T & F Documents
for
.150" - Tape Cassette
Unit

PRODUCT SPECIFICATION

Cassette Tapes

The use of tape cassettes as a reliable data storage medium requires strict adherence to proper operator handling procedures, the control of operation environment, the control of cassette tapes in a storage library, and the control of transportation and storage environment for cassette tapes. Each procedure and control is equally important and interdependent on each other.

Operator Handling Procedures

The tape cassette should be carefully removed from the storage container and placed opening edge down, "A" side toward operator, in the cassette drive.

Before removing a cassette from the drive, always let the unit rewind the tape to clear leader. Make sure the clear leader is in full view before replacing the cassette tape in the storage container. The tape should not be touched or handled in any way.

Do not open the cassette drive front door when tape is in motion or tape damage may occur.

Operation Environment

It is recommended that the cassette drives be operated under the following environmental conditions.

Temperature	50 to 90° F
RH	20 to 80% (no condensation)

For additional information refer to Engineering Specifications 2046 2875, 2046 3725, and Environmental Standard B2-05. The immediate operation environment must be free of liquid or particulate contaminates such as coffee, soft drinks, cigarette or cigar ashes, paper, dust, etc.

The cassette tapes must not be stored or handled near strong magnetic fields.

Tape Library and Storage Environment.

It is recommended that cassette tapes be stored under the following environmental conditions.

Temperature	40 - 122° F
RH	20 to 80% (noncondensing)

During storage the reels shall be secured to prevent any tendency to unwind. For storage a rigid container free from dust and moisture should be used. Containers must be stored in an area free from strong magnetic fields.

Each cassette tape should be clearly identified when put into use. Identification should consist of a date code and identification number. Master file tapes should be clearly marked for ease of identification.

A performance history should be maintained for each cassette tape noting date entering use, error history, ceritification and tape cleaning history, and maintenance intervals required.

Periodic visual inspection should be performed on eacn cassette noting nonuniform wound reels, contamination buildup on any of the open end surfaces and contamination on the external cassette surfaces that would prevent proper cassette load/unload.

Tape damage of any type that causes permanent deformation or distortion of the tape will result in unpredictable operation and the cassette tape should be discarded.

The useful life of the cassette tape should be determined for each application. In general cassette tape life is reduced more by operator handling than by cassette drive use. End of tape life can be determined by the performance history of the cassette tape. Analysis of time in service, the number of temporary errors, and visual inspection should provide guidelines in determining end of cassette tape life.

Transportation and Storage Environment

Refer to Engineering Specifications 2046 2875, 2046 3725 and B2-05.

OPERATIONAL

Recommended Use

The cassette drive subsystem is designed for horizontal or vertical mounting. Cassette tape load/unload access is gained by pressing the load/unload button at the top of the cassette drive face. The cassette tape should be gently inserted open edge down, "A" side facing the operator and the carriage closed. Tape drive motion and amount of tape on the supply reel is indicated through the front view window. Optional indicators are available, one for file protect indication and the other is externally controlled through the interface. Cassette unload should only be attempted with the drive stopped and the cassette tape in clear leader position. After use the cassette carriage should be closed to prevent accumulation of dirt and dust in the cassette drive mechanism.

Do not actuate rewind by opening and closing the carriage assembly door. Rewind mode must be actuated by the controler only. To avoid possible tape damage do not open the carriage assembly door unless tape is positioned at clear leader.

ELECTRICAL

I/O Signals and Levels

Signal levels are measured at the receiving end of the line under termination conditions specified in Section 6.1.5.

Logical True

A signal level is logical true (logical 1) if it is in the range + 2.5 to + 5.5 volts. No signal shall be more positive than 5.5 volts.

Logical False

A signal level is logical false (logical 0) if it is in the range 0 to 0.5 volts. No "false" signal level shall be more positive than 0.5 volts.

Switching Time

Switching time is the rise or fall time of a signal, whichever is greater, as seen at the receiving end of the line under the termination conditions of Section 6.1.5.

Switching time shall not exceed .250 microsecond between the 10% and 90% points.

Output Signal Characteristics

The output consists of DTL 944 open collector driver that has sink current capability of 40 ma.

Input Signal Termination

The input line termination consists of 237 ± 5% ohms to + 5 V and 348 ± 5% ohms to ground.

Clear Leader - BOT/EOT

A clear leader signal will be generated any time the clear leader is positioned in front of each of the photo sensors located in each tape guide.

The BOT/EOT holes are sensed by the photo sensor located between the tape supply reel and the tape head (i.e. the left sensor).

Interface Pin Assignment

Pin	Signal	Description
K	$\overline{TWI}$	Tape Write Level
V	$\overline{TWRL}$	Tape Write Ready Level - File Protect
M	$\overline{FDL}$	Forward Drive Level
W	$\overline{TREL}$	Tape Ready Level
H	$\overline{TWCP}$	Tape Write Clock Pulse
U	$\overline{TPRL}$	Tape Position Ready Level
T	$\overline{CLPL}$	Clear Leader Position Level
F	$\overline{TWIL}$	Tape Write Information Level
S	$\overline{TRIP}$	Tape Read Information Pulse
N	$\overline{BDL}$	Backward Drive Level
R	$\overline{TRCL}$	Tape Read Clock Level
C	-12V DC	
E	$\overline{TRWP}$	Tape Rewind Pulse
P	$\overline{CSL}$	Cassette Select Level
B	+ 12V DC	
L	$\underline{HSL}$	High Speed Level
J	$\overline{RCL}$	Read Clipping Level
A	+ 5V DC	
X	$\overline{RL}$	Indicator Control (option)

NOTE: All pin numbers 1 thru 19 are ground pins. Pins M, F, S, and R are information transfer lines and are twisted pair. Twisted pair grounds should be grounded at the numbered pin opposite the lettered pin on this connector. The maximum cable length is 10 feet. The cable length may be extended to 15 feet if twisted pair wires are used on all signal lines. See Product Index listed in Par. 2.0.

Interface Connector

The cassette uses Part No. S2041 2516 connector (AMP 583617-1 ref only).

Input Lines to Recorder

$\overline{\text{FDL}}$ - Forward Drive Level

This line, when held "false", will cause the tape to be driven in the forward direction.

$\overline{\text{BDL}}$ - Backward Drive Level

When this line is "false" tape will be driven in the backward direction.

$\overline{\text{TWL}}$ - Tape Write Level

This line, when "False", holds the drive in write status and will permit data to be written on the tape. If this line is held "False" without having "Tape Write Clock" pulses, an erase function is performed. $\overline{\text{TWL}}$ must be "False" when the "Forward Drive Level" is turned on and must be maintained "False" for 30 ms (until tape motion stops). Where possible the tape write level should be held in the "False" state betwe write operations.

Continued.

$\overline{\text{TRWP}}$	The negative-going (leading) edge of this pulse (0.5-5 μs) will initiate a rewind cycle in the tape drive. The rewind cycle will terminate automatically when tape is positioned at the beginning of tape - clear leader.
$\overline{\text{RCL}}$ - Read Clipping Level	When "false," this line selects the high clipping level and should be used when write verification is performed. This line should be held in a "true" state for normal reading. The clipping level should also be changed on alternate read retries after an initial read failure. This will provide the best probability for recover of recorded data.
$\overline{\text{TWIL}}$ - Tape Write Information Level	When "false" during a $\overline{\text{TWCP}}$ pulse, this line will cause a 1-bit (flux change) to be written in the data track. A "true" level (or line open) will result in a 0-bit (no flux change) at $\overline{\text{TWCP}}$ time. The $\overline{\text{TWIL}}$ line must set

Continued.

$\overline{\text{TWIL}}$ (Continued)	to the proper level one microsecond before the leading (negative going edge) of the clock pulse and must remain at that level for one microsecond after the trailing edge of the clock pulse.
$\overline{\text{TWCP}}$ - Tape Write Clock Pulse	The false level of the tape write clock pulse (0.5-5 μs) indicates when the write information line $\overline{\text{TWIL}}$ is being sensed and strobes the resulting data bit into the write amplifier. The clock and, if present, the data signal changes are recorded on the tape at the positive-going (trailing edge) of the clock pulse. In dual gap machines the writing of the flux changes are delayed by approximately 50 μsec. A clock pulse must be transmitted with each information bit.
$\overline{\text{HSL}}$	When "false," this line causes the tape to be driven at approximately 25 ips (635 mmps) in the direction determined by $\overline{\text{FDL}}$ or $\overline{\text{BDL}}$. The $\overline{\text{HSL}}$ command may be given any time before or after a $\overline{\text{FOL}}$ or $\overline{\text{BOL}}$ is given.

Continued

$\overline{CSL}$ - Cassette Select Level	When "false" enable all input and output lines, except for $\overline{CLPL}$ and $\overline{TREL}$ which are enabled at all times. In multi-unit configurations a separate $\overline{CSL}$ line is provided to each unit and a separate line is provided from each unit for the $\overline{CLPL}$ and $\overline{TREL}$ signals. The $\overline{CSL}$ line is grounded for single unit configurations.
$\overline{RL}$	Optional indicator control line.

Output Lines from Recorder/Reader

$\overline{TREL}$ - Tape Ready Level	When "false," this line indicates that a cassette is properly inserted in the recorder. The recorder is ready to accept a tape command via the interface.
$\overline{TWRL}$ - Tape Write Ready Level	When "false," this line indicates that a cassette is properly inserted in the recorder and has a write enable tab installed to allow writing on tape.
$\overline{TPRL}$ - Tape Position Ready Level	When "false," this line indicates that the tape is positioned properly and that the recorder can be operated in the write or read mode. This level

Continued.

$\overline{\text{TPRL}}$ (Continued)

will be set "false" when the tape has moved forward so that the BOT hole passes the BOT/EOT photo detector. It remains "false" until the EOT hole passes the BOT/EOT photo detector. The record being recorded at the time this level goes "true" at EOT and any additional required "end of file" record(s) must be completed within the remaining usable tape. The tape is usable to within 2.0 inches of the clear leader (trailer). In dual gap units this line is not controlled by the cassette select level and cannot be wire-ored with other units.

$\overline{\text{CLPL}}$ - Clear Leader Position Level

When "false," this line indicates that the tape is positioned at clear leader at the physical beginning or end of tape. Tape can be driven only in the forward direction when in a clear leader position. Should the tape be at clear leader at the end of the tape, operator intervention will be required to rewind the tape passed the clear

Continued.

$\overline{\text{CLPL}}$ (Continued)	leader. The cassette can then be re-inserted into the carriage and the tape will then automatically rewind to BOT clear leader. In dual gap units this line is not controlled by the cassette select level and cannot be wire-ored with other units.
$\overline{\text{TRIP}}$ - Tape Read Information Pulse	When "false," this line indicates that a "one" is being read for the cell period defined by $\overline{\text{TRCL}}$. More than one pulse during any one cell period should also be interpreted as a single "one" for that particular cell. No pulse during cell time should be interpreted as a "zero." The minimum pulse width = 600 ns. The $\overline{\text{TRIP}}$ is not logically gated by the $\overline{\text{TRCL}}$ cell period in dual gap units and false levels which may occur outside the cell period are to be ignored.
$\overline{\text{TRCL}}$ - Tape Read Cell Level	This level when "false" indicates cell duration time. The negative going edge defines the beginning of cell period and the positive going trailing edge defines the end of the cell period.

Continued.

$\overline{\text{TRCL}}$ (Continued)	One or more $\overline{\text{TRIP}}$'s during $\overline{\text{TRCL}}$ time indicates that a "one" is being read and no $\overline{\text{TRIP}}$'s indicates a "zero" read. The minimum time between cell periods = 1.5 μs.

Input Power

The voltage and current required from the host equipment to power the cassette drive subsystem is as follows:

+ 5 volts ± 10%	1.0 amp maximum
+ 12 volts ± 10%	0.9 amp maximum
- 12 volts ± 10%	0.125 amp maximum

Indicator Option

An optional indicator when provided (see Figure 1) will cause the right side of the lens above the Write Status (WS) legend to be illuminated when a cassette tape, with the write enable plug in place, i properly inserted into the carriage and the carriage is closed. With the tab removed or the carriage open, the indicator will be dark.

The left side of the lens above the "R" legend is externally controlled through pin X of the interface connector. With pin X held at or near ground, the indicator will light. The indicator

Continued.

will be dark when the pin is allowed to float or is held to the +5V power supply level. The open circuit voltage of pin X is equal to the +5V power supply level. The control on pin X must be capable of sinking a maximum of 40 ma (nominally 32 ma) when grounded.

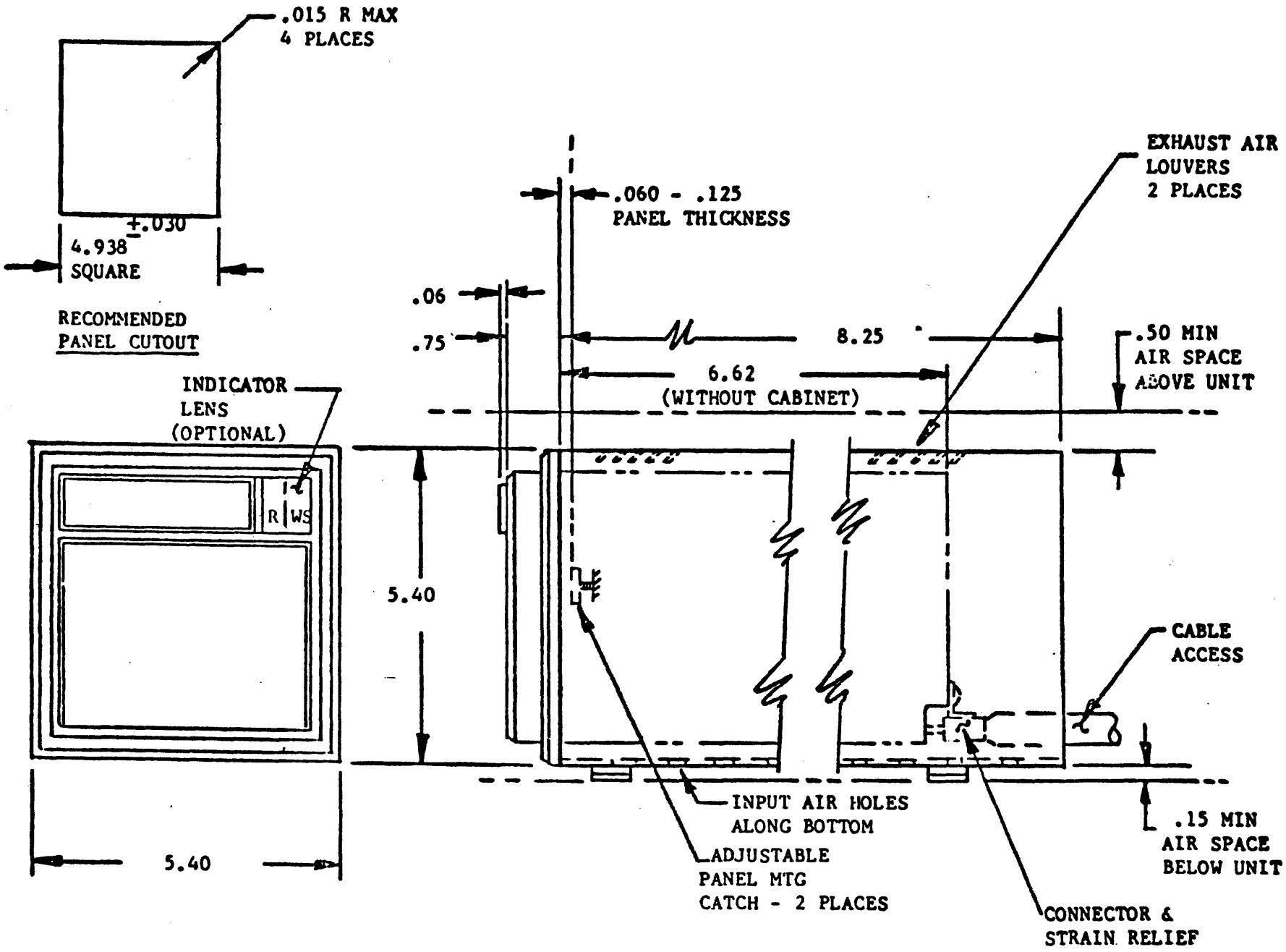

.015 R MAX
4 PLACES
+.030
4.938
SQUARE
RECOMMENDED
PANEL CUTOUT
.060 - .125
PANEL THICKNESS
EXHAUST AIR
LOUVERS
2 PLACES
.06
.75
8.25
6.62
(WITHOUT CABINET)
.50 MIN
AIR SPACE
ABOVE UNIT
INDICATOR
LENS
(OPTIONAL)
R
WS
5.40
5.40
CABLE
ACCESS
INPUT AIR HOLES
ALONG BOTTOM
ADJUSTABLE
PANEL MTG
CATCH - 2 PLACES
CONNECTOR &
STRAIN RELIEF
.15 MIN
AIR SPACE
BELOW UNIT

FIGURE 1

D-2040 6641 E

REVISIONS

A — RELEASED

B — ADDED NOTE 1.

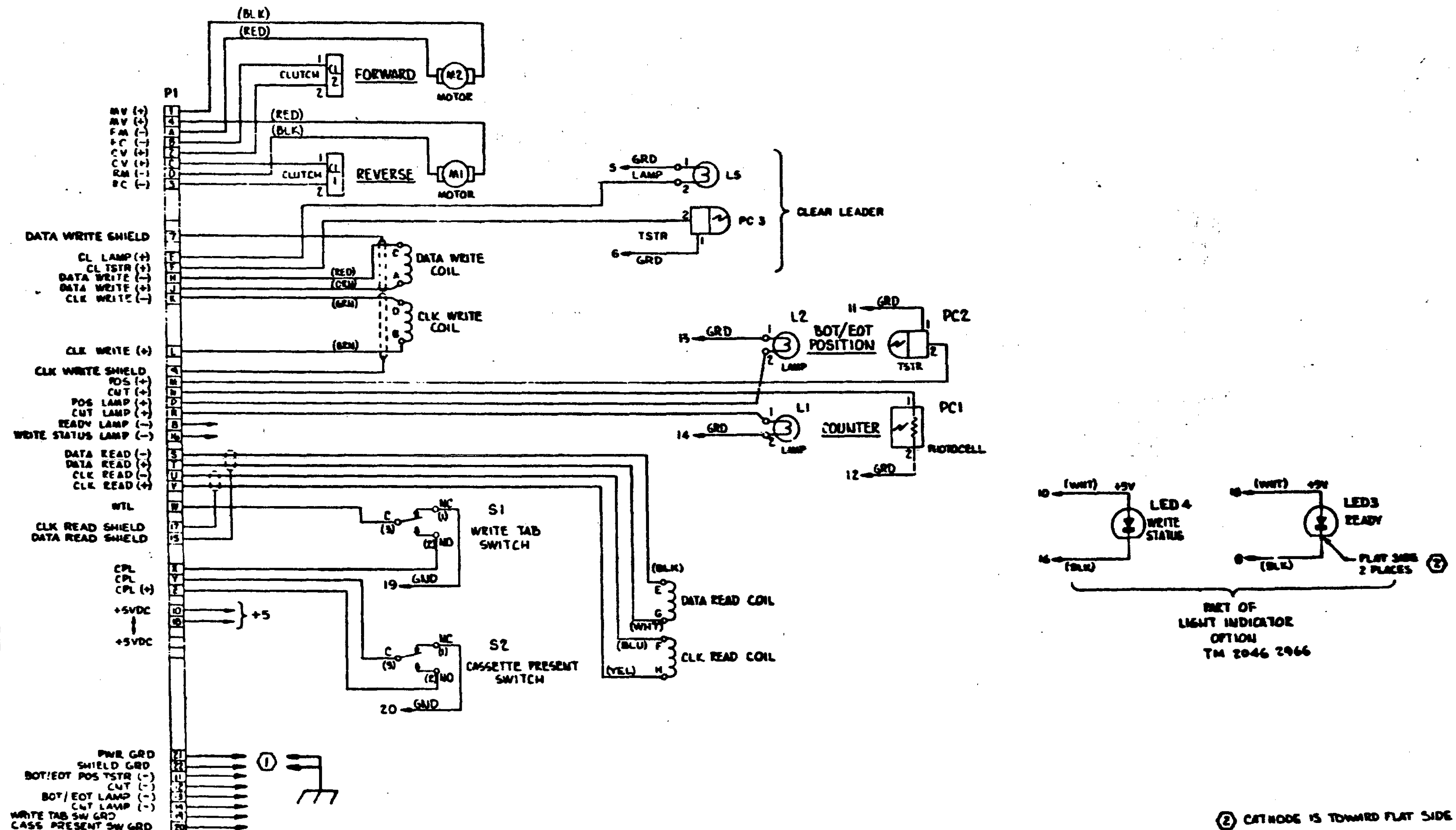
C
1. ADDED PINS 15 & 17 (B-7)
2. CHANGED COLOR CODES: BLK WAS GRN, WHT WAS BRN, BLU WAS YEL, YEL WAS BLU (B-5)

D — ADDED L3 & L4 (B-2) ADDED PINS 8, 10, 16 & 18 (B-7, C-7)

E
1. DELETED LED (B-2)
2. LED3 WAS L3, LED4 WAS L4. (B-2)
3. ADDED NOTE 2.
4. TITLE IS SCHEMATIC TAPE DECK, WAS SCHEMATIC-TAPE DECK CASSETTE.

F
1) REVISED TO SHOW DUAL GAP CONFIG. ONLY
2) ADDED PC3 & L5 (C, D-4)
3) ADDED "DG" TO TITLE
4) ADDED POSITIONS 11, 12, 13, 14, 19, 20, 9, & 7.
5) DELETED POSITIONS 5 & 6.

G
1. NOTE 1 WAS: FOR SYSTEM INSTALLATION, ONE OR BOTH WIRES FROM P1-21 AND P1-22 TO GND MAY BE REMOVED DEPENDING ON SYSTEM REQMTS.



NOTE:

1. IN PANEL MOUNTING APPLICATIONS, REMOVE THE CONNECTION FROM P1-21 TO CHASSIS GROUND (E1). A SEPARATE GROUNDING JUMPER FROM CHASSIS CONNECTION E1 TO A SUITABLE PANEL GROUND MUST BE ADDED BY USER.
2. CATHODE IS TOWARD FLAT SIDE OF CASE.

Burroughs Corporation — BUSINESS MACHINES GROUP, WESTLAKE VILLAGE, CALIFORNIA — WESTLAKE PLANT, U.S. AMERICA

DRAWN W. Longo 12-3-71

SCHEMATIC-TAPE DECK, DG — D-2040 6641 — G

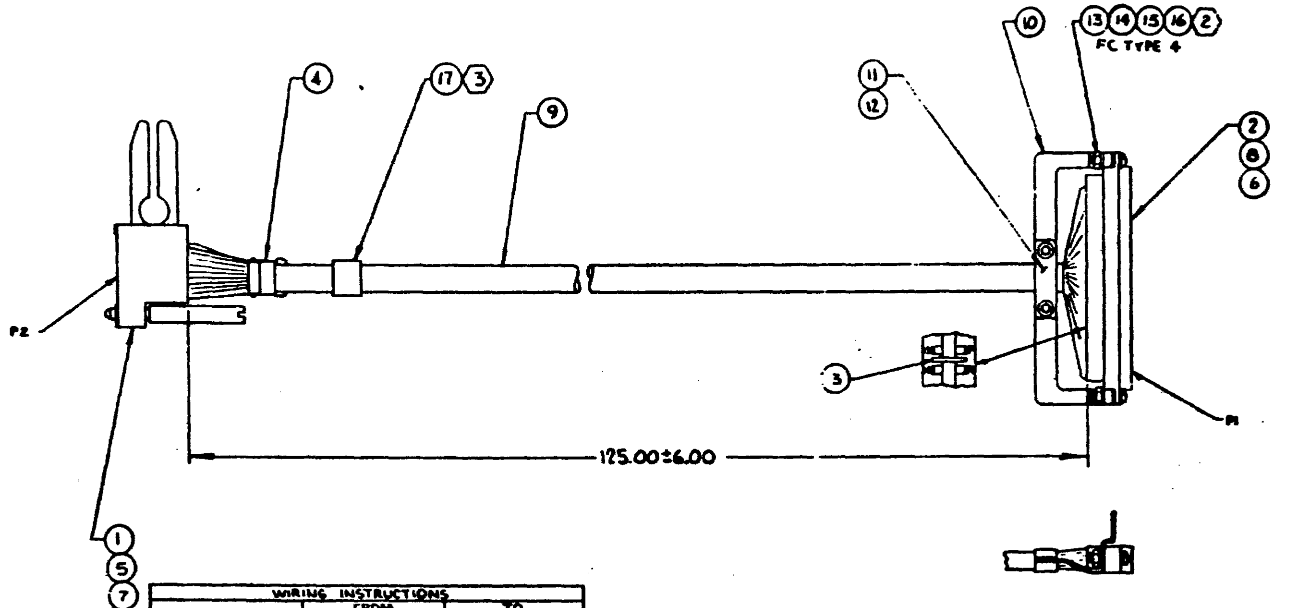
D-2046 1992 B

REVISIONS

LTR					
A					
RELEASED					
B					

1) 125.00±6.00 WAS 120.00±.50 (B4)
2) TITLE WAS CABLE ASSY, EXT 120 IN.

SEND CHANGES TO
USER PLANTS



WIRING INSTRUCTIONS						
	FROM			TO		
COLOR	TERMIN. ITEM	CONN	PIN NO.	TERMIN. ITEM	CONN	PIN NO.
RED	6	P1	A	7	P2	1
WHITE/BLACK	6	P1	1	7	P2	2
ORANGE	6	P1	B	7	P2	3
WHITE/BLACK/BLACK	6	P1	2	7	P2	4
BROWN	6	P1	C	7	P2	5
WHITE/BLACK/BROWN	8	P1	X	5	P2	10
YELLOW	8	P1	E	6	P2	15
(1) WHITE/BLUE	8	P1	F	5	P2	14
(1) WHITE/VIOLET	8	P1	6	5	P2	9
(1) WHITE/GREY	8	P1	H	5	P2	13
(1) WHITE/BLACK/VIOLET	8	P1	7	5	P2	8
BLUE	8	P1	J	5	P2	16
VIOLET	8	P1	K	5	P2	17
GREY	8	P1	L	5	P2	18
WHITE	8	P1	M	5	P2	19
WHITE/BLACK/BLUE	8	P1	N	5	P2	20
WHITE/BROWN	8	P1	P	5	P2	21
(1) WHITE/BLACK/GREEN	8	P1	R	5	P2	12
(1) WHITE/BLACK/RED	8	P1	K	5	P2	7
(1) WHITE/BLACK/ORANGE	8	P1	S	5	P2	11
(1) WHITE/BLACK/YELLOW	8	P1	5	5	P2	6
WHITE/RED	8	P1	T	5	P2	22
WHITE/ORANGE	8	P1	U	5	P2	23
WHITE/YELLOW	8	P1	V	5	P2	24
WHITE/GREEN	8	P1	W	6	P2	25

NOTES: UNLESS OTHERWISE SPECIFIED

(1) INDICATED WIRES ARE TWISTED PAIR.

(2) FC "TYPE" PER SPEC 1199 2096.

(3) MARK ASSY NO. ON STRAP WITH "BOND-O-TOOL" STAMP.

SEE P/L

Burroughs Corporation
WESTLAKE PLANT U.S. AMERICA
WESTLAKE VILLAGE, CALIFORNIA 91359

CABLE ASSY, EXTERNAL

D-2046 1992 B

REVISIONS

LTR	...	DRAWN	CHK	APPD	DATE
A		GLK			

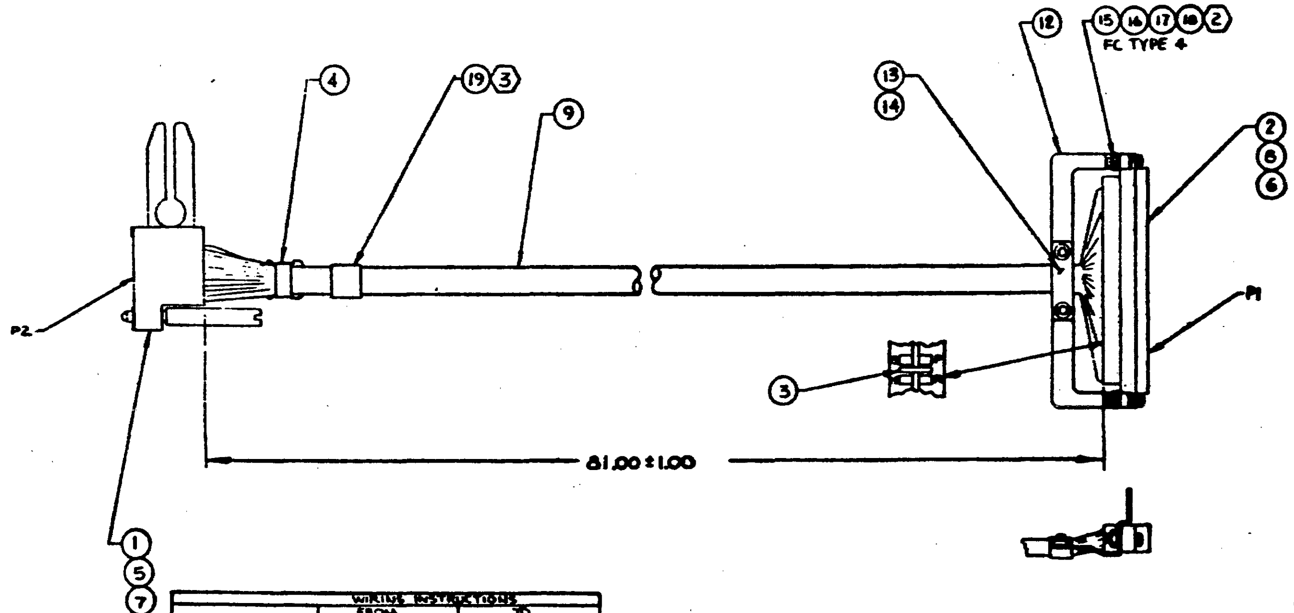
RELEASED

B

1) ITEM 4 IS 38 PLACES WAS 4 PLACES. (C5)
2) 81.00±1.00 WAS 38.00±.50. (B4)
3) TITLE WAS "CABLE ASSY, INT 38 IN."

C DAV

1) ITEM ④ WAS 38 PLACES (C-5).
2) DELETED ITEMS ⑩ & ⑪ (C-4,5)
3) ADDED COLOR CODE TO WIRE INSTR. TABLE.



WIRING INSTRUCTIONS						
	FROM			TO		
COLOR	TERMIN. ITEM	CONN	PIN NO.	TERMINAL ITEM	CONN	PIN NO.
RED	6	P1	A	7	P2	1
WHITE/BLACK	6	P1	1	7	P2	2
ORANGE	6	P1	B	7	P2	3
WHITE/BLACK/BLACK	6	P1	2	7	P2	4
BROWN	6	P1	C	7	P2	5
WHITE/BLACK/BROWN	6	P1	X	5	P2	10
YELLOW	8	P1	E	5	P2	15
① WHITE/BLUE	8	P1	F	5	P2	14
① WHITE/VIOLET	8	P1	G	5	P2	9
① WHITE/GREY	8	P1	H	5	P2	13
① WHITE/BLACK/VIOLET	8	P1	7	5	P2	8
BLUE	8	P1	J	5	P2	16
VIOLET	8	P1	K	5	P2	17
GREY	8	P1	L	5	P2	18
WHITE	8	P1	M	5	P2	19
WHITE/BLACK/BLUE	8	P1	N	5	P2	20
WHITE/BROWN	8	P1	P	5	P2	21
① WHITE/BLACK/GREEN	8	P1	R	5	P2	12
① WHITE/BLACK/RED	8	P1	19	5	P2	7
① WHITE/BLACK/ORANGE	8	P1	S	5	P2	11
① WHITE/BLACK/YELLOW	8	P1	15	5	P2	6
WHITE/RED	8	P1	T	5	P2	22
WHITE/ORANGE	8	P1	U	5	P2	23
WHITE/YELLOW	8	P1	V	5	P2	24
WHITE/GREEN	8	P1	W	5	P2	25

SEND CHANGES TO
USER PLANTS:

③ MARK ASSY NO. ON STRAP WITH "BOND-O-TOOL" STAMP.

② FC "TYPE" PER SPEC 1199 8096.

① INDICATED WIRES ARE TWISTED PAIR.

NOTES: UNLESS OTHERWISE SPECIFIED

19

SEE P/L

Burroughs Corporation
WESTLAKE PLANT U S AMERICA
WESTLAKE VILLAGE, CALIFORNIA

CABLE ASSY, INTERNAL

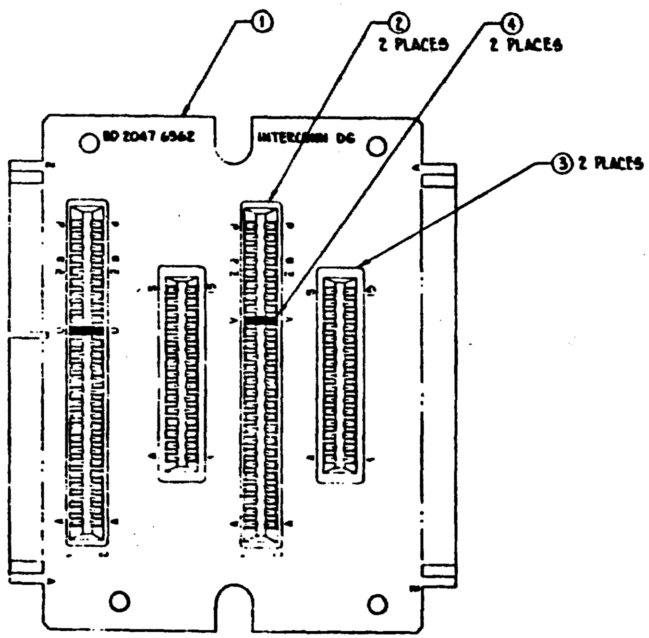
D-2046 2008 C

D-20476354 A

20

REVISIONS

RELEASED



SEE P/L

Burroughs Corporation

BUSINESS MACHINES GROUP
WESTLAKE VILLAGE, CALIFORNIA
WESTLAKE PLANT
U S AMERICA

DRAWN 5-22-73
CHKD 5-21-73
D.A. 5-21-73
MFG. 5-25-73

CD-INTERCONNECT DG

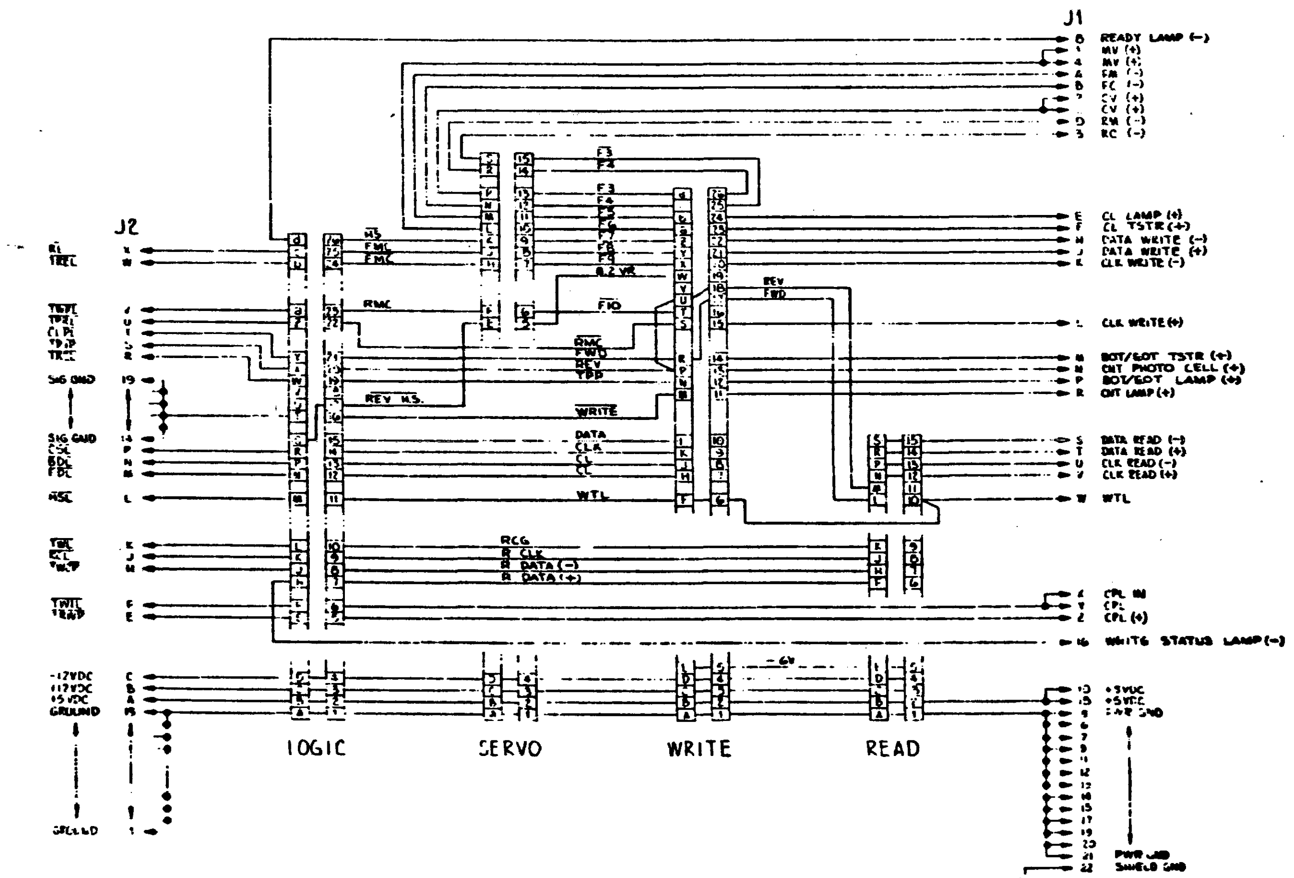
D-2047 6954 A

SHEET 1 OF 1

D-2046 3527 C

REVISIONS

RELEASED



Burroughs Corporation

WESTLAKE VILLAGE, CALIFORNIA

SCHEM - INTERCONNECT DG

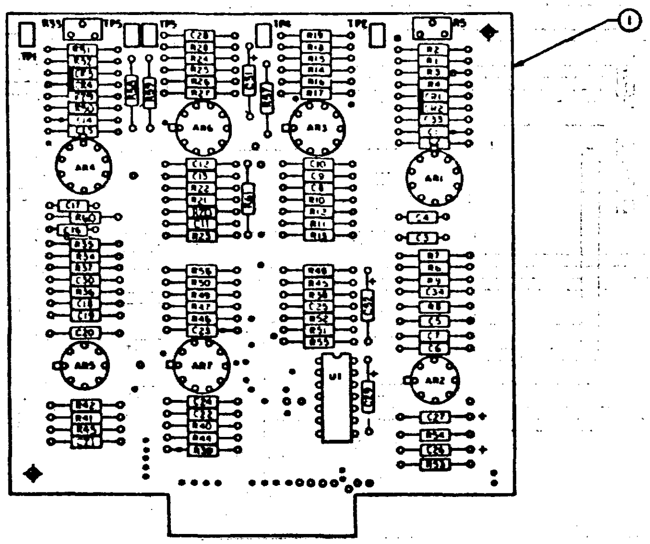
D-2046 3527 C

D-2048 2253 A

REVISIONS

A | JP

RELEASED



ITEM NO	REFERENCE DESIGNATION
3	AR1, AR4
4	AR2, AR5
5	AR3, AR6, AR7
6	R10, R11, R15, [illegible] R39, R40, R43, R49, R61
7	R52
8	[illegible] R22, R43, R44
9	[illegible] TP3, TP[illegible]
10	R[illegible]
11	R54
12	R19, R51
13	R50
14	R14, R24
15	R3, R1, R31 [illegible] R56 [illegible]
16	R8, R9, [illegible]
17	R20, R41, R46
18	R18
19	R5, R3[illegible]
20	CR1, CR2, CR3, CR4
21	C1, C14
22	C8, C11
23	C2, C5, C6, C9, C10, C12, C13, C15, C18, C20, C22, C24, C25, C28, C33
24	C3, C4, C16, C1[illegible]
25	C25, C27, C29, C31, C32
26	[illegible]9
27	[illegible] C23
28	R1, R2, R29, R30
29	[illegible] R27, R[illegible] R47
30	ISTR PAD FOR AR2, A[illegible]5
31	ISTR PAD FOR AR1, AR3, AR4, AR6, AR7
32	
33	U1
34	R55
35	R28
36	C30, C34
37	R38, R45
38	R6, R7, R34, R35
39	R12

22

SEE P/L

GEN. QUAL. SPEC. 1163 2643 AND TITLE BLOCK LIMITS APPLY UNLESS OTHERWISE SPECIFIED | SCALE NONE

HOLE DIAMETER TOLERANCES | MATERIAL | FINISH | TOLERANCES

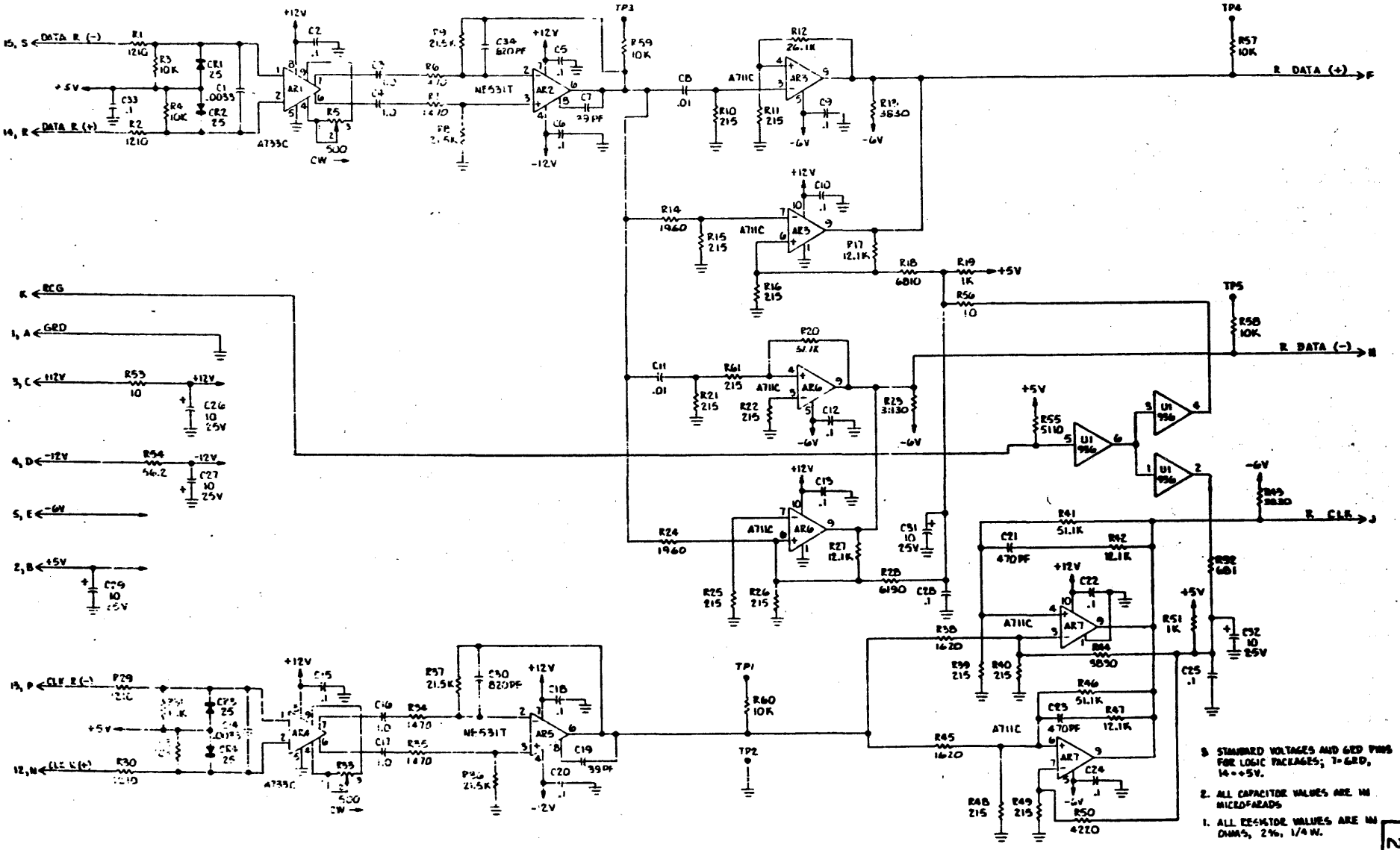
Q.A. [signature] 1/24/74
ENG [signature] 1/24/74
DRAWN [signature] 1/23/74
CHKD. P. Shay 1/24/74
PROJ [signature]
APPD [signature]

Burroughs Corporation
WESTLAKE PLANT
U.S. AMERICA
WESTLAKE VILLAGE, CALIFORNIA 91361

CD ASSY, NRZ READ

D-2048 2253 | A

SHEET 1 OF 1


D-2046 2818 E
15, S DATA R (-)
14, R DATA R (+)
+5V
AT33C
CW
NE531T
AT11C
R DATA (+)
R DATA (-)
R CLK
K RCG
1, A GRD
3, C +12V
4, D -12V
5, E -6V
2, B +5V
13, P CLK R (-)
12, N CLK R (+)
TP1
TP2
TP3
TP4
TP5
NOTES: UNLESS OTHERWISE SPECIFIED
1. ALL RESISTOR VALUES ARE IN OHMS, 2%, 1/4 W.
2. ALL CAPACITOR VALUES ARE IN MICROFARADS
3. STANDARD VOLTAGES AND GND PINS FOR LOGIC PACKAGES; 7=GND, 14=+5V.
Burroughs Corporation
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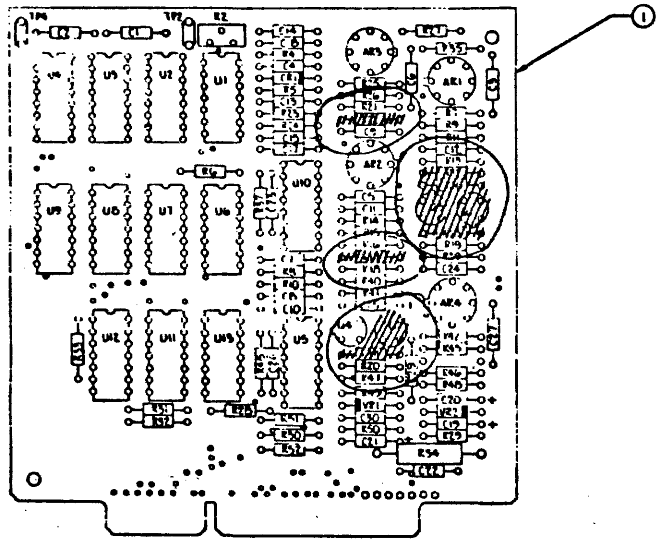
WESTLAKE VILLAGE CALIFORNIA 91361
WESTLAKE PLANT
U.S. AMERICA
SCHEM - NRZ READ
CTD 150
D-2046 2818 E
1 OF 1
23

D-2047 6271 A

REVISIONS				
A	[illegible]	M.G.		

RELEASED



ITEM NO.	REFERENCE DESIGNATIONS
3	U6, U8
4	AR1, AR2, AR3
5	U11, U12
6	U1, U13
7	U7, U9
8	U2, U3, U4
9	U5, U10
10	C19, C20, C21, C25
11	C1, C2, C3, C5, C6, C9, C10, C14, C17, C22, C24, C27, C29, C30
12	C4
13	C8, C11, C12, C15, C18
14	C7, C13
15	VR2
16	C21
17	TSTR PAD FOR AR1, AR2, AR3, AR4
18	TSTR PAD FOR [illegible], Q4
19	R13, R37, R15
20	[illegible]
21	R6, R46
22	R24
23	R5, R8, R23
24	R10
25	R19, R20, R39
26	R4
27	R30, [illegible], R51
28	R34
29	R2
30	TP2, TP4
31	[illegible]
32	R28, R31, R32, R33, [illegible]
33	R15, R18, R21
34	R35
35	[illegible] R11, R16, R27
36	[illegible]
37	R42
38	R41
39	R40, [illegible]
40	R53
41	R47, R48
42	R43
43	Q4
44	C24
45	VR1
46	C23, C26
47	[illegible]
48	C27
49	[illegible]
50	R15, R9, R26
51	R14, R7, R25
52	[illegible]
53	R52

24

ECO 10226 A
Pg. - 4

GEN. QUAL. SPEC. 1103 5543 AND TITLE BLOCK LIMITS APPLY UNLESS OTHERWISE SPECIFIED

HOLE DIAMETER TOLERANCES	
.013 — .125	+.004 −.001
.126 — .250	+.005 −.001
.251 — .500	+.005 −.001
.501 — .750	+.006 −.002
.751 — 1.000	+.008 −.002
1.001 — 2.000	+.010 −.003

MATERIAL

FINISH

TOLERANCES

DRAWN M. Larzin 6-16-73

CHKD. P. SHAY 6/26/73

PROJ. 6-26-73

APPD. 6-26-73

Barroughs Corporation

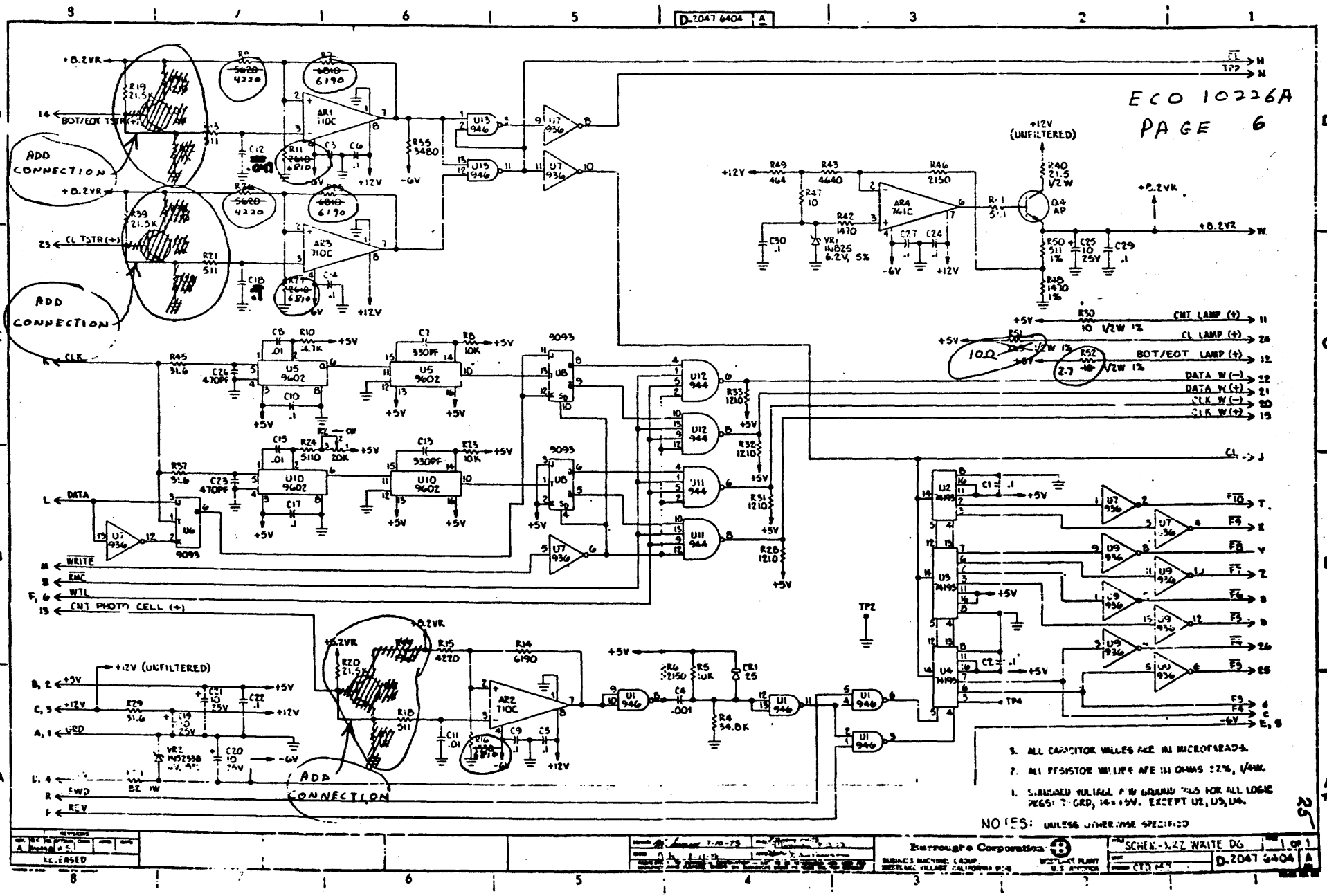
WESTLAKE PLANT U.S. AMERICA

WESTLAKE VILLAGE, CALIFORNIA 91361

PROPRIETARY TO BURROUGHS CORPORATION AND NOT TO BE REPRODUCED, USED OR DISCLOSED EXCEPT AS AUTHORIZED IN WRITING

CD, NRZ WRITE DB

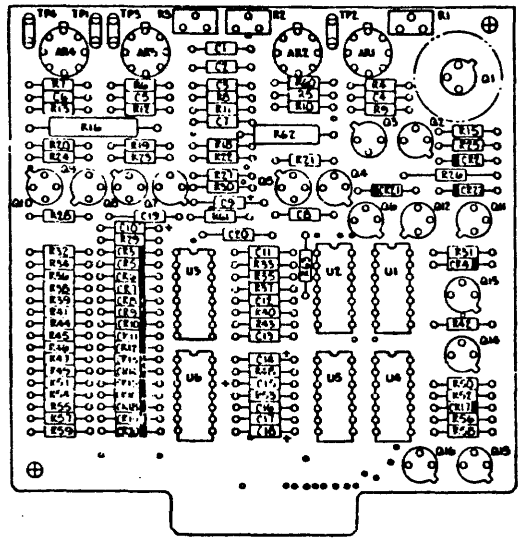
D-2047 6271 A


D-2047 6404 A
ECO 10226A
PAGE 6
ADD CONNECTION
ADD CONNECTION
ADD CONNECTION
+8.2VR
+12V (UNFILTERED)
BOT/EOT TSTR(+)
CL TSTR(+)
CLK
DATA
WRITE
RMC
WTL
CNT PHOTO CELL (+)
FWD
REV
CNT LAMP (+)
CL LAMP (+)
BOT/EOT LAMP (+)
DATA W(-)
DATA W(+)
CLK W(-)
CLK W(+)
TP2
TP4
NOTES: UNLESS OTHERWISE SPECIFIED
1. ALL CAPACITOR VALUES ARE IN MICROFARADS.
2. ALL RESISTOR VALUES ARE IN OHMS ±2%, 1/4W.
3. STANDARD VOLTAGE R/W GROUND PINS FOR ALL LOGIC PKGS: 7 GRD, 14 +5V. EXCEPT U2, U3, U4.
RELEASED
Burroughs Corporation
SCHEM-WRT WRITE DG
D-2047 6404 A
1 OF 1

D-2026 3539 A

REVISIONS: A — RELEASED - REPLACES 2048 5170 PER ECO 10142A

ITEM NO.	REFERENCE DESIGNATION
65	R62
66	Q2



ITEM NO.	REFERENCE DESIGNATION
2	U2, U4
3	U1
4	U5, U6
5	U3
6	AR1, AR2, AR3, AR4
7	C6
8	C1, C2, C3, C4, C5, C7, C8, C11, C12, C13, C16, C17, C19
9	C9
10	C14, C15, C18
11	CR3, CR4, CR5, CR6, CR7, CR8, CR9, CR10, CR11, CR12, CR13, CR14, CR15, CR16, CR17, CR18, CR19, CR20
12	
13	CR2, CR21, CR22
14	R1, R2, R3
15	R41
16	R45
17	R5
18	R32
19	R47
20	R44
21	R46, R59
22	R55, R57
23	R23
24	R51, R54
25	R38, R49
26	R34, R36
27	R32
28	R48, R53
29	R37, R43
30	R42, R52
31	R31, R50, R56, R58, R61
32	R27
33	R11
34	R4
35	R8
36	R35, R40, R15
37	R25, R30
38	R6
39	R13, R20
40	R12, R29
41	R7
42	R9, R19, R24, R33
43	R18
44	R21, R28
45	R10
46	R22
47	
48	R26
49	R16
50	Q4, Q6, Q7, Q9
51	Q1, Q11, Q12, Q13, Q14, Q15, Q16
52	Q5, Q8, Q10
53	Q3
54	TSTR PAD FOR Q2, Q4, Q5, Q6, Q7, Q8, Q9, Q10
55	TSTR PAD FOR Q1, Q3, Q11, Q12, Q13, Q14, Q15, Q16
56	TSTR PAD FOR AR1, AR2, AR3, AR4
57	HEATSINK FOR Q1
58	TP1, TP2, TP3, TP4
59	R60
60	C10
61	R63
62	C20

26

SEE P/L

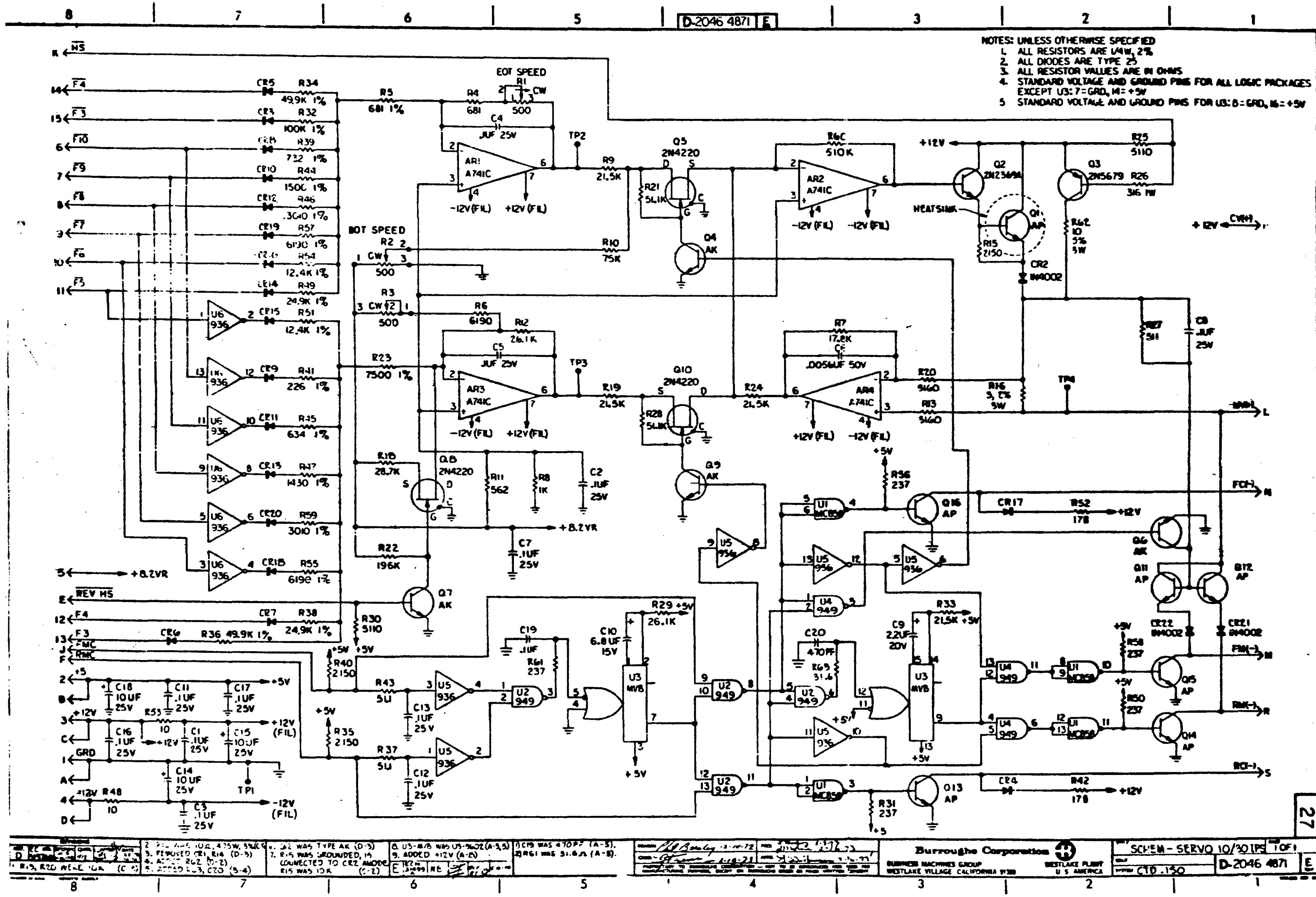
SCALE: NONE

DRAWN 6-5-74
CHKD
Q.A. 6-14-74
MFG.

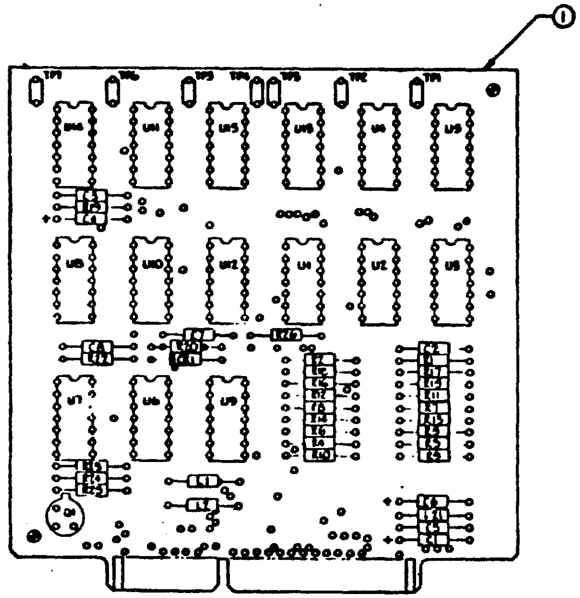
Burroughs Corporation
WESTLAKE VILLAGE, CALIFORNIA
WESTLAKE PLANT U S AMERICA

PD - SERVO 10/30 IPS

D-2026 3539 A


D-2046 4871 E
NOTES: UNLESS OTHERWISE SPECIFIED
1. ALL RESISTORS ARE 1/4W, 2%
2. ALL DIODES ARE TYPE 25
3. ALL RESISTOR VALUES ARE IN OHMS
4. STANDARD VOLTAGE AND GROUND PINS FOR ALL LOGIC PACKAGES EXCEPT U3: 7=GRD, 14=+5V
5. STANDARD VOLTAGE AND GROUND PINS FOR U3: 8=GRD, 16=+5V
EOT SPEED
BOT SPEED
HEATSINK
Burroughs Corporation
BUSINESS MACHINES GROUP
WESTLAKE VILLAGE CALIFORNIA
WESTLAKE PLANT
U S AMERICA
SCHEM - SERVO 10/30 IPS
1 OF 1
CTD 150
27

D-2047 1934 A



ITEM NO.	REFERENCE DESIGNATION
3	U1, U2, U3, U11
4	U6, U7, U8, U9, U10
5	U4, U5, U13, U15
6	U12
7	U14
8	C1, C4, C6
9	C2, C3, C5, C8
10	C7
11	CR1
12	L1, L2
13	R1, R3, R5, R7, R9, R11, R13, R15, R17
14	R2, R4, R6, R8, R10, R12, R14, R16, R18
15	R20, R21, R24
16	R19
17	R22
18	R23, R25
19	TP1 THRU TP7
20	Q1
21	TSTR PAD, Q1
22	R26

28

SEE P/L

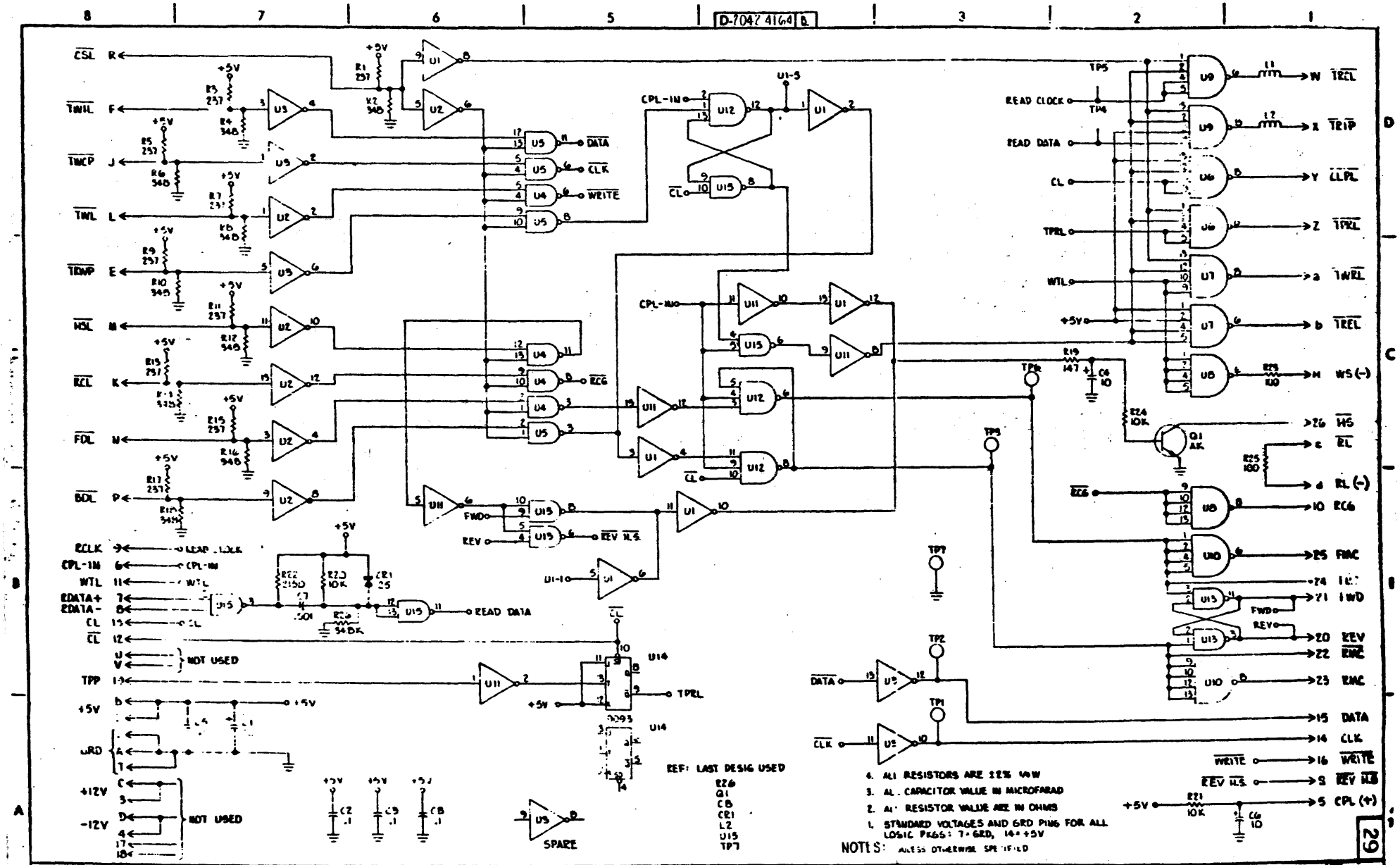
Burroughs Corporation

BUSINESS MACHINES GROUP
WESTLAKE VILLAGE, CALIFORNIA

WESTLAKE PLANT
U S AMERICA

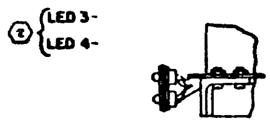
CD - LOGIC 10/30 ...

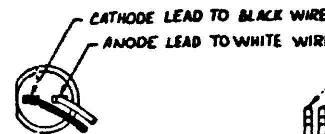
D-2047 1934 A


D-7047 4164 B
CSL
TWHL
TWCP
TWL
TRMP
WSL
RCL
FDL
BDL
RCLK
CPL-IN
WTL
RDATA+
RDATA-
CL
TPP
+5V
uRD
+12V
-12V
READ DATA
NOT USED
SPARE
DATA
CLK
WRITE
REV H.S.
CPL (+)
READ CLOCK
READ DATA
TPREL
FWD
REV
NOTES:
4. ALL RESISTORS ARE ±2% ¼W
3. ALL CAPACITOR VALUE IN MICROFARAD
2. ALL RESISTOR VALUE ARE IN OHMS
1. STANDARD VOLTAGES AND GRD PINS FOR ALL LOGIC PKGS: 7=GRD, 14=+5V
REF: LAST DESIG USED
RZ6
Q1
CB
CR1
LZ
U15
TP7
2. CONNECTED +5V TO U6-13, U7-14 2, U9-10
Burroughs Corporation
BUSINESS MACHINES GROUP
WESTLAKE VILLAGE CALIFORNIA 91361
WESTLAKE PLANT
U.S. AMERICA
SCHEM- LOGIC (G/90 IPS)
(TD150)
D-2042 4164 B
29

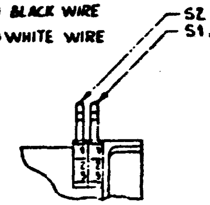
30

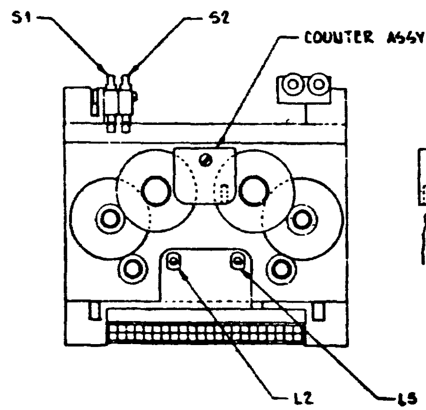
REVISIONS
A
RELEASED
B
USED ... (D 5) ADDED NOTE 2.
C
1 ADDED DETAIL "B" (B-3) 2 CHANGED VERTICAL ... OF HEAD ASSY. POSIT ON PHOTOCELL (B-6,7,8) 3 TITLE IS WIRING DIAGRAM - CASS DG. WAS WIRING DIA... CASSETTE
D DAV PS
1) ADDED PC3 (B-6) AND L5 (B-5) TO DIAGRAM AND WIRE LIST. 2) LED 3 AND LED 4 WERE L3 AND L4 (D-5).
E
1. NOTE 1 WAS: FOR SYSTEM INSTALLATION ONE OR BOTH WIRES FROM P1-21 AND P1-22 TO E1 MAY BE REMOVED DEPENDING ON SYSTEM REQMTS.

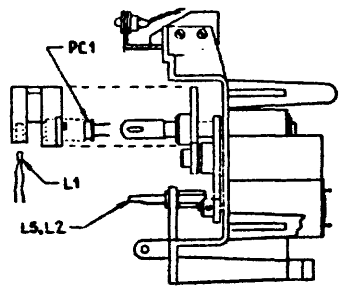


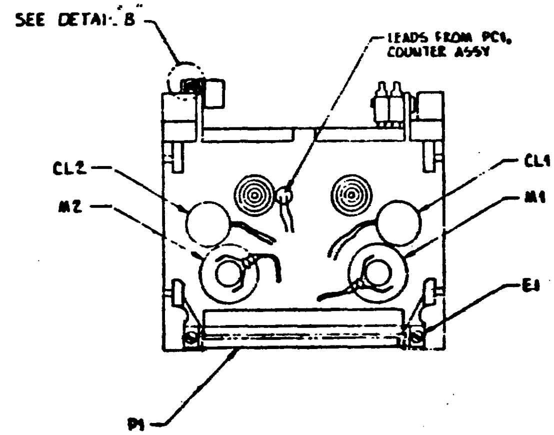


DETAIL "B"
2 PLACES

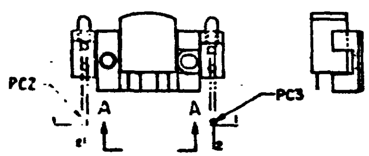








VIEW A-A
(DUAL GAP HEAD)



HEAD ASSY & POSITION PHOTOCELL
SCALE 2/1

WIRE LIST

FROM	TO	FROM	TO
S1-1	P1-19	L5-1	P1-5
S1-2	P1-X	L5-2	P1-E
S1-3	P1-W	PC3-1	P1-6
S2-1	P1-20	PC3-2	P1-F
S2-2	P1-Z		
S2-3	P1-Y		
L1-1	P1-R		
L1-2	P1-14		
L2-1	P1-13		
L2-2	P1-P		
PC1-1	P1-N		
PC1-2	P1-12		
PC2-1	P1-11		
PC2-2	P1-M		
CL1-1	P1-C		
CL1-2	P1-3		
CL2-1	P1-B		
CL2-2	P1-2		
M1-RED	P1-4		
M1-BLK	P1-D		
M2-RED	P1-A		
M2-BLK	P1-1		
E1	P1-21		
E1	P1-22		
CAT LED3-BLK	P1-8		
AN LED3-WHT	P1-18		
CAT LED4-BLK	P1-16		
AN LED4-WHT	P1-10		

① EACH WIRE TO BE LUGGED SEPARATELY (E1)

② (LED3, LED4)

2 CH. DUAL GAP HEAD FROM	TO	PART NO.
E-BLK	P1-5	B-2046 5563
G-WHT	P1-T	
SHIELD	P1-15	
F-RED	P1-U	B-2046 5571
H-YEL	P1-V	
SHIELD	P1-11	
C-RED	P1-H	B-2046 5589
A-ORN	P1-J	
SHIELD	P1-7	
D-GRN	P1-K	B-2046 5555
B-BRN	P1-L	
SHIELD	P1-9	

NOTES:

② ITEMS INDICATED ARE OPTIONAL WITH TM 2046 2966.

① IN PANEL MOUNTING APPLICATIONS, ... THE CONNECTION FROM PIN ... TO CHA... A SEPARATE GROUNDING ... CONNECTION E1 TO A SEPARATE ... MUST BE ADDED BY USER.

FOR USE WITH DUAL GAP HEAD

GEN. QUAL. SPEC. 1103 8643 AND TITLE BLOCK LIMITS APPLY UNLESS OTHERWISE SPECIFIED | SCALE 1/1

HOLE DIAMETER TOLERANCES

DRAWN W. Lucas 5-5-72 | PROJ ... 5-6-72

CHKD W. Lucas 5-5-72 | APPD ... 5-6-72

Burroughs Corporation

BUSINESS MACHINES GROUP
WESTLAKE VILLAGE CALIFORNIA

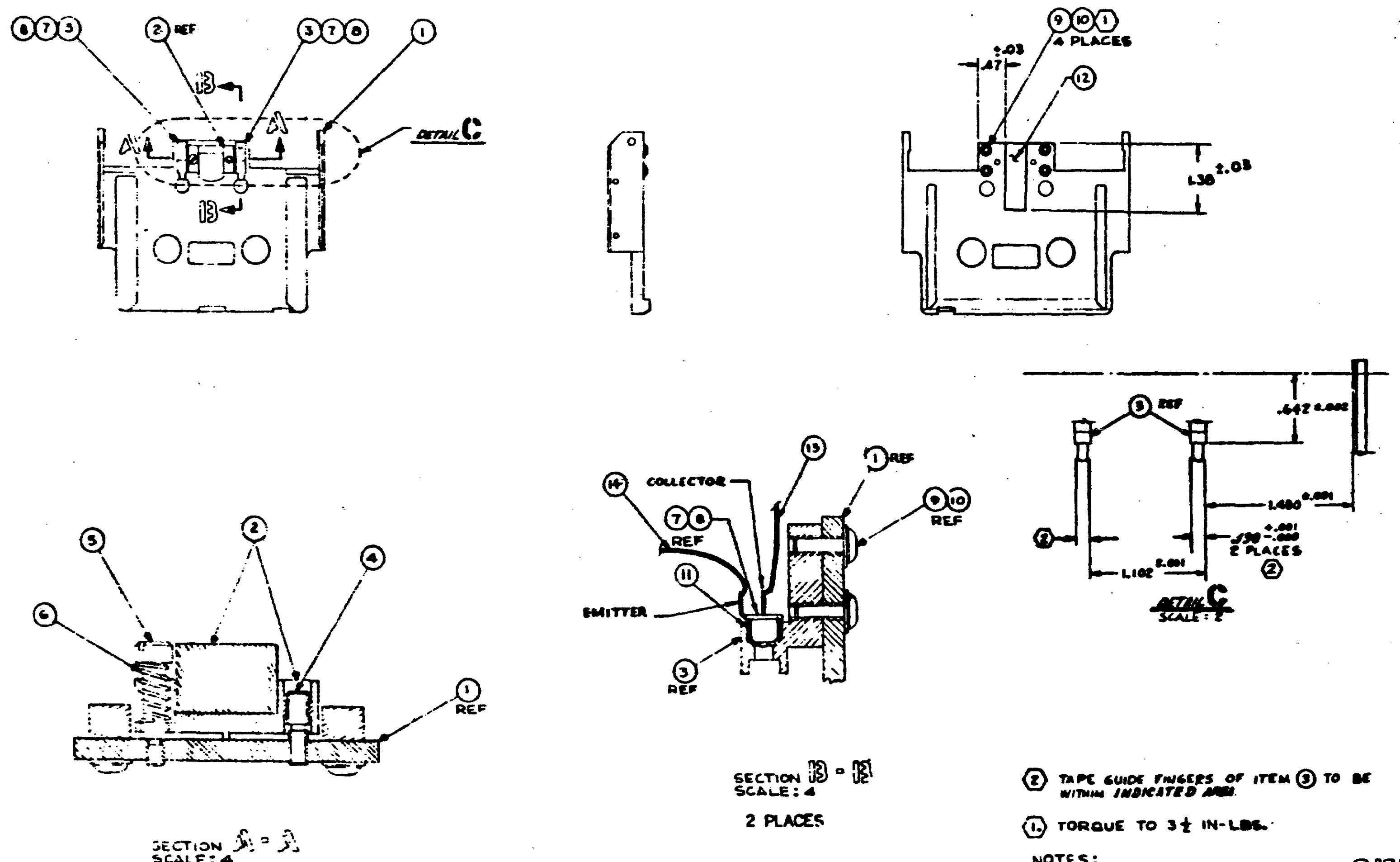
WIRING DIAGRAM - CASS DG | D-2042 5893 | E

D-20269213 A

REVISIONS

A GO

-RELEASED-



2 TAPE GUIDE FINGERS OF ITEM 3 TO BE WITHIN *INDICATED AREA*.

1. TORQUE TO 3½ IN-LBS.

NOTES:

31

SEE P/L

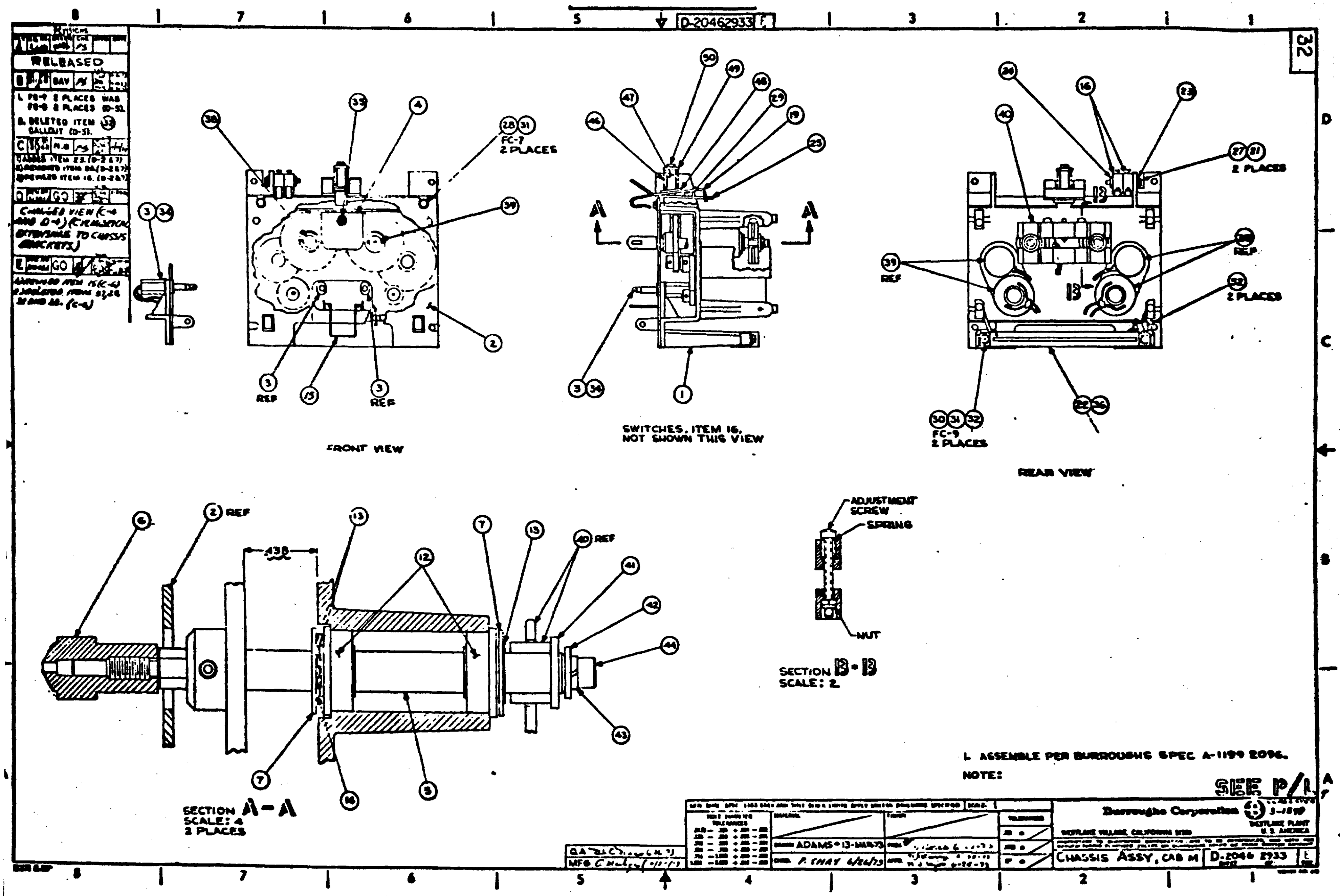
Burroughs Corporation

WESTLAKE VILLAGE, CALIFORNIA

WESTLAKE PLANT U.S. AMERICA

CARRIAGE, HD ASSY DG

D 2026 9213 A


D-20462933 E
32
RELEASED
1. FS-9 2 PLACES WAS FS-8 2 PLACES (D-3).
2. DELETED ITEM 33 CALLOUT (D-5).
FRONT VIEW
FC-7 2 PLACES
SWITCHES, ITEM 16, NOT SHOWN THIS VIEW
REAR VIEW
2 PLACES
FC-9 2 PLACES
REF
SECTION A-A
SCALE: 4
2 PLACES
.438
ADJUSTMENT SCREW
SPRING
NUT
SECTION B-B
SCALE: 2
1. ASSEMBLE PER BURROUGHS SPEC A-1199 2096.
NOTE:
SEE P/L
Burroughs Corporation
WESTLAKE VILLAGE, CALIFORNIA
WESTLAKE PLANT
U. S. AMERICA
ADAMS 13-MAR-73
CHASSIS ASSY, CAB M
D-2046 2933

Burroughs Corporation
COMPUTER SYSTEMS GROUP
DOWNINGTOWN PLANT
DOWNINGTOWN, PENNSYLVANIA 19335

NUMBER	REV
2608 1869	A

TITLE: ACU/HDB WIRE STRAP MODULE MODIFICATION SPECIFICATION

PREPARED BY	APPROVED BY	ORIGINAL RELEASE DATE	PAGE
J. LOVRENCEVIC	L. SHAPIRO H. B. MARX	5-25-76	1 OF 4

2608 1869

REVISIONS

LEVEL	DESCRIPTION	DATE	APPROVED
A	Initial Release ER91Rev54		