

FAXDATE: March 19, 1997TO: MATT RUCKFAX#: 301 921-8775FROM: Cheryl Y.SUBJECT: BMX-2

Braemar, Inc.
11481 Rupp Drive
Burnsville, MN 55337
Phone: 612-890-5135
Fax: 612-882-6550

These are pages from O.A. RMA Notebook, I
Will send you the notebook later, I want to make
some copies for myself.

Looking up on the 500-496-00 D parts list
for BMX-2 Megatape: the part # 100-169-00 A
IC 280API0 is called out (also socketed) in
loc. #4.

of pages (including header page): 15

If you do not receive all of this transmission, please contact Braemar at 612-890-5135

~~Remove~~
~~Remove steps 1-18~~

ECO	0935
PAGE	3 OF 11

1. LIFT PIN 10 OF P1
2. ADD 74LS74 TO SPARE LOCATION K4 (pin 1 to pin 1)
3. WIRE P2-1 TO P2-2
4. WIRE P2-2 TO L2-2
5. WIRE P2-13 TO K2-1
6. WIRE P2-12 TO K4-2
7. WIRE K4-3 TO K2-6
8. WIRE K4-4 TO K6-6
9. WIRE K4-5 TO A4-8
10. WIRE A4-9 TO H1-5
11. WIRE K4-1 TO H2-10
12. WIRE A4-10 TO L4-12
13. WIRE L4-11 TO L4-9 TO K6-4
14. WIRE L4-13 TO K6-5 TO L5-6
15. ADD A 390 PF CAP BETWEEN L4-15 AND L4-14
16. ADD A 33K RESISTOR BETWEEN L4-14 AND L4-16
17. WIRE L4-10 TO LIFTED PIN 10 OF P1
18. WIRE K4-7 TO K5-7

~~Remove steps 1-18~~

REWORK
ZETACO

FOR: ~~BMX-2/SI~~

ASSEMBLY #: ~~500-387-04A~~

ECO REWORK 0546,0602,0634,0688,0776,0995

BMX-2/SI REWORK FOR BOARD BLANK NUMBER 041-065-00

- 544 1. Lift pin at S2-6.
- 2. Add wire from S2-8 to S2-6 pad (not lifted pin).
- 602 3. Lift J11-6.
- 4. Add wire J11-6 to G9-3.
- 634 5. Cut and lift pin at IC A3-3.
- 6. Add wire from IC A4-2 to A4-3.
- 7. Add wire from IC A4-13 to IC A4-2.
- 8. Add wire form IC A4-1 to lifted pin of A3-3.
- 9. Lift R8-4.
- 688 10. Add wire form L2-3 to R8-4.
- 11. Add wire from K1-12 to L2-2.
- 12. Add wire form J1-4 to L2-1.
- 13. Lift pin F1-6.
- 776 14. Wire adds.
 - A) Z3-9 to F1-6. (Lifted pin)
 - B) Z3-10 to L4-3.
 - C) Z3-8 to F2-5.
- 995 15. Lift pin 2 of Z3.
- 16. Wire X4-3 to lifted pin Z3-2.
- 17. Wire Z4-8 to X4-2.
- 18. Wire Z4-12 to X4-1. *Remove ECD 935 if necessary*
- 19. ~~The above rework is for assembly # 500-387-04A. Mark Bd~~
- 20. Install Epron P10507.

NOTE: Remember to replace item 103 200-056-00 eprom set with 200-171-00 same position.

QA
~~21. Use silver label 500-387-04A~~

- 1. change L5 from CS04 to F04
- 2. lift 23-13.
- 3. Add wire to y4-2 to y4-3.
- 4. Add wire y4-1 to pad of 23-13.
- 5. Add wire y4-4 to 23-13 lifted pin
- 6. NSM = 500-387-04B

- ~~EOP (2)~~ 1. lift D10-6
- 2. Add wires from 110
- 3. M8-13 to P7-12
- 4. M8-12 to lifted pin D10-6
- 5. M8-11 to D9-4

500-387-04C

Bmx-2 500-496-00 ASM
041-116-00 A ARTWORK

500-496-00 A: When released it should have on it
ECO's 1154:1372 in order to be @
Rev A.

500-496-00 B: Install New style stiffeners
ECO 1489

500-496-00 C: Install ECO 1609

500-496-00 = Megatape Option
EPROM Label = P30200
checksum = 08C8

BMX-2 REV'S FOR ARTWORK 041-116-00(A)

ECO	ASM. REV.	REASON FOR CHANGE:
	500-457-00 A	RELEASE FOR THE BMX-2 (PADS ONLY).
---	400-387-00 F	DIAGNOSTIC TAPE
	600-387-01 D	BMX-2 MANUAL
	CLASS C	ADD KENNEDY 9610 TAPE DRIVE TO THE CONFIGURATOR.
1061	400-387-00 G	UPDATE TAPE FROM 400-387-00 D TO G.
	CLASS C	
1084	500-457-00 B	FIX PRINT AND PARTS LIST.
	CLASS C	ADD TO THE APPENDIX DG/UX SUPPORT FOR THE BMX-2.
1136	600-387-01 E	UPDATE MANUAL FROM 600-387-01 D TO E.
	CLASS A2	CORRECT A CIRCUIT WHICH CAN CAUSE A GLITCH TO BE OUTPUT BY THE I/O DECODER-COULD CAUSE MANY ERRORS BUT SO FAR HAS ONLY CAUSED SPACING ERRORS @ HIGH MARGINS DURING RELI TESTING. ADD REWORK: REPLACE 74LS04 WITH A 74F04 @ L5. LIFT Z3-4. ADD WIRE FROM/TO Z3-4 TO Y4-10, Y4-8 TO Y4-11, Y4-9 TO FLOWTHRU HOLE FROM Z3-4. NOTE THIS WAS DEV. 81
1154	500-457-00 C	MANUAL: ADD QUESTIONS C. & D. ON PAGE 3-7. TAPE: ADD 2ND IOC SUPPORT IN RELI PROGRAM.
	CLASS C	
	600-387-01 F	UPDATE MANUAL FROM 600-387-01 E TO F.
1303	400-387-00 H	UPDATE TAPE FROM 400-387-00 G TO H.
	CLASS D	REMOVE PACKING LIST INFORMATION ON PAGE 2-1.
1347	600-387-01 G	UPDATE MANUAL FROM 600-387-01 F TO G.
✓	CLASS A2	CORRECT HARDWARE UNDETECTED DATA ERRORS DURING RUNNING OF LOW MARGIN RELI. ADD REWORK: LIFT N10-8. ADD WIRES FROM/TO: N10-13 TO P7-6. N10-12 TO N10-8. N10-11 TO N9-4.
1372	500-457-00 D	
	CLASS C	FOR A BETTER FITTING COVER, CHANGE STIFFENER FROM 070-051-00 TO 070-069-00. CHANGE ASM REV. TO 500-457-00 E.
1489	500-457-00 E	
✓	CLASS B1	FIX PARITY ERRORS ON THE LAST WORD TRANSFERRED OVER THE BMC BUS ON THE MV9500. ADD REWORK TO FIX PROBLEM ON 041-116-00 A ARTWORK ONLY, OLDER ARTWORK WILL NOT GET THIS FIX. ADD REWORK STEPS: LIFT F9-10. ADD WIRES FROM/TO: G9-10 TO W10-12. G9-9 TO W10-11. W10-10 TO W10-14. W10-13 TO G9-6. W10-9 TO LIFTED PIN F9-10.
1609	500-457-00 F	
	CLASS C	PROVIDE SUPPORT OF UP TO 4 I/O CONTROLLERS OR DEVICE CODES 20-276 OCTAL WHEN USING THE CONFIGURATOR, RELI & DISK INITIALIZER PROGRAMS. UPDATE TAPE 400-387-00H TO J.
1677	400-387-00 J	
	CLASS C	ADD TELEX 9271 AS A SUPPORTED DRIVE IN THE CONFIGURATOR PROGRAM & IN THE TECHNICAL MANUAL. UPDATE TAPE 400-387-00J TO K. UPDATE MANUAL FROM 600-387-01G TO H.
1699	400-387-00 K	
	CLASS C	ARTWORK & ASM. ARE NOW OBSOLETE. START USING 041-116-00 B AND 500-0503-00 A. BUMP ASM. REV. FROM 500-457-00H TO G
1788	500-457-00 G	HOWEVER DO NOT MARK ANY BOARD WITH REV. G, MARK THEM REV. F.
	CLASS B1	CORRECT BOOT PROBLEM ON MV30000. UPDATE TAPE FROM 400-387-00 K TO L.
1861	400-387-00 L	

Install any missing keyways

BMC BUS CONTENTION

Ⓢ Replace INTERNAL etch with shorter wire RUN

BMX3

LIFT PIN ON N11-1

DATA

LIFT PIN J1-33

DATA

Run wire :

N11-1 to J1-33

J1-33 to TERMINATOR B12-1

DATA

Bmx2 500-387-00 NOT 500-457-00

LIFT PIN J1-33

DATA

LIFT PIN K11-1

DATA

LIFT PIN L10-12

DATA

Run Wire :

L10-12 to K11-1

K11-1 to TERMINATOR L11-1

DATA

L11-1 to J1-33

Bmx2 500-547-00

TURN
- OVER

Bmx2 500-547-00

Lift J1-33

Lift L11-2

Lift K11-11

Lift L10-1

Run wire L10-1 to K11-11

Run wire K11-11 to L11-2 (terminator)

Run wire L11-2 to J1-33

Revision Compatibility/ECO Reference Chart

Model X Software Support Package Tape

400-~~456~~-00 387

Model X
Assembly
500-~~456~~-00
(573)

Current

	A	A	J	K	L								ECO #	C l a s s	N o t e
A	X	X	X		X										1
B	X	X	X		X								1942	B1	2
C	X	X	X		X								1963	B2	7
Microcode revision					1 5 6 1										
ECO #	1 0 6 1	1 3 4 3	1 6 7 7		1 4 4 2										
Class					B 1										
Note	3	4	5		6										

500-503-00X uses artwork 041-116-00B

Revision Compatibility/ECO Reference Chart

Box-2 Model X Software Support Package Tape
400-~~422~~-00 *387*

	A	B	C	D							ECO #	C l a s s	N o t e
<i>Box-2</i> Model X Assembly 500- 422 -00 <i>387</i>		V											
A	X	X									05412		1
B	X	X											
C	X	X									0504		2
D	X	X									0546		3
E			X								0547		4
F				X							0574		5
G				X							0581		6
G				X							0602		7
H				X							0634		8
J				X							0644		9
K				X							0641		10
Microcode revision													
ECO #		4 6 3	4 5 4 7	4 5 7 4									
Class													
Note		3 4	3 1	5									

Revision Compatibility/ECO Reference Chart

Brix-2
 Model X
 Assembly
 500-~~402~~-00
 387

Model X Software Support Package Tape
 400-~~405~~-00 387

	*	D	E	F	G	H	I	K	L			ECO #	C l a s s	N o t e
A L	X											0654		11
M	X											0675		12
N	X											0683		13
P	X											0688		14
R	X											0699		15
S	X											0714		16
T		X	X	X	X	X	X	X	X			0723		17
U		X	X	X	X	X	X	X	X			0760		18
W		X	X	X	X	X	X	X	X			0776		19
W		X	X	X	X	X	X	X	X			0792		20
X		X	X	X	X	X	X	X	X			0934		21
Microcode revision														
ECO #	0	0	0	1	1				1					
	5	7	7	0	3				6					
	7	2	6	6	0				8					
	0	3	0	1	3				1					
Class														
Note		1	1	2	2	3	3	3						
	5	7	8	8	9	1	1	2						

Notes

1. Release new artwork. Eliminate rework on th prototype PCB.
2. Resistor change in power-on-clear circuit.
3. Hardware change to correct a data channel timing problem. Eliminates a potential **loss** of data integrity.
4. New EPROM. Incorporates features of 500-387-01 into 500-387-00 and obsoletes 500-387-01.
5. New EPROM. Corrected remote density select problem with the Kennedy 9600 tape drive. *new tape -*
6. ^{for new} New artwork. → Incorporates FIFO speed-up circuit, new power-on-clear circuit and the MV/10000/Zebra fix. Added 1 pertec status line for the STA-1.
- ~~7.~~ Implement MV/10000/Zebra fix. Superceeds ECO 581 for new artwork.
8. Corrected a parity error problem associated with odd-character records.
9. New artwork. ^{only} FIFO speed-up circuitry. Added 1 pertec command line for the STA-1. Added jumpers.
10. Added optional resistors for power-on-clear circuit to the parts list.
11. Added Aviv board cover option.
12. Corrected parts list. Corrected a power fail circuit problem.
13. Change N7 & H8 from 74F74 to 74S74. Corrects ending memory address, odd-character record and data late errors.
14. Corrected a DIA status problem with the 92185 in a Nova 4.
15. Corrected manual. New Zmtrl listing.
16. Corrected grounding problem on cables.
- * 17. Added STC 2920, 2921, 2922 support to Configurator. Changed the DBY timer from 2 seconds to 4 seconds to accomodate Cipher's rev. 04 firmware.
18. Added Fujitsu 2436 support to Configurator. Changed manual for the Fujitsu 2436 and the STA-1/STA-2.
19. Fixed power-on-clear problem in the MV/7800 CPU.
20. Doc. change only. Made assembly revs match on related documents.
21. New EPROM. Corrected an MV/7800 PCOPY problem.

22. Fixed a rewind problem with AOS/VS rev. 6.00+ and daisy-chained units. Voided by ECO 995. *This is the "Dual drive rewind" problem.*
23. Obsolete. Replaced by 500-457-00.
24. See note 22. This ECO changed the rework steps. New EPROM.
25. Made use of a new PAL as the old PAL ~~was~~^{is} no longer available.
26. Corrected spacing errors under reli at high margin.
27. Corrected a hardware undetected data error problem under reli at low margin.
28. Added Kennedy 9610 support to the Configurator.
29. Added 2nd IOC support to Reli. Updated manual.
30. Added support for more tape drives. Made software easier to use.
31. New software revs. Why... ?
32. ~~500-457-00~~ L tape. *Modified the Decoder for subject compatibility.*

Notes

1. Corrected ~~part~~ parts list errors.
2. Corrected a ~~part~~ spacing errors at high margin under Reli problem.
3. Corrected hardware undetected data errors under low margin Reliability.
4. New stiffener bar. Megatape Product has this at:
500-496-00C.
5. Corrected a BMC parity circuit problem which caused failure in the MV/9500 (MV/9500 Computability)
6. Configurator enhancements and additional drive support. 6026 RDOs emulation. Diag? Reli enhancements -
7. New Config? Diag -
8. Added Kennedy 9600 to Configurator
9. Added STC 2920, 2921, 2922? Cipher 970 to Config -
10. Added Fujitsu 2346/STA-2 to Configurator.
11. Added Kennedy 9610 " "
12. Added IOC1 Support to Reli -
13. Added IOC-3 support to Configurator? Reli -
14. ?
15. 400-387-04 L type. Modified the boot string for m1/3000000 compatibility

500-496-00 C also is mu/9500 compatible.

Revision Compatibility/ECO Reference Chart

Model X Software Support Package Tape

400-~~496~~-00 387

Model X Assembly 500- 496 -00 0504	A G	H	J	K	L						ECO #	Class	Note
A	X	X	X		X								1
B	X	X	X		X						1902	B1	2
C	X	X	X		X						1963	B2	7
Microcode revision													
ECO #	1 4 6 1	1 3 4 3	1 6 7 7		1 5 6 1								
Class					B 1								
Note	3	4	5		6								

(See Note #1-503)

547-4547-04

1. New artwork. (041-116-00B)
2. Fixed an ending memory address error problem at high margin caused by noise on S4MCLK. This problem prevented shipment of 100K boards. ✓
3. Added memory 9614 to configuration.
4. Added ICC1 support to Rel1.
5. Added ICC4-3 support to configuration & Rel1.
6. Modified the bootstrap for sub/340000 compatibility.
7. Allow Checkout to change the value of R22-1 in the ROM write enable circuitry as needed to meet 1 shot circuit requirements. 6.8k is default. Options are 5.6k, 7.5k, 9.2k. R22-1 located left of P10.

540-0504-00

1. New Artwork.
2. Fixed an ending memory address error problem at high margin caused by noise on SYNCLK. This problem prevented shipment of rev. A boards.
3. Added Kennedy 9614 to Configurator.
4. Added IOC1 support to Reli.
5. Added IOC0-3 Support to Configurator & Reli.
6. Modified the bootstrap for mv/340000 compatibility.

500-0503-00

1. New Artwork.
2. Fixed an ending memory address error problem at high margin caused by noise on SYNCLK. This problem prevented shipment of rev. A boards.
3. Added Kennedy 9614 to Configurator.
4. Added IOCI Support to Reli.
5. Added IOCP-3 Support to Configurator & Reli.
6. Modified the bootstrap for mv/30000 Compatibility.

Tech Tip

For product model: BMX-2
Author.....: Scott T. Bohler
Date.....: 5/22/90

Problem:

Any unexplainable problem that potentially relates to a BMC transfer.

Environment or conditions under which the problem occurs:

BMX-2 installed in an MV/10000 when a D.G. Zebra controller is also installed in the system.

Solution:

Try removing jumper W28-1 and installing jumper W28-2. It looks like this will mask /ADDRESS ERROR from the BMC during buffer reads. Use of this jumper, as far as I have been able to determine, has never been officially tested or documented. Problem symptoms associated with this jumper have not been established or documented either. Use of this jumper is therefore a shotgun approach to solving an unexplainable problem.

SEE ECO's 581,602 ? 640.

FAX: 303-673-5019

StorageTek

September 25, 1990

Mr. Conrad Daleiden
Zetaco Incorporated
6850 Shady Oak Road
Eden Prairie, MN 55344

Dear Conrad,

Enclosed you will find a set of microcode labeled D082990.PX for the IFP100 card in the 2922 tape drive. I am sending this at the request of NPA systems in New York. This microcode contains the fix for the tape mark handling problem we encountered with the 2922 connected to the Zetaco BMX2 controller.

If you have any questions or concerns, please give me a call.

Regards,

Pam Baker

Pam Baker
OEM Tech Support
303-673-6831

D116 is the released version