the whole common area as we had expected. Will you check with Maynard Industries and see what the situation will be after Raytheon makes this change.

Kenneth H. Olsen

cc: Dick Mills

dec INTEROFFICE MEMORANDUM

DATE

May 7th, 1962

SUBJECT

TO

Harlan Anderson
Dick Best
Ben Gurley
Bob Hughes
Dick Mills
Stan Olsen
Maynard Sandler

FROM

Kenneth H. Olsen

I met Ed McLaughlin who is heading up the group which Raytheon left in the old mill. He said that he tried to talk his management into keeping that floor when they gave up the lease last year, but he lost the argument. Now he is taking over a lease on half of the floor below and is looking for bids to fix it up. He feels it will cost $30,000.00 - $40,000.00 to paint it and put in fluorescent lights.

I feel a little guilty taking advantage of their unwieldy large organization, but not enough to sacrifice any of our plans. If they can get the work done, they plan to move down the first or second week of June, which means that we can take over our area fairly soon. They have a lot of equipment to move down and set up and we offered to allow them to go through our area.

They have a large temperature testing oven that they used to use for checking out klystron tubes. This unit has large heaters in it and a dry ice cooler. There are several compressors with it and two brown recorders. The Air Force is going to put this up for bid and I suggest that we consider bidding for it. It cost them $750,000.00 to install it and it might sell for $10,000.00. I doubt it is worth $10,000.00 but we should bid what we think it is worth. It will probably go as junk except that some of the compressors are worth some money.

They also have equipment in the tin shed on the outside of the pond. This is on rented land, but I think they will open up the shed with all of its contents for bid. Most of its contents is probably radar type equipment. We will be put on the bidder's list. Maynard Industries will bid on the shed and its contents.

The people at Raytheon will enter through the present entryway and go down to the floor below. This disrupts our plan for security through the door, but I am not sure that there is anything we can do about it.

Alongside the cafeteria they have a fire-proof storage area for their inflammable liquids. It is a water-proof floor and asbestos panel walls. We might consider salvaging this for our own use.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE May 4th, 1962

SUBJECT

TO Gordon Bell

FROM Kenneth H. Olsen

Dr. Ervin from Mass General Hospital called late on Thursday. He is still very interested in this computer and is more or less holding back CDC on the assumption that we will come across. However, he realizes that he is the gift receiver and, therefore, not in a position to pressure us and so he only hints at the need to come to some conclusion.

While we have been doddling on the medical computer question, CDC has sold a computer to the Albert Einstein College of Medicine and UCLA. If Mass General gets a CDC computer, I think they'll have the medical field pretty well sewed up.

MGH has some young programmers who are full of ideas as to how to convert programs from one computer to another. Dr. Ervin asked if we could have one or two of our people listen to their ideas to see whether they are worth pursuing. I asked him to have the men call me next week and I will arrange a date with Gordon Bell and Dit Morse. Dr. Ervin is going to be in California for two weeks and so one of the programmers will make the arrangements. The man's name is Bill Lennon.

I feel that we should consider the possibility of hiring James Nortman to head our medical work. This man seems to have the qualifications and interests which would be ideal for this type job.

Kenneth H. Olsen

cc: Ben Gurley
Harlan Anderson
Stan Olsen

# INTEROFFICE MEMORANDUM

DATE May 2nd, 1962

SUBJECT IRE Membership

TO Jim Burley

FROM Aynne Manning

The enclosed note from Mr. Olsen is self-explanatory. I am enclosing a membership form for your convenience.

You will note that the membership form requires references. An Associate member requires Three Fellows, Senior Members or Members. A Member requires Four Fellows, Senior Members or Members.

The following Digital people are IRE members and you may want to use them as references.

Senior Member

Ken Olsen

Members

Harlan Anderson
Dick Best
Jack Brown
Jim Cudmore
Dick Whipple
Don White

dec INTEROFFICE MEMORANDUM

DATE May 2nd, 1962

SUBJECT IRE Membership

TO Dave Denniston FROM Aynne Manning

The enclosed note from Mr. Olsen is self-explanatory. I am enclosing a membership form for your convenience.

You will note that the membership form requires references. An Associate member requires Three Fellows, Senior Members or Members. A Member requires Four Fellows, Senior Members or Members.

The following Digital people are IRE members and you may want to use them as references.

Senior Member

Ken Olsen

Members

Harlan Anderson
Dick Best
Jack Brown
Jim Cudmore
Dick Whipple
Don White

dec INTEROFFICE MEMORANDUM

DATE May 2nd, 1962

SUBJECT IRE Membership

TO Ken Larsen

FROM Aynne Manning

The enclosed note from Mr. Olsen is self-explanatory. I am enclosing a membership form for your convenience.

You will note that the membership form requires references. An Associate member requires Three Fellows, Senior Members or Members. A Member requires Four Fellows, Senior Members or Members.

The following Digital people are IRE members and you may want to use them as references.

Senior Member

Ken Olsen

Members

Harlan Anderson
Dick Best
Jack Brown
Jim Cudmore
Dick Whipple
Don White

dec INTEROFFICE MEMORANDUM

DATE May 2nd, 1962

SUBJECT CDC Visit.

TO Harlan Anderson
Roland Boisvert
Jack Brown
Ben Gurley
Bob Savell
Stan Olsen

FROM Kenneth H. Olsen

I received a call from William Jenkinson, the local manager from Control Data today. He would like to try to sell us their pneumatic magnetic tape handler and their other devices such as the Hawley printer and the tape-to-card-to-printer combination device they have.

I invited him to come at 3 o'clock on Thursday, May 3rd. Anyone who is interested in hearing his sales pitch should come along.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE May 2nd, 1962

SUBJECT

TO Harlan Anderson

FROM Kenneth H. Olsen

When I was at the MIT conference for local company presidents last fall, I met Mr. W. T. Handle who is chairman of the Industrial Liaison Office at MIT. He had been talking with Jay Forrester lately and said he would like to move on from MIT into industry and Jay suggested that he talk to us with the possibility of joining us here. I told him that we didn't have any definite openings, but that we would very much like to talk with him. He is coming out next Wednesday, May 9th at 8:30 a.m. and it would be good if you could spend a little time with him at that time.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE May 2nd, 1962

SUBJECT Carpenter Shop Housekeeping

TO Loren Prentice

FROM Kenneth H. Olsen

Our carpenter is a good man and he works hard and gets the job done very quickly. However, he never seems to find time to clean up the carpenter shop. I feel we have two alternatives; one, to move the carpenter shop every few months so that periodically we start off with a clean room, and the other is for you, as his boss, to keep after him continuously.

Kenneth H. Olsen

cc: Ep Toumi

dec INTEROFFICE MEMORANDUM

DATE April 30th, 1962

SUBJECT

TO Dick Mills

FROM Kenneth H. Olsen

I received a call from Mr. Rome today, Monday, April 30th, about our lease for the top floor of building 5. It would be most convenient for him if they waited until July 1st before they gave us the lease on that space. However, they realize that if we want to add improvements to the place, it might be necessary for us to have a lease before that. I told him to wait until we ask for a lease before they go ahead and prepare it because of the possibility that we may not need it.

I will leave it up to you then to decide when and if we need a lease and then you can go ahead and get one from them. He said it would only take a day or two to get one ready.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE April 30th, 1962

SUBJECT

TO Harlan Anderson

FROM Kenneth H. Olsen

On Thursday, April 26th I received a call from Mr. O. M. Spaid from Internal Inspection Company, Summit, New Jersey asking if we would join with them in a bid to the government for running feasibility studies and supervisoring computing installations overseas. I told him that we are not well suited for that type job and that they would do better looking to someone like Charles Adams Associates or Bolt, Beranek and Newman. I told him that if he asked advice from our people, they would always suggest that they build it themselves or that it was impossible.

I gather he heard of us from American Research and Development but, he did not know them well enough to have their name straight.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE April 27th, 1962

SUBJECT

TO Harlan Anderson
Ben Gurley
Stan Olsen

FROM Kenneth H. Olsen

I had a call from Jack Gilmore on Thursday, April 26th. Adams Associates has been approached by Friden Corporation to see if they wouldn't be a vehicle for renting Flexowriter typewriters. They knew that we were approached and turned down the project, but Adams Associates were thinking of going into the systems business and thought that this would be a good start. They are thinking about having the typewriters painted their own color and put Adams name on it.

Jack asked if we would let them know who our customers are so that they could offer to rent Flexowriter typewriters to them. I told him that, in general, we would be willing to do this, but there might be areas in which we would do business with competitors which we may be reluctant to do it and he understood this. I told him that I would call him back if you had any negative reactions to this.

The monkey farm would like to rent the PDP computer and so Charles Adams is thinking of purchasing it and renting it to them. I don't know how Adams plans to make money with their systems division, but I do think they know arithmetic and they probably know what they are doing. It can't help but do good for us.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE April 27th, 1962

SUBJECT

TO Harlan Anderson

FROM Kenneth H. Olsen

Bob Hughes of ITT called on Thursday, April 26th to ask if we were going to be in San Francisco. He would like to meet with us and talk about a personal matter. I told him that I wouldn't be there, but that you can speak for both of us.

I told him that you would be glad to have dinner with him and I suggested that he ask you to show him where Omar Khayyam's restaurant is.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE April 27th, 1962

SUBJECT PDP-1 Layout

TO Bob Beckman

FROM Kenneth H. Olsen

Here is a list of dimensions of the PDP-1 equipment that we have on the first floor. The last column is the dimensions scaled down to 1/4" = 1 ft.

| Name | Dimension | Dimension |
|---|---|---|
| PDP-1 (4 days & console) | 97 x 27 | 2 x .56 |
| Anelex Printer | 67 x 31 | 1.4 x .645 |
| Typewriter Table | 34 x 30 | .71 x .625 |
| Display | 49 x 44 | 1 x .92 |
| Burroughs Card Reader | 30 x 18 | .65 x 3.75 |
| 523 Punch | 42 x 25 | .875 x .52 |
| Standard DEC Cabinet | 23 x 27 | .5 x .56 |
| 3 Tape Handlers & Control | 92 x 27 | 1.9 x 5.6 |

We now have masking tape which is .5 and .625" in width. With this you can make up models very easily. Dave Shuflat has a box of the .625" tape and the stockroom has .5" tape.

Kenneth H. Olsen

To: ALL EMPLOYEES

From: Kenneth H. Olsen

Subject: Parking April 25th, 1962

We have been concerned for some time that our employees have had to park their cars three deep in the very limited parking area in front of building 12. This has not only meant delays in leaving at night, but has also meant that people have been called out during the day to let other people out of the lot. We thought we had solved this problem by moving much of our facilities to building 5 where there is unlimited parking available, however, people are still parking three deep in building 12. It must be that they do not realize that the parking is unlimited and easy at building 5 or else they do not realize that it is close, or closer, than building 12.

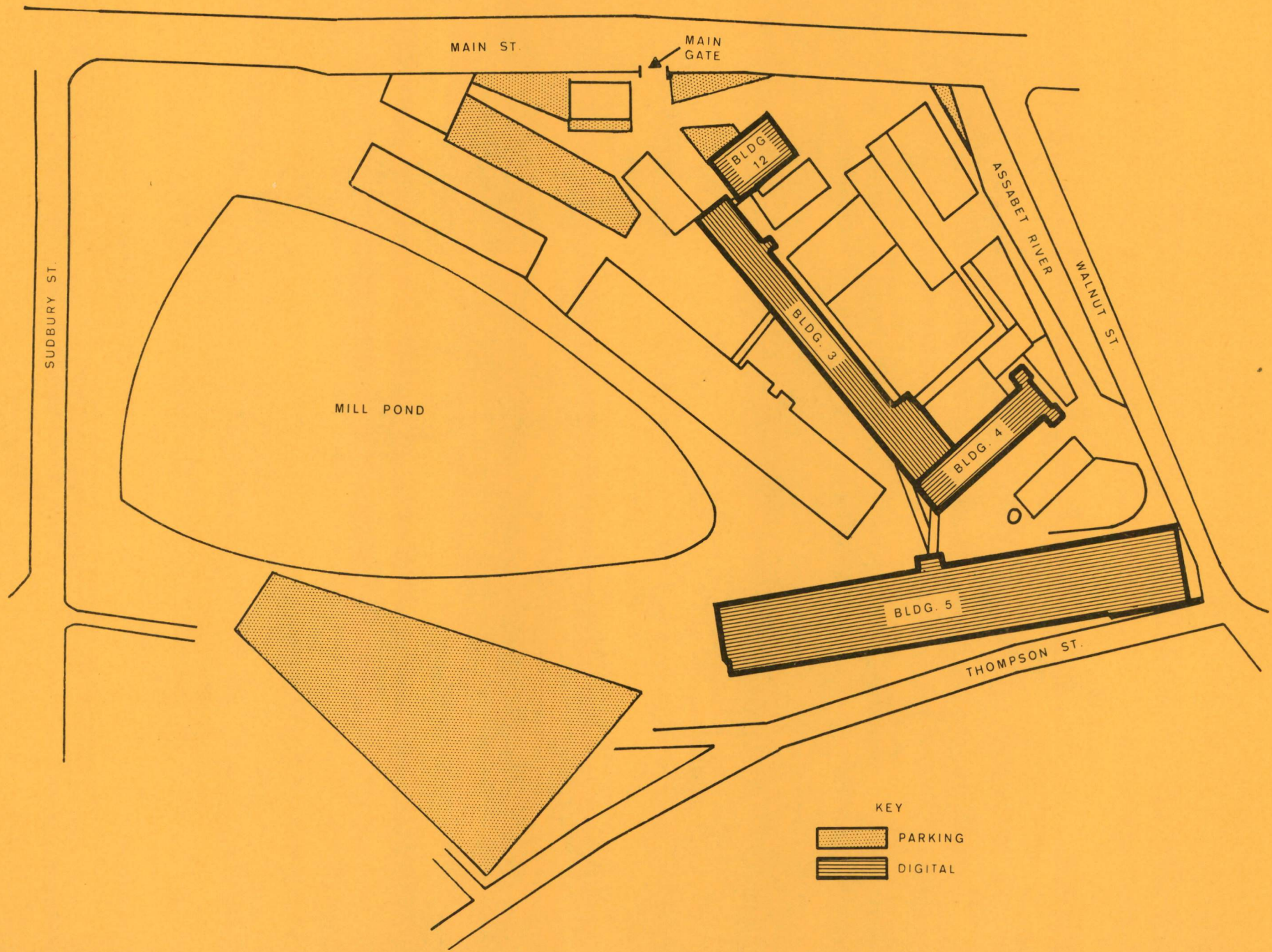
We are enclosing a map which will show where the new parking area is for those who do not realize where it is, and too, to try to convince everyone working in buildings 4 and 5 that it is indeed most convenient. It is definitely closer for all the people in building 5. For those working in building 4, and parts of building 3 it is closer if one considers the extra stairs used if he parks in front of building 12.

For your own convenience, and the convenience of those who have to park in front of building 12, we would urge everyone to try to park in the lot near building 5.

Bradley Container Company has complained that DEC employees are using their parking lot. I told them that I was sure that our employees would not do this because it is definitely marked as private property, but I did agree to remind all our employees of the fact.

Kenneth H. Olsen

# DIGITAL EMPLOYEES PARKING MAP



To: Harlan Anderson
Jack Atwood
George Brown
Henry Crouse
John Culkins
Ken Fitzgerald
Stan Olsen
Loren Prentice
Maynard Sandler
Jack Smith

From: Kenneth H. Olsen

April 24th, 1962

Subject: Company Security Proposal

On Monday, April 23rd we met to talk about company security problems. It is obvious that we are much too lax in our security and have to enforce it much more vigorously. In July, the Purchasing Department will move over to building 5 and so, in general, the company will have only two entrances, the main one in building 12 and the one near the shipping dock in building 5. We are, however, going to put the prototype computer in the large classroom on the top floor of building 4 and we are going to have a separate entrance to that so that we can allow outsiders to have access to that room and not to the rest of the company.

We will allow out only a very limited number of keys, and those who have to work nights, will check out individual keys that will be on very large markers so that although the temporary keys are given out freely they will not be easily forgotten and no one will put them on their own key ring.

Loren Prentice will be responsible for all our security, but he, in turn, will use other people to carry out the work. I think that Brad Towle should continue to be the dispenser of temporary keys. It should be someone in the Sales Department because the temporary keys should be readily available, but they should be called back immediately after use.

We have broken down the outside doors into four groups:

1. Front door of building 12 and the door from the fifth floor of building 3 to the Machine Shop in building 4.

2. Front entrance of building 5 and the two entrances from the elevator shaft to the center of building 5.

3. The Computer Room in building 4.

4. All side doors and elevator shafts.

There will be sub-master keys which will open all four groups and will be given to a small number of people. Those needing access to only one group will be given only that key. There will be temporary keys made up for all four groups, but it will be in only extremely rare cases that a temporary key will be needed for group 4. If people need a key for group 1 and 2 on a temporary basis, they will be given two temporary keys and then they will have access to the whole plant.

In addition, there will be several inside key groups. These will all be opened by the grand master key. The inside groups are as follows:

5. Manufacturing.

6. Advertising.

7. Tool Crib.

8. Finished Goods.

9. Archives.

We would also like to have a master lock system and a sub-grouping lock system for all our gray cabinets and for all our file cabinets. The emergency is not as severe on these, so we can let it slide a little while.

Most doors which would possibly have to be opened for emergency, but which we don't want opened normally, we are going to have installed with alarm type locks. In order to get through these locks one has to break glass which allows the door to be opened, but also sets off an alarm. If they are opened with a key, they work like any other lock. The following doors will have this type lock.

1. Between the Machine Shop and the fifth floor of building 3.
2. Walnut Street end of the fourth floor of building 5.
3. Walnut Street end of the fifth floor of building 5.
4. Elevator tower door on the fourth floor of building 5 and elevator tower on the fifth floor of building 5.
5. Front fire escape fourth floor of building 5.
6. Front fire escape fifth floor of building 5.
7. Stairway between floors three and four at main entrance of building 5.
8. Between Computer Room and Sheet Metal Shop of building 4.
9. In door to be added at present Purchasing entrance.
10. Door by Drafting Department.
11. Door in building 3 to General Radio area.
12. Door in building 3 to Country Store.
13. Side door on first floor of building 12.

For this long list of bell type locks we perhaps should order a spare even though

they cost $60.00 each. All of these, but the first two, are in key group number 4.

Also, in key group number 4 are padlocks to be put on the following areas:

1. Shipping door on the first floor of building 12.

2. Door to the hoist in the second floor of building 12.

3. Elevator near the eating area in building 3.

4. Elevator on the far end of building 3.

5. Elevator on the third floor of building 4.

6. Elevator on the fourth floor of building 4.

Loren Prentice is going ahead and buy the alarm type locks and he will settle on a master keying system.

As a temporary measure, Loren is immediately going to change the locks in building 5 and the main door in building 12 so that they all open on the present standard door key.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE April 24th, 1962

SUBJECT New Module Socket

TO Henry Crouse

FROM Kenneth H. Olsen

We have received several complaints that the spring contact has fatigued in our present Amphenol connector. I do not like the idea of going to a ribbon spring type connector because they have so little contact pressure and because they don't have a solid tab to solder to. It appears that going to beryllium copper adds very little to the quality of the contact. I feel the obvious way to improve the socket is not to allow the contact any play.

The play is important when the male connector cannot line up with the socket, but with the male connector we are now using, this is not a problem and all the play disappears after the socket is wired anyway. If we redesign the molding so that the contact is centered and it is allowed no motion this lowers the amount of resiliency necessary in the contact by a significant factor.

We can further improve the resiliency of the contact by making the part which bends even longer. I think that we use the sockets in large enough quantity that we can justify making a completely new contact and a completely new molding.

The molded part can be significantly heavier than we are now using. It would add very little to the cost and it would make the unit stronger and appear to be better quality. If the shank of the contact protruded through a tighter and deeper hole there would be no play in the contact.

If the shank of the contact was off-set or in line with one edge of the contact, the contacts could be made to be staggered which would give us more room for soldering. It would also make wire wrapping easier.

Amphenol now bends at tab on the contact in order to hold it in place. We could have them rotate the whole shank 45° which would make soldering easier for wires which are being run vertically or horizontally.

We should investigate the cost of having threaded bushings molded in place or inserted afterwards so that we do not need nuts.

We should make one end of the socket longer than the other so that we can skip the idiot strip which we are now installing in our mounting panels. We should also investigate the price of having this done to our taper pin socket which we paid for.

We should make sketches of the molding that we desire and we should also make sketches of the solder type contact and the wire wrap contact.

Kenneth H. Olsen

cc: Bob Hughes
Stan Olsen
Loren Prentice
Jack Smith

dec INTEROFFICE MEMORANDUM

DATE April 24th, 1962

SUBJECT

TO Henry Crouse

FROM Kenneth H. Olsen

Methode Company has a connector which appears to solve the problem for connectors on the PDP-4 double ended plug-in unit. This is a socket very much like the blue one which we now use in our mounting panels, but which has some keying ridges on the side. They then supply 9 pin plugs which are short versions of the plug we use on our modules. These they wire into 9 pin patch cords for plug board programming. You can then fit two of these across a socket because they are keyed, they only go in one way.

We could then mount this socket on the end of our module like we do now on our extender plug-in unit and we could have Methode make up the interconnecting cables which they consider standard. We then have to jumper between the two sets of contacts by means of etch wiring which may mean that the module has to be a little longer or else it will crowd the etch wiring a little bit.

I would like Henry Crouse to obtain a sample of this for us. The socket number is SD-622S-MPL and the plug is MD-609S-PAS. We would like to have between 1 and 5 of each of these parts, depending on which is most convenient for them to supply. If they have the plugs wired up into cables, we would like to have a sample of that.

Another approach is to put a male Amphenol connector on the back end just like we now have on the front end and then use an AMP female connector. This has the obvious advantage of making the module very easy to make because it uses present techniques with just straight side pieces. The AMP female connector has the advantage in that it uses crimp type connectors. We use a 12 pin version or if we used only 9 pins of the 22 pin version, we should then consider jumpering all the cables together. This cuts down the number of contacts by two, but it means that all the plugs would have to be disconnected in order to pull out a module. I think this is a cost which would be well worth it because of the big saving.

Kenneth H. Olsen

cc: Gordon Bell

dec INTEROFFICE MEMORANDUM

DATE April 24th, 1962

SUBJECT

TO Dick Mills

FROM Kenneth H. Olsen

I received a call this morning from Jay Forrester about our plans for continuing the seminar series. I told him that each of the members of the seminar would like to continue in the new group study plan. He suggested that we set up the groups and arrange a meeting time with Dave Packer. I told him that there were about 15 people who were taking part which would mean about 5 in each group, if we picked 3 groups. I told him that you would contact Dave Packer and arrange a meeting time and that you would choose the 3 teams.

He suggested that we try to arrange a meeting time with Dave Packer so that all the groups would meet in one afternoon so that they would only have to make one trip out. This would mean that some of the groups would have to meet during working hours. He said it would take about 1-1/2 hours for each group.

He further suggested that we meet once a week but that alternate meetings should be by the group without Dave Packer.

I would like to leave the job with you of arranging the meetings with Dave Packer and choosing the teams. We probably should postpone meetings for another week because so many of our people will be away at the show in California.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE April 19, 1962

SUBJECT 729-6 Tape Drives

TO Ben Gurley
Dick Best
Jack Brown
Fred MacLean

FROM Kenneth H. Olsen

Fred MacLean called IBM to find out the availability of a 729-6 Tape Drive. They said that they would rent one on a temporary basis, but the delivery would not be until February, 1963. With a great amount of pressure, they might be able to deliver it in December, 1962. They feel that they have to give their customer system orders first priority.

He did say, however, that the 729-4 Tape Reader would have much better availability.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE April 19, 1962

SUBJECT

TO Jack Atwood

FROM Kenneth H. Olsen

I received a call today from Bob Cesari, our patent lawyer, about our new catalog. He says that our copyright notice is in the wrong place and, therefore, our catalog may not be copyrighted. He says that the law is very specific in saying that it should be on the title page or on the page following the title page. Next time we print the catalog, we should be careful that it is in the right place.

Kenneth H. Olsen

CC: Harlan Anderson
Stan Olsen

dec INTEROFFICE MEMORANDUM

DATE April 19, 1962

SUBJECT Display Booths

TO Jack Atwood
Harlan Anderson
Stan Olsen

FROM Kenneth H. Olsen

Several years ago, I designed a display booth and with some amount of effort, proved that we could make one cheaper than we could have one made outside. This might have been a great disservice to the company. The result of our success in making this booth has initiated a company policy that we make all booths. Now we postpone construction of the booths until the last week, and we are very free in adding frills, making changes in the booths, and adapting them to the current ideas.

I suggest that we change our policy now, and that we purchase all booths. This will have several advantages. We would be forced to make our decisions well ahead. We will have an exact cost on all the novel ideas and frills that we might request. We will also know whether or not it's worth making a new booth, because we'll have a price tag on it. If someone wants to propose a booth made here in the house, he could then present drawings and sketches and prices, and we can see how they compare with the outside.

I suggest that we clean up the odds and ends that we now have around the plant, and that we then end up with two or three 10' booths, one 20' booth, and one 40' booth. These should be general purpose booths that we don't feel obligated to modify for each show. We should then take space at trade shows which will fit our standard booths, and not try to do anything tricky like the EJCC last December.

We should always have the display booth set up two or three weeks before the shipping date, so that we can correct for things we don't like. The booths we used in the IRE Show and the one now going to the Spring Joint Computer Conference looked quite homemade, but only in details which could be readily fixed up if we had a few more days. I am very reluctant to criticize these booths, because people worked so very hard and such very long hours at the last minute to do them. But on the other hand, if we started them earlier and simplified our ideas, we could avoid some of these long hectic hours before the show.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE April 19, 1962

SUBJECT

TO Harlan Anderson
Stan Olsen
Ben Gurley
Dick Best
Maynard Sandler
Al Blumenthal
Loren Prentice

FROM Kenneth H. Olsen

We have striven to have an unusually high illumination level in most working areas. Even though the cost is high, we feel this is a good investment, because it makes the mill look bright and pleasant. However, one interesting disadvantage develops. Some areas which are not as bright as others give the impression of being dark, even though their level may be well above standard. Because there have been some complaints about the level, we had our electrician, Bernie Joyce, make a survey of the plant to check on the illumination level.

The following list gives the result of Bernie's survey in which he used a Weston light level meter, held at about bench level. The conclusion is that there are only two areas which have low light level. They are Jack Smith's office and my own office. I suggest that for the time being we consider increasing the level in these two offices only.

The recommended light levels start at about 5 - 10 foot candles for corridors, and for areas in which very close work is being done, they recommend between 50 and 100. We have over 50 in almost all areas. Our mechanical inspection has a level of 125 at the bench level, and drafting has between 125 and 150.

Kenneth H. Olsen

Attachment

LIGHT LEVELS: All readings taken at bench level during daylight hours.

| | Area | Light Level |
|---|---|---|
| Building 3: | Computer Assembly | 80 - 125 |
| | Cafeteria | 40 - 90 |
| | Ramps and Passageways | 20 - 100 |
| Building 4: | L. Prentice Office | 70 - 100 |
| | Machine Shop | 50 - 100 |
| | Library | 55 - 80 |
| | Auditorium | 75 - 100 |
| | Model Shop | 70 - 80 |
| | Engineering | 50 - 80 |
| | Purchasing | 50 - 70 |
| | Drafting | 125 - 150 |
| | Blueprint Room | 75 - 100 |
| Building 5: | M. Sandler Office | 90 - 110 |
| | Assembly Bench Area | 70 - 110 |
| | Production Control Office | 60 - 80 |
| | Stockroom | 50 - 70 |
| | Testing Area | 50 - 80 |
| | Quality Control Oscilloscope Area | 10 - 15 |
| | " " Bench Area | 70 - 100 |
| | Test Equipment Headquarters | 70 - 90 |
| | Mechanical Inspection Work Bench | 125 |
| | " " " Area | 90 |
| | Mag Tape Checkout | 80 - 90 |
| | Main Corridor | 15 - 30 |
| | Final Checkout | 50 - 80 |
| | A. Blumenthal Office | 50 - 80 |
| | J. Smith Office | 40 - 50 |
| Building 12: | | |
| First Floor - | Shipping | 40 - 60 |
| | Reception Room | 125 - 150 |
| | K. Olsen Office | 40 - 50 |
| | IBM Room | 70 - 100 |
| | Accounting | 80 - 100 |
| | Personnel | 40 - 80 |
| Second Floor - | Bench Area | 70 - 100 |
| | Office Space | 70 - 100 |
| | Open Desk Area | 60 - 100 |
| Third Floor - | Stairs | 30 - 60 |
| | Work Area at Desks | 80 - 100 |
| | Mailing Work Area | 90 - 125 |

# INTEROFFICE MEMORANDUM

DATE April 18th, 1962

SUBJECT Gold plated eyelets for test equipment.

TO Harlan Anderson
Stan Olsen
Jack Smith

FROM Kenneth H. Olsen

Because we have been having trouble consistently with the electrical contact in our test equipment patch cords I would like Henry Crouse to find out what it would cost to have our patch cords gold plated and to have our eyelets gold plated.

In addition to the simple contact between the eyelet and the banana pin we also have suffered because of the connection between the eyelet in the wire and because of the flux inside the eyelet. I would like Henry to find out what it would cost to have special eyelets made exactly like our present eyelet, but which have a tab for soldering or for spot welding leads on the back side of the panel.

Kenneth H. Olsen

cc: Henry Crouse

# INTEROFFICE MEMORANDUM

DATE April 18th, 1962

SUBJECT

TO Loren Prentice

FROM Kenneth H. Olsen

Most of our elevators have to be shared with tenants on other floors. We should develop a plan by which the elevators are not left on our floor at night so that the other tenants will have access to them. I am not sure how we should do this, but we should discuss it at the meeting on security which we will have soon.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE April 18th, 1962

SUBJECT

TO Stan Olsen

FROM Kenneth H. Olsen

I never seem to get to the French Restaurant any more so will you, when you are over there, measure the dimensions for shutters for the front window and then initiate an order for them.

We also should have an extension cord so that the clock and the lamp along side the hutch will work. If this extension cord is made out of zip cord it could be stapled in place and would be very inconspicuous.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE April 18th, 1962

SUBJECT

TO Dick Mills

FROM Kenneth H. Olsen

We bought a Cathotometer, which is a lead screw mounted microscope, for testing the precision spray scope which we are making for the University of California and CRC. There is a vague possibility that we may use this machine again, but it is not at all likely and so I think we should expense it off as one of the costs of making these two machines. It is such a very special purpose device that I think we would be giving a false impression if we added it to our list of capital equipment.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE April 18th, 1962

SUBJECT

TO Henry Crouse

FROM Kenneth H. Olsen

When I was at the IRE show, I talked to a salesman from Sprague about one of their new circuit packages. This is smaller than the bulplate printed circuit packages which we bought samples of. At that time, they did not have literature on them and I forgot the trade name they have for it. When you talk to the salesman from Sprague, will you ask him about it and when they are in, I would like to talk with them. They are making these in Nashua, New Hampshire and I feel that we should visit them and talk to them about some of the circuits which we need.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE April 16th, 1962

SUBJECT

TO Jack Atwood
Henry Crouse

FROM Kenneth H. Olsen

I feel that I have lost touch with the expenditures in the Advertising Department. I was quite shocked to see that in February we spent $6,898.00 on advertising for job applicants and in March, we spent $6,433.00 for the same. In order to develop more feeling for the expenditures in the Advertising Department I would like to cancel all open purchase requisitions and now do this purchasing with the conventional purchase requisitions.

I would like to see justification for any future employment advertising. I would like to know how many people we hired during February and March that we attribute to the $13,331.00 we spent during that period.

Kenneth H. Olsen

cc: Stan Olsen
Harlan Anderson
Bob Lassen

# INTEROFFICE MEMORANDUM

DATE April 16th, 1962

SUBJECT

TO Loren Prentice
John Culkins
George Brown

FROM Kenneth H. Olsen

I stopped in Sunday afternoon at the plant and was very surprised to find the shipping door on the first floor of building 12 completely unlocked and the elevator door on both ends of building 3 unlocked. This points up the need for an immediate security plan. I would like Loren Prentice to meet with who ever he feels is necessary and to propose a workable and consistent plan. This plan should be put down on paper and then we should have a meeting later this week to approve it.

I also noticed that the power was off on the first floor of building 12 and all the coolers and clocks were off. I am very sympathetic with the problem because when I tried to turn the power on it wasn't at all obvious how this should be done. When we have the meeting on security, I would like also to have George Brown prepare a proposal for how we turn power off in building 5 and John Culkins do the same for the other buildings. We may want to re-do some of the wiring in order to make it easier. As a minimum, we should have the boxes labeled and a memo pasted at various places indicating how it should be shut down.

If someone needs help in preparing notes or memos, my secretary will be available to do this.

Kenneth H. Olsen

cc: HarlanAnderson
Stan Olsen
Dick Mills
Maynard Sandler
Bob Lassen
Jack Atwood

INTEROFFICE MEMORANDUM

DATE April 16th, 1962

SUBJECT

TO Loren Prentice
John Culkins
George Brown

FROM Kenneth H. Olsen

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If someone needs help in preparing notes or memos, my secretary will be available to do this.

Kenneth H. Olsen

cc: HarlanAnderson
Stan Olsen
Dick Mills
Maynard Sandler
Bob Lassen
Jack Atwood

# INTEROFFICE MEMORANDUM

DATE April 13th, 1962

SUBJECT Drum System Review Meeting

TO Harlan Anderson
Gordon Bell
Dick Best
Ben Gurley
Ted Johnson
Stan Olsen

FROM Kenneth H. Olsen

The drum systems have suffered from the lack of a customer with an absolute deadline. As a result, many things have been let slip and no one appears to have real confidence as to the complete status of these systems. I would like to call a meeting for 10:00 a.m. on Wednesday, April 18th in my office to review the status of this.

At this time I would like to have a list of all the jobs to be done on these projects and a schedule laid out and individuals assigned to each of the jobs. The result of this meeting should be that we will all have complete confidence that everything is under control or at least, we all should be conscious of what the problem areas are.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE April 13th, 1962

SUBJECT Memory Testing Review Meeting

TO Harlan Anderson
Dick Best
Jan Fadiman
Ben Gurley
Stan Olsen
Dick Whipple

FROM Kenneth H. Olsen

The Special Systems Group has been quite autonomous and very successful and as a result has not received its share of attention from the company officers. We should set up periodic meetings to review the problems and successes and questions of this department. I would like to call a first meeting for Tuesday, April 17th in my office at 10:00 a.m.

We would like to discuss the status of the Japanese market, the status of the Phillips Machine and our present and future position in the memory testing market in this country. We would also like to talk about any other problems or ideas which you may care to discuss. Also, we should bring up ideas for new developments which we should pursue.

Kenneth H. Olsen

INTEROFFICE MEMORANDUM

DATE April 13th, 1962

SUBJECT Quality Control Review Meeting

TO
Harlan Anderson
Dick Best
Ben Gurley
Bob Hughes
Stan Olsen
Loren Prentice
Maynard Sandler
Jack Smith

FROM
Kenneth H. Olsen

Since we reorganized the Quality Control Department we have not met to review the policies and actions of the committee. I would like to set up a meeting for 10:00 a.m., Monday, April 16th in my office to review the status of the Quality Control Department.

I would like all those who have responsibility connected with Quality Control or who have complaints for the Quality Control Department to come to this meeting.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE April 13th, 1962

SUBJECT

TO Jack Atwood

FROM Kenneth H. Olsen

I think we should set up a schedule for reviving our house organ. I suggest that immediately we send a copy of our new catalog to all our employees with a note saying we have been delayed in coming out with the next issue of the house organ because of all the work involved in this catalog, but that in a short time, the publication will be revived.

cc: Bob Lassen
Stan Olsen

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE April 13th, 1962

SUBJECT

TO Loren Prentice

FROM Kenneth H. Olsen

If we made the top section (or the bottom section) of our mounting panels 1/8" shorter than the other side it then would be possible for customers, or ourselves, in special cases to move the mounting panels 1/4" or 3/8" closer together.

I would like to know what would be involved in changing the design this way. Maybe we should make it a full 1/4" shorter so that it will not look like we tried to make them the same and just accidently it came out differently.

We are thinking of going to a wider module that would have more pins and more area on the etch board without going to longer length. One of the sockets we were looking at would fit in a 7" mounting panel if we allowed the flanges to overlap. If the standard mounting panels allowed the overlap we then could go to this socket very easily.

Kenneth H. Olsen

cc: Roger Malenson
Dick Best
Gordon Bell

dec INTEROFFICE MEMORANDUM

DATE April 13th, 1962

SUBJECT

TO Gordon Bell

FROM Kenneth H. Olsen

There are two ideas which we have talked about implementing in PDP-1, but we never got around to doing because the machine was already so big. However, it might be worth considering for PDP-4.

With a built-in refrigerating unit it would be possible to completely recirculate air within the system and eliminate the problems of dirt, dust and corrosive atmosphere from the outside world. This, of course, would be particularly useful in industrial control and would mean significantly longer life for the system. Packaged units are available for refrigeration. In fact, most air conditioner and refrigerator manufacturers buy these pre-made packages from Tecumsett Company, 959 Brown Street, Tecumsett, Michigan. A few years ago, I believe, Carrier was the only air condition manufacturer making their own refrigerating units. We could mount one of these systems in an end cabinet and use fans to circulate the cool air continuously through the cabinets. We should still have filters, but, because the same air will be circulated continuously they will accumulate very little dirt and after a few passes through the filter, the air should be perfectly clean.

The other idea is our need for a motor generator to smooth out severe line transients. Dan Wardimon has the 3,000 cycle supply now from Reliance Manufacturing Company and he should soon get results on it. The main advantage of this type unit is that we could then operate for a relatively long period of time after power is shut off. The secondary advantage of the system would be it is significantly lighter in weight because the power supply transformers use almost no iron.

We had trouble designing a 3,000 cycle power supply because we had no experience in this frequency range. Another approach would be to use a 400 cycle generator which is readily available and the power supply should be relatively easy to build. These units when they are small are self-regulating and so we don't need a regulating transformer in the power supply. We could simply ship 115 or 230 volts around the system and step it down locally, in the power supply, to get the voltages that we want. People make 400 cycle transformers all the time and there should be no problem making the power supply for it.

Kenneth H. Olsen

cc: Loren Prentice
Ben Gurley
Daniel Wardimon
Dick Best

dec INTEROFFICE MEMORANDUM

DATE April 11th, 1962

SUBJECT

TO Bob Lassen

FROM Kenneth H. Olsen

While looking at the annual review chart I have observed that Paul Tracy has rated very poorly on all counts. He is obviously not at all interested in the job and it seems very unlikely that he will ever develop an interest in this type of work.

I feel that for his good and for the good of the company that we should suggest he leave. I feel that we should do this quickly because it becomes more difficult as time goes on.

I feel that people are reluctant to do this because it might offend his mother who is one of our long term employees. Postponing this decision will only make it more difficult to do and I think that we should more rigorously follow the rule that we do not employ more than one member of any family.

Kenneth H. Olsen

cc: Stan Olsen
Maynard Sandler

# INTEROFFICE MEMORANDUM

DATE April 11th, 1962

SUBJECT Carpenter projects for first floor - building 12.

TO Jack Atwood FROM Kenneth H. Olsen

1. Make small room for janitor sink with door.
2. Make new entrance to ladies room without door.
3. Put down underlayment in mens' room.
4. Box in pillar in card punching room.
5. Seal windows in lobby and new office with plywood.
6. Cover window wall in lobby and office with sheet rock to 8 foot height.
7. Cover both sides of wall between lobby and new office.
8. Continue the low wall within the new office and put doorway within it.
9. Make two clothes closets in corner of lobby. One should open from lobby and one from the hallway.

cc (2)

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE April 6th, 1962

SUBJECT

TO Harlan Anderson
Dick Best
Russ Doane
Ben Gurley
Stan Olsen
Barbara Stephenson

FROM Kenneth H. Olsen

There will be a meeting in my office on Thursday, April 12th at 9:00 a.m. concerning megacycle line of modules.

Kindly mark your calendar accordingly.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE April 4th, 1962

SUBJECT

TO Dick Best
Ben Gurley
Jon Fadiman
Stan Olsen
Harlan Anderson

FROM Kenneth H. Olsen

Holly Rising of Mitre Corporation (Crestview 4-9580) called me last week to see if we were interested in making a 2 microsecond memory for him. He had already talked to several other manufacturers and he found their prices were much too high. When he called back, I told him that we were interested, but, it would take us a while to decide on what approach we should take and to figure out whether we have the manpower or not. Ben thought we should very carefully consider this because it is so much in line with what we wanted to do anyway and so I invited them out to meet with us on Thursday, April 5th at 1:30 pm.

They want about 22 or 24 bit word length and 4,000 words. He would need about two of these units.

I think it would be a good idea if we looked over what cores are available and what transistors would be used to see if we should encourage this any further.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE April 5th, 1962

SUBJECT

TO Frank Kalwell

FROM Kenneth H. Olsen

The new Methode Connector catalog shows a connector and plug very much like the ones we use in our modules which are longer and have 32 pins. Will you order 5 male plugs and 5 female of this size. The spacing between pins are somewhat less than our present ones but the style is very much the same and we could make a larger module using this connector.

cc: Gordon Bell
Dick Best

dec INTEROFFICE MEMORANDUM

DATE April 5th, 1962

SUBJECT

TO Ben Gurley

FROM Kenneth H. Olsen

Last week during the IRE show when we visited ITT, we offered to send one of our key people to Paris to make sure the machine was set up right and in good operation condition. This person probably should be you. We don't want to have you spend too much time getting involved with the uncrating and some of the problems which you can't help any more than anyone else can. We probably should wait until they have the machine operating before you go, but, you should get there soon enough so that you can be of some help.

I think you should go ahead and get a passport and perhaps get a reservation for the time which you would like to go. Stan Olsen, Jon Fadiman and Dick Best have gone through some of the red tape involved in getting a passport so you can take some hints from them.

You had better polish up on your French!

Kenneth H. Olsen

cc: Stan Olsen
Harlan Anderson
Nick Mazzarese

# INTEROFFICE MEMORANDUM

DATE March 30th, 1962

SUBJECT

TO Henry Crouse
George Gerelds
Stan Olsen
Jack Smith

FROM Kenneth H. Olsen

I met Mr. Levy from U. S. Dielectric Inc. of Worcester, Massachusetts at the IRE Show. He had potted our transformers at one time and so we have had some experience with him. They are now largely molding potting shells and headers. I made a sketch of a transformer shell which we could use and he is going to send us a quote. He suggested that we do not use a separate header and case, but that we make a cup with the holes in the bottom and fill the pot and then touch the top to a sanding disc. He says there is a compound which we can put on the bottom so that the resin does not come out through the wire holes. This compound is then washed off with acetone later.

The unit I sketched for him is about 1/2" diameter and 5/16" high. There is space for 10 holes in the bottom, but I told him that only 4 or 8 holes will be used at any one time.

When the quote comes in, we should double check the dimensions to be sure it is exactly what we want. I notice that some people leave a little raised portion in the bottom of their shells so that any resin which does leak down around the wires or any wire which does not get stripped exactly up to the shell will not bother the soldering.

I think we should then order some labels from Brady Company which would fit over the top of this unit and make it a very attractive one. I tried some Brady labels in our ultrasonic cleaner and found that the metal labels are made even more secure after going through the triclor but that the plastic labels collapse completely. We would like a plastic coating on any label we have so that it will be insulating, but this may not be possible.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE March 30th, 1962

SUBJECT

TO Harlan Anderson
Dick Best
Russ Doane
Ben Gurley
Stan Olsen

FROM Kenneth H. Olsen

I would like you to attend a meeting in my office on Wednesday, April 4th at 9:00 a.m. to discuss the design and plans for the 30 megacycle line of modules.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE March 30th, 1962

SUBJECT Banana Patch Cord

TO Bob Hughes

FROM Kenneth H. Olsen

It seems to me when I am doing some experimental work there is always a shortage of patch cords. I suggest that the Test Equipment Committee consider buying a quantity from Pomona. They have a new model which does not stack vertically, but only crosswises which is relatively economical. It is their model 1440 which lists for $1.00 each but in quantities of 250 the price is $.60 each.

This model is not in their catalog as yet, but it is available in the colors and lengths of their model B. They come in 4, 8, 12, 18, 24 and 36" lengths and ten different colors. The man I talked with at the show thought we could get the quantity price if we mixed colors and lengths.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE March 27th, 1962

SUBJECT Plant Security Officer

TO Loren Prentice

FROM Kenneth H. Olsen

We need to draft someone to be Plant Security Officer. This person should be quite senior in the organization and capable to work out a consistent and logical system of locks and security. I think that you are the obvious person for this job.

You have the shops and carpenters under you and you also have engineers you can delegate most of the work to, but, I would like you to take the general responsibility for it and to work out a consistent plan for locking the plant and an orderly system of keys.

I believe that we are going to rent the top floor of Building 5 which will help our security significantly. We will then put a partition on the landing between the third and fourth floors so that we block this obvious weakness in our security. We can then also use the whole common area and loading dock area in the very front of Building 5 and have only a lock on the very front door. Maynard Industries would like us to take over this floor and are willing to give us a very good break and some very good concessions.

One of the first things we should do is set up a system of keys. Perhaps the very first thing we should do is make the front door open with any key. I think we should have a very small number of types of keys. There should be one master key, one key to the main doors, one key to the secondary doors, one key to the computer room which we will build on the Building 4 auditorium, one key for the box in shops, one key for the locks in the printing department and one key for the locks in production department.

We will, very soon, have badges issued at which time we will insist that everyone wear a badge at all times. We will then insist that all contractors have badges.

Kenneth H. Olsen

cc: Stan Olsen
Harlan Anderson

# INTEROFFICE MEMORANDUM

DATE March 27th, 1962

SUBJECT Improvement of lobby.

TO Jack Atwood
Ep Toumi

FROM Kenneth H. Olsen

Jack Atwood has found a false ceiling which can be installed readily in the lobby. The cost of installation is significant and if Ep Toumi thinks that he can do it, it would be worthwhile because I think it then would not be capitalized. Otherwise, we should go ahead and have it done.

Before we do this, I think that we should nail plywood up against the two windows and then cover the whole front wall with sheetrock so that the false ceiling would match the wall.

We should check the electricians to see if they can raise the lamps so that the false ceiling can be a little higher.

This work would be the first step in fixing the lobby and after it is done I think we can visualize the next step even better.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE March 27th, 1962

SUBJECT

TO Loren Prentice

FROM Kenneth H. Olsen

I am planning to enlarge my office so that I can more comfortably seat people when I have large meetings and I will therefore want a larger table. Formica comes in sheets of 5' x 12' and I think that one can also get plywood that size. I would like to make a table that is hexagon in shape. It would be 12' long and 5' wide, but with tapering sides so that the ends are just 3' wide. Some people have made a very complicated study of conference tables and have concluded that this is the optimum shape.

We also need one of these tables for the conference room in the Sales Department so I think that we should order two of them. The colors of Formica are limited but we are not at all critical. The walnut grain Formica that I have on my present table is quite satisfactory.

I would like to have you sketch a decent set of legs for this. The general type we are now using is quite satisfactory and I think four legs would be adequate if we had two 2-1/2" steel pipe stringers running the full length of the table. We can have Hollowell make the top and maybe the welder in Acton could make the bottom, but I would like to leave this up to you. I think that we should not attempt to make the top in our own shops because it is so very large.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE March 27th, 1962

SUBJECT

TO Loren Prentice
Ken Fitzgerald
Ben Gurley
Bob Savell

FROM Kenneth H. Olsen

We have had a number of criticisms of our light pen because it does not have a switch on it. I think it would be worthwhile to keep this problem in mind so that if we can ever come up with a solution, we can install it.

People have also complained about its sensitivity to noise and we might consider the problem of filtering also.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE March 27th, 1962

SUBJECT

TO Harlan Anderson
Jack Atwood
Barbara Charnock
Bob Lassen
Dick Mills
Stan Olsen
Maynard Sandler

FROM Kenneth H. Olsen

If I remember correctly we are planning to give the 19th as a company holiday. The day after this is Good Friday and then Easter weekend. I think that our attendance will end up being relatively poor on Good Friday and so I think we might consider doing what several other companies are doing and that is giving the 20th off instead of the 19th. If we were not so far behind in production, maybe we could give both of them off, but right now this is definitely out of the question.

I think that we should consider this right away and make a decision because the date is coming up very quickly.

There is normally a disadvantage in not taking the regular holiday because people with children like to have the same day off that their children have, but this is not a problem at this time because most schools have the whole week off.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE March 27th, 1962

SUBJECT

TO George Brown
John Culkins

FROM Kenneth H. Olsen

I believe that we have a number of signs which say "Emergency Exit Only". John Culkins probably knows where they are. They might be in the old machine shop stockroom. I would like to have George Brown mount one or two of these in the stairway of Building 5. One should be on the outside of the doorway at the very bottom of the stairwell and one on the wall of the stairway just as it goes down from the landing which leads to the bridge between Building 3 and Building 5.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE March 27th, 1962

SUBJECT

TO Loren Prentice
Roger Malenson

FROM Kenneth H. Olsen

I have told the mechanical inspection group that their job is to facilitate the fitting together of mechanical parts. As a side line they may help our shops or our vendors to read drawings and prove their craftsmanship. We did not install this department to make sure the parts are exactly like the drawings.

If they take this far too seriously they are going to have to learn much about where the parts go and how they are used and also, as a result, will develop some modifications of our drawings. For example, they will probably often find that dimensions have not been placed in the most critical place and they may have been placed where they are not critical at all. In addition, of course, there will always be a certain number of mistakes they will find.

Do you think we might work out a system by which they can make simple modifications of our drawings without going through the drafting department but that will still keep things under control. I am not pushing this idea very hard, but I do think we have to work out a way in which we can make simple modifications to drawings very quickly.

We visited Itek Corp. last week who have a drafting machine which uses our computer. I was interested in one comment they made and that is that it is perfectly satisfactory to keep drawings on a continuous spool because people are quite satisfied to have a completely new photograph made whenever there is a modification and they are very happy to have the old drawing still on record. We might consider some day keeping all our drawings on continuous film instead of the cards which we now have.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE March 21st, 1962

SUBJECT

TO Roger Malenson FROM Kenneth H. Olsen

We have been criticized for putting jumpers in our plug-in plug where they really were not needed and thus causing some confusion with the man doing the wiring. This may not have been a wise thing to have done, but it is now in the circuit schematics and I suggest that we leave it there.

We are now working on automatic system for inserting the wires between the plug and the etch board. This means that in general there will be a wire between each terminal and only where it is impossible to do anything else will we want to cut the wire out afterward and so I suggest that for all the boards from now on, we lay them out assuming that there will be a wire in there.

We have also modified our layouts from now on so that there is a marker for drilling a hole of eyeletting the clamps wherever the long, narrow Philco type transistor is used. We should be sure that the circuitry avoids this eyelet even though the base of the transistor is supposedly insulated.

We will now go to funnel shaped eyelets for all transistors. These will be easier to insert because they don't have to be orientated like the stud eyelets and the transistor can be inserted before the dip soldering. We will then use the same eyelet spacing for both the Philco type transistor and the T5 type where the three terminals are located on a triangle with .1, .1 and .2" sides. This way we can continue to use one board for the 1103 and the 4106.

The T5 type transistors will be inserted end-on with a plastic pad just before dip soldering. The Philco type T28 cam will be inserted in the clip and the wires dug through the eyelet before dip soldering.

We will standardize on the following spacings: 1/2 watt resistors 0.6" spacing. 1/4 watt resistors 0.4" spacing and diodes 0.6" spacing.

Kenneth H. Olsen

cc: Dick Best

dec INTEROFFICE MEMORANDUM

DATE March 21st, 1962

SUBJECT

TO Bob Hughes

FROM Kenneth H. Olsen

We had a visit from Chuck Corderman on Monday and for two hours he explained to us the troubles he has encountered in using our units. Perhaps we should be proud of the fact that there were so few troubles in such a very large project but, we should take advantage of what we learned from him. He has had a finite number of failures of units that appear to have died from the time we tested and the time they were delivered. This number is so small that he doesn't want us to do anything about it, but I feel that there should be no failure during this period. He suggested that it was probably the vibration during shipping. I think that maybe we should take a thousand transistors and test them and then shake them all and test them again and see if any have failed.

He also had severe problems with one type transistor which had its leakage current increased very significantly during a period which he didn't have air conditioned area in his racks. This is increase in ICO during shelf life at about $90^{\circ}$ - $95^{\circ}$ Fahrenheit. This should not have happened and I feel very badly about this and we gave him 200 transistors free for replacements. Will you ask Dick Best all that he learned from this and then call Chuck Corderman if there is more so that we can beat this one down. It is also quite mysterious because the units would be poor when they were first turned on, but, after being used a little bit, they would come back to a more normal situation. This means that we have the potential problem that we use to have with sleeping sickness and cathodes of double triods that we used in flip-flops that would go for days without changing.

He also found a very small percentage of taper pins which were not correctly crimped. These were units in which the wire was not connected because the crimp was made only on the insulation. We should be sure to inspect all taper pin cables so that we can see where the insulation ends so that we can be sure that we have also crimped the wire.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE March 21st, 1962

SUBJECT

TO Henry Crouse
Jack Atwood
George Lord

FROM Kenneth H. Olsen

I have some literature on General Electric's quartz lamps which are very much like the small Sylvania movie lamp. This appears to me to be a much better way of exposing plates and silk screen film than the arc light because there is no adjustment and no mess and smoke. I suggest that we look into this to see where the lights are comparable before we buy another carbon lamp. We might even experiment with the present Sylvania lamp we have. General Electric makes some lamps which are several times as big as that Sylvania lamp.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE March 20th, 1962

SUBJECT

TO Cy Kendrick

FROM Kenneth H. Olsen

I asked George Gerelds to order the parts and to build four more electrocounting boxes for the component benders. We have on order two more benders and we will have a total of four and then we will have an extra counter.

I asked him to put a flush mounting socket and plug on the back so that we can have complete freedom in tieing these counters to different units. He is ordering the predetermine counters, the buzzer and the boxes necessary to make these.

Kenneth H. Olsen

cc: George Gerelds

# INTEROFFICE MEMORANDUM

DATE March 20th, 1962

SUBJECT

TO John Culkins

FROM Kenneth H. Olsen

We had a visitor from the Department of Labor who was shown around by Bob Dill. He had a number of comments which we should take care of and I suggest you talk with Bob Dill about them. The emergency exits on the third floor of Building 12, he felt, were inadequate and that the windows were locked and the sashes broken. Will you look into this situation and let me know what you think we should do about it.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE March 20th, 1962

SUBJECT

TO Ben Gurley
Harlan Anderson
Stan Olsen
Ed Fredkin – Informational International

FROM Kenneth H. Olsen

I have become quite concerned about our proposed plan to place our prototype PDP in Ed Fredkin's plant. Some of the potential customers that we have talked with have shown some concern at being too close to Ed because they consider him potential competition. If this is a common attitude it could be quite serious to us. I am also afraid that if Ed carries out all the services he promised, it might be too serious a drain on his own operation. Ed might also be limited in the resources to make the installation look good.

I propose that we consider putting the PDP in our present auditorium on the fourth floor of Building 4. This area is very nicely prepared with a tile floor and a well illuminated area. This is so large that we could set the computer up very nicely and have area for people to run special experiments and room for a large classroom. This could work out very well for Ed Fredkin because we could take the lock off our present robbie door in Building 4 and put it on the door in purchasing so we could give Ed Fredkin direct access to this room. We could run a partition along the far wall so that the Machine Shop would have access to their wash room. We could then allow Ed Fredkin, or our customers, to come in freely on their own and use this facility. If necessary, we might make a small co-educational wash room in the present storage room.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE March 20th, 1962

SUBJECT

TO Stan Olsen
Harlan Anderson
Maynard Sandler
Loren Prentice
Jack Atwood
Henry Crouse

FROM Kenneth H. Olsen

I think that we should appoint a house security officer. This man should check to be sure that we always have a consistent security plan and that there is a realistic plan for closing off all areas at closing time. Right now I have the feeling that no one person has thought out the whole system.

I think that this man could be George Brown, John Culkins or Brad Towle. Let me know if you have ideas on this, otherwise I will just go ahead and assign one of these people to the job.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE March 20th, 1962

SUBJECT **New standard spacing for etch wiring.**

TO Dick Best
Roger Malonson
Russ Doane

FROM Kenneth H. Olsen

We found that United Shoe Machinery Company does not make an inserting tool for 0.5" centers. They can insert 1/4 watt resistors on 0.4" centers and diodes on 0.6" centers. I have made up some models on these centers and have concluded that these are quite reasonable and I propose that we go to them. I think that we can standardize on line tape which is 0.1" wide and circles which are 0.45" in diameter.

If you have any ideas on this let me know because I would like to set these standards, in a formal way, fairly soon.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE March 20th, 1962

SUBJECT

TO George Gerelds

FROM Kenneth H. Olsen

I have sent to you 4 samples of component clips from the Atlee Corp. which will hold a PO-24 case transistors. This is the size case which is used for the Philco high speed transistors. I would like to have you take an etch board and mount these clips with the eyelets we are planning to use for the end-on type transistors and install the regular slotted eyelets for the transistor leads.

Then, I would like to have you try inserting a transistor and bending each lead 90° and inserting it through the eyelet so that it will be soldered during dip soldering.

I think that we should go ahead with the program of inserting these component clips for all our transistors which are not going to be placed end-on. This will increase the quality of our units significantly and it may speed up insertion of transistors because they will hold themselves while they are being soldered whether before or after dip soldering. In most units the etch wire layouts would have to be modified in order to keep the eyelet from making contact with the circuit and to make a mark to drill on.

Atlee Corp. suggested a third type component but didn't have a sample of the unit. I would like to have you look at the drawing to see if this is a possible unit. Henry is also getting information from several other manufacturers including one that has a plastic holder. The plastic holder might be less expensive, but, it might not dissipate the heat as well as a metal one. If we have room, we could have some copper left behind the eyelet to help dissipate transistor heat when we use metal eyelets.

Kenneth H. Olsen

cc: Dick Best
Stan Olsen
Roger Malenson

# INTEROFFICE MEMORANDUM

DATE March 20th, 1962

SUBJECT Copy to the Reflector

TO Jack Atwood

FROM Aynne Manning

Just a little reminder that copy to the Reflector is due on March 25th for the May issue. As the 25th falls on Sunday this month perhaps you can get this information off to Shirley Whitcher by Friday or Monday at the latest.

dec INTEROFFICE MEMORANDUM

DATE March 19th, 1962

SUBJECT Automation of Plug Jumper and Installation

TO Jack Smith
Cy Kendrick
Maynard Sandler
Henry Crouse
Loren Prentice
Ken Fitzgerald

FROM Kenneth H. Olsen

We have asked Federal Tool Company and Bostitch Company to propose a machine for automatically installing the jumpers between the male plug and the etch board on a system building block. They both said they were interested, but, because they haven't come up with any proposal, I am afraid that they have lost interest. The job now takes six or eight people (I believe) on the production line and so is one of our most expensive operations.

We have several ideas for speeding up this operation. Ken Fitzgerald is now working out a way which will simplify installing the wires. Straight wire will be installed and cut off with a crimping tool on the etch board side and a straight wire inserted into the plug. This will be done with the etch board side up and so the girl soldering will see the same side of the plug that people will see on the finished unit and therefore it will be easier to make a good looking solder joint. It will also eliminate the tendency of solder to leak down into the connector and it should take less skill. Because the wire will long and easy to handle, it ought to speed up installation. When we get our Eubanks wire stripper we might tool it up to take straight solid #20 or #22 wire and squash it periodically so that the girl can install these straight jumpers from a spool and just twist it to break it off and already have a squashed end.

This seems like a rather easy interim system but we have to work on a significant improvement. This fully automated machine undoubtedly will take a long time to develop and will be very expensive. My thought now is to buy a taping machine which will cut bus wire exactly to length and tape them on 0.156" centers, very much like the tape diodes now on 0.2" centers. I think we could get one of the diode taping machine manufacturers to make this machine for us. A strip of 22 taped wires would then be dropped into the etch board just before it is dip soldered. I don't think the ends have to be bent over or crimped. If this is done before they brought the solder dip machine, one or two of the leads could be soldered in to hold the whole works in place.

After the taped wires are soldered to the etch board the connector can be dropped and hand soldered on, or with a special jig could be run through the automatic wave soldering machine. The process could be reversed so that the 22 taped wires could be run through the solder machine with the connector first and then this dropped in the etch board. The tape will have to gauge how far the wires go into the etch wired board and how far they go into the socket. It might be possible to have some attractive thermosetting tape that can be left on the wires. The white glass thermosetting tape which we now use shows soil too much. Otherwise, we could have some tape which would just fall off or dissolve as the units are washed to remove the flux.

If we have to make the taping unit ourselves, I think that we should buy the wire straightening device, the wire feed and the wire cutting parts from Eubank (the company that is making our new pneumatically operated wire stripping machine). These cut wires then can be dropped into a large sprocket wheel which would space the wires in the correct centers. The center of the sprocket wheel would be flat and would carry the tape. After 22 wires are counted, one wire could be skipped so that the tape could be readily cut by hand afterward into 22 unit lengths or the machine itself could automatically cut them into lengths.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE March 19th, 1962

SUBJECT

TO Henry Crouse

FROM Kenneth H. Olsen

When the snow disappears and the ground gets a little warmer, I would like to have us fix up the main entrance of Building 12 again. We keep running into trouble because the cars park on the lawn which we planted. I would like to have you inquire as to where we might buy those concrete spacers or curb stones which people use in parking lots. These are usually precast concrete with some holes so that they can be lifted around readily. I think they come in about 6 foot lengths and probably weigh several hundred pounds. I would like about 1/2 dozen of these so that we can put them between our lawn and the parking lot. We might continue some out to the roadway so that people will always have a free walking space and cars won't park there. I then think we should get more top soil and prepare our lawn and perhaps put some additional evergreens in. We might consider putting some white pines near the building because they grow tall and fast and we could consider putting more lower bushes up close.

I would also like to have you get after the mason and make sure he finishes the job of dressing those steps. They still look quite poor.

Kenneth H. Olsen

cc: John Culkins
Stan Olsen

INTEROFFICE MEMORANDUM

DATE March 16th, 1962

SUBJECT Power End Panels for Building Block Mounting Panels

TO Ben Gurley
Ed Harwood
Al Blumenthal

FROM Kenneth H. Olsen

The power end panel for building block mounting panels that we use in systems and computers is surprisingly time consuming to make. I am thinking of changing this now so that there is only one switch to do all the marginal checking, but, this would eliminate the possibility of marginal checking -15. If there is any reason for keeping a marginal checking in -15 in the power end panels, please let me know immediately and we will not take it out.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE March 16th, 1962

SUBJECT Power in Control Panels

TO George Gerelds

FROM Kenneth H. Olsen

I picked up a power end control panel in the Production Department yesterday and was quite surprised to see how it looked. Here are some things which I would like to have you change in the model and a few items that I would like to have you look into.

1. We shouldn't use ribbon cable because they are peeling the insulation off and it detracts from the looks of the unit rather than adding to it. We should consider other ways of tieing the wires together.

2. We should never depend on solder lugs for grounding circuits. The ground wires should touch each of the solder lugs.

3. We should consider a larger eyelet so that we can use the double ended solder lugs we have.

4. We should have a double ended solder lug for each pair of capacitors. Right now it looks very poor to have very long leads on one pair of capacitors bringing them over to ground. A compromise to this would have to have the single grounding eyelets in the center.

5. I would like to have you find switches which will not need the spacing nuts underneath them.

6. If we could find switches that have 6" leads instead of terminals, this would save quite a bit of time in wiring the units.

Kenneth H. Olsen

cc: Jack Smith
Maynard Sandler
Cy Kendrick

dec INTEROFFICE MEMORANDUM

DATE March 16th, 1962

SUBJECT Dies for Technical Devices Component Benders

TO Frank Kalwell FROM Kenneth H. Olsen

We are experimenting with different component spacings and are investing in dies for each of the possible configurations. We have, at times, been ordering dies for the two benders we have in stock and the two more which we have on order. Here is the list of dies which I would like to have on order. After each item there is an asterisk for those which I believe we have in stock, or have on order.

1/4 watt resistor, pattern #1 on 0.4*, 0.5*, 0.6*
glass diodes with #4 pattern, 0.75*, 0.6*
1/4 watt pattern #1 on one side and pattern #6 on the other side,
0.4, 0.6, 0.75
1/2 watt resistor with #1 pattern, 0.6", 0.75

Kenneth H. Olsen

cc: Jack Smith
Cy Kendrick
George Gerelds

# INTEROFFICE MEMORANDUM

DATE March 15th, 1962

SUBJECT

TO Dick Best
Loren Prentice
Roger Melanson

FROM Kenneth H. Olsen

I just noticed a model of a module which has power transistors mounted on the sides. This is, indeed, an ugly looking module and I would have liked to have seen the model before it went into production because it is a drastic deviation from what we have been doing. I do sympathize with the problem and expect that it probably was necessary to do something like this.

Here are some possibilities which might make it look a little better:

1. If we put a thick washer under the transistor, the stud wouldn't stick out so far and look so poorly and yet I think the heat transfer would still be reasonably good.

2. If we put an aluminum bar inside the handle and had it anodized with a heavy coat of anodizing, it would serve the purpose of the washer mentioned in number 1 and the insulating washer which we are now using, and it would also help distribute the heat over a larger portion of the handle.

3. If we notched the board with something like the half of a 3/4" circle, we might be able to mount the transistor in the center of the handle and make it look more attractive.

4. If we put a cap nut over the transistor stud it would look more attractive than the conventional hex nut. I believe there are cap nuts with plastic ends which would even look better and help insulate it. You might also find a plastic cap that would slip over the hex nut and insulate it completely.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE March 15th, 1962

SUBJECT Connector for King-Size Module

TO Henry Crouse

FROM Kenneth H. Olsen

I would like to have you make an inquiry into Amphenol and maybe Methode Company to see if they have connectors like the ones we make now, but with more contacts and probably longer length. It may be impracticable to make a connector longer than we now have because of the mechanical strength problem.

If they don't have a large one in production now, I would to know approximately what it would cost to make the tools for one which would be longer than the one we have now, but with 11 more pins. Because the pins are now on 5/32" centers this would add 1-23/30 seconds to the width of the plug-in socket. This means that we could make a module almost 1.75" wider than the present one which would be just 1/3 bigger than our present mounting panel and would fit in the standard spacing.

I suppose while you are asking you might just as well ask them for one with 22 more pins which would then take the next larger size panel space of 8-3/4".

I am interested in these modules because I think that if they are available it might be possible to put a larger portion of a computer on one module. Some day we will go to plugable sub-modules and it would be a relatively convenient way of making a computer.

Kenneth H. Olsen

cc: Dick Best
Gordon Bell
Ben Gurley

# INTEROFFICE MEMORANDUM

DATE March 15th, 1962

SUBJECT

TO Stan Olsen
Jon Fadiman

FROM Kenneth H. Olsen

I believe you and several others should plan to attend the PGEC meeting on March 21st, room 4270 as the topic will be Japanese Electronics.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE March 15th, 1962

SUBJECT

TO Maynard Sandler

FROM Kenneth H. Olsen

We have ordered 50 wooden boxes of the kind used for packing fish. They only cost $1.75 and are a little rough and a little light. We also have samples of a much higher quality box which costs almost $5.00. I would like to have you decide which is the best box for us to use and then I suggest that you have Ken Fitzgerald order racks like we now use to hold our plastic boxes so that we can store our large components in these boxes.

If we shouldn't use wooden boxes at all, this is a legitimate conclusion to come to also.

Kenneth H. Olsen

cc: Ken Fitzgerald
Frank Kalwell
John Trebendis

dec INTEROFFICE MEMORANDUM

DATE March 15th, 1962

SUBJECT Powered Conveyor for Solder Dipping Machine

TO Frank Kalwell FROM Kenneth H. Olsen

I believe that we are going to drop our transistors into eyelets as they are going into the dip soldering machine. In order to do this, I think we are going to need a powered belt type conveyor feeding right into the soldering machine. I would like to have you find out the prices from various conveyor people for one of these units. The belt should be approximately 10 or 12" wide and the material is not at all critical. 10 foot long I would suppose would be long enough. A girl should be able to put her knees under the unit, however. The height should just match the solder machine. If they are very expensive we should consider making our own. It should be quite easy because we could weld up a frame angle iron and simply extend the link chain from the first solder unit.

Kenneth H. Olsen

cc: Maynard Sandler
Jack Smith
Cy Kendrick
Loren Prentice
Ken Fitzgerald

# INTEROFFICE MEMORANDUM

DATE March 15th, 1962

SUBJECT

TO Henry Crouse

FROM Kenneth H. Olsen

We are now using a large number of Airmite presses. We should have a way of adjusting the length of the stroke on these units. I suggest that you buy several dozen 1/2" line shaft collars with set screws. It seems to me that Louis Tracy in Cambridge had a stock of these, but if not they are a commonly available part. In fact, many hardware stores carry them because home craftsmen use them on their power tools. Also, Sears Roebuck has them listed on page 991 in their 1961 Fall and Winter catalog, catalog #9G-2824.

We are now using these Airmites so freely that I think we should always keep 4 or 6 units on hand. We also should have the foot operated valves to go with them.

Kenneth H. Olsen

cc: Loren Prentice
Dave Shuflat

# INTEROFFICE MEMORANDUM

DATE March 13th, 1962

SUBJECT **High Speed Gating**

TO Russ Doane
Dick Best
Ben Gurley

FROM Kenneth H. Olsen

When we first made the system building blocks, we considered the possibility of doing all our gating with diode transformer gates like the complimenting circuits are in the high speed flip-flop. At the time it looked good, but we felt that we did not have time to investigate it thoroughly but now it might be a good idea to consider it for our very high speed units.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE March 13th, 1962

SUBJECT

TO Roger Melanson
Dick Best

FROM Kenneth H. Olsen

Our salesmen have been receiving comments in the field that some of our competition makes better quality looking units than ours. What they mean by this is the etched wiring looks neater. They mainly mean by this that the solder looks more shiny and the parts are neatly in line and at right angles. We often say this is not important, but it might be useful to have neat looking units and it is definitely useful if the customers want it.

I suggest that we go over our etched wired layouts to see if we can't neaten them up somewhat. I am now looking over a 4209 which does have a number of things which can be significantly improved, I believe. Looking at it from the components side, I would like to make the following suggestions:

1. There is not enough room for the flip-flop transistors and they appear to be too tightly packed in.

2. One of the transistors in the right hand flip-flop rubs against the diode lead. The case of the transistor may be floating, but it looks very poor and circuit wise it is not nice to have anything intermittently shorting to anything else.

3. The jumper in the lower right hand corner, I believe, can be eliminated if we are willing to bring one more lead out the front of the connector terminals.

4. The row of mica capacitors, I believe, could have been made perfectly straight and we could have allowed slightly more space between them so that they can all be kept vertical.

5. There is a row of three 330 manufactured mica capacitors below each flip-flop which I believe could have been kept completely in line with each other.

6. One row of 6 diodes under the left hand flip-flop are perfectly in line and I think with a little work those under the right hand could have been also. I think this is also true with several of the rows of the 1K resistors.

7. The -15v bi-pass capacitor could be very neatly layed flat in the right hand corner of the socket and the -3v bi-pass capacitor could be layed in the opposite corner. If there is room for these capacitors to lay flat there will be a lot less likelihood of them being damaged.

8. If we specified all the quarter watt resistors at 5% we could then use them for all of the 1K positions and we would have one less type part in this unit.

9. All diodes and quarter resistors could be placed on 0.1" center.

10. On the 4213 there is another case where diode is just about touching a resistor lead. I am now looking at a packaged and inspected unit but there is so little distance between them that I can't tell whether they are shorted or not. I think this one also can be relayed out so that the components are paralleled to each other and so this situation will not arise.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE March 13th, 1962

SUBJECT

TO Dick Best
Roger Melanson
Ben Gurley
Stan Olsen
Maynard Sandler
Jack Smith
Bob Hughes

FROM Kenneth H. Olsen

In order to make our modules better looking and to make it easier to layout and perhaps more reliable, I propose that we accept the following standards on the new units we build and that we relay out our presently crowded units to these standards.

1. All top hat transistors be mounted on end in funnel shaped eyelets with a plastic pad under the transistors. The smallest possible eyelets will be used so that small lands are practical. Funnel eyelets are used on the soldering side to make a good connection and on the component side to made it easier to install the transistors. The leads are on a triangle. The emitter and the collector are on a diameter of the case 0.100" each side of the center. The base is on the diameter right angles to the first diameter and 0.100" from the center. The plastic pad will be relatively thin because it is necessary to keep the top of the transistor well away from the adjacent etched wiring. The transistors will be purchased from the manufacturers with the leads cut to exactly the correct length so that when they are dropped through the eyelets they extend just under 1/16" beyond the etched board. The leads will not be bent over but the transistors will be dropped into the eyelets just before the units go through the dip soldering machine. Presently, installing transistors is the longest single operation in making a module and it will be just about eliminated by doing this.

2. I suggest that we go to 1/10 watt 5% resistors for all uses except the 750 ohm resistor in the buffered flip-flop outputs and the 560 ohm resistor and the -3v bleeded in any other place where we dissipate more than 0.2 watts. We might even eliminate these 1/2 watt resistors by putting two 1/4 watt resistors in parallel. I suggest that we mount these from now on on 0.50" centers. If we need 1/2 watt resistors we will leave those on 0.75" centers.

3. I suggest that all glass dials be mounted on 0.60" centers and they all have the relief strain on them.

4. I suggest that lines normally be run on 0.10" centers and that diodes and resistors be mounted on 0.1" centers.

5. If we get crowded or want to make a better looking unit, we could consider the Mucon ceramic capacitors which are made the same size as quarter watt resistors and diodes. This would make a very nice looking layout. We use this brand capacitor on the TX-2 Computer and life experience would be available there.

6. The maximum diameter of the low frequency transistors is 0.370". We should try to obtain pads which are slightly larger than that so that the transistor cases cannot touch each other. If we mounted these on 0.400 centers there would be approximately 1/32" between the transistors.

7. We should also standardize on a jumper. If we ran blank wires through our component bender, we would then have jumpers made to fit. Right now, jumpers cost more than components because the girls bend them to size. We will put all our diodes and capacitors through the bender because it makes a neater job and because it will eliminate the need for cutting the wires after they are bent in place.

8. I think that we should allow 1/10" watt resistors and diodes to be placed on top of each other. When more than two are put on the top or bottom, I think they should cover the bottom ones with a plastic case. We could also allow one mica capacitor to straddle one or two resistors. Two capacitors could straddle one resistor. Two capacitors cannot straddle two resistors because two resistors have to be staggered and there is not enough room over the insulated portion of the resistors.

9. I suggest that on units such as the 4209 where there is a 1K resistor on many of the inputs tied to -3 that we put these 1K resistors between the jumper wires that go from the plug to the etch wire board and then go over to a line with -3 which is underneath the connector.

I realize that this is going to mean that for a while we are stocking components with two different mounting dimensions, but, I think it is important and many of the units should be relayed out anyway to make them neater and to make the new transistor mounts.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE March 13th, 1962

SUBJECT Polystyrene Foam Packaging

TO Stan Olsen

FROM Kenneth H. Olsen

I suggest that you send an empty power supply, an old reject mounting panel and some blank or junk plug-in units to the man in New Jersey who does the foam packaging. This way he can come up with suggestions without visiting us.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE March 13th, 1962

SUBJECT

TO Henry Crouse
Bob Hughes

FROM Kenneth H. Olsen

I think we will go ahead with inserting our top hat type transistors directly in etch board. Will you initiate an inquiry to the manufacturers as to the price for cutting the leads to size. I feel that the leads should be 0.187" in length. This is 3/16, but I think we should specify it in decimal numbers because the length is critical. The pad is 0.075" high and the board is 0.062. This leaves about 0.050" protruding out the other side which is less than 1/16" we normally allow. The funnel shaped eyelet will protrude approximately 1/32", I believe.

I would guess that this is the length the transistors are normally cut to when they are inserted into transistor sockets such as are used for radios. I believe these pre-cut transistors will be a lot easier to handle and to test. With experience, we can tell whether it is desirable to pre-tin them or not.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE March 13th, 1962

SUBJECT

TO Dick Best
Bob Hughes

FROM Kenneth H. Olsen

In our modules where we use ceramic disc capacitors for bi-passing -3 and -15, they seem to be quite adequate because if we missed one or two we would never know the difference. I would feel better if we had a more reliable looking capacitor for those circuits where the capacitors are really critical. I think Bob Hughes should investigate this and he might spend time at the IRE show looking into it.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE March 13th, 1962

SUBJECT Labeling Library Books

TO Judy Ebner

FROM Kenneth H. Olsen

I have a number of company library books at home which I plan to keep indefinitely because I am probably the only one who uses them. However, I find that they are not well marked with the company name and there is a danger, over a long period of time, that the company may never get them back at all. This might happen with other people also so I suggest that we start marking our books a little more thoroughly.

I think it would be a good idea to put a fairly large rubber stamp on the top edge of each book and then inside the front cover, inside the back cover and also on page 100. I think that some of our earlier books had this procedure but apparently it got lost in time.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE March 13th, 1962

SUBJECT

TO Loren Prentice

FROM Kenneth H. Olsen

When we first designed our plug-in units we were careful to make the tolerances loose enough so that we would not have problems in assembling items. I think we have gone too far however in the width of our plug-in unit board. They are exceedingly sloppy and the board moves a full 1/16" inside the handle. This does not look like a quality unit, now that we are punching the board out with a die they should come the same each time. The handles, of course, should always be the same because they are bent on the same tool.

I suggest that we redo the die which punches out the boards so that they come out with very little clearance.

Kenneth H. Olsen

cc: Henry Crouse
Roger Malenson
Dick Best

# INTEROFFICE MEMORANDUM

DATE March 13th, 1962

SUBJECT

TO Dick Mills

FROM Kenneth H. Olsen

Mrs. Dorothy Mason of Maynard called to tell us that she had some property that we might be interested in. It is a 90 acre farm which is mostly in Maynard but is also slightly in Stow. It now has a landing strip on it and therefore it is quite level. I told her that when you returned from Chicago you would telephone her to find our more of the details of this. The land is now zoned for residential use but she has heard that it could be changed if there was a reasonable industry that was interested.

Her telephone number if TWinoaks 7-8058 and because she works she is not home until after 5:30 p.m. During the day she may be reached at Emerson 9-9630, Extension 234.

Kenneth H. Olsen

cc: Stan Olsen
Harlan Anderson

# INTEROFFICE MEMORANDUM

DATE March 13th, 1962

SUBJECT Building Block Label Adhering Machine

TO Loren Prentice
Ken Fitzgerald
Dave Shuflat

FROM Kenneth H. Olsen

One more bit of automation we need is a device to adhere the labels on the back of building blocks. I don't believe this machine will speed production by a large factor at all, but I do feel it probably will make sure the labels adhere much more securely and it might help position the labels. The girl now measures where to put the label and then sticks it on by hand, but to be adhered well it really should be done with pressure and it seems a natural place for an air cylinder. This device might be very simple and might just be a pneumatic device with pins to locate the handle and some guide to locate the label. It might locate the label and then have the girl spray it with aerosol bomb to activate the glue.

We probably should look into labels which are pressure sensitive and do not need any activating liquid. This would make it easier for some of our customers who would like to replace our labels with their own.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE March 13th, 1962

SUBJECT

TO Henry Crouse
Bob Hughes

FROM Kenneth H. Olsen

I believe that we are soon going to be installing our transistors, the top hat variety, right into the etch boards through eyelets. Will you check with the manufacturers to see if they will cut the leads to size for us. This I think is normally done because radio manufacturers who put transistors into sockets, surely don't cut their own leads by hand. When we do this we would like all the leads to be cut the same length and they would be cut quite short. This means that we would need new jigs for testing but it also means that the jigs would be easier to make.

When we drop the transistors in we can do this just before they go through the dip solder machine and it would save the very lengthly operation of installing them later. Right now installing transistors is the most expensive operation we have of making modules. In addition, the top hat type transistors are exceedingly homely when mounted like we do now.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE March 6th, 1962

SUBJECT Transistor Clamps

TO Henry Crouse

FROM Kenneth H. Olsen

We have had a number of people criticize our modules because we allow our transistors to dangle from their leads. Even though it may not be critical, we are, of course, interested in satisfying the customers desires. For the transistors of the type we buy from Texas Instrument I think we ought to experiment in mounting them directly into the etched boards. This will make very simple mounting and will also give us more clearance. However, the Philco type transistors which are long and narrow do not lend themselves to standing on end and so I would like to have you look into clips that would do this. Several people make clips but most of them are metal and are used to help dissipate the heat. The result is that they are rather expensive. We might have one molded out of plastic that would be quite inexpensive.

Augat Bros. in Attleboro make clips of this type. Their model 6015-5 supposedly holds this type transistor but it costs 7 cents each if made out of steel and 12 cents each if made out of brilliant copper in quantities of 5,000 and above. Other manufacturers are Atlas EE, Bitcher and International Company.

Kenneth H. Olsen

cc: Dick Best
Ben Gurley
Stan Olsen

# INTEROFFICE MEMORANDUM

DATE March 6th, 1962

SUBJECT

TO Bob Hughes

FROM Kenneth H. Olsen

I received a telephone call from the purchasing agent of Minneapolis Honeywell in Seattle, Washington. He was exceedingly unhappy because 21 of the 22 units we just sent them failed to pass inspection.

Bob Young, one of their design engineers, also was on the phone and itemized the following problems.

1. Excess solder.
2. The Solder was fractured.
3. Transistor leads were cut after they were soldered and were pulled out of the solder joints.
4. When the transistor leads were cut, they also cut part of the eyelet away.
5. Our standards book says that components should be within 1/32 of the board but they have units in which the components are a 16th away from the board.
6. Some of the components had the leads bent right on the component body.
7. Some of the wires never got wetted with the solder where they entered the boards.

We say that we are building equipment to our standards book and we ought to do it that way.

They offered to fix the units themselves as they did before and charge us $6.00 per hour for the labor. They have offered to keep careful records and to have all the work verified by our representative in the area. I told them to skip the red tape and get the work done and we will take their word for it.

Stan claims that we are starting to lose orders because CCC and Navcor units look better than ours. We have the best quality components and by far the best circuit design, but, we also have to have these things good mechanically because that is what most people see.

We are shipping another 100 units to them this week. I would like that 100 units to be especially inspected for all points and then we would like to see how many of them are a reject.

Kenneth H. Olsen

cc: Stan Olsen, Jim Myers, Dick Best, Maynard Sandler and Cy Kendrick

dec INTEROFFICE MEMORANDUM

DATE March 5th, 1962

SUBJECT

TO Stan Olsen
Harlan Anderson

FROM Kenneth H. Olsen

Irving Berg from Maynard Industries called on Friday, March 2nd and requested that we assign one man to take care of all our relations with Maynard Industries. Right now he talks to different people for different things and sometimes gets different answers. I think we should assign this task to George Brown or John Culkins. What do you think?

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE March 2nd, 1962

SUBJECT

TO Harlan Anderson
Jack Atwood
Bob Beckman
Gordon Bell
Dick Best
Jack Brown
Jon Fadiman
Ben Gurley
Dick Mills
Stan Olsen
Maynard Sandler
Bob Savell

FROM Kenneth H. Olsen

The next Professor Forrester meeting will be held on March 13th, 4:00 to 6:00 p.m. in my office.

Kindly mark your calendar accordingly.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE March 2nd, 1962

SUBJECT

TO John Culkins
George Brown
Cy Kendricks
Dave Shuflat

FROM Kenneth H. Olsen

Sometime ago we ordered a set of crimping plyers, bushings and insulators from Ideal Company. These are a very convenient way for making connections for any wiring we want to do ourselves. This is particularly true for any machine that we want to wire up. I think that each of you should get a set of these plyers and a box of insulators and bushings so that you have them on hand when you need to do some wiring. At one time, they were in the stockroom and I assume we can find them now after the move.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE March 1st, 1962

SUBJECT

TO Harlan Anderson

FROM Kenneth H. Olsen

Several people from Concord Control will come to visit us on Friday, March 2nd at 9:00 a.m. If you are here we would like to have you meet with us, otherwise, I will take care of it myself.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE March 1st, 1962

SUBJECT

TO Harlan Anderson

FROM Kenneth H. Olsen

Frank Ervin called on Thursday, March 1st to ask the status of our proposal in giving them a computer. I told him what ideas the Board of Directors had and that we hadn't really gotten to think too much about the problem yet, but, suggested that we get together to see if we could clarify some of our thinking. He is all for this and would like us to get together with some of their people. I told him that I would call him on Monday, March 5th to let him know if you and I can stop in to see him one of the three days we will be going into town. In addition, I suggested that he have his people come out here because this will take more than one session and we would like to have them get to know us better.

He asked if the man we were looking for would be a programmer type. I said he would be more of an engineer who would develop a competence in the whole general field rather than specifically a programmer. Maybe we should look over the Harvard Business School applicants and pick out an engineer there who might be interested. Perhaps one of those who wrote the report on medical electronics might be a good possibility.

Kenneth H. Olsen

cc: Ben Gurley
Gordon Bell

# INTEROFFICE MEMORANDUM

DATE February 28th, 1962

SUBJECT

TO Bob Hughes

FROM Kenneth H. Olsen

Dick Best and I have decided that we should slowly convert most of our Allen Bradley resistors to 1/4 watt. As we have time, we will consider each parts list and change those resistors that are reasonable to 1/4 watt and then production will use that size from then on. This comes up right now because the 4204 needs 1/4 watt in order to make a decent layout and it will come up more and more as we try to fit more components on a board. In addition, the 1/4 watt will make a more attractive looking unit. The 750 ohm resistor will be stocked only in 1/2 watt because this is one component we know is used regularly and which dissipates too much power for this size. Those resistors 1.5K, and larger, are reasonably safe because with 15 volts across them, their dissipation is within reasonable limits and so I think that all of those above would be safe in assuming can be changed rather easily.

Some of the smaller values can also be changed rather easily because we know that no large currents are used in our circuits. However, we should have an engineer glance through each schematic before we change the parts list.

I think that the Quality Control department should print up a sheet explaining the uses of Allen Bradley resistors and making a chart of the commonly used sizes that will be stocked and showing what tolerances they will be. We will stock 10% tolerance of those values where more critical tolerance is not necessary. We should also draw a line through the list of 1.5K saying that all values highes than this can be of 1/4 watt if they have no more than 15 volts across them. We can draw a line also in the lower values saying that any resistor with less than a certain value of current through them can be 1/4 watt.

Kenneth H. Olsen

cc: Dick Best
Roger Melanson
Maynard Sandler
John Trebendis

dec INTEROFFICE MEMORANDUM

DATE February 28th, 1962

SUBJECT

TO John Culkins
George Brown
Maynard Sandler
Stan Olsen
Bob Lassen
Henry Crouse

FROM Kenneth H. Olsen

Because of the very large area and the wide separation of our plant now, we have decided to break down the responsibility for normal maintenance into two areas. John Culkins will take care of Buildings 12, 3 and 4 and George Brown will take care of Building 5. This means that John Culkins will continue as he has and hopefully as he fills in his staff, he will be able to do other things. George will continue being responsible for all the services in Building 5 which includes working out problems with Raytheon, keeping the snow plowed and shoveled, painting, construction and maintaining janitorial services. I am sure that other duties will be added as time goes on. He will report to Maynard Sandler who will be the senior manager in that building.

John Culkins will keep his present staff and George will have to start from scratch in hiring janitors. Until he hires a staff, he can continue to use the rented laborers and he may borrow, for specific jobs, help from John Culkins men. We should consider hiring a woman to help out with some of the activities. She could take care of all the ladies rooms and maybe keep eating areas clean. One woman could probably do this for all the buildings.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 28th, 1962

SUBJECT

TO Dick Best

FROM Kenneth H. Olsen

At our monthly Board of Directors meeting Andy and I are usually quizzed about the items which are listed under Company Sponsored Research in our monthly financial report. Andy and I are not in a position to give a good explanation for these items and we would like to have you and/or Ben come in to one of the Board of Directors meetings to explain what we are doing in Company Sponsored Research. The next meeting is March 6th in Boston.

Part of the problem is that some of the items included in the Company Sponsored Research probably shouldn't have been there. For example, Field Maintenance is hardly Company Sponsored Research. I suggest that you go over the list with Dick Mills to be sure that when you do come to the Board of Directors meeting you are confident enough about the list to be willing to explain the items and what their future means to the company.

Kenneth H. Olsen

cc: Ben Gurley
Dick Mills

dec INTEROFFICE MEMORANDUM

DATE February 28th, 1962

SUBJECT

TO Ben Gurley
Harlan Anderson

FROM Kenneth H. Olsen

I received a telephone call on Tuesday, February 27th from Jim McDonnock of Concord Control. About a year ago they were bought out by Vertex Corp. in Tulsa, Oklahoma, who lately have been bought out by Dorset Electronics in Norman, Oklahoma. Vertex has been building aircraft simulators of a very simple type and now are interested in sophisticated digital types. Digital is the latest word in the Air Force and it is the only kind they are interested in.

Vertex turned down a bid on the C135 last month, but, next month there is going to be bids open on the C141 and later in the year two more airplanes. They weren't very much interested in this and because Concord Control is closer to the source of aerodynamics information, computer information and programming Concord Control will probably take the responsibility. They are interested in a team member to take part in this activity and I told him we would be very interested in talking with them, although I told him that we were limited in our time right now.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 27th, 1962

SUBJECT Automatic Etching Machines

TO Jack Smith
Loren Prentice

FROM Kenneth H. Olsen

We need an improved way of etching printed circuit boards in order to increase our production capabilities, but, even more important in order to improve the quality of our boards. It is poor to leave the boards in the ferric chloride solution too long.

Most common machine for etching is a splasher where the boards are held in a plane on one side of a tank and the rotary paddle wheel splashes the etching solution against the board. This is a very simple process, but, it has very low production rate because it only holds those boards that can be held in one plane.

Another way would be to develop a machine like an automatic dishwasher where the boards are put through a continuous process and the etching solution is sprayed on the boards and then the boards are washed, rinsed and dried. The construction of a machine like this is difficult because of the very corrosive nature of ferric chloride. It is also difficult because of the very long time the boards have to stay in contact with the etching solution.

It might be possible to use an ultrasonic cleaning tank for etching. The tank could be coated with polyvinyl chloride and the boards might etch so fast that one can afford to put very small batches through it. Another approach would be to arrange the boards in a circular rack, much like the blades are in a centrifugal fan and then rotate this rack in a large shallow polyethylene drum of ferric chloride. The rack could be spot welded out of sheet steel and wire and coated with polyvinyl chloride.

It would be desirable to wash and rinse the boards in the same tank so that no ferric chloride will be splashed around the room. One way to do this would be to pump the ferric chloride in and out of the tank and then go through several washings with clear water or detergent.

Pumps are available that can tolerate corrosive liquids but it might be best to avoid them altogether. One way to do this would be to lift and lower the supply tank relative to the etching or visa-versa. The valving can be done by squeezing rubber or plastic tubing with an air cylinder.

If we mounted the etching tank on a fork hoist and have the ferric chloride supply tanks slightly higher. When the etching tank is in its highest position gravity

could then empty the tank. In either case, fresh water could be entered into the tank and waste water drained into the sewer. The drain in the bottom of the etching tank would have to go through a Y joint and then into two squeeze type valves. One valve would enter into the etching storage tank and the other into the sewer. When one wants to empty the supply tank into the cardboard containers for disposal the hose can be lifted from the sewer and into the cardboard container.

Lifting the etching tank instead of the supply tank has the interesting advantage that the rack can be mounted to a fixed rotating shaft and the tank raised up around it.

The company that supplies our etching solution probably has much better information on optimum etching conditions than they had when we first started. We should get all the information possible and also ask them if they have any suggestions as to suppliers of etching machines. I believe they, at one time, said that optimum etching temperature was 140° Fahrenheit. This would be a very important number to know and also it would be important to know what tolerances there are in this temperature.

Kenneth H. Olsen

cc: Ken FitzGerald
Maynard Sandler

# INTEROFFICE MEMORANDUM

DATE February 27th, 1962

SUBJECT

TO Jack Brown
Loren Prentice

FROM Kenneth H. Olsen

I think that we should obtain a special screw like the Bristo or the fluted head cap screw made by Set Screw Manufacturing Company in Bartlett, Illinois to tighten down our tape units so that it will be almost impossible for people to swing open the tape deck. In addition, I think we should immediately prepare little labels which say that it is not necessary to open the tape deck and that it has been permanently closed. We could also put a liquid locking compound on the screw threads so that the screw would not open.

I would like to see a temporary, tentative and even dittoed maintenance manual on the tape system. I think this is vitally important and we have to get it out right away. I think we could assign one day in which the tape group sits down and dictates all they can.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE

February 27th, 1962

SUBJECT

TO

George Brown
Maynard Sandler

FROM

Kenneth H. Olsen

I received a telephone call from Mr. Bill Roderick of Raytheon on Tuesday morning at 9:30 a.m. There are a number of problems to be worked out with Raytheon and we have to get along well together and so he called first to ask who they should work with directly and I suggested George Brown was the man. I also suggested that if there continues to be any misunderstandings he call me directly so that we can take care of it.

The paging was on very loud last week and this disturbed their people. I told him that I hoped that it was turned down and I did promise that it would not be loud after this.

Parking on the ramp is a severe problem and they felt that it was all our fault and I told him we were sure it was the Raytheon people. I suggested that their man work with George Brown and find out who is parking there and take care of the problem because we have to have the whole area free for receiving. We should have a list of our license numbers over there, plus perhaps the numbers of the people on the floor above. We also should make sure that our carpenters and other suppliers don't tie up that ramp.

Snow removal was, of course, a problem for them. I told him that we would take the responsibility of plowing the parking lot and the ramp. There is now snow pushed up in front of the Raytheon ramp but they will have that taken care of. The next storm after this we will have to take responsibility for the ramp and for the parking lot. They offered to pay for part of this but I told them that to simplify things we would take care of it. In addition, they will have Mr. Berilone plow the driveway up to the temporary metal buildings alongside the parking lot.

I mentioned the fact that they had a lot of equipment piled up in the common receiving area. He said that he would try to take care of that but didn't promise that it would happen very quickly.

Above all I want to remind George Brown to be sure that the plowing is taken care of after the next snow storm.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 26th, 1962

SUBJECT

TO Harlan Anderson
Dick Mills

FROM Kenneth H. Olsen

I received a telephone call from General Doriot on Friday afternoon, February 23rd. He may have been hinting that we get the note out to him that he asked for about the statistics on DEC. However what we discussed was a suggestion for my talk at the AR&D stockholders meeting.

He said that the Dun & Bradstreet report on DEC list our sales volume for 1959 at 1.5 million, for 1960 1.0 million and for 1961 2.0 million. He suggested at this stockholders meeting that I could announce, for the first time in history, what the actual sales volume of DEC was for these years. He could have suggested that I tell them what the profit was saying that they could figure it out anyway. He said that we should not predict what the sales would be for 1962, although by that time we should be able to tell fairly close.

I asked him to send a copy of the Dun & Bradstreet report to us so that we can analyze it and then send in a correction to them. I would like to hear your reaction to my giving this very dramatic announcement at the meeting.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 26th, 1962

SUBJECT Electronic Design

TO Ruth Alving

FROM Aynne Manning

With reference to the attached literature, Ken Olsen would like you to see that all the engineers subscribe to this "free" publication.

dec INTEROFFICE MEMORANDUM

DATE February 22nd, 1962

SUBJECT AC Power Distribution for PDP-4.

TO Gordon Bell

FROM Kenneth H. Olsen

I believe that the power distribution we are now using on PDP-1 is an improvement over what we had before but I doubt that it is a particularly wise device. One thing you might consider is making a special panel with a number of groups of tapered tabs which is mounted adjacent to the power control panel and which is used to distribute AC power. There are so few wires radiating out from this that it probably makes the chanel on the top of the PDP-1 unnecessary for the PDP-1 and much less necessary for the PDP-4.

Kenneth H. Olsen

Kenneth H. Olsen

February 22nd, 1962

# DEC MARK I FOR AUTOMATIC MODULE TEST

This tester consists of two units. The switching unit automatically sequences up to 16 different DC tests. The second part of the tester consists of the meter type relays which make the go-no-go decision on each test. These meters are connected so that they have to make contact to meet the go condition. On tests where there are two both high and low limits this means that two meters are necessary, but, it is fail safe because lack of contact is the same as no-go.

The switching unit consists of a stepping relay which sequences through the tests. Each step in the stepping relay selects one hermetically sealed reed relay which connects the point being measured to the appropriate meter. The common side of these reed relays are tied into two groups; the odd number steps are tied to pin 61 on the plug board and the even ones are tied to pin 62. Two different types of tests can be run on alternate steps. For example, on the odd steps inverter saturation voltage can be measured and on the even steps inverter leakage current could be measured.

Because only two types of tests can be run at one time, several passes will have to be made on most modules. For example, on a diode unit, inverter saturation voltage and inverter leakage would be tested on the first pass. The second pass would test load resistor short circuit current and load resistor open circuit voltage. The third test would test diode leakage. When only one test is desired, such as diode leakage, pin 61 and 62 can be tied together to the leakage meter and up to 16 diodes can be tested in one test.

There is a diode tied to the odd numbered terminals on the stepping relay which actuates relay K23. This in turn closes reed relay K21 on odd steps and K22 on the even steps which means that on odd steps pin 79 is tied to pin 77 and on even steps it is tied to pin 78. This is used to supply the input signal voltage to the modules.

When testing inverters all the inputs are tied to pin 79 and minus 2.5 volts is tied to pin 77 and minus 0.3 is tied to pin 78. This way inverters are turned on for the saturation test and turned off for the leakage test.

When testing flip-flops plus 4 volts is tied to pin 79 and the direct set of all flip-flops are tied to pin 77 and the direct clears to pin 78. This way the condition of each flip-flop is known for each test.

The common terminal on the meter relay is grounded and one of the switch terminals is returned to the plug board where it is patched over to 83 if it is used for odd numbered tests and 84 if it is to be used for even tests. If the meter is in the go position there will be contact through ground and K17 will be activated. K17 is a standard single pole high impedance relay which was selected to draw very little current through the meter relay

contacts. However, 15 volts is not quite high enough to actuate the meter so it has been reworked by adjusting the contacts and relieving the spring pressure so that it readily closes on 15 volts. If two meters are needed for a test they are placed in series so that both have to make contact in order to actuate K17.

When less than 16 tests are needed a patch cord is connected from pin 77 to appropriate pin between 63 and 76. When the stepping relay reaches that point K18 closes and holds and turns on the O.K. lamp.

K20 is a synchronous motor driven cam which actuates a micro-switch. By changing gears the speed of the test can be controlled. Because of a large number of steps it is best to run as fast as possible.

The start push button is a single pole double throw switch which removes power from the stepping coil of the step relay and switches it to the reset relay. This button has to be held down long enough to completely reset the stepping relay.

The power switch is a 3 position switch in which the upper position has a spring return. The bottom position is off. The middle position is on. The top position is used to override the reject relay K17 so that one can proceed past the first reject point to see if there are any other reject tests in that plug-in unit.

The test data sheets are going to be replaced with a test data card for those units which are automatically tested. There will be a paragraph describing each test and a place where a hole will be punched when the test is O.K. If any test fails, there will also be a reject hole punched. This is so that the operator cannot override the test and then forget that he has done so. The reject punch is operated from error relay K17 and the O.K. punch is operated from K18. Different punches are used for different tests and this is selected in the plug board.

The solenoid which operates the punch is made to operate from 12 volts. Because it is very small and would normally have very little power it is operated from 150 volts through a large capacitor and the impulse is great enough to readily punch the card.

Two pins on the plug board are included for most of the module socket contacts so that where several had to be jumpered together it can be readily done with taper pins.

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dec INTEROFFICE MEMORANDUM

DATE February 21st, 1962

SUBJECT

TO Dick Best
George Gerelds
Ben Gurley
Jack Smith
Stan Olsen
Bob Hughes

FROM Kenneth H. Olsen

I have asked George Gerelds to experiment with direct insertion of Texas Instrument type transistors directly into our etch boards without the slotted lugs we are now using. This has several advantages, it looks neater than the present way, it takes approximately 1/3 the area and I believe there is less danger of shorting to the neighboring plug-in unit.

George has samples of the transpads made by Milton-Ross Company which stands the transistor off the board a little bit and keeps solder from leaking up into the transistor and insulated somewhat from the temperature. It is also claimed they give some vibration protection. This type mounting definitely would be less susceptible to shock than our present method.

The disadvantage is this type mounting is the difficulty of changing the transistor. I think that there is a nice way around this however and that is to not drill the lead hole through the land but drill it some distance away from the land. Then there is a short length of lead on the copper side of the board. This means that when one is removing a transistor he unsolder the leads, straighten it up and it will be completely free from the copper land.

Milton-Ross also make an insulated bushing that slips over Philco type transistors and insulates their leads. I think this will make a neater mounting and will perhaps even make it easier for the girls to install the transistors. In addition, I am checking into clips that can be cemented to the etch board that would hold Philco type transistors in place. I think this will satisfy those people who are worried about our dangling transistors and if the transistors are mechanically held in place, it might speed up the installation of this type transistor.

I am also working with a welding group on the possibility of making up welded sub-assemblies. The assembly I am thinking of to start with, is an inverter with its two resistors and capacitor on the input and a clamp load resistor on the output. This module then could be used for making special inverter networks and

for making low speed flip-flops. With this module we might be able to fit four buffered flip-flops on a plug-in unit.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 21st, 1962

SUBJECT New Cash Flow

TO Dick Mills

FROM Kenneth H. Olsen

We have been hiring a large number of people lately and we have a number of outstanding requisitions. I suggest that you carefully take this into account as you carry out your cash flow.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 21st, 1962

SUBJECT

TO Henry Crouse

FROM Kenneth H. Olsen

We are now looking into making welded modules. In order to be practical it is necessary that the wire leads be made out of some metal with lower thermal conductivity than copper. I understand that manufacturers are now making their components with Dumet. Our diodes and transistors are already made with leads of this metal. I would like to have you check into the availability of Allen Bradley 1/4 watt 5% resistors with Dumet leads and El Menco mica capacitors. We would be interested in the smallest mica capacitors available in 680 MFD size. The resistor sizes we are particularly interested in are 1.5K, 3.0K and 68K.

If they are available, I would like to have a few dozen samples of these resistors and capacitors. We don't care about the electrical size but they should be approximately the mechanical size that would be normally available.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 21st, 1962

SUBJECT 3,000 Cycle Power Supplies

TO Dick Best

FROM Kenneth H. Olsen

A long time ago, Reliance Electric Company asked us if we were interested in 3,000 cycle generator to be used in high frequency power supplies for our computer. We said we were and they loaned us a generator but we never did anything as far as developing a power supply. They are much more persistent than we are and they offered to design the power supply and give us two sets on the condition that we check them out and install one set in a computer. We agreed to do this and they are about to deliver the power supplies. Supposedly they were shipped last week. It seems to me that Daniel Wardimon is the obvious man to check these out. Would it be possible for you to assign him to this task when they come in within the next few days.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 20th, 1962

SUBJECT

TO Loren Prentice

FROM Kenneth H. Olsen

On the far end of Building 5, near the entrance, there is a section of rail fastened to the ceiling, which at one time was used for a hoist. If we want to have a hoist in the area where we assemble computer racks, we perhaps should move this rail. I think it is complete with trolley but without the hoist.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 20th, 1962

SUBJECT Hewles, Holz and Willard

TO Harlan Anderson
Ben Gurley
Stan Olsen
Maynard Sandler
Gordon Bell

FROM Kenneth H. Olsen

On Friday morning, February 16th, I was visited by the partnership of Hewes, Holz and Willard. They are a team of people from the Registrar's office at M.I.T. who have joined together on a part time basis, to do computer consulting. They have been, supposedly, quite successful in automating the work of the Registrar at M.I.T. and now they have formed a consulting partnership to sell their services to other people. They are doing this consulting on a part time basis and with the blessing of M.I.T.

Some of their work at M.I.T. was financed by the E.F.L. (Educational Facility) which was started by the Ford Foundation. Optimizing class organization is apparently a problem which is a natural for computers. Most schools of course feel that they haven't had the money to do this even though the results of optimizing may mean significant savings.

One of their consulting jobs was with Carlton University in Ottawa, Canada. This school has 7,000 students. It was largely a feasibility study and I don't think they have come to any conclusions so far.

Mr. Robert E. Hewes is the Registrar at M.I.T. and Mr. Robert Holz is the Assistant Registrar. Richard Willard is also part of the staff. Their partnership address is P. O. Box 112, Cambridge 39, Massachusetts.

I have no idea how competent these people are, but the problem they are working on is very much like the mailing list and customer list problem which the Sales Department has to develop and like the inventory problem which Maynard Sandler has. I suggested that they try to sell their services to Stan and Maynard.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 20th, 1962

SUBJECT Potting Pulse Transformers and other Assembly.

TO Dick Best
Bob Hughes
Russ Doane
Jack Smith

FROM Kenneth H. Olsen

We have always stayed clear of the conventional way of mounting potted assemblies into etch boards where the rigidly mounted pin simply protrudes through the copper and are mechanically held in by the solder. I am still definitely against this but I believe that there is a compromise which might have all the advantages of the simplicity of this method of mounting without the danger of breaking the solder joint. This is simply to use very flexible pins with perhaps a smaller diameter and then bend them over on the etch wiring like we now do with our diodes and other components. This way we will end up with a much more readily inspected solder joint because it is difficult to cover up a flux joint by piling solder on top of it and we also gain significantly more mechanical strength. When Sprague copied our plug-in units they introduced a number of ideas which only showed lack of experience on their part. However, their pulse transformer design might have some ideas which we could use. Maybe we should take one of their pulse transformers off the sample plug-in units we have and see how it is assembled. It appears that they make a header out of glass board and then pour resin on top of it. They then trim the pulse transformer on a sanding disc so that it looks attractive. We might slip our present transformer leads into a pre-drilled header which would then once and for all keep the leads orientated. This may not take much more time than we now take putting them on paper clips. Potting them in resin could be fast if we were set up for it. It could be done on a continuous basis if we started off with dry pellet type epoxy.

The Sprague pulse transformers were square which means that they were somewhat wasteful in area. They of course did this in order to make the trimming on the sanding disc easier. If we had some way of holding our header we could do our trimming on a semi-automatic lathe and end up with a good looking round transformer.

We might also have a form molded in round shape with pre-drilled holes in the base that we just filled with resin and would take no further trimming except possibly touching the top on a sanding disc.

For molding, one always wants a very free flowing liquid that would fill all the tiniest of crevices. This type compound is available and it indeed does flow

freely but it is going to be difficult to keep it from flowing out through the holes we drill for the leads. We will want to tend the leads right up to the case and so it is important that there be no resin coming down the leads.

The case material should be tolerant in a very high temperature so that we can strip right up to the case. Otherwise we may have to go to some mechanical type stripping and tinting.

I am interested in this process because we may want to make assemblies of circuits to go into our present modules.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 20th, 1962

SUBJECT

TO Jack Smith
Ed Harwood
Al Blumenthal
Dick Whipple
Joe Gill

FROM Kenneth H. Olsen

It was decided sometime ago and I thought everyone was in agreement that we would keep all systems and computers on skids at all times. It terrifies me to see technicians running with an almost completed computer on our rough floors. We have too much invested in these machines to allow a caster to be knocked off.

The policy is that all systems will be kept on skids and will be moved with fork trucks. If there is a reason why this policy is not practical, please let me know and we will modify it.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 16th, 1962

SUBJECT Blackboard notes meeting in Ken Olsen's office on February 15th concerning move to Building 5.

TO Maynard Sandler
Jack Smith
Cy Kendrick
George Brown
Loren Prentice
Bob Hughes

FROM Kenneth H. Olsen

## Uncompleted Jobs

1. Mounting for draws. (George) 2/16/62
2. Point benches. (George) 2/21/62 (Wednesday)
3. Air lines. (George & Loren) 2/21/62 (Wednesday)
4. Assembly of racks for stockroom. (Jack) Monday
5. Power for Ada-wave. (Jack) 2/21/62 (Wednesday)
6. Water coolers. (George - fastest)
7. Power for test stations (Bob H.) 2/22/62 (Thursday)
8. Coat Rack. (Cy)
9. Coffee. (Maynard)
10. Time clocks. (Maynard)
11. Replace lamp tubes. ( ? )

## Move to Building 5

1. Stock room.
2. Final tester.
3. Solder dip.
4. Silk screening.
5. Computer assembly.
6. Power supply assembly.
7. Assembly group (modules).
8. Assembly group (wiring).
9. Bulk storage.
10. Test Headquarters.
11. Order fire door. (Loren)
12. Exhaust fans. (Loren)

## Sequence of Move

5 Anytime (Saturday)
1-9 Completely moved by Friday
2 Thursday night
6-7-8 Saturday
3 Friday daytime
10 Power ins.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 14th, 1962

SUBJECT

TO Bob Hughes

FROM Kenneth H. Olsen

In looking over the test data sheets I have not been able to figure out why we measure leakage in the 4218 and why we measure short circuit current on the set input of the 4209. Could you give me a ring sometime and let me know why this is.

Do we have any way of testing the inverters on the 4209 and the 1209?

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 14th, 1962

SUBJECT Request for AMP Samples

TO Henry Crouse FROM Kenneth H. Olsen

Here are a list of AMP products which I would like to have 10 or so samples of if you can arrange it.

1. 110 Series Faston Tab #40966

2. 110 Series Faston Tab Insulation Support Receptacle 42294-1

3. Tab Receptacle #41086

In addition I would like one or two samples of the AMP test probe receptacle for printed circuit boards. I can find no model number in the catalog for this.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 14th, 1962

SUBJECT

TO Harlan Anderson
Ben Gurley

FROM Kenneth H. Olsen

Mr. Robert Hughes who is on the administrative staff of MIT is coming out to visit us on Friday, February 16th, at 9:30 a.m. He is part of a group of fellows who are trying to sell computing programming services as a separate company. I think their main interest is in developing some attitude as to what price they should sell their services. He is also interested, I would guess, in trying to sell services to us. We, of course, are interested in having all consultants know about our machine.

I will meet with them and talk for a while and if there is reason for you people to get in on it, I will give you a call.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 14th, 1962

SUBJECT

TO Jack Smith

FROM Kenneth H. Olsen

Sometime ago I ordered male tabs for use in our power supply so they could be interconnected with the amp tab connectors. I assume that we are assembling our power supplies for these units now and I would like to remind you to make these an inventory item so they automatically get ordered.

I would also suggest that you look at catalogs to pick out a large storage box for a big inventory item. I think they are called wire baskets because they are made of slats and held together with wire. They also have special racks for holding these. Many of the items we could put on skids but we couldn't stack them then. Maybe we should look at racks that would hold our palettes because this might be easier and cheaper.

I asked the Drafting Room to make an elongated hole on the bracket which holds the tab connectors on our computer power supplies. Apparently, we are still making power supplies without this elongated hole. Will you check for me to be sure that this is being changed in the system somewhere.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 14, 1962

SUBJECT

TO Stan Olsen

FROM Kenneth H. Olsen

I am very unhappy with our attitudes with respect to answering inquiries within the Sales Department and Engineering Department. I think it is intolerable to offer to send a price quotation and then procrastinate indefinitely. I suspect that if the customer doesn't remind us, there are many answers that we never send out at all.

I would like to have a system set up whereby each request for a quote is entered into a log. This log would also give the dates which we promised to give an answer. The log would be kept by a secretary or clerk who would raise the flag well before the promised date to answer is due.

We then have to give an answer to every inquiry. The answer may be we don't want to bid, or it will be a year before we can give the price, or it might be an exorbitantly high bid, but above all, it is an answer.

The responsibility of the Sales Department is not relieved by simply sending a note to the Engineering Department asking for a price.

Kenneth H. Olsen

CC: Harlan Anderson
Ben Gurley
John Keudela
Bob Beckman
Nick Mazzarese

dec INTEROFFICE MEMORANDUM

DATE February 14th, 1962

SUBJECT

TO Henry Crouse

FROM Kenneth H. Olsen

I would like to obtain the instruction manual and any other service literature available on the following RCA closed-circuit television equipment.

1. RCA TV-eye camera model HCV-1, MI-36265 - Serial #1028

2. TV-eye master control model HAV-1, MI-36266 - Serial #1030

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 14th, 1962

SUBJECT

TO Cy Kendrick
Jack Smith

FROM Kenneth H. Olsen

There are several items used in production which we have become very dependent on and we should consider buying spares for. I particularly have in mind the small high temperature soldering pot which we use for stripping insulation from pulse transformers and the Little Joe sleeving cutter. Both these items are reasonably inexpensive, I believe, and we should have spares for them. We might justify another Little Joe cutter just because it is being used by so many groups now. We should be careful to specify an extra high temperature on the stripping solder pot. If we had one which was a little deeper we could strip longer leads.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE February 13th, 1962

SUBJECT

TO Stan Olsen
Harlan Anderson
Jack Brown

FROM Kenneth H. Olsen

I received a telephone call at 2 o'clock on Tuesday, February 13th from Mr. Sam Cohen, President of Ess Gee Company, 15 Haven Street, Elmsford, New York - Lyric 2-8620 - area code 914. His technical man, Al Wachtell, also talked with me. They are very much concerned because they have not received a proposal from us on an adapter to use an IBM tape. They have to mail their proposal in tomorrow and the technical decision has to be made later in the month. The computer has to be on the site in October for a shot in November. This is to be used for the Nimbus Satellite and will process information coming by telephone from Alaska to Maryland. They will process the information on a 7090 but they want to take the 729 tape and process it on our computer.

They feel they pretty much sold our computer but they are getting embarrassed because of the delay in getting information from us.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 13th, 1962

SUBJECT

TO Gordon Bell

FROM Kenneth H. Olsen

When we told our Board of Directors about the cookie factory and the 11 carloads of flour that might get held up each day, they showed quite a bit of concern about the importance of the computer breaking down. When we said we didn't expect it to break down very often they said this was even a worst situation because there will be no one around who will know how to run the manual control. They suggested that we look seriously into duplexing the computer. We, of course, told them we offered this, but, Jay Forrester said it was our obligation to almost force customers into making wise decisions.

Kenneth H. Olsen

cc: Ben Gurley
Harlan Anderson

dec INTEROFFICE MEMORANDUM

DATE February 13th, 1962

SUBJECT

TO Loren Prentice
Jack Smith

FROM Kenneth H. Olsen

In looking at the very approximate costs of manufacturing our modules, I find that I don't have the data to make final decisions, but, my impression is that it takes us almost twice as long for a girl to solder the transistors as it does for them to insert all the components. If this is true, maybe we shouldn't concentrate on the automatic inserting of components as our highest priority but we should consider the problem of cutting and shaping the transistors so that they go into the lugs very easily.

Bostitch Staple Company and Federal Tool in New Jersey are both looking into the problem of automatically inserting the 22 wires that go between the etch board and the plug. We expect to receive a proposal from both of them, but, I am afraid that this is going to be expensive, however, we have so many girls doing the operation now that there is money to be saved there.

Kenneth H. Olsen

cc: Maynard Sandler

dec INTEROFFICE MEMORANDUM

DATE February 13th, 1962

SUBJECT

TO Henry Crouse

FROM Kenneth H. Olsen

We are now putting very sloppy and irregularly cut stick-on labels on each of the modules going into a computer. Each computer has its own color and this way we can tell whether modules that do not belong to that computer are temporarily being used in it. Will you check with our neighbors on the floor below, No-Lik Company, show them the problem and see what they have to suggest. All we ask is that they be neat. It would be an advantage (if we could get very fast service on a few hundred labels) to have the job number printed on the label. We could add this numbered label to all the components as the machine is being assembled.

Kenneth H. Olsen

cc: Ed Harwood

dec INTEROFFICE MEMORANDUM

DATE February 13th, 1962

SUBJECT

TO Dick Mills

FROM Kenneth H. Olsen

At our latest Board of Directors meeting we mentioned the possibility of paying taxes based on an estimate that this year's profits would be the same as last year. They asked us to check with our auditors, Lybrand, Ross Bros. and Montgomery to see what their attitude is on such a policy.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE February 13th, 1962

SUBJECT

TO Maynard Sandler

FROM Kenneth H. Olsen

I would like to receive a memo listing the approximate costs of many of the components in operation in making our modules and our 1901 mounting panels. Some of the figures I have in my head aren't valid because we often talk of sub-assemblies, which we make as if they were components we buy on the outside.

This is very useful in placing priorities in those areas which need automatic equipment or simplification in other ways. We are also considering a new less expensive line and we may gain nothing if we don't consider what our actual costs are.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 13th, 1962

SUBJECT

TO Stan Olsen
Dick Best

FROM Kenneth H. Olsen

I was somewhat shocked to hear Bob Hughes report on the trip to John Hopkins University. I never realized we had so much trouble in the field with our equipment.

I think that we should encourage, and in fact, set up a schedule whereby our key people visit more sensitive customers. I think particularly Bob Hughes and Dick Best should be scheduled to make these trips. If we can schedule them we can separate them in time enough so that they are not a burden, but, if they are scheduled well enough in advance they will actually occur. In addition, I think we should have all the other top people and those involved in circuit design go out and make some of these trips.

After listening to this, I am wondering if we shouldn't immediately offer the 1203 flip-flop because it is so much more conservatively designed.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 13th, 1962

SUBJECT

TO Harlan Anderson
Dick Mills

FROM Kenneth H. Olsen

We promised to send down to the Board of Directors well before the next meeting a proposal on renting of computers. One of the problems which we promised to look into were what the anti-trust regulations were on selective renting. The Board would more readily go along with renting if we said that we would do it only to those to whom there were special reasons for renting. It may be illegal to offer it to some and not to all.

We perhaps should ask our patent lawyer about this question. If we are tied in with a patent lawyer it would be good to also ask him if we have taken all steps possible to protect the name of our corporation.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 12th, 1962

SUBJECT

TO Maynard Sandler
Loren Prentice
Jack Smith
Ken Fitzgerald

FROM Kenneth H. Olsen

We plan to stock all computer racks in the stock room in Building 5 and to assemble the computers there and so it appears natural that we should also assemble the racks on the same floor. I suggest that we have shop personnel do the assembling for the immediate future and then when we have developed the techniques and the jigs and fixtures we turn it over to production. This may mean hiring new people or simply transferring the shop people in the production department.

I think that we should carefully consider labor saving devices in assembling these racks because it appears that we are going to be using them for some time. It might be worthwhile to have a hoist on a single rail in the area where we are assembling them so that they can be lifted up, turned over and worked on and put on a skid with very little trouble. I think that the units should be moved around the floor with a fork truck. If we had convenient eyebolts on the computer racks we could consider having a rail run the full length of the computer assembly floor, but, right now I think that fork trucks are sufficient.

We should have an absolutely flat surface for assembling the racks. We might make this be welding up two I-beams.

Before we assemble the racks, I suggest that we put the rack in a jig with 4 drill heads and air clamps that will hold the aluminum angle in place and drill all 4 holes at one time. Then we could fasten the angle on with a Huck rivit. The bottom angle then would be true to the bottom surface of each cabinet which would be true to rest because they would all be assembled with the bottoms all in line. Each cabinet could then be turned over and the top angle put on with the same jig. If we find we need some adjustment we can drill a hole somewhat larger than the rivit and then make small adjustments with a lead shot hammer. We could even put the top angle on with conventional screws and keps. The Revi-nots we are using do not give enough bearing surface of the aluminum.

If the trim strip is all perfectly true, we then may need a jig which checks the difference in height between the bottom of the nylon bushing and the bottom surface of the door in order to make sure the doors will all line up. If there is a variation here we may need to do some filing or maybe we should have some shims that we slip underneath the nylon.

Joe Gill suggests that we have the outside contractor who assembles the frames weld in the baffle plate underneath the power supply door which we are now making out of aluminum. This would significantly add to the rigidity of the cabinets and may help stop some of our parallelograming.

If we put the frames together with Huck fasteners in tight holes, it might also save some parallelograming. It would also save much of the labor in putting on the brackets that we now use to hold the frames together. We can do this by drilling a large hole through the pipe on one side and a clearance hole in the other and then drill the final hole.

Aro Equipment Corp. has very neat and compact automatic drilling heads. Their model PO-5-2P is a 500 rpm model and is available with a nose housing for holding drill guides. This would be a neat unit but the price is about $200.00. Drill heads that use separate motors are significantly less expensive.

We should also plan to set up a crating area for shipping computers out. This probably will mean buying another set of Stanley strapping tools.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 12th, 1962

SUBJECT

TO Dick Best
Ben Gurley
Bob Savell

FROM Kenneth H. Olsen

We have a lot of pressure on right now to deliver on a number of our commitments. During this time of pressure we can all learn a lot and develop many of the techniques which we never get around to without it. However, we don't want to lose view of the long term need to develop people in all areas. This means that we should plan to give them experience in different areas and even give them an opportunity to experiment with some of their own ideas.

Even now in the height of the pressure, we should allow and encourage people to take some time to broaden themselves. I have particularly in mind the Transistor Circuit Show in Philadelphia and the IRE Show in March. We never want trade shows to become one of the "rights" an engineer has to a paid vacation, but, it is good to get out and see the rest of the world and see what is going on. There are also other special meetings by professional groups and by the American Management Association which we would like to encourage people to attend.

The International Correspondence School would like to have us set up a company plan. They have a very good reputation and apparently have a good course on general subjects. They do cover computers, but, I do think they are many years behind our own Logic Book. We should also encourage people to take part in this activity.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 12th, 1962

SUBJECT

TO Dave Shuflat

FROM Kenneth H. Olsen

Sometime when you are down on the production floor will you try one of the small Skinner electric air valves on the component bender to see if it will operate the machine. In order to do this you will have to go from a 1/8" type to the 1/4" needed by the valve. If this works easily we will use those valves on this bender and the new one which we have ordered.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 12th, 1962

SUBJECT

TO Bob Lassen

FROM Kenneth H. Olsen

We need some ordinary worker types for our sheet metal shop just to stand in front of the punch press day after day. Will you look into the possibility of renting people like we are now doing for the labor work in Building 5 - but check with Ken Fitzgerald first.

Kenneth H. Olsen

cc: Ken Fitzgerald

# INTEROFFICE MEMORANDUM

DATE February 12th, 1962

SUBJECT

TO Henry Crouse

FROM Kenneth H. Olsen

I would like to sample a hundred of United Shoe Standard Eyelets of the SE3 size with the shortest length which they make. They normally ship samples which are not plated which would be good enough for us although we would rather have cadmium or nickel plated.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 12th, 1962

SUBJECT Washing Etch Boards

TO Jack Smith

FROM Kenneth H. Olsen

I think it is a good idea you have to wash etch boards before they are silk-screened and washing them after the resist is taken off with the new dishwasher which we own. It is going to be very expensive to move the dishwasher into an area and try it out. I suggest that you consider the possibility of immediately trying out the dishwasher in its present location for these operations. We would have to cooperate with Raytheon, but, I am sure we can arrange this.

dec INTEROFFICE MEMORANDUM

DATE February 12th, 1962

SUBJECT

TO Maynard Sandler
Loren Prentice
Jack Smith
Ken Fitzgerald

FROM Kenneth H. Olsen

Our Engineering Department now has the feeling that it takes a very long time to get panels silk-screened. I would like to have you consider the possibility of setting up another silk-screen man who either shared the same facilities or with separate facilities, who was either part of the production silk-screening or part of the paint shop, who did nothing but silk-screen panels for special projects.

Our silk-screen shop in Boston, of course, has helped quite a bit, but, I think we should have more ability in our own shop.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 12th, 1962

SUBJECT

TO John Culkins

FROM Kenneth H. Olsen

When we have painters come in to do the men's room on the fourth floor, we also should have them varnish or shellac the panel doors to the auditorium and to Dick Best and Ben Gurley's offices.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 12th, 1962

SUBJECT

TO Stan Olsen

FROM Kenneth H. Olsen

During the Texas Instrument movie on their transistors they mention what percentage of their people were involved in Quality Control inspection. I think it would be interesting to find out this figure for our own operation because I think we will be surprised to find that a large number of the people are doing inspection, testing or other quality control operations.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 12th, 1962

SUBJECT

TO George Brown

FROM Kenneth H. Olsen

While we have the carpenters here, it would be a good idea to put new partitions within the ladies room on the far end of Building 5 on the column 1 end. Ep Toumi has tried some Sears Roebuck louver doors on the john on the top floor of Building 4 and I think they look fairly good. You might talk to Ep and see what his ideas are for repartitioning this room. We might consider taking the bowls out of the men's room and then opening it up so that it is one large ladies room with a small vestibule. We might also consider painting the floor, but, otherwise I think the room is in fairly good shape. Because we have many girls in that end, we should carefully consider doing this operation now.

Maybe we should try one of your laborers on painting with our new painting machine. If we paint the bridge between Building 4 and Building 5, I think maybe we should start off just painting below the dado line. The upper part would brighten the room quite a bit, but, it has so many details and windows that it would be a real chore to paint it and just painting the lower part and cleaning the floor would make a significant improvement.

We will also have your men use some plywood sheets to partition off the Dennison portion of the top floor of Building 4 from the narrow passageway which we use and then when we start spray painting, that passageway can be painted all the way up to the elevator. I don't think that it is necessary to put a locked door up to the attic of Building 4 because the other end opens into our area and so we don't lose any security. In fact, we gain security this way because now we control both ends to the attic which now is a loophole in our security.

Please put a bracket or a block over the catch in the front entrance of Building 5 because this lock can be opened with almost any implement right now.

Kenneth H. Olsen

cc: Jack Smith
Dick Mills

dec INTEROFFICE MEMORANDUM

DATE February 12th, 1962

SUBJECT

TO Maynard Sandler
Jack Smith

FROM Kenneth H. Olsen

I think it is a good idea for you to put your offices along side the air conditioned room. While the carpenters are still in, it would not be difficult to modify the partitioning and so I suggest that you lay it out immediately.

One possibility would be to take the large office nearest the ladies room for Maynard and use the office outside of it for a secretary or two. Jack could then take the next office and we could open a door so that the secretary can service him also.

I think Jack should have an office large enough to have a small conference table in it and with enough wall space to spread out production control charts. It might be good to have the production control charts in the secretary's area so that people could come in and look at them without bothering Jack.

I notice that there are folding tables stocked outside the cafeteria area now. It might be a good idea to claim one or two of those for conference use.

We should also layout the production control office immediately because we will probably want to take down some of the partitioning and it is easier now that we have the help. I would suggest that we keep the 100 sq. ft. office that opens on to the corridor and use this for a supervisor. There is 1455 sq. ft. left in production control office which should readily take ten or more people, I would guess. If we figure that there will not be enough room for this office we should now cut into the next area.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 12th, 1962

SUBJECT

TO Stan Olsen
Harlan Anderson

FROM Kenneth H. Olsen

It has been sometime since Ted Johnson has been back to Maynard. Do you think we should consider having him come back now or maybe having him come back during the IRE Show.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 8th, 1962

SUBJECT

TO Dick Mills
Harlan Anderson

FROM Kenneth H. Olsen

At the monthly Board of Directors meeting on February 6th it was voted to contribute a total of $1,500.00 to Emerson Hospital over a three year period. The payments would then be $500.00 per year. We might consider postponing this until after July 1st.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE February 8th, 1962

SUBJECT

TO Jack Smith
Maynard Sandler
Stan Olsen

FROM Kenneth H. Olsen

It is my impression that we are perpetually behind in 1906 mounting panels. Would it be possible to set up one sub-contractor to completely manufacture these items so that we can develop a large stock pile of them. We could afford to give them an eyelet machine maybe, or, we might continue to eyelet the boards here and have them do all the rest of the assembly.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 8th, 1962

SUBJECT Visit from Woods Hole, February 7th, 1962.

TO Harlan Anderson
Stan Olsen
Ben Gurley
Ed Fredkin

FROM Kenneth H. Olsen

Early Wednesday morning, February 7th, Dr. Veronis from Woods Hole Oceanographic Institute and Henry Stommel of Harvard, visited us to talk about a PDP Computer for the Woods Hole Institute. They now have an Autonetic Computer which is giving unsatisfactory service and does not have the features which they desire.

Mr. Stommel is seriously considering giving a contract to Ed Fredkin immediately to show the value of a scope presentation, and to try out Ed Fredkin. However, they may be forced to make a decision on the computer before Fredkin's results are in.

People have been collecting data on the ocean for many years, but, this has been done by many different groups with no consistent way of preparing the data, and now there is no convenient way of presenting it. They have taken data at about 100,000 points throughout the ocean and at each point there is about 1,000 bits of information. They would like to be able to call up graphs or sections of the ocean and present this multitude of data they have. Yesterday Professor McCarthy at M.I.T. demonstrated a PDP with a scope and this caught their imagination. They could then make sections of the ocean or histograms and photograph them and distribute this quite freely and hopefully they could ask for any information and have it presented in any form and get it quite quickly. Eventually this would mean having a disc file however.

The Woods Hole Oceanographic Institute is a non-profit group independent of other organizations but they are on quite friendly terms with M.I.T. and Harvard. Their ties with M.I.T. might become much closer as the Earth Sciences Department develops at M.I.T. M.I.T.'s only contact with water is now the Charles River, which is not quite as challenging as the contact which Woods Hole has.

Only 22 out of the 400 people at Woods Hole are doing classified government work. Of the 400 people about 100 are professional people. They will probably ask us for a discount because they are a non-profit institute. Because they are independent of the government (not quite 100% of their money comes from the government) they can sign contracts which are longer than one year.

They are interested in our color display and I told them that we will let them know when it is finished so we can show it to them.

They feel that they will need one magnetic tape unit and a scope with their computer and they are interested in the possibility of a line printer.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 8th, 1962

SUBJECT

TO Ben Gurley

FROM Kenneth H. Olsen

I would like to have you consider the following reorganization in the computer group. Now that we have dropped the project engineering approach to making computers, I think we had better define the relationship of the people assembling and checking-out computers. It is impossible for an outsider to find out what happens on that floor, but, the impression one gets is that there is a delay of a day or two each time there is interchange of a system between Ed Harwood and Al Blumenthal. Sometimes it sounds like the relationship between different trade unions.

I suggest that we consider having Al Blumenthal take the responsibility for both final assembly and check-out and that we have Ed Harwood work for Gordon Bell. Ed would still have to continue some of the responsibility he has now, particularly those involved in completing units of BBN and other places. Giving Ed Harwood to Gordon Bell would not be a complete loss to the PDP-1 project because supposedly this would free Gordon Bell so that he could do more part time jobs for PDP.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 8th, 1962

SUBJECT New Layout for Engineering

TO Ben Gurley
Dick Best

FROM Kenneth H. Olsen

We will now move all computer check-out to Building 5 which will free several offices in Building 4. We now have a large number of engineering benches which are not being used because some of the offices are filled by people who are working on computers.

I then suggest that we move Jon Fadiman and all of his people into the four offices on the end of the check-out floor. These are very large offices and could very comfortably take care of the people there.

I would also like to see us separate Gordon Bell and the PDP-4 project from the rest of the operations. One way to do this would be to partition an area just for PDP-4 where we are now checking out the computer. I would like to see PDP-4 have its own space, its own cost center, its own scheduling, its own people.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE February 8th, 1962

SUBJECT

TO Maynard Sandler
Loren Prentice
Jack Smith

FROM Kenneth H. Olsen

I would like to see the layout of the drilling and air operated machines for Building 5 before we start to assemble them. I think that we should immediately order individual fans for each drilling station. The type fan I would like to see are like shaded pole blowers in the W. W. Grainger catalog. These use a squirrel cage type blower with 1500 rpm induction motor and so they should be very quiet. With a fan right next to the drill there will be very little pressure drop. The trouble with the Grainger units is that they don't have a flange on the intake. These flanges might be available or we may have to order the blowers from a company like Roton.

The dip soldering should also be along side the window and I think we should leave room for a 10 foot section of conveyor on each side of the solder pots so that the man can load up the conveyor on one side and allow the units to collect on the other.

Our latest thoughts is not to make a tunnel type oven for drying the etch boards, but, instead to make a warmed and dehumidified room into which we will put the bakery racks to allow the boards to dry in a matter of hours. The problem with the tunnel fast dry is that is is depended on stacking the boards afterward and I am afraid that we will not be able to get away with this because it will scratch the paint.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE February 8th, 1962

SUBJECT

TO Bob Hughes

FROM Kenneth H. Olsen

In the February issue of Electronic Industries magazine there is a chart which lists the charactistics of all the automatic transistor testers. This magazine normally gives reprints of their articles if a request is made on company stationery. If you are interested in this chart, you may want to request a reprint.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 8th, 1962

SUBJECT Automatic Control of Component Benders

TO Loren Prentice
Jack Smith

FROM Kenneth H. Olsen

I suggest that we continue to work on putting a solenoid operated valve on the component benders. We would then have the option of having them foot operated or operated from a clock. The present automatic timing device is unstable and changes and can be quite discouraging for the girl. If we had an electrically operated one we could use an Industrial Timer Cam Driven Switch with which we can set the time and have complete control over the unit. The timing of these units is set by changing the gear drive and so the girl will not be able to change the speed. We then, of course, should have the counting mechanism on the unit.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 8th, 1962

SUBJECT

TO Stan Olsen
Maynard Sandler
Bob Hughes
Dick Best
Jack Atwood

FROM Kenneth H. Olsen

There has been a lot of discussion as to what records we should keep on each plug-in unit we sell. The Production Department now as part of its production record makes notes of the serial number of each unit in every lot. They also keep track of who tested and who inspected each unit. I propose that this is enough information and that in the very unusual case where we want to go back and find out information on the history of a unit, that we can get it in these production records. This would be a rather lengthly operation, but, because we expect to do it so rarely, it is not worth the effort filing this information any other way. As a result, I propose that the test data sheet which is tied to the module, be sent with the module and that no record of its contents be kept. Because the tag will be tied to the plug-in unit, it is not necessary to write the serial number on. If a customer wants to keep a record of these cards he can then write the serial number on the card as he removes it from the plug-in unit.

In addition, the man assembling the order for shipping should made note of what serial numbers are going into each invoice.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 7th, 1962

SUBJECT Monthly Progress Report

TO Dick Mills

FROM Kenneth H. Olsen

I think that we could well spend some time rethinking the organization of all our Progress Reports. It is not at all clear what many of the items mean and why they are where they are. I suggest that first of all, we block diagram the sections of the report so that it would BE clear to somebody where they fit in.

I suspect that the Statement of Cost of Modules Sold includes items other than modules, but, there is no way to be sure.

In the list of company sponsored engineering jobs it is awfully difficult for us to justify to our Board of Directors how PDP Field Service Charges are part of company sponsored engineering jobs. There are also inconsistencies in the naming of different projects. It is not clear what the difference between PDP Field Service and just Ordinary Field Service is. I expect that current generator and current driver are the same, but, it is not clear.

There should be some way of letting the reader know how much of a project, such as Analog Anelex Development, is company sponsored engineering and how much is being charged off to the customer.

I would like to see someone critically look over this presentation and see if we can't develop one which is more easily understood.

Kenneth H. Olsen

cc: Harlan Anderson
Stan Olsen

dec INTEROFFICE MEMORANDUM

DATE February 7th, 1962

SUBJECT Program for Receiving

TO Henry Crouse
Loren Prentice
Jack Atwood
Stan Olsen

FROM Kenneth H. Olsen

When we move Production to the fourth floor of building 5 most of our receiving will be done through that shipping dock. There are three shipping doors and a large receiving area and so we will be able to do this rather comfortably. When we take over all the Raytheon area I think we will move the partitions so that two of the loading docks are completely enclosed in our area and we will be able to leave material there over night. We will also do shipping from this dock.

There will be a certain amount of other material coming into building 4, 3 and 12. I suggest that Jack Atwood have the responsibility for all the receiving into building 12 because practically all of this will be literature and printing supplies.

I suggest that Loren Prentice have the responsibility for receiving in building 4 because most of the material received there will be for the shops.

Sometime ago I bought three telephones with ringing generators on them that can be either desk mounted or wall mounted. I will buy one more of these and then have two circuits. One from the building 12 loading dock up to Jack Atwood's secretary and one from the building 4 loading dock up to the shop area. We then will have to make appropriate signs explaining how to use the phones to get receiving service. These signs should also explain that all receiving is done at building 5 unless specifically mentioned on the label that it should be building 12 or building 4.

Just before we are ready to use the receiving dock and the other area, we should be sure that all our vendors put the appropriate label on all our packages. We will start to use the loading dock in building 5 just before we move Production over there even though we won't have the whole Raytheon area for several months.

I would like Henry Crouse to work out the details of this problem and layout the signs and be sure that everyone is in agreement.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 5th, 1962

SUBJECT Systems Stock Rooms

TO Al Blumenthal
Jack Brown
Ed Harwood

FROM Kenneth H. Olsen

I have been hoping for months that someone would show the initiative necessary to clean up the Systems Stock Room. I can't figure the organization out and so I send this note to all of you and ask that at least a spring return door be put on the stock rooms so that visitors do not see it.

Now that that one is filled up, we are starting a new one in the chapel. I understood that this was going to be a stock room for inventory parts but apparently that was only the first layer. Let's take the weights off that door so that it will automatically close because it is so close to the corridor.

We are teaching our technicians exceedingly poor work habits because we allow them to take any unfinished job and leave it in the store room without taking off the valuable parts or finding out whether the thing should be thrown out completely.

I am not sure what the long term answer to housekeeping in the Computer Department is. Now that the groups are separated on the check-out floors, it is easy to see who has respect for equipment and who has a sense of housekeeping. Maybe the answer is to have a separate stock room for each group when we move to the other building and one more for all production parts that would be directly under the control of the Production Department.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE February 5th, 1962

SUBJECT

TO Henry Crouse

FROM Kenneth H. Olsen

I would like to see us develop a package for our system building blocks which is reusable. Right now after people take the units out of our package they have no nice way of storing them.

I would like you to get a general price on the unit cost of a plastic box molded to fit our units. This box should be less fragile than the one we are using for patch cords now. Maybe more expensive material should be used and maybe a separate cover should be used.

I suggest that we ask the present plastic box supplier for a price and that we ask the plastic company under building 12. We should ask our vacuum molding company in Waltham if they could make something that would do the job. Vacuum molding does not lend itself to a hinged box, but they do have plastics which are exceedingly tough.

Another approach to the packaging would be to use the polyethylene bags with plastic zippers like Bourns Pots sometimes come in. These bags would not offer any physical protection to the plug-in unit and would necessitate a good packaging system.

Another item we should have for packaging which would be helpful with a plastic box and necessary with a plastic bag would be a shipping container with dividers in it to support the plug-in units. This could be vacuum formed with grooves in the sides like our paper tape holders. It does not have to be as tough and perhaps should be inserted into a tight cardboard box. If one of these held 20 plug-in units, they could be loaded quickly and it wouldn't be too wasteful if less units were packaged at one time. The big advantage would be that after the flaps are cut off the cardboard boxes the customer then has a very neat way of storing the modules.

Kenneth H. Olsen

cc: Stan Olsen
Jack Atwood

dec INTEROFFICE MEMORANDUM

DATE February 5th, 1962

SUBJECT

TO Jack Smith

FROM Kenneth H. Olsen

I stopped in the plant on Sunday and found all the lights on the engineering floor and several other floors. I went to turn them off and could not figure out the system at all, and as a result, lost all my drive to criticize, however, left the lights on. Will you or will you have George contact Bernie Joyce and have him lay out a simple way of turning power off. We may even have to pay for contactors in order to have the system work in a reasonable way.

Will you also have Bernie put a bell on the Purchasing Department entrance.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 5th, 1962

SUBJECT

TO Dick Mills

FROM Kenneth H. Olsen

Security is going to be even more difficult when we take over building 5 because of the passageways and stairways in between. We could make a stairway from our machine shop up to the top floor of building 3 and have all our traffic go over the upper bridge. This would have the advantage of breaking up the flights of stairs necessary to make a trip.

This then opens the possibility of securing the stairway between the third and fourth floors of building 5 and giving us complete security throughout the plant. The people on the fifth floor have no need of this stairway or elevator except for emergency use and a seal breaking system for opening a door would take care of their emergency needs. Bradley Plastic has access to that stairway and elevator but I don't think they use it and might possibly give us permission to close off that area.

Will you contact Mr. Berg and ask him if this is a possibility. If we closed off the stairway to Bradley we would be happy to even leave a key with the main office of Bradley so they could use the doorway or elevator, if necessary. We would then paint the passageway on the top floor of building 3, the bridge, and the stairway in building 5.

cc: Stan Olsen
Harlan Anderson
Jack Smith

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 5th, 1962

SUBJECT

TO Loren Prentice
Ep Toumi

FROM Kenneth H. Olsen

I am now thinking that we should make a stairway from the top floor of building 4 to the top floor of building 3. This would then mean that we would use the top bridge and only one stairway in building 5. This would break up the trip nicely and it might make it somewhat easier to have security. I figure that this stairway would have to go up through the present machine tool crib, but, if we are going to move the machine shop anyway, this would not be a serious loss.

I asked John Culkins to check the height of the steam pipe in the passageway on the top floor of building 3 to see if it would clear our systems. If we make a drastic move like this one, we ought to raise that pipe as high as we can even though it would pass our regular equipment. We would then paint the passageways all the way between our two buildings.

I would like Ep Toumi to look over this situation to see how practical it would be to make this new stairway.

I would also like Ep Toumi to immediately put a dead-lock type lock on the door between the Drafting Room and the lower passageway and between the stairway next to the chapel and the inside of our floor in building 3. The present type locks are very easy to pick and they encourage people to exit through these door which is a very dangerous practice.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE February 5th, 1962

SUBJECT

TO Harlan Anderson
Stan Olsen
Ben Gurley

FROM Kenneth H. Olsen

Further to my memo of January 26th, Dr. Veronis of Woods Hole Oceanography Institute will be here on Wednesday, February 7th at 8:30 a.m.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 2nd, 1962

SUBJECT

TO Henry Crouse

FROM Kenneth H. Olsen

Curtiss Development and Manufacturing Company at 3266 North 33rd Street, Milwaukee 16, Wisconsin makes terminal strips which we may consider using in the rear of our present power supplies. The ones we have now we make ourselves because we didn't know where to buy them, but they are not completely satisfactory. Will you request from them a sample of their feed through terminal block type FTS-4 which lists for $1.07 and their feed through terminal block type EFT-4 which lists for .57 each.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 2nd, 1962

SUBJECT

TO Henry Crouse

FROM Kenneth H. Olsen

It would be desirable to have synchronized clocks throughout the whole plant. It would be even more desirable to have them all synchronized with the time clocks we have. I have no idea how expensive a self synchronizing time clock system would be, but it would be interesting to find out. When you have the opportunity I think it would be worth while to find this out.

Will you also check with Maynard Sandler to find out if he will need new time clocks when we move to the other area. The type we buy may possibly be influenced by availability of self synchronizing clock.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 2nd, 1962

SUBJECT

TO Jack Atwood

FROM Kenneth H. Olsen

I would like to have two types of salary review forms printed so that we can maintain some systematic way of carrying out our annual salary reviews. With a system, we might also find it desirable to review even in the half year because it is somewhat unfair to an employee to have his salary function according to the present attitude of his supervisor.

The first form I would like to see should be on reasonably heavy board because it will be a record for many years of his salary. On the top there should be the name of the man, last name first, and the most significant data on him such as any degrees received and dates and year joined DEC. Then there should be a number of columns: first column is date, the next is reviewer, then the five categories under which they are reviewed, the names of which you can get from Harlan Anderson. Next column is total because these are points which the person reviewed is given numerical value. Then, there should be a wide space for calculation and notes. Next column should be old salary, next dollar raise, next column percentage raise, next column new salary. This probably should go across the long section of a standard sheet of paper.

The second form should be on relatively light paper, the sort of thing we normally offset printed forms on. It should be decent looking so that it will gain the respect which it deserves. This form should first of all have a paragraph explaining each of the five points which we want to review a person and give some hint as to what the meaning of the numbers are and then there should be space for the reviewer to record the value he puts on each of the five points. Then the following questions should be stated and there should be room for them to be answered. Name three people who are comparable with this man who's value to DEC you would rate higher to this man. Next question is the same but three people who you would rate lower than this man. On the top of the page should be the name of the man and the name of the reviewer and the date. All of these forms should probably have Company Confidential across them.

I am disappointed that we don't have the new job application form already. I have a very capable secretary, who at time, I am not able to keep busy. Is this in shape that she can with her Executive typewriter prepare it for printing.

Kenneth H. Olsen

cc: Harlan Anderson

dec INTEROFFICE MEMORANDUM

DATE February 2nd, 1962

SUBJECT

TO Henry Crouse

FROM Kenneth H. Olsen

When we buy reels of AMP tab terminals or AMP taper pins, will you ask Jack Smith, myself and others if at the same time we should order a new setting machine. If we buy a machine every time we get terminals the cost is very negligible and there may be good reasons for us to have several machines now that we are spreading out more.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 2nd, 1962

SUBJECT Location of Purchasing Department

TO Henry Crouse

FROM Kenneth H. Olsen

I waiver on the desirability of moving Purchasing over to building 5 when we take over the whole building in July. It is a question as to whether it is more desirable to be near Engineering and have the salesmen walk up many flights of stairs, or to be near the entrance and far from Engineering. I think that you and your people should consider this problem and perhaps sample the opinions of salesmen so that the decision will be a little easier to make.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 2nd, 1962

SUBJECT

TO Ken Fitzgerald

FROM Kenneth H. Olsen

I offered to the Lincoln Sudbury High School the scrap aluminum which we would normally sell to the junk dealer. It hurts me to throw away such nice pieces. I told Mr. Swicker who is in their shop that I would call him Thursday, February 1 to let him know if he could come by tomorrow to pick up some. I told him we would also have some available regularly. If we have some now, would you put some aside and then will you take care of calling him and letting him know that we have it.

Kenneth H. Olsen

CONFIRMATION OF TELEPHONE CALL ON FEBRUARY 1, 1962

dec INTEROFFICE MEMORANDUM

DATE February 2nd, 1962

SUBJECT Notes on new Audio System.

TO Dave Dubay
Stan Olsen
File (2 copies)

FROM Kenneth H. Olsen

I am still collecting information on better equipment for our Audio System, but, in the meanwhile here are some plans for the basic system.

The basic sound room shall be the caged in section of the old machine shop tool crib. This room can be locked and will be safe from tampering. In addition to the main system we will have remote amplifiers and build a remote amplifier in building 5 and maybe a remote amplifier in building 4.

This system will have to be built a little more professionally. It should be so simple that anyone can understand it without any drawings.

Here is a list of the inputs to the system.

FM Radio Programs A
FM Radio Programs B
Front Lobby Paging
Purchasing Lobby Paging
Building 5 Lobby Paging
Work Start and Break Gong
Maynard Line Telephone
Waltham Line Telephone
Arlington Line Telephone
Dial and Telephone Paging

Our need for differing signals is getting to be a problem and we have to go to tone oscillators or a range of chimes and play several notes for each tone. We might even buy sections of an electronic organ in order to do this, or we might build simple transistor oscillators. An Industrial Timer Cam Operated Time Clock would do this very well. I propose that on the output of our 15 interval switch we put a double pole, double throw relay which will give us a choice for two different kinds of music. The reason for double pole, double throw switches is so that we can then short to ground the terminal which is not having music played on it. I also feel that we should play music continuously for other than normal working hours. To do this I have ordered a Paragon Electric Company model 7008-0 Seven Day Calendar Dial Time Switch at $21.17.

We also should gong at 8:15 a.m., 9:50 a.m., 10:00 a.m., 12:00 noon, 12:45 p.m., 2:50 p.m., 3:00 p.m., 3:10 p.m., 5:00 p.m. and 5:30 p.m., 6:00 p.m. and 10:00 p.m. To do this I have ordered a Paragon model 2201-OS 24 Hour Program Instrument at $71.20.

We should have an amplifier for each floor in building 12, one for building 3, two for building 4 and one or more for building 5. We probably will need a special circuit for the lobby in building 12 and maybe we should play music there continuously. If we use the new Shure microphone we may not have feed back problems and we may not need a special amplifier for building 12 lobby. We should eliminate the Telephone Company paging mike because it introduces a hum into the system.

I have ordered 3,000 feet of Belden foil wrapped balance pair wire to bring three signals over to building 5 from the audio room. In addition, we should bring a separate cable back for microphone to the Audio System. I don't think that we should carry mike signal and audio signal in the same bundle, even though they are balanced.

We will carry signals to remote amplifiers in the audio room at about 600 ohm level on Belden foil wrapped two conductor shielded wire with a level of about 1/2 volt to 2 volts. This should be enough to drive the amplifiers directly.

I don't have all the literature as yet so I am not quite sure as to how we should do our mixing. I do think we should have quality equipment so that we don't run into problems. We should be careful to use real good connectors and solder them very well in all our Audio Systems.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE February 2nd, 1962

SUBJECT

TO Henry Crouse

FROM Kenneth H. Olsen

I would like some information on a reversible geared motor made by Barber Coleman Company, Rockford, Illinois. If they sell single samples, I would like to buy one, otherwise, I would like to know the price and delivery. The motor I am interested in is Type TYAZ 7.5 CE4C-1.

Their rep in the area is Paul R. Sturgeon, Inc., 25 Huntington Avenue, telephone COmmonwealth 6-7705.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE January 30th, 1962

SUBJECT Packaging System Building Blocks

TO Stan Olsen
Jack Atwood

FROM Kenneth H. Olsen

Our present packaging of system building blocks leaves quite a bit to be desired. It is not inexpensive, it is not fast to assemble, and it is of no use after it is opened.

It would be nice if we had a package which could be used for filing building blocks after the customer received them. One way to do this would be to make a package something like the one we now have, but, mount two building blocks on one piece of cardboard approximately 8-1/2 x 11. There should be some way of opening just the top so that a neat, two pocket package is left to be put in the file cabinet. I should think the shipper would then need a power shear so that all orders that ask for an odd number of of units will get only half of one of these packages. I would be very enthusiastic about this idea if I knew how to make the package easily opened and still salvage the pockets. It would be nice if this package also has a horizontal bar so that it would hang in a file cabinet.

Another approach would be to seal the plug units in a vacuum pack which was no wider than the plug-in unit itself. Then the shipping box could be made with shelves in it so that one also has a storage box after the units are delivered. These shelves could be cut out of wood or molded out of vacuum form plastic. It could even be foam plastic.

Above all, the packaging has to be fast. Maynard Sandler is now talking about putting two girls full time on packaging. A clever system and a little automation here would help. Maybe we should go right away to one of these vacuum sealing machines because they would pace the girl and she would be very productive.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE January 30th, 1962

SUBJECT

TO Stan Olsen

FROM Kenneth H. Olsen

The present method of marking pulse transformers seems very slow and tedious, and I think we should consider going back to some simple code. We might even do this for just the large production items and print numbers on those units we don't make very many of. Because you were the project engineer that set up the method, I think you should look into this situation.

Kenneth H. Olsen

cc: Jack Smith
Maynard Sandler

Air Tool Suspension Hose Reel 3481 $51.00

dec INTEROFFICE MEMORANDUM

DATE January 30th, 1962

SUBJECT

TO Loren Prentice

FROM Kenneth H. Olsen

I suggest that we take one of our grey cabinets and fit it in the machine shop and use it to keep an inventory of air components. I think that we should make a list of the inventory that we want and post this list on the door with all ordering information and prices. Then, in the cabinet, leave a Purchase Requisition book that anyone removing a component can reorder the component he has removed. I think that we should standardize on some make component which is readily available and of reasonably good quality and price.

Here is a list of components that might be a start.

**Schrader**

| | |
|---|---|
| 200 | Hose Ferrules, #7327 |
| 200' ~~1 Spool~~ | 1/4" ~~Air Hose~~ ID, 5/8 OD Air Hose $.35/ft. |
| 1 | #5111 Hand Operated Ferrule Contracting Machine $119.00 |
| 4 | Solenoid Operated 3-Way Valve #9725 |
| 6 | All-Purpose Lever with Spring Return 3-Way Valve #3213K |
| 1 | Foot Lever 3-Way Valve with Guard #3213F |
| 6 | Mead Mufflers, M3 |
| 6 | Flow Control Valve #3250 |
| 6 | Air Exhaust Muffler #3862 |
| 20 | Male threaded Couplings 6363, 1/4" x 1/4" $22 |

**The Bellows Company**

| | |
|---|---|
| 4 | Air Filter, Regulator, Lubricator BCU-250 |
| 4 | Air Filter, Regulator, Lubricator BCU-375 |
| 4 | Air Pressure Regulators with Gauge BRG-250 |
| 4 | Air Line Lubricators LM-250 |
| 4 | Air Line Filters FA-250 |

**Tru-Flate, Inc. (Maynard Supply)**

| | |
|---|---|
| 30 | Tru-Flate, Inc. 101-112 Couplers |
| 20 | Tru-Flate, Inc. Air Gun |

Mead Co

Kenneth H. Olsen

cc: Ken Fitzgerald



Air Tool Suspension Hose Reel

dec INTEROFFICE MEMORANDUM

DATE January 30th, 1962

SUBJECT

TO Stan Olsen

FROM Kenneth H. Olsen

On March 5th through 9th and April 2nd through 6th, the AMA is having an advanced course in Market Managing. It looks very good to me and I think you should try to attend both weeks, if at all possible.

Enc.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE January 30th, 1962

SUBJECT

TO Ken Fitzgerald
Loren Prentice

FROM Kenneth H. Olsen

Sears Roebuck has a sale on wrench sets and I think we should have one for every machinist and sheet metal man and several for technicians. These have open end wrench on one side and box wrench on the other and contain the following sizes: 5/16, 3/8, 7/16, 1/2, 9/16, 5/8 and 3/4". The price is $3.99 each or two sets for $7.66. Catalog #9X44624.

Sears Roebuck now gives us a discount of 10% for orders over $20.00.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE January 30th, 1962

SUBJECT

TO Henry Crouse

FROM Kenneth H. Olsen

I received a brochure from Kulka Company, Mt. Vernon, New York on their stud and terminal box. I think some of these would be very useful replacements for some of the items we are now using. I would like to have you find out the price on the following units ---- series 599 with single row of solder turrets molded of general purpose Bake-Lite. We would be interested in units with a 2, 4, 6, 8 and 10 turrets with turret #2003 and 2003A. Turrets should be on the top of the terminal only. The turret terminal should be tin plated.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE January 30th, 1962

SUBJECT

TO Jack Smith

FROM Kenneth H. Olsen

Some time ago, I requested that we have the front door frame painted the same color as our new sign. I am not sure who I request to do this, but would you make sure that it is done. We should perhaps ask Prescott to come over and do it and this way we can have it done right away without any bickering on contracting. We should also have the new men's room painted on the fourth floor and I would guess there are also a number of other jobs.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE January 30th, 1962

SUBJECT

TO Loren Prentice
Ken Fitzgerald
Dave Shuflat

FROM Kenneth H. Olsen

Moore Special Tool Company makes a formed grinder which shapes the grinding wheel with a panograph operated diamond. I suggest that we call Moore and find out which job shop in the area has a machine like this and that we then have a large number of dies for our eyelet splitting machine made at one time.

I suggest that we shape the steel blanks from flat stock of the right thickness to the correct outline and then that we clamp or cement a large number of these together. Then, we could give them to the outfit with the grinding machine and they could put the surface on the whole row of them at one time. This way, we could have a few hundred of them at one time with very little effort.

One of the outfits that makes flat ground stock might cut and grind to the correct thickness the blanks for us. They will also do the hardening.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE January 30th, 1962

SUBJECT

TO Dick Best
Ben Gurley

FROM Kenneth H. Olsen

I think that we should have an engineering meeting on a regular basis. This might even be once a week. We tend to be too tied up to arrange it ourselves, so I suggest that we have someone like Dick Best's secretary arrange them. They could be with or without coffee, but, if they are on the same day each week, there would be some consistency to them. They should be relatively short and often, I think. If the secretary does it, it will be so automatic that the problems of arranging it won't bother any of us.

We don't need particular subjects for these meetings, but can just open them up for questions. I am sure many of the people feel they don't know what is going on and I would be happy to answer questions. We should have results of experiments like the one Farr made on the spark suppressors for relays. Everyone should know about the results of this. We should also know about the difficulties that come when you use normal contacts for low voltage signals.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE January 30th, 1962

SUBJECT

TO Bob Hughes

FROM Kenneth H. Olsen

I feel that one of the most serious reliability problems we have in our building blocks is in the soldering of pulse transformers. There is a very definite tendency toward not stripping the wire close enough to the transformer. This comes either because the girls did not put the transformer close enough to the solder when they stripped it, or because the resin leaked up over the wires.

I have seen a number of units come through dip soldering where the solder came no where near making contact with the transformer. I have no reason to believe they ever do get soldered. They might just get covered up with flux and solder so that the shole joint is hidden underneath.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE January 30th, 1962

SUBJECT

TO Nick Mazzarese

FROM Kenneth H. Olsen

This is in answer to your inquiry as to what we had originally promised ITT with respect to eliminating the DEC labels on our plug-in units.

We agreed that we would allow them to eliminate all mention of DEC on the outside of the computers, but, we always told them that it would be completely impractical to have the name taken off the building blocks. We never once agreed that we would do this.

After they received the first machine they found that it was possible to remove the label and they took them off themselves. They then asked us to take them off on the next machine and, somebody, I don't know who, agreed that we would. I think this took us several man days of technician time which we should have charged them for and I think maybe we should consider charging them if we continue to do this. They could do this just as well as we can.

As far as sending them spares with the labels off and in blank boxes, this would mean taking them out of our stockroom, removing the labels and repackaging them before we ship them to ITT. They could do this just as well as we can and we are not now in the position to do this because of our shortage of manpower. We also cannot guarantee that the labels will come off nicely. It was their discovery that they could be taken off at all and I think it should be their responsibility.

We offered to allow them to reproduce our drawings and our printing. We did this so as to allow them to do servicing. We did not say that we would allow them to take credit for the design of the units. I believe we should check immediately with our patent lawyers so that our stand is safe. We cannot allow ourselves to lose our copyrights because of the way they copy our circuits. We also cannot give up our proprietary rights to these things.

Kenneth H. Olsen

cc: Harlan Anderson
ITT File

dec INTEROFFICE MEMORANDUM

DATE January 29, 1962

SUBJECT Punching Phenolic Boards

TO Loren Prentice

FROM Kenneth H. Olsen

You asked if we should consider punching our etched board. I think it will be a long time before we can justify this, but there are several steps we can make in order to gain experience in this and to make very definite contributions. There is a row of 22 holes exactly in the same location on all our etched boards. These holes are the obvious ones to start punching, and we can either combine this with the die which is now blanking the boards and punching the guide holes, or we could very easily make it a separate die set operated in an air press. Using this punch will of course assume perfect alignment of the etched wiring. One of the by-products of this will be that we can then feed the 22 wires into the Amphenol socket automatically, also.

A multiple punch like this would be very practical if we could drill the die, the punch holder and the punch guide all at one time. We could then use piano wire for the punches which could be readily sharpened and replaced as needed.

There is another die which would be very worth while if we could make it work. There are over 50 holes in the 1/8" phenolic etched board in the 901 mounting panel. It might be difficult to punch these because of the thickness of the material.

We once considered gang drilling the back panel for the test equipment units, but because of the close spacing of the seven hole, it seemed like the head would be exceedingly expensive. Another approach to this would be to take a Mead rotary work feeder with 12 stations and then have seven separate drilling heads. These work feeders cost $218 each, which is just beyond the $200 break point for capital equipment.

I think that we can make a cut-off tool for our 1/2" x 1/16" angle that we use for building block handles by a vertical operating punch if there is a large amount of rake on the cutting edge. I would be willing to have a sample of this made outside to see if it worked or not, and then we could do it on our master die.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE January 26, 1962

SUBJECT

TO Harlan Anderson
Stan Olsen
Ben Gurley

FROM Kenneth H. Olsen

I received a telephone call from Dr. Veronis at Woods Hole Oceanography Institute on Friday, January 26th. He is considering hiring Ed Fredkin and, although he is very convinced that Ed is a very clever man, he wanted to know whether I thought Ed would finish jobs he started.

He also wanted to know about our PDP Computer and the oscilloscopes we make. He will be teaching a course next term at MIT and will come out at that time. This will probably be the week of February 5th. I told him one days notice would be good enough.

They have had their fill of the recomp computer and feel that they have to now go ahead with a real computer. However, they are very much dependent upon a rental plan. I told him that we are going ahead with our plans for a rental plan and that we will have to offer it soon because many of the type people that we would like most to sell a computer to are interested in a rental plan. I also told him that the rental plan that we are proposing is one in which the rental is somewhat higher than other people, but, which the equity build up is much faster.

KHO

dec INTEROFFICE MEMORANDUM

DATE January 26, 1962

SUBJECT

TO R. Savell

FROM Kenneth H. Olsen

I have re-drawn the punch power control panel and have given the parts to George Gerelds to make a model.

We have also included a relay for turning on the paper tape reader. For those computers which have the reader with the relay built in , we can just leave this socket empty. This will save re-working the readers as they come in.

Gordon Bell would like to have a switch on the console which holds the on position rather momentary type switch. However, this is set up with a third contact so it can be used either way.

I propose using a 6 terminal Jones strip for all the power connections so thay they are separate from the DC voltage and logic signals. Some day, I would like to see the results of the test that showed we need both the filtering and Arc Supression on the contactor. It seems like we are overly protected here. I don't mind doing it one time, but I suspect that sometimes we will generate traditions here which will propagate to far that the cost will end up being prohibitive.

Contact K2-C is the holding contact for K2, which turns the reader on.
Contact K1-C opens when the punch is turned on and allows after some delay a ready signal to turn on the computer.

I held up this project a little while to introduce some suggestions and ideas. I would like to turn it back to you now and let you follow through and take the responsibility from now on. You can even throw out my ideas if they aren't good ones.

KHO

Copies: B. Gurley, R. Best, B. Farr

# INTEROFFICE MEMORANDUM

DATE January 24th, 1962

SUBJECT Disposition of surplus PDP equipment

TO Ben Gurley
Ed Harwood
Harlan Anderson
Gordon Bell

FROM Kenneth H. Olsen

There are several pieces of equipment which we have taken off old computers which we should make a formal decision as to their value so that we can get rid of them, or else protect them, if we want to save them.

1. The 1,000 word memory has been kicking around on the floor in the storage area and I suggest that we throw it away or we package it up in a wooden box that was made for it and file it away for future use.

2. The desk type console which was completed, but never delivered with a computer, should be given to Quality Control for a test bench or else wrapped, protected and sent into storage with due labels. If there is a possibility of our selling a computer with the old console, we should save this because it is complete and because the island is complete.

3. The original PDP console with a brown hood has sentimental value, but I suggest that we take the top off and give the table to Quality Control as a test stand. There is a complete scope with amplifiers inside and there might be a possibility of using it for an oscilloscope.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE January 23rd, 1962

SUBJECT

TO Maynard Sandler
Henry Crouse

FROM Kenneth H. Olsen

Several years ago we ordered some stock transformers from Triad. At that time we found that if we copied the specifications and asked them to bid on special transformers in quantity, the price was a fraction of what the same transformer was in stock. Now that we are buying Triad transformers consistently, I suggest that we ask for bids naming the specifications but not the model number. We can then ask for the length leads or terminals we desire.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE January 18, 1962

SUBJECT Application Notes for Logic Book

TO Barbera Stephenson

FROM Kenneth H. Olsen

There is a clever circuit we worked out for clearing the PDP tape unit when power is first turned on. This consists of an RC network tied to one of the terminals of a clock so that the clock is operating for about 4 or 5 seconds after power is first turned on, and it generates clear pulses so that the computer is in a known state when the system is turned on. Because this problem probably comes up in many systems, we ought to consider mentioning it in our application notes. The PDP computer uses a different system because they got started before this one was developed, but in the application note we can say that it is used in the PDP computer because the tape is part of that system.

CERN used a system something like this for gating a clock off and on. Dick Best probably has the details on it, and this might also make a very interesting application note.

K. H. Olsen

dec INTEROFFICE MEMORANDUM

DATE January 16th, 1962

SUBJECT

TO Ben Gurley
Ed Harwood
Arthur Hall

FROM Kenneth H. Olsen

There seems to be confusion resulting from multiple ordering of plug-in units for each computer system. I would like to have you develop a system for eliminating the problem. Will you then send me a note saying what this system is, and then, send a copy to Jim Myers and Maynard Sandler.

Perhaps you should have one of the gray locked cabinets for each computer system with a check in and a check out parts list on the door.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE January 16th, 1962

SUBJECT

TO Jon Fadiman
Dick Whipple

FROM Kenneth H. Olsen

There seems to be confusion resulting from multiple ordering of plug-in units for each system. I would like to have you develop a system for eliminating the problem. Will you then send me a note saying what this system is, and then, send a copy to Jim Myers and Maynard Sandler.

Perhaps you should have one of the gray locked cabinets for each system with a check in and a check out parts list on the door.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE January 15th, 1962

SUBJECT

TO ~~Stan Olsen~~ file

FROM Kenneth H. Olsen

Mr. E. C. Kraft of Western Electric in Princeton, New Jersey called about 3 o'clock on Monday, January 15th to ask about their current drivers which you promised to be delivered before the first of the year.

The order consists of two type 52 and two type 62 current drivers with a mounting panel and ten patch cords. The initial delivery we promised was four weeks and he called Brad Towle and it was changed to three weeks. He then tried to call you and couldn't get you so called me to ask why. I promised to call him back late on Monday or first thing on Tuesday, but, they close at 4:30 and it is already 4:30, so one of us will have to call him back first thing on Tuesday. His number is WAlnut 1-6700, Ext. 773 -- area code 609.

I checked delivery with Maynard Sandler and they have a batch of 20 of each type unit going through test and he expects about 3 units to come out per day. There are customers for 9 of each type unit before Western Electric so I figure they will get units #19 through #22. This means that their delivery should be approximately a week from now.

One of us will have to call him first thing Tuesday morning and I think we should promise del ivery a week from Wednesday, but, we should double check before we do this.

Kenneth H. Olsen

02437

9 - 52

9 - 62

1/19/62

shipped Rail Exp. on 1/19. Customer advised by TWX of Rail Exp. receipt no.

will have this ready to ship by 12:00pm

dec INTEROFFICE MEMORANDUM

DATE January 12th, 1962

SUBJECT

TO Jack Atwood

FROM Kenneth H. Olsen

We want to put an ad in the Sunday paper for programmers. I would like to have this in the Globe on the 21st of January. If you think that programmers tend to be Republicans, maybe we ought to have it in the Herald also. I would like to see the copy that we propose for this and have it approved by Ben Gurley. This should be an ad strictly for programmers and not shared with any other needs.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE January 12th, 1962

SUBJECT

TO Loren Prentice

FROM Kenneth H. Olsen

It seems to me that the blower which vents the etched board drilling is getting much noisier than it used to be. I think it would be a good idea if one of our mechanics looked into it to see if the bearings are still in one piece. It probably hasn't been oiled for quite some time.

Will you then check with Maynard Sandler and order a blower for the new production area in building 5. This blower was inexpensive, but, it also looks inexpensive. I believe we bought it from Grainger.

cc: Maynard Sandler

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE January 12th, 1962

SUBJECT

TO Loren Prentice

FROM Kenneth H. Olsen

Here are a list of projects which would help productivity in the building block assembly area.

1. There should be conveyer extensions on both ends of the automatic soldering machines.

2. We should have an automatic machine for cutting transistor leads to length. Ideally, this should be done at the last stage of testing the transistors. At this stage, they have already been positioned and if they pass the test, we know that they are orientated correctly.

3. We should have cases for carrying the finished and semi-finished plug-in units around. Our vendor from Lowell has built boxes which have a good idea. They should be stackable and they should completely protect the unit. It would be good if the same boxes would be used for boards with or without sockets.

4. There should be a foot valve and an automatic counter on the diode vendor.

5. We, very soon, are going to need another digit on our serial numbering machine. This time I think we should get a number which sequences on all digits. When we get the new number we should obsolete the old one because I am quite sure it is capital equipment, or, buy the new one as replacement for it.

6. We should make a tunnel oven for curing our etched boards. We should have this done before summer time because then we often wait 5 days for the printing to cure. With a long tunnel I think we can automatically stack the completed boards at the end of the tunnels without leaving them in trays. We may not need infrared lights all the way but simply circulate hot air through the unit. We can make this with sprockets and ladderchain from Boston Gear Company like Compo Shoe Company did with their soldering machine. I would think that our outside welder could weld up the frame with a very simple sketch. He might even make the whole thing if we gave him the sprockets and the chain.

7. The Silk Screen station should also be made more rugged. Our outside welder might be able to do that with very simple directions.

cc: Maynard Sandler
Jack Smith

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE January 12th, 1962

SUBJECT

TO Dick Mills

FROM Kenneth H. Olsen

Mr. Henry Rosenblatt from the Raytheon Purchasing Department in Sudbury called to give us information on the material they would like to sell us. His phone number is Hilltop 3-9521.

1. There is a 3 ton air conditioner which they will sell to us for $100.00. I think we should buy this.

2. There is a 5 horse power air compressor for $275.00. We should buy this.

3. The cafeteria equipment they would sell for $5,000.00. He is sending a list of these items to us and we should decide as soon as we see the list. I do believe that we should buy it because the furniture would probably cost us almost that much. The ice cream chest and two refrigerators belong to the ice cream company and will go. The ice machine is leased and so that is not included. I suggest that we buy this as soon as we possibly can and then move the tables and chairs into our present area because we badly need chairs and tables right now. Also, the people who are going to stay in the Raytheon area will be using the cafeteria space for lab use for a while. We can move the chairs that we don't need in our present building to the far end of the Raytheon space right now and we can lock, in the kitchen area, all the equipment we buy. I am tempted to give them $5,000.00 for it right now, but, it would be quite unbusinesslike to do it without a list of what the items are.

They want us to pay for this with a certified check which we can send to him in the Purchasing Department at Sudbury. I think when we are already to make the buy, we should telephone him first to make sure that everything is in order.

The 5 ton air conditioner and the ice maker are leased from Boston Filter Company in Charlestown. They deal with Mr. Perkins there. Their lease was renewed each year from June to June and the rental they have been paying is $37.50 for the ice maker and $51.00 per month for the air conditioner. They feel they could break their lease immediately without any problem, but, they would like to know whether we would like to continue the lease or would we like to purchase the units. The purchase price of the ice unit is $282.00

and the air conditioner is $536.00. For these prices, I think we ought to buy them and then figure out what to do with them. The air conditioner is installed and working and, therefore, is well worth the $536.00. This deal should be made directly with Mr. Perkins at Boston Filter, but, we should tell Raytheon immediately what we plan to do.

cc: Harlan Anderson
Stan Olsen

dec INTEROFFICE MEMORANDUM

DATE January 12th, 1962

SUBJECT

TO Harlan Anderson
Stan Olsen
Ben Gurley
Institute for Defense Analysis File

FROM Kenneth H. Olsen

Al Fullerton who used to be at Lincoln Laboratory and seems to think he remembers me, called this morning, Friday, January 12th to ask what the delivery on the PDP Computer would be. Homer Haggerdorn is the Personnel Manager there now and suggested that they consider our computer. They are neighbors of Bolt, Beranek and Newman and, therefore, have seen that machine and have been impressed with it.

They are very much interested in a three month delivery and I told them that someone would call them back this afternoon and give them the exact delivery. I asked if they could use the machine out here while they were waiting for a normal delivery and he said that this would be difficult unless we had a cleared area because this was classified work that they were doing.

All I know about the machine is that they need a card reader and a card punch with it. I told them about the speeds of our various card readers and got no reaction from him. It might be that he hasn't thought enough about the problem to have any reaction as yet.

Someone has to call him back this afternoon because I promised faithfully that we would do this.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE January 11th, 1962

SUBJECT

TO Bob Hughes

FROM Kenneth H. Olsen

The American Management Association is having a course on Quality Control on February 26th to March 2nd. I think that you should carefully consider the possibility of going. This is at Saranac Lake, New York. I am enclosing a brochure for your information.

Enc.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE January 9th, 1962

SUBJECT

TO Harlan Anderson
Gordon Bell
Ben Gurley
Stan Olsen
Corning Glass File
Foxboro File

FROM Kenneth H. Olsen

On Thursday, January 4th, we had a visit from Dr. Eckman from Case Institute who is making a study for Corning Glass. Ben Gurley, Stan Olsen and myself had lunch with him and spent quite a bit of time listening to his ideas. Corning Glass has an immediate problem on which he is consulting, but, he claims that the same problem exists in several thousand other plants in the country and, therefore, it is a very large potential market.

The chemical operations are now controlled by units sold by Foxboro or Minneapolis Honeywell which are set up in simple and individual control loops. They consist of a transducer which puts out a standard signal of about 10 milliamps and about 10 volts. This is followed with about $600.00 to $900.00 worth of analog computing equipment which, in turn, drive a valve or other control device. A small process system will contain 200 of these units and a large will have several thousand. The system he is working on for Corning Glass is a small trial system and will contain only 40.

His idea is to try and share one fast computing element with a large switch on the input and a large switch on the output. A digitally controlled valve is now available and made by Conoflow Corp. in Philadelphia for which he is also a consultant.

The system which he would like to make a feasibility and price study on would have 200 inputs. Most of the potential customers have specified static switching. The A to D converter would have 8 bits plus sign. The computing element would have to store the results of the previous calculation and a constant for each of the two hundred points. The output would be 3 bits which will be converted into a frequency code, the maximum frequency being 150 pulses per second.

For some reason, he proposes converting the 3 bits into pulse modulation then going through a 200 position output switch and storing the rate in 200 output registers. The obvious suggestion is to make the whole thing run fast enough so that the computing device will put out every pulse which is necessary. They now sample at 200 points per second, but, if they multiply that by 150, they would not have to have any storage at the output.

The Conoflow valve consists of a stepping motor like the one made by Superior Electric and a gear drive and a valve. The output of their code converter puts out pulses which are positive or negative and one volt and amplitude. An amplifier converts these into 35 volt 1 ampere pulses to drive a stepping motor.

He would like some nonlinearity in this system, so that when the system is way off it is driven hard and when it is approaching the null point there is low drive. He feels he can do this by the device which he decodes the output binary numbers.

The Corning Glass project which he is now working on will have two algorithms $\dot{m}=k_1\dot{e}$ for e > than 10 and $\dot{m}=k_2\dot{e}$ for e less than 10. One can either use a differential equation or an integral equation although the present techniques use integration.

He feels that this also has large usage in flowblending where one has only 2 to 20 inputs and outputs. Quality control is a whole area which is hardly touched now and he feels that most of this can be readily applied to this technique. Pipeline control is also a very valuable operation which can be controlled with these techniques.

The information which he wants from us is as follows:

a. Estimate on a switch which will switch 40 inputs with 1-5 ma, 10k signals at a rate of 200 points per second and expandable to 200 points.

b. An A to D converter which will convert these signals to 8 bits serial binary plus sign in 100 microseconds.

c. Non-mechanical storage for 200 to 800 words.

d. Modules for performing the calculation.

e. A code converter to change 3 bits binary plus sign to 0 to 150 pulses per second 1 volt signals.

f. He didn't mention it, but I suppose he also needs an output switch.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE January 9th, 1962

SUBJECT

TO Stan Olsen
Jon Fadiman

FROM Kenneth H. Olsen

At our Board of Directors meeting on January 2nd, we were told that there was an article in Harvard Business Review titled "The Honorable Picnic" which tells about the trials and tribulations of someone trying to do business in Japan. Apparently, this is a must in reading before one goes to Japan.

The January-February issue of the Review just came in and this was not in the table of contents, so it is probably in the November-December issue.

Vern Alden said that he could give us introductions to some people in Japan which might help. He knows the head of Sony and several bankers there.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE January 8th, 1962

SUBJECT

TO Jack Atwood

FROM Kenneth H. Olsen

The American Research and Development Corp. annual meeting will be held Thursday, March 8th at 2:00 p.m. at Dorothy Quincy's suite. There will also be a private showing of the exhibits and a dinner for the senior officers of the portfolio companies on Wednesday, March 7th in the evening, and so we should be all set up by that time.

cc: Harlan Anderson

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE January 8th, 1962

SUBJECT Replacement for rubber grommets.

TO Maynard Sandler

FROM Kenneth H. Olsen

Several years ago we ordered 3 or 4 sizes of Heyco nylon snap-in bushings, but, for some reason they have never gotten into our designs. I asked Roger to start including these in designs and several people who have tried them have been delighted with them because they are so much easier to use and look so much neater.

The ones we ordered snapped into a standard 3/4" hole but the openings in the bushing were of different sizes. I suggest that we start to stock these and we should consider stocking some of the other hole sizes and we might use them to replace some of the other size grommets that we are now using. We have boxes of these sizes now in the Engineering stock room and I think we should transfer them to the Production stock room and keep them filled.

They are made by Heyman Manufacturing Company, Kenilworth, New Jersey.

Kenneth H. Olsen

cc: Roger Melanson
Henry Crouse
Bob Hughes

dec INTEROFFICE MEMORANDUM

DATE January 8th, 1962

SUBJECT

TO Jack Smith

FROM Kenneth H. Olsen

Will you, somehow, figure right away, or have someone figure out a way of having a barrel of sand located by our front door with a handle and shovel like you see on the hills in New York state. This way, anyone coming by can sprinkle our walk and steps with the sand and we don't have to wait for the maintenance people to come out with salt.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE January 8th, 1962

SUBJECT

TO Dick Best

FROM Kenneth H. Olsen

The International Solid - State Circuits Conference is being held Tuesday, February 13th through Friday, February 16th at the University of Pennsylvania and the Sheraton Hotel in Philadelphia. We should decide immediately who we will want to send and make sure to have hotel reservations.

I think it would be a good idea if you go down for a day or two of this show. The others I would guess should go would be Don White and Russ Doane. If we invest in sending people down there, we should make sure that they are organized ahead of time as to who is going to each of the talks and they should make a brief report of the new items so that the rest of the organization is acquainted with them.

Enc.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE January 9th, 1962

SUBJECT

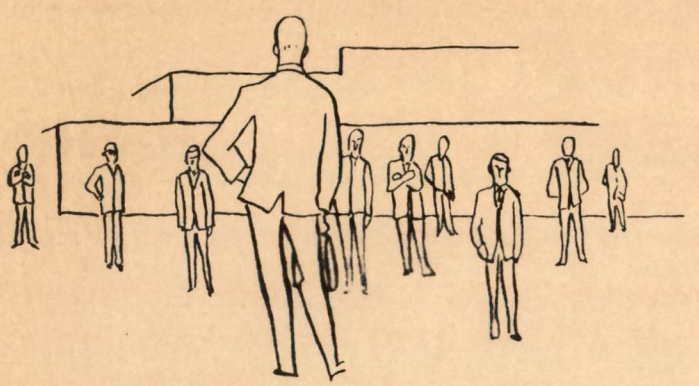
TO Harlan Anderson
Stan Olsen
Dick Mills
Ben Gurley
Maynard Sandler
Dick Best
Gordon Bell
Bob Savell
Jack Brown
Jon Fadiman

FROM Kenneth H. Olsen

I feel that it is important for each of us to develop our abilities to manage. This short course on management being given by the IRE group on Engineering Management looks like it is covering many of the subjects which we should be interested in. If any of our people can go, the company will be very happy to pay the fee. The fee is less if one belongs to PGEM and I would suggest that someone join in order to save the difference. I believe the difference is approximately the same cost as joining if you are already an IRE member.

Kenneth H. Olsen

# PGEM WINTER PROGRAM



# "The Job of The Manager"

A short course in Management for **Engineers**

CONSULTANT & PROGRAM DIRECTOR

PROFESSOR VAN DYKE BURHANS

Boston University

**6 INTEGRATED LECTURES 6**

## DISCUSSION AND CASE STUDIES

An opportunity to develop a basic approach to engineering management, as well as an opportunity for an interchange of ideas with technical management representatives from a variety of industries, will be provided this year by the Boston Chapter of the Professional Group on Engineering Management. The topic for this series is **"A Short Course in Management for Engineers"**. Starting January 9 and continuing for six consecutive Tuesday evenings through February 23, the course will be given by professional, acknowledged leaders in business management training. It is the first of such courses which we propose to offer annually on different topics. Anticipating a favorable reaction to the first course, plans have already been started for two subsequent series. The course is designed primarily for technical people who now find themselves in a position of managerial responsibility or aspire to such a position. The course will be of benefit to those who have not had formal training in management techniques and a welcomed refresher for others.

The six sessions are listed below:

**JAN. 9 THE PLANNING FUNCTION IN MANAGEMENT**

Determining objectives and goals; managing by objective

**16 ORGANIZING YOUR JOB IN MANAGEMENT**

Delegations, priorities, principles of organization

**23 THE PROCESS OF DECISION-MAKING IN MANAGEMENT**

Human aspects of decision-making; organizing for decisions

**30 WORKING THROUGH OTHERS**

Motivation, incentives, creativity, communications, developing others; working with supervisors and subordinates

**FEB. 6 METHODS OF APPRAISAL AND CONTROL**

The control functions; measuring performance, costs and budgets

**13 THE CONTRIBUTIONS OF VALUE ENGINEERING TO MANAGEMENT**

Analysis of design, procurement, manufacturing and marketing

Lecture outlines and supplementary material will be provided for all registrants

A word about membership. If you plan to take advantage of this engineering management course and would like to become a new member of PGEM, a total fee of $8 will cover both membership fee and the cost of this course.

**FOR MEETING DETAILS & REGISTRATION FORMS SEE CENTER SECTION**

dec INTEROFFICE MEMORANDUM

DATE January 5th, 1962

SUBJECT

TO Bob Hughes
Henry Crouse
Jack Atwood

FROM Kenneth H. Olsen

I think we should order automatic self-inking date stamps for our testers. These might be used in our present data sheets, but, I have it in mind, particularly using them when we go to automated card testing. The unit mentioned on 414 of Allen Stationery 1962 calendar type XX-71-1/8-ZB by Faymus. The size 3/4" x 1-1/8" is probably desirable because it leaves more room for data on the card. I suggest that we put across the top the word "tested", then the date, then "Tester Number n".

We should consider whether we want the ruled border around them. This may add some dignity to it. We perhaps ought to have different colored ink for each person or as many colors as we can get.

We should have peg stamps for the inspectors. Let's order a set right away.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE January 5th, 1962

SUBJECT

TO Jack Atwood

FROM Kenneth H. Olsen

I would like to have you experiment with a test data card to be fastened to each plug-in unit. The size of this should be 4-1/2" x 7". One side should have the normal visual and inspection information but I think we should change the wording we are now using because it is somewhat ambiguous and we have the room to spell out exactly what is checked for. In fact, we could have a paragraph for each of these inspection notices.

We should leave room on the bottom for the automatic self-inking date stamps so that on one side the tester can leave his mark.

For the automatic test, we should write a paragraph explaining the test and then, leave room on the right hand margin for a punch for O.K. and for reject room to write in the step during which the failure occurred. For those operations which cannot be automated, we will leave room for data to be written in. On the bottom there should be room for the date stamp by the tester. I am planning a 6 hole magnetically operated punch which will punch holes on 1" centers. The dies of these punches will be from the inexpensive 3 hole punches and so the diameter of the hole and the spacing from the edge will be the standard notebook size.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE January 5th, 1962

SUBJECT

TO Stan Olsen
Nick Mazzarese
Harlan Anderson
Beckman Systems folder

FROM Kenneth H. Olsen

I received a telephone call from Ted Novis of Beckman Systems about 4:30 p.m. on Thursday, January 4th. He had a list of 4 items that we were late on, or were about to be late on, and he wanted to know the status of these. I promised him that we would send him a wire first thing Friday morning telling him the status of these things.

1. We owe them a progress report on December 1, which we never mailed. Andy promised that on December 29th we would send this and he had not received it yet and we have to tell them the status of it. This is to be a copy of the production schedule and a progress report.

2. December 19th, they sent a letter to Andy which he passed on to Ben Gurley on quality control questions. He would like to know when they will get the answer to this.

3. We promised to send them a color rendering of the special painted PDP last Friday and the color rendering of the standard computer on January 3rd. He would like to know when he will receive these.

4. He would like to know when we will send them the formal acceptance on their purchase order and change notice.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE January 5th, 1962

SUBJECT

TO Jack Atwood

FROM Kenneth H. Olsen

Bob Fitzer called Thursday, January 4th to ask for late photos of the PDP Computer. There is a design contest for Product Design magazine which I believe is aimed at relationships like the one we had with Van Dyke Associates. They would like to enter our computer in this contest.

The material has to be sent in by January 15th. I told him that we would send photos immediately to them, and then, if they wanted anything else we would take new photos for them. Will you be sure to get these photographs out immediately. If they cannot go for some reason, please let me know. Bob thinks the photograph should show the computer with the oscilloscope next to it. I believe that he would like to show-off the design ties between the two elements.

Kenneth H. Olsen

# INTEROFFICE MEMORANDUM

DATE January 2nd, 1962

SUBJECT Automatic Testing of Plug-in Unit

TO Dick Best
Bob Hughes
Stan Olsen
Maynard Sandler
Ben Gurley
Al Blumenthal

FROM Kenneth H. Olsen

The biggest value in automation is that it forces people to think out what they really want to accomplish. I think that I now know how to make gross savings in man power in testing of our most common units. However, most of the savings come from simplifying the information and not from the automatic equipment.

First of all, I propose a go-no-go test for load resistor, VCE, ICO and diode leakage. Secondly, for test like rise time and fall time, I propose that we simultaneously present all the wave forms on the scope at one time and the operator write down all the shortest and the longest for that plug-in unit. If these are within the tolerance we know that the unit is good. I think the worst case there would be 12 rise time or fall time curves at one time and these would be very easy to differentiate on the scope. This would be easy if we could get a 6 way electronic switch for an oscilloscope.

For the static tests on diode and inverter units, I have designed an automatic stepping switch unit which will perform the load resistor, ICO, VCE and diode leakage tests automatically. We will use the 50 pin rectangular Amphenol connectors for plug boards. We will need one plug board for leakage tests, one for VCE and ICO, and one for load resistor tests. This unit will have a built in clock so that after this test is started it will progress through until completed or will stop part way along if the unit does not pass the test. The clock is not logically necessary but it makes sure that the whole test is done and it also paces the operator. I believe that part of our problem now is that the test operators have gotten to treat this as an engineering job and they tend to spend a large amount of time shuffling papers and meditating on results. With an automatically clocked device, I think production will be much higher. On the new diode and transistor testers I would like to have some clocking device so that the operators are encouraged to keep up a certain pace.

To simplify the diode leakage tests I propose that on the negative input diode units we ground the emmitors and tie the plus 10A and plus 10B to minus 15 so that the bases stay approximately at ground. Then we will allow all inputs to float except the one being tested. The meter will then be returned to plus 3 or 4 volts.

Continued - Automatic Testing of Plug-in Unit

For the positive input diode units I believe that if we just ground the emmitter we can then float diodes not being tested. The meter then will return to minus 3 or 4 volts.

In the automatic equipment we will use the Simpson type 29 AX adjustable meter relays with a 0 to 15 micro amp range.

When we do the test data sheets, I suggest that we have Jack Atwood set the name and the type number in prototype so that they can be read very easily. On some of our test data sheets it is not easy to tell which are the titles for groups of tests and which are footnotes from the previous sections. I think we should make this as clear as possible and in some of the units that we use quite a bit, I think it would be worth setting some of the titles in prototype. I think we can start immediately using go-no-go tests for some of these items because they save a lot of time even without automatic equipment. All the go-no-go tests can be made before data sheets are assigned to each unit. After the batch is completed the operator should initial or use an inspector's stamp on each of those sections which they have gone over. We have to be sure that the operator who has performed the tests takes the responsibility for them.

All data sheets from now on should have their published date in the lower right hand corner. This could be coded if we wanted to, but we should never print anything without a date - particularly data sheets.

Pulse amplifier 4604 has a tremendous amount of data which is taken. I believe that we could put down a lot of this by presenting many of the tests on the scope at the same time and making note only of the extremes. This will mean the use of some DEC test equipment but this is a unit we seem to sell large numbers of and it would be well worth setting up periodically for large batches. The last test that we run on this unit checks to be sure that pulses come out in the right logical sequence. This could all be tested on a go-no-go basis with DEC test equipment.

We have always thought we did not have time to think too much about these tests because our engineering time was much more worthwhile than the technicians time however, this has now gotten to be a severe bottle-neck and the situation is almost an emergency. It can no longer be helped by simply adding people, but we have to think about the tests we are running.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE January 2nd, 1962

SUBJECT

TO Henry Crouse

FROM Kenneth H. Olsen

Amphenol has an industrial type octal tube socket which might be a good socket for mounting our relays into our power control panels. On the lower left hand corner of page 62 of the Allied catalog they list four types and I think we should get one of each to look them over. We would like to mount it right against the aluminum panel without a bracket and from the information here we can't find out what they look like.

Kenneth H. Olsen

dec INTEROFFICE MEMORANDUM

DATE January 2nd, 1962

SUBJECT

TO Henry Crouse

FROM Kenneth H. Olsen

Please find price and delivery on Guardian series 2100 and 2110 power relays with auxiliary single pole, double throw 10 ampere switch contacts. These are standard relays which we have been using but their catalog says they are available with this auxiliary contact. If they are readily available we could use them in our new 811 power control panel instead of the 3 pole Aero Hart relay which is significantly more expensive.

I believe that relays with this auxiliary contact are special factory ordered so delivery may be long. We would like to know right away, however, what it is because the new power control panel is now being redone in Drafting.

If it seems practical to buy this with the extra contact, I think we should stock this type only and not the ordinary series 2110 type.

We are interested in 115 volt AC coils with double pole, single throw, normally open contacts.

Kenneth H. Olsen

cc: Roger Melanson
Roland Boisvert