



April 7, 1978

Chomerics
77 Dragon Court
Woburn, Massachusetts 01801
Attn: Mr. Kevin Dunne

Dear Mr. Dunne,

Pursuant to our conversation of recent date, this letter details Mattel Toy's intent in regard to production of and purchase of the KCS assembly for the Mattel Programmable Video Cartridge Game.

Mattel intends to produce the complete games to the limit of available microprocessor sets. Assembly will be performed by a selected vendor and this vendor will also purchase all components and sub-assemblies on our behalf. The estimated microprocessor sets available in 1978 translate into a range of 80M to 200M KCS assemblies.

It is Mattel's intent to have our vendor purchase these connectors from your firm, using the tooling already ordered by Mattel under separate orders. The order will be placed following contract completion with our selected vendor. Contract completion is scheduled for April 28, 1978.

Sincerely Yours,

Howard L. Cohen
Director of Purchasing

HLC/mem

cc: Paul A. Grace



July 21, 1978

Mr. Paul T. Hoff
Engineering Manager
Chomerics
77 Dragon Court
Woburn, MASS 01801

Dear Mr. Hoff:

This will confirm that the dimensions on your drawing number 23888, Rev. B, issued July 17, 1978 are acceptable to Mattel.

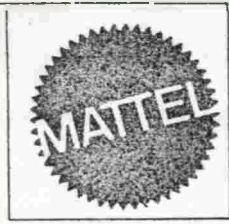
As we discussed this morning, the various sections of the art work that you received from us must be repositioned relative to each other to fit the revised dimensions.

To help assure a proper fit of the circuit assembly with the housing, I am sending you a set of housings which are First Shots from our Production Tooling. The tools have not been tuned yet and there are a couple of errors, but I believe everything that relates to the circuit assembly is correct.

Sincerely,

DAVE CHANDLER
SR. PRELIMINARY DESIGN ENGINEER

DC/kp



October 5, 1978

Raymond W. Iannetta
Sales Manager, Components
Chomerics
77 Dragon Court
Woburn, Massachusetts 01801

Dear Ray:

As we discussed Friday, we have put the most recent circuit matrices into hand controllers and tried them out. For the most part they work fine, but there are a few rather minor corrections to be made. They are described below and shown on the two enclosed copies of portions of your drawing number 23888B:

1. Widen the slots in the bottom two layers to allow more clearance for the contacts of the connector to reach the top layer. The three changed dimensions shown on the enclosures will accomplish this. If you wish, the two flaps indicated can be completely removed in the process of making this correction.
2. Lengthen the slits in the mylar for the folds down to the circular pad area as shown in the circled locations.
3. Provide a separation for the center of the circular pad. Flanging the edge of the bottom hole would eliminate any discontinuities in the separation, but I gather you feel that would be difficult to accomplish. A circle of dimples in the top layer should work as long as there is not too big a distance between dimples. We are putting a separation ring of about .008 to .010 inch thickness in the circuits you sent, and they appear to work fine.

It is my understanding that the production parts will be folded and formed into a three-layer unit ready to be dropped into the controller housing.

The only negative reaction to the controllers once they were assembled is that the side buttons are too stiff. I assume this could be reduced by enlarging the diameter of the side bubbles. None of the rest of the dimensions would have to change, including the circuit pattern and the size of the hole in the separator, because the actuation would still be done by means of the plastic buttons. A reduction in stiffness of about 50% would be about right. Let me know the feasibility of making such a change.

As we discussed on the phone and when you were out here, it would be highly desirable to have the key pad legend printed on the circuit mylar as had originally been intended. With your new process which permits printing from the top with good wear characteristics, it would appear to be practical again. I am enclosing art work for this legend. The background and center portions of the keys are to be silver (matching as nearly as possible brushed aluminum). The key outlines etc. are to be black. You expressed concern that it would be necessary to go to more expensive white mylar to get a sufficiently opaque result. With the colors being silver and black, I wonder if the white mylar would be needed. Actually, if the circuit patterns can be detected through the legend, it might be quite acceptable anyway--adding a hint of modern computer technology. We should look at samples both ways.

It looks like it will be a couple of weeks before I will be heading back East. When things firm up a bit more, I will schedule a day to be in Boston. In the mean time, we should get the changes under way. We plan to build 50 systems (100 controllers) before the year is out, 6 of which will be assembled about Nov. 1. It would be highly desirable to have these as near the production configuration as possible. A preproduction lot of 250 is presently scheduled for January with production buildup starting in February.

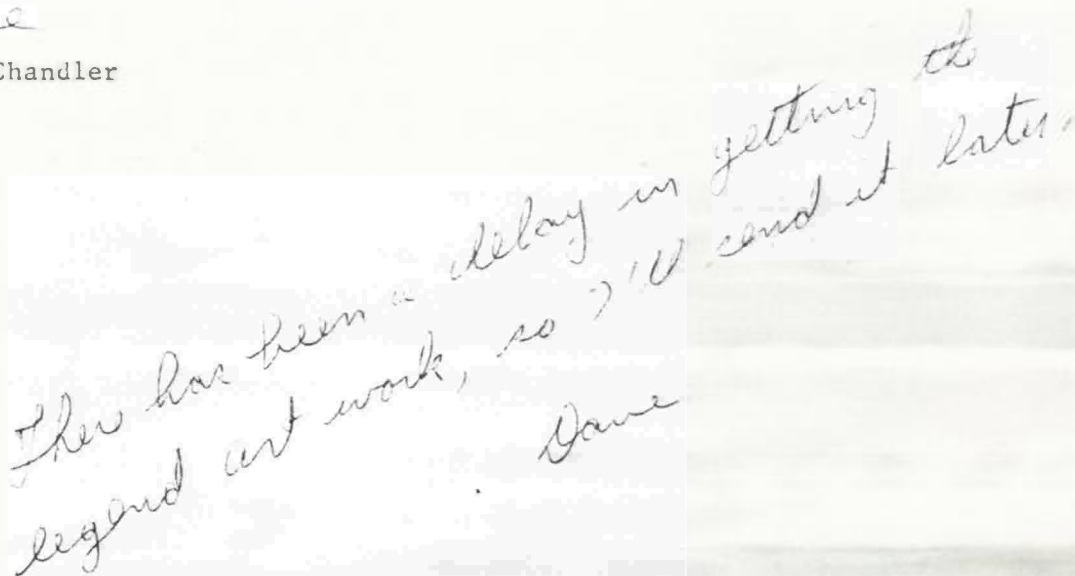
If there are questions, please let me know.

Sincerely,



David P. Chandler

DPC/lbw
Encl.



There has been a delay in getting the legend art work, so I'll send it later.
Dave



October 11, 1978

Raymond W. Iannetta
Sales Manager, Components
Chomerics
77 Dragon Court
Woburn, Massachusetts 01801

Dear Ray:

Enclosed are a full size negative and a double size negative of the art work for the legend on our controller circuit. The black portions of these negatives should be silver (to match brushed aluminum) and the clear portions should be black.

I have not received the samples of your idea of bubbling a top legend sheet instead of the circuit sheets, but the idea still sounds good. I would guess thinner mylar could then be used for the circuitry. If by that means we can keep the total thickness of the stack the same as the thickness of the three layers of circuitry and spacer, it would be good. We were running into a thickness problem when we had to add a legend sheet on top of the old circuitry set.

The bubbled legend sheet should also have interference fit holes to be pressed onto the alinement pins in the housing. With the circuitry assembly preformed to shape and the sides of the legend sheet preformed to fit down the sides, the task of assembling the two pieces of mylar into the housing should be practical without their having to be attached to each other ahead of time.

I am anxiously awaiting the results of this approach.

Sincerely,

Dave Chandler

DPC/lw
Encl.

November 2, 1978

Mattel Inc.
5150 Rosecrans Avenue
Hawthorne, CA. 90250

Attention: Mr. Dave Chandler

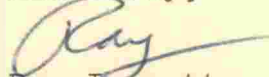
Dear Dave:

Enclosed is our quotation for the keyboard used in the
Mattel Hand Controller.

In March of 1978, Mattel was quoted and placed an order
at \$.745 each for a similar keyboard. Since that time,
we have incurred cost increases of 18.5% for Silver, 12%
for Mylar and 10% for Labor. Even with our rigorous cost
reducing programs, we have not been able to offset all of
these increases. Other factors contributing to the higher
price are the fact that the new keyboard includes a two color
legend and the costs associated with heat setting and fold-
ing by Chomerics. Neither of these items were included in
the previous quotation.

If you have any questions concerning the above, please give
me a call.

Sincerely,



Ray Iannetta
National Sales Manager - Components

RI:sad
Enclosure

January 24, 1979

Mattel Toys Inc.
5150 Rosecrans Avenue
Hawthorne, CA. 90250

Attention: Dave Chandler

Dear Dave:

Our Engineering Department here at Chomerics has recently updated and completed the design of the Mattel hand controller keyboard. The enclosed drawings developed out of drawing #2609-9589.

Please review these drawings and return one of each to me with your signature. At present, GTE will not allow us to proceed with tooling and production until this is taken care of. Your immediate attention would be appreciated.

Sincerely,



Ted Brewster
Sales Application Engineer

TB:sad
Enclosures

cc: Ray Iannetta

January 30, 1979

Chomerics
77 Dragon Court
Woburn, Massachusetts 01801

Dear Ted:

Mattel has reviewed the updated Chomerics drawings; your p/n 24304 issued 1-23-79 and 23888 Rev. I.

On 24304 drawing, the following items need to be addressed:


1. No color spec's identified on graphics.
2. Section A-A and view at the top of the print are shown reversed from standard drafting practice.
3. The slots are not acceptable as shown and should not be full length between holes B-B. See note on marked print.
4. .06" wide production tooling slot could cause a buckling problem with the side push button dimples. We have experienced a crushed dimple problem on early hand sheared samples where mylar material was removed close to the bubble.

On 23888 drawing, the following items are of concern:

1. No folding or creasing information has been shown.
2. There is some question of the diameter of the four holes marked "C".
3. We apparently haven't emphasized the need to provide circuit separator dimples around the direction pad switch area. If dimples are not going to be used here, then the alternative was a separate mylar washer with an I.D. of about .400" and an O.D. of about 1.06" to provide the same effect. What is Chomerics preference here? Incidentally, if a washer is the answer, we feel it should be of a contrasting color to the mylar circuit matrix to ease production assembly.
4. There are two dimensions on the print which are correct number wise but are not scaled properly. (See marked print)

Please respond to these items as soon as possible so that we can give you the go-ahead on your tooling.

Sincerely,


Clif Perry
Project Engineer