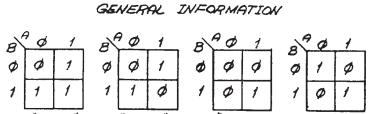
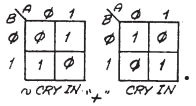
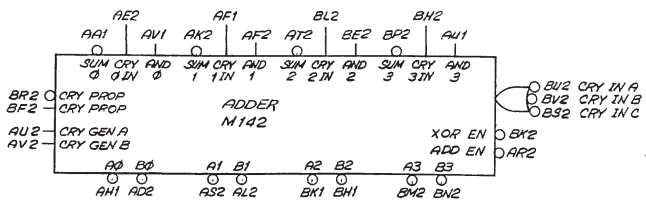
GENERAL INFORMATION





A_n "+" B_n = $A_n \forall B_n \forall$ CRY$_n$ IN
= ($A_n \wedge \sim B_n \wedge \sim$ CRY$_n$ IN) $\vee$
($\sim A_n \wedge B_n \wedge \sim$ CRY$_n$ IN) $\vee$
($\sim A_n \wedge \sim B_n \wedge$ CRY$_n$ IN) $\vee$
($A_n \wedge B_n \wedge$ CRY$_n$ IN)



M142 USED FOR LOW INPUTS

THE SUM OUTPUTS REPRESENT VARIOUS FUNCTIONS DEPENDING ON THE ENABLES

	~XOR EN	XOR EN
~ADD EN	SUM = A "IOR" B	SUM = A "XOR" B
ADD EN	SUM = NON-STANDARD FUNCTION	SUM = A "+" B

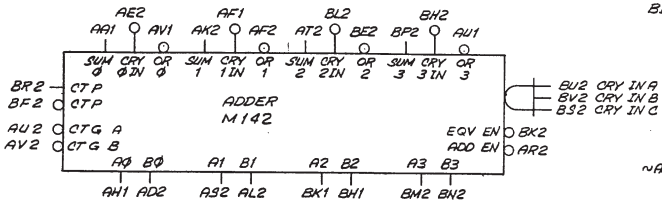
THE NON-STANDARD FUNCTION DEPENDS UPON CARRIES AND IS DIFFERENT FOR DIFFERENT BITS.

THE AND OUTPUTS REPRESENT THE "AND" OF THE INPUTS

THE CRY$_n$ IN OUTPUTS REPRESENT THE PROPER CARRY IN TO THE PARTICULAR BIT FOR ADDITION. CRY 1 IN IS THE PROPER CARRY TERM ONLY WHEN ADD EN AND XOR EN ARE ASSERTED. CRY 1 IN IS ASSERTED IF XOR EN IS NOT ASSERTED. CRY 1 IN IS NOT ASSERTED IF XOR EN IS ASSERTED BUT ADD EN IS NOT ASSERTED. THE OTHER CRY$_n$ IN OUTPUTS ARE ALWAYS THE PROPER CARRY INTO THE PARTICULAR BITS.

FOR LOW INPUTS

CRY 3 IN = CRY IN A $\wedge$ CRY IN B $\wedge$ CRY IN C
CRY 2 IN = (CRY 3 IN $\wedge$ A3) $\vee$ (CRY 3 IN $\wedge$ B3) $\vee$ (A3 $\wedge$ B3)
CRY 1 IN* = (CRY 2 IN $\wedge$ A2) $\vee$ (CRY 2 IN $\wedge$ B2) $\vee$ (A2 $\wedge$ B2)
CRY 1 IN = (CRY 1 IN* $\wedge$ ADD EN) $\vee \sim$ XOR EN
CRY Ø IN = (CRY 1 IN* $\wedge$ A1) $\vee$ (CRY 1 IN* $\wedge$ B1) $\vee$ (A1 $\wedge$ B1)
CRY PROP = (A3 $\vee$ B3) $\wedge$ (A2 $\vee$ B2) $\wedge$ (A1 $\vee$ B1) $\wedge$ (AØ $\vee$ BØ)
CRY GEN = {(AØ $\wedge$ BØ) $\vee$ (A1 $\wedge$ B1 $\wedge$ (AØ $\vee$ BØ)) $\vee$ {A2 $\wedge$ B2 $\wedge$ (A1 $\vee$ B1) $\wedge$ (AØ $\vee$ BØ)) $\vee$ {A3 $\wedge$ B3 $\wedge$ (A2 $\vee$ B2) $\wedge$ (A1 $\vee$ B1) $\wedge$ (AØ $\vee$ BØ)}



M142 USED FOR HIGH INPUTS

THE SUM OUTPUTS REPRESENT VARIOUS FUNCTIONS DEPENDING ON THE ENABLES

	~EQV EN	EQV EN
~ADD EN	SUM = A "AND" B	SUM = A "EQV" B
ADD EN	SUM = NON-STANDARD FUNCTION	SUM = A "+" B

THE NON-STANDARD FUNCTION DEPENDS UPON CARRIES AND IS DIFFERENT FOR DIFFERENT BITS.

THE OR OUTPUTS REPRESENT THE "OR" OF THE INPUTS

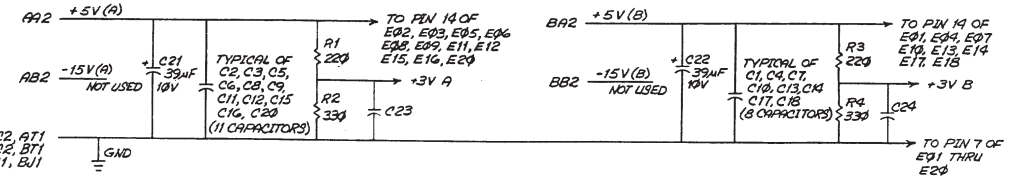
THE CRY$_n$ IN OUTPUTS REPRESENT THE PROPER CARRY IN TO THE PARTICULAR BIT FOR ADDITION. CRY 2 IN IS THE PROPER CARRY TERM ONLY WHEN ADD EN AND EQV EN ARE ASSERTED. CRY 1 IN IS NOT ASSERTED IF EQV EN IS NOT ASSERTED. CRY 1 IN IS ASSERTED IF EQV EN IS ASSERTED BUT ADD EN IS NOT ASSERTED. THE OTHER CRY$_n$ IN OUTPUTS ARE ALWAYS THE PROPER CARRY INTO THE PARTICULAR BITS.

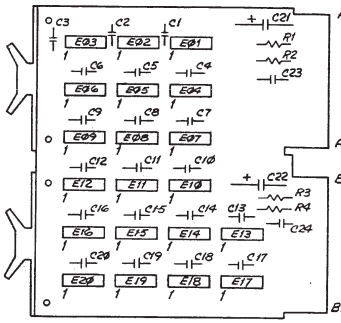
FOR HIGH INPUTS

CRY 3 IN = CRY IN A $\wedge$ CRY IN B $\wedge$ CRY IN C
CRY 2 IN = (CRY 3 IN $\wedge$ A3) $\vee$ (CRY 3 IN $\wedge$ B3) $\vee$ (A3 $\wedge$ B3)
CRY 1 IN* = (CRY 2 IN $\wedge$ A2) $\vee$ (CRY 2 IN $\wedge$ B2) $\vee$ (A2 $\wedge$ B2)
CRY 1 IN = (CRY 1 IN* $\wedge$ EQV EN) $\vee$ ($\sim$ ADD EN $\wedge$ EQV EN)
CRY Ø IN = (CRY 1 IN* $\wedge$ A1) $\vee$ (CRY 1 IN* $\wedge$ B1) $\vee$ (A1 $\wedge$ B1)
CT P = (A3 $\wedge$ B3) $\vee$ (A2 $\wedge$ B2) $\vee$ (A1 $\wedge$ B1) $\vee$ (AØ $\wedge$ BØ)
CT G = {(AØ $\wedge$ BØ) $\vee$ (A1 $\wedge$ B1 $\wedge$ (AØ $\vee$ BØ)) $\vee$ {A2 $\wedge$ B2 $\wedge$ (A1 $\vee$ B1) $\wedge$ (AØ $\vee$ BØ)) $\vee$ {(A3 $\vee$ B3) $\wedge$ (A2 $\vee$ B2) $\wedge$ (A1 $\vee$ B1) $\wedge$ (AØ $\vee$ BØ)}

NOTE SUBTLE DIFFERENCE FROM CRY GEN ABOVE

UNLESS OTHERWISE INDICATED:
IC'S ARE DEC 1074H — — N A3 NOTED
CAPACITORS ARE .Ø1 µF 1ØØV
RESISTORS ARE 1/4 W





NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV	CHK
CHANGE NO. M1142-00001	A	
M142-00002	B	
M142-00003	C	

ETCH REV A

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH
NEXT HIGHER ASSY
SCALE
SHEET 1 OF 2

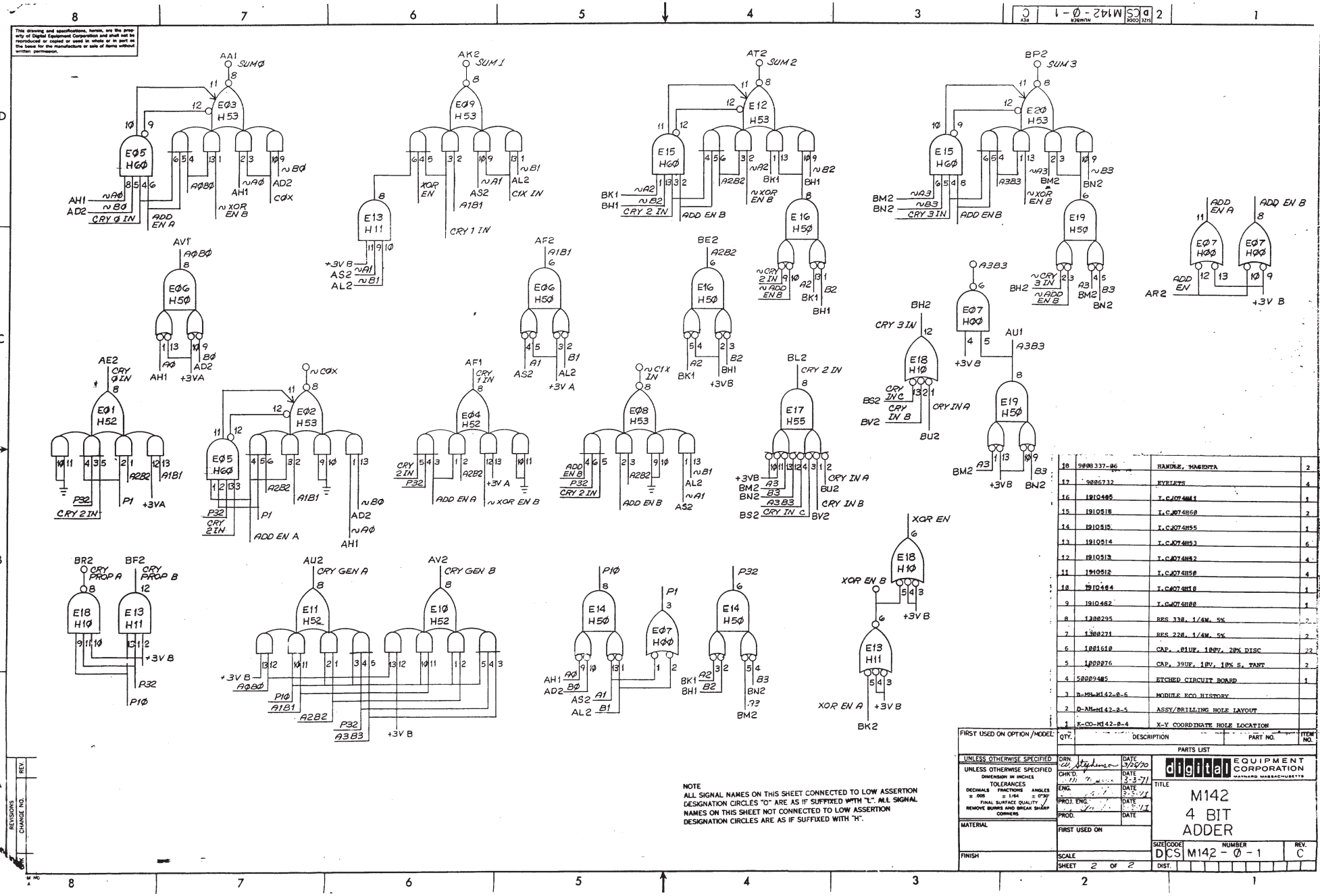
DRN. W. Stephenson DATE 9/11/70
CHK'D. DATE 9-3-71
ENG. DATE 9-3-71
PROJ. ENG. DATE
PROD. DATE

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
M142
4 BIT
ADDER

SIZE D CODE CS NUMBER M142-Ø-1 REV. C
DIST.

DEC FORM NO. DPD 102A



ITEM NO.	QTY.	PART NO.	DESCRIPTION
18	2	9008337-96	HANDLE, MAGENTA
17	4	9006732	EYELETS
16	1	1910485	T.CJ074A61
15	2	1910516	T.CJ074A60
14	1	1910515	T.CJO74A55
13	6	1910514	T.CJO74A53
12	4	1910513	T.CJO74A62
11	4	1910512	T.CJO74A58
10	1	1910464	T.CJO74A10
9	1	1910462	T.CJO74A08
8	2	1300295	RES 33Ω, 1/4W, 5%
7	2	1300271	RES 22Ω, 1/4W, 5%
6	22	1001610	CAP, .01UF, 100V, 20% DISC
5	2	1000276	CAP, 39UF, 10V, 10% S, TANT
4	1	50009485	ETCHED CIRCUIT BOARD
3	1	D-MS-M142-0-6	MODULE ECO HISTORY
2	1	D-AH-M142-0-5	ASSY/DRILLING HOLE LAYOUT
1	1	K-CO-M142-0-4	X-Y COORDINATE HOLE LOCATION

PARTS LIST

FIRST USED ON OPTION /MODEL:

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN. W. Stephenson DATE 3/26/70
CHK'D. DATE 3-3-71
ENG. DATE 3-3-71
PROJ. ENG. DATE 3-3-71
PROD. DATE

FIRST USED ON

SCALE

SHEET 2 OF 2

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
M142
4 BIT
ADDER

SIZE D | CODE CS | NUMBER M142 - Ø - 1 | REV. C

DIST.

REVISIONS
REV. | CHANGE NO.