

**DRAG RACE TIMING DISPLAY
MODEL CH-24-DS**

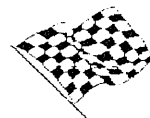
INSTALLATION & SERVICE MANUAL

ED#4474

Rev. 8 - 01October1997

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CHRONDEK, INC.

World Standard of MotorSports Timing

Chrondek is a subsidiary of Daktronics, Inc.

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SECTION 1: INTRODUCTION

The drawing on the next page shows a complete Chrondek CH-24-DS display, consisting of three sections: five-digit speed (MPH) display, five-digit elapsed time (ET) display, and Adv/Sponsor Panel for advertising or drag strip logo. A typical installation includes two of these displays, one for each lane. The sponsor panel, if included, on either one or both displays may be painted or backlit. Each display can be comprised of only the five-digit MPH section, both digit sections, or all three sections. If only the single five-digit MPH section is used, the latest versions of the Chrondek C-33 timer can display the dial-in speed and elapsed time alternately on the same display.

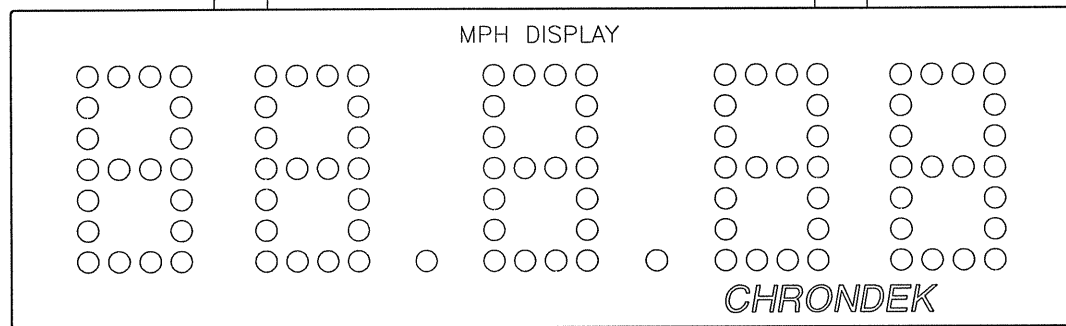
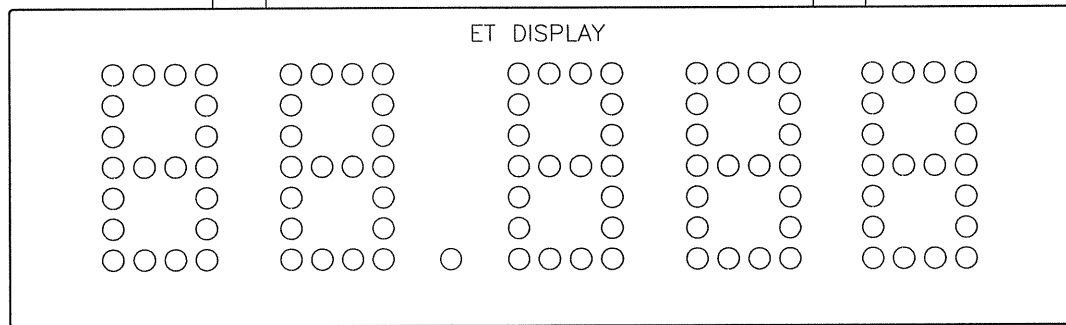
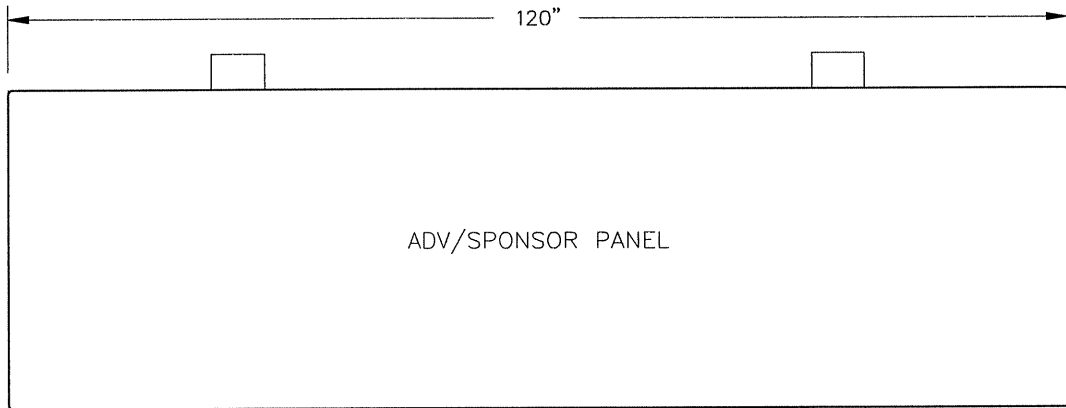
This manual covers installation of the CH-24-DS display and provides information for servicing the digits and wiring. Setup of other control equipment or operation of the C-33 timer are not covered in this manual.

The following table shows the approximate weights of the individual sections of the CH-24-DS:

Section	Uncrated Weight (lbs)	Crated Weight (lbs)
5-Digit ET Display	130	155
5-Digit MPH Display	140	165
Adv/Sponsor Panel	150	175

IMPORTANT SAFEGUARD

DISCONNECT POWER WHEN THE DISPLAY IS NOT IN USE, OR WHEN SERVICING. PROLONGED POWER-ON MAY SHORTEN THE LIFE OF ELECTRONIC COMPONENTS.



UP TO 24" (MAX.)

36" TYP

OVERALL DIMENSIONS:
 36" H x 120" W x 11" D PER SECTION
 (UP TO 24" SPACE BETWEEN SECTIONS)

DIGITS ARE 24" HIGH, 4 x 7 LAMP MATRICES.

DIGIT LAMPS ARE 25W FROSTED, MED. BASE.

POWER REQUIREMENTS: 120/240V, 25A CIRCUIT.

MAXIMUM POWER DEMAND BY SECTION IS:
 ADV/SPONSOR DISPLAY.....480W
 ET DISPLAY.....2525W
 MPH DISPLAY.....2550W

6	21DEC94	ADDED DIGIT TO RIGHT OF DECIMAL ON ET DISPLAY; DECIMAL ADDED BETWEEN 2ND AND 3RD DIGITS OF MPH DISPLAY	JJO		DAKTRONICS, INC. BROOKINGS, SD 57006	
5	12 JUN 92	CHANGED FROM "B" TO "A" SIZE DWG. CHANGED "MS" TO "CH" IN MODEL NO.	C FICK		PROJ: CHRONDEK	
4	12 JUL 90	EXPANDED ON LAMP SPEC.'S	JLH		TITLE: DISPLAY SPECIFICATIONS, CH-24-DS	
REV.	DATE	DESCRIPTION	BY	APPR.	DES. BY:	DRAWN BY: AVB DATE: 7 APR 89
					REVISION	APPR. BY: SCALE: 1=20
						1081-R08A-37604

SECTION 2: INSTALLATION

2.1 Refer to the illustration on page 2-2 for general system layout.

The general procedure for installing the CH-24-DS display is as follows.

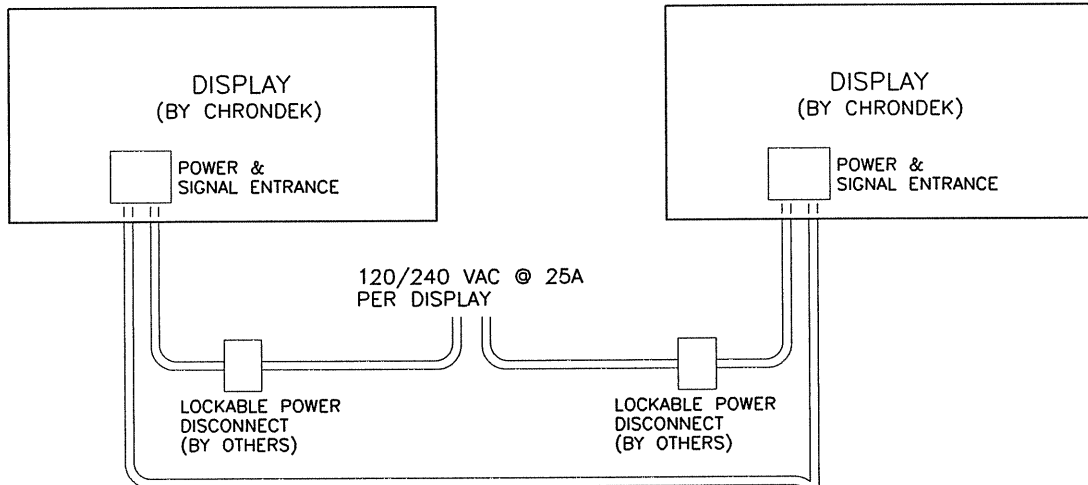
Select beam and footing recommendations from the table on page 2-3.

Dig the footing holes and install beams and footings.

Route power and signal cables to the display and control locations.

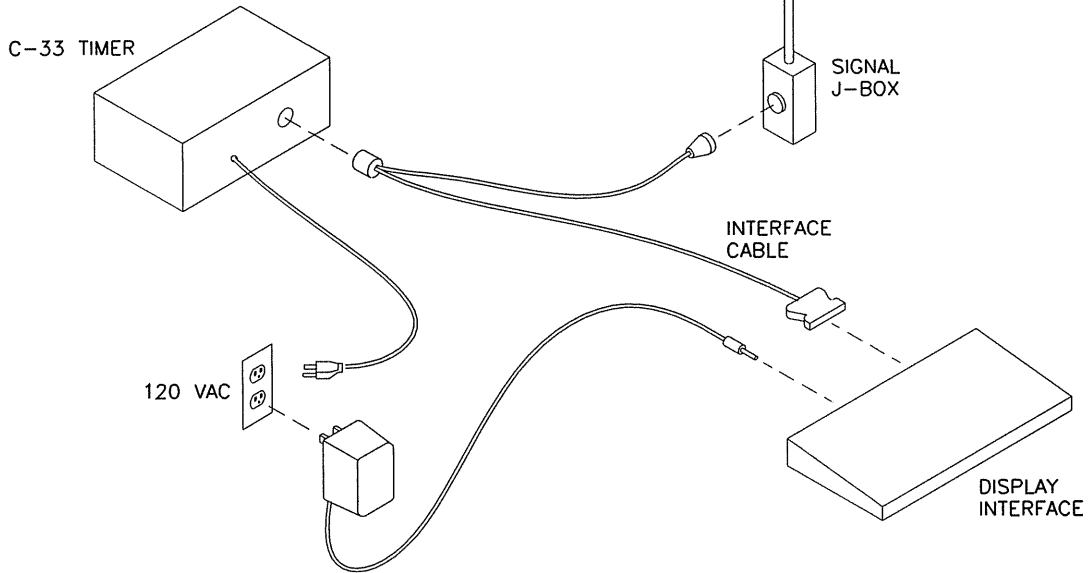
Mount the displays to the beams as described on pages 2-4 and 2-5.

Route power and signal wires into the displays as described on pages 2-6 through 2-10.



CONTROL SIGNAL CABLE
 2 PAIR, 22 OR 24 AWG.
 24 AWG UP TO 600 FT
 22 AWG UP TO 1000 FT
 IN CONDUIT (BY OTHERS) OR
 DIRECT BURIAL.

TIMING EQUIPMENT:
 (EQUIPMENT SENDING DATA
 TO TIMER IS NOT SHOWN.)



REV.	DATE	DESCRIPTION	BY	APPR.
4	12 JUN 92	CHANGED FROM "B" TO "A" SIZE DWG.	C FICK	
3	3	CHANGED SIGNAL CABLE SIZES: 22 TO 24, 18 TO 22. MADE ONLY ONE CABLE COME FROM J-BOX.	JLH	
2	21 AUG 89	CHANGED MODEL NAMES FROM "MS" TO "CH". CHANGED SIGNAL WIRE TO 18 AWG FOR CH-36-DS.	JLH	

DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: CHRONDEK			
TITLE: SYSTEM LAYOUT, CH-24-DS			
DES. BY:		DRAWN BY: AVB	
		DATE: 27 MAR 89	
REVISION	APPR. BY:	1081-R04A-37447	
	SCALE: NONE		

BEAM AND FOOTING SELECTION TABLE

DIST FROM GRND (FT)	WIND VELOCITY (MPH)	ONE - SECTION DISPLAY			TWO - SECTION DISPLAY			THREE - SECTION DISPLAY		
		BEAM SECT. REQ. @ 2	FOOTINGS		BEAM SECT. REQ. @ 2	FOOTINGS		BEAM SECT. REQ. @ 2	FOOTINGS	
			DIA	DEPTH		DIA	DEPTH		DIA	DEPTH
10	70	W6x9	2	3.5	W6x9	2	4	W6x16	2	4.5
12	70	W6x9	2	3.5	W6x9	2	4.5	W6x16	2	5
14	70	W6x9	2	64	W6x12	2	4.5	W6x16	2.5	5
16	70	W6x9	2	4	W6x12	3	4	W8x18	2.5	5.5
18	70	W6x9	2	4	W6x16	3	4	W8x18	3	5.5
20	70	W6x9	2	4.5	W6x16	3	4.5	W8x18	3	5.5
10	80	W6x9	2	4	W6x16	2	10	W8x18	3	4.5
12	80	W6x9	2	4	W6x16	2	4.5	W8x18	3	4.5
14	80	W6x9	2	4.5	W6x16	2.5	4.5	W8x18	3	5
16	80	W6x9	2	4.5	W6x18	2.5	5	W8x24	3	5.5
18	80	W6x12	2	4.5	W6x18	2.5	5	W8x24	3	5.5
20	80	W6x12	2	5	W6x18	2.5	5	W8x24	3	6
10	100	W6x9	2	4	W8x18	2.5	5.5	W8x24	3	6
12	100	W6x9	2	4	W8x24	2.5	5.5	W8x28	3	6.5
14	100	W6x12	2	4.5	W8x24	3	5.5	W8x28	3	6.5
16	100	W6x12	2	5	W8x24	3	5.5	W8x28	3	7
18	100	W6x16	2	5	W8x24	3	6	W10x30	4	7
20	100	W6x16	2.5	4.5	W10x24	3	6	W10x30	4	7

All footing dimensions are in feet.

These footing recommendations are based on an allowable soil bearing pressure of 3000 psf vertically and 300 psf/ft of depth horizontally. However, these recommendations are suggestions only and each installation should be treated individually. You must be sure that your installation complies with local codes and is suitable for your particular soil and wind conditions.

CHRONDEK ASSUMES NO RESPONSIBILITY FOR STRUCTURES INSTALLED BY OTHERS.

2.2 BEAM AND FOOTING SELECTION

The table on the previous page contains recommendations for beams and footings to support your display. The distance in the left column is from the ground to the bottom of the display. The second column is wind velocity in miles per hour. Your choice from these columns depends upon your display location.

The beams listed are W-shape (wide flange) beams which provide maximum wind load strength for the weight and cost of the beams. Choose your beams under the appropriate headings for 1-Section, 2-Section, or 3-Section displays.

The calculations for footing diameters and depths are based on the assumption that footings are in undisturbed soils, **NOT FILL SOILS**. Lateral bearing capacity of 300 psf per foot of depth in natural grade was used to derive these figures.

These footing recommendations are based on an allowable soil bearing pressure of 3000 psf vertically and 300 psf/ft of depth horizontally. However, these recommendations are suggestions only and each installation should be treated individually. You must be sure that your installation complies with local codes and is suitable for your particular soil and wind conditions. Chrondek recommends that W-sections of grade 36 steel be used for beams, and that 28-day (strength 3000 psi) concrete be used for footings.

CHRONDEK ASSUMES NO RESPONSIBILITY FOR STRUCTURES INSTALLED BY OTHERS

2.3 DISPLAY MOUNTING

The illustration on page 2-5 shows the mounting procedure for a typical two-section-display. In this illustration, the sections are mounted with no spacing between them.

NOTE: The bolts that secure the display do not go through the beams, but run along both sides of the beam to clamp the display to the beams.

Start with the bottom of the lowest section and work your way up, adding brackets and sections as you go. The five-digit ET display has wires in plastic conduit that extend into the lower section. If the five-digit ET display is included, remove the black hole plug from the top of the lower section before lifting it into place.

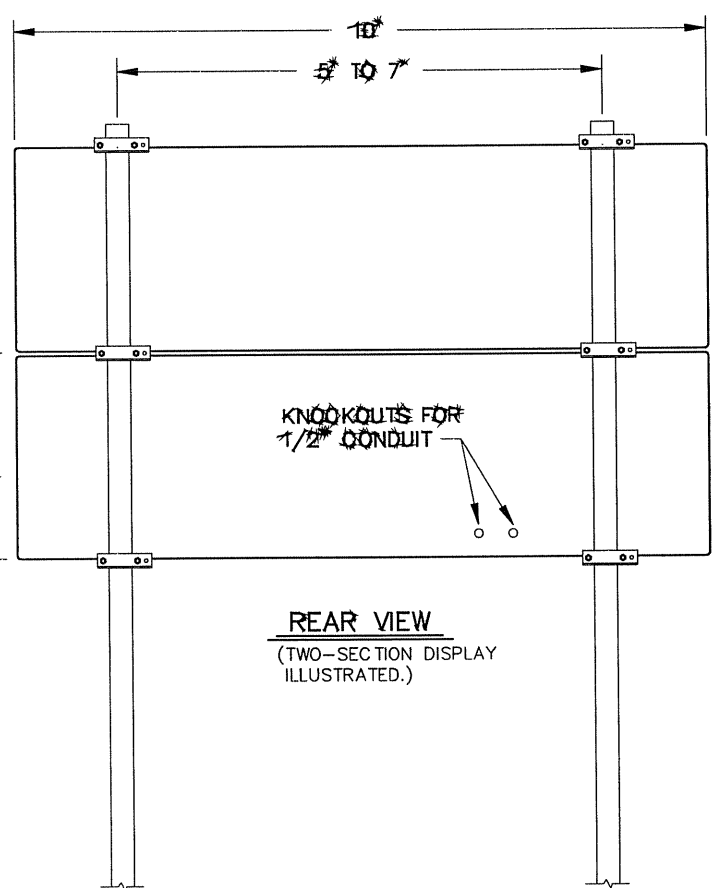
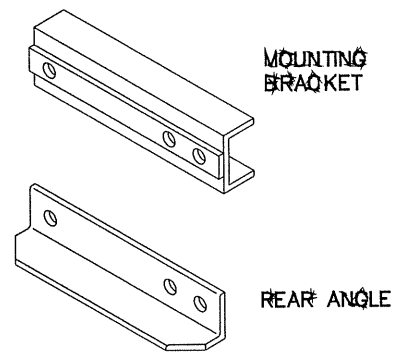
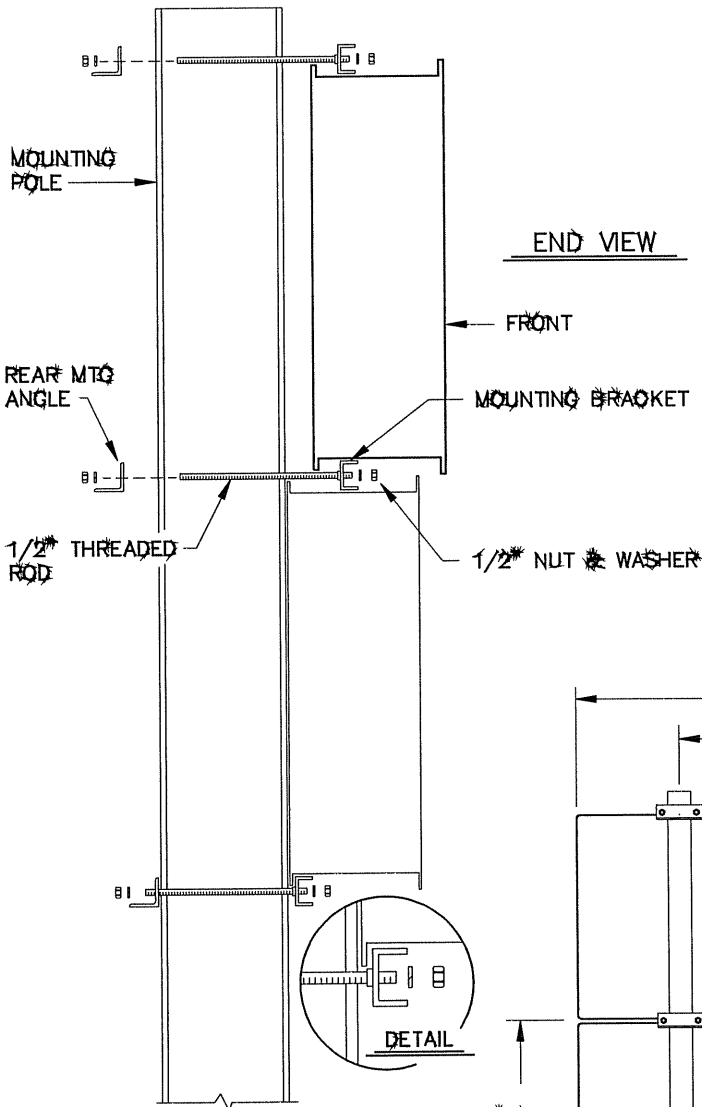
A third section is mounted on top of the second in exactly the same way as section two is mounted to section one.

Enough brackets and mounting hardware are provided to mount sections with space between them. It may be desirable to position the sections up to two feet apart. If so, mount sections beginning with the five-digit MPH display on the bottom.

Secure the bottom of section as shown in step 1 on page 2-5. Next, secure top of section with mounting brackets and tighten bolts.

Position the five-digit ET display, if included, the desired distance above the bottom section. Attach the bottom of this section to the poles with mounting brackets. Secure the top of the display with another set of brackets and tighten bolts.

If a sponsor panel is present, mount this to the poles above the previous sections in the same way.



MOUNTING PROCEDURE

1. POSITION LOWER DISPLAY SECTION AND ATTACH TO MOUNTING POLES WITH TWO MOUNTING BRACKETS, BOLTS, AND ANGLES.
2. POSITION BRACKETS AT THE TOP OF THE LOWER SECTION AND LOOSELY ATTACH OTHER HARDWARE.
3. RAISE NEXT SECTION (IF INCLUDED) AND SECURE THE BOTTOM WITH THE HARDWARE FROM STEP 2.
4. REPEAT FOR ADDITIONAL SECTIONS.
5. TIGHTEN ALL BOLTS.

DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: CHRONDEK			
TITLE: DISPLAY MOUNTING, 24 IN. DRAG RACING			
DES. BY:		DRAWN BY: AVB	DATE: 23 MAR 89
REVISION	APPR. BY:	1081-R10A-37448	
	SCALE: NONE		

1	12 JUN 92	CHANGED FROM "B" TO "A" SIZE DWG.	C FICK	
REV.	DATE	DESCRIPTION	BY	APPR.

2.4 ELECTRICAL INSTALLATION

2.4.1 Control Signal Cable

For each display, two conductors of 24 AWG, for distances up to 600 ft. or 22 AWG for distances up to 1000 ft. are required. Daktronics has the following cable available: Daktronics part no. W-1105, this is a six conductor, 24 AWG direct burial cable. Also Daktronics part number, W-1077 this is a two conductor, 22 AWG cable that must be pulled through conduit before it is buried.

At the control location, mount the signal J-box to a convenient location. Route the cables and connect to the wires leading from the connector in the cover, according to the table below and illustration on page 2--12.

At the display, open the hinged digit covering the entrance enclosure as shown on page 2-8. Remove the cover from the entrance enclosure. Refer to page 2-10 or an illustration of the components inside the enclosure. Connect the signal wires to TB31 as indicated in the table below.

Signal Connections

<u>Control End</u>		<u>Display End</u>	
<u>J-box</u>	<u>Wire</u>		<u>TB 31</u>
<u>Term. no.</u>	<u>Color</u>	<u>Display</u>	<u>Term no.</u>
1	RED	LEFT	1 (+)
2	BLACK	LEFT	2 (-)
3	WHITE	RIGHT	1 (+)
4	GREEN	RIGHT	2 (-)

2.4.2 Power Wiring

Each CH-24-DS display requires a 120/240 VAC, 25 amp circuit (two hot lines, one neutral, plus a separate earth-ground conductor) be connected to the power and signal entrance in the display from the electrical source. The maximum current drawn is 17 amps on line one (5-digit ET display), 23 amps if a backlit sponsor panel is present in addition to 5-digit ET display. The maximum current draw on line two (5-digit MPH display) is 21 amps.

Install a lockable power disconnect to the display support beam as shown on page 2-8. A three-conductor disconnect is recommended for proper protection from lightning strikes, see page 2-9. Install a copper ground rod by each of the support poles of the display. **THE DISPLAY MUST BE CONNECTED TO EARTH GROUND AT THE DISPLAY LOCATION.** This is in addition to the separate earth-ground conductor in the power cable.

Route two "hot", one "neutral", and one "ground" wire, 12 AWG from the electrical source to the entrance enclosure in the five-digit MPH display. Connect to TB41 as

shown on page 2-10. A jumper connects terminals 2 and 3 on TB41. Loosen either one of these terminals and insert the neutral wire.

2.4.3 Digit Connection for ET Display

Remove locknut from PVC conduit in the bottom of the five-digit ET display. Push plugs and cables, protruding from conduit, through the hole in the top of the five-digit MPH display. Extend conduit into the top of the five-digit MPH display. Secure conduit with the locknut.

Each plug has a number written on it. Carefully connect these plugs into the corresponding jacks on the connector plate.

2.4.4 Power Wiring for Backlit Sponsor Panel

With sponsor panel mounted to the poles, remove face panel retainer from either end of face panel. Slide face panel out of display. Run ½" conduit out of the back of the display. Run conduit into one of the knockouts below the entrance enclosure. Connect wires to sponsor panel and MPH display as shown on page 2-11.

Connect the hot wire (black) from the sponsor panel to the top of fuse F42 in the entrance enclosure. Another option is to connect a grounded 120V plug to the wires from the sponsor panel and plug this into the grounded 120V outlet labeled J41 in the entrance enclosure. Connecting the panel in this way may prevent the entrance enclosure cover from fitting properly.

2.5 CH-24-DS Win Lights Installation for Non Daktronics Supplied Win Lights

NOTE: Refer to User's Manual **ED-5469** to install Daktronics supplied win lights.

The drawing on page 2-13 describes the installation of a finish light on a CH-24DS display.

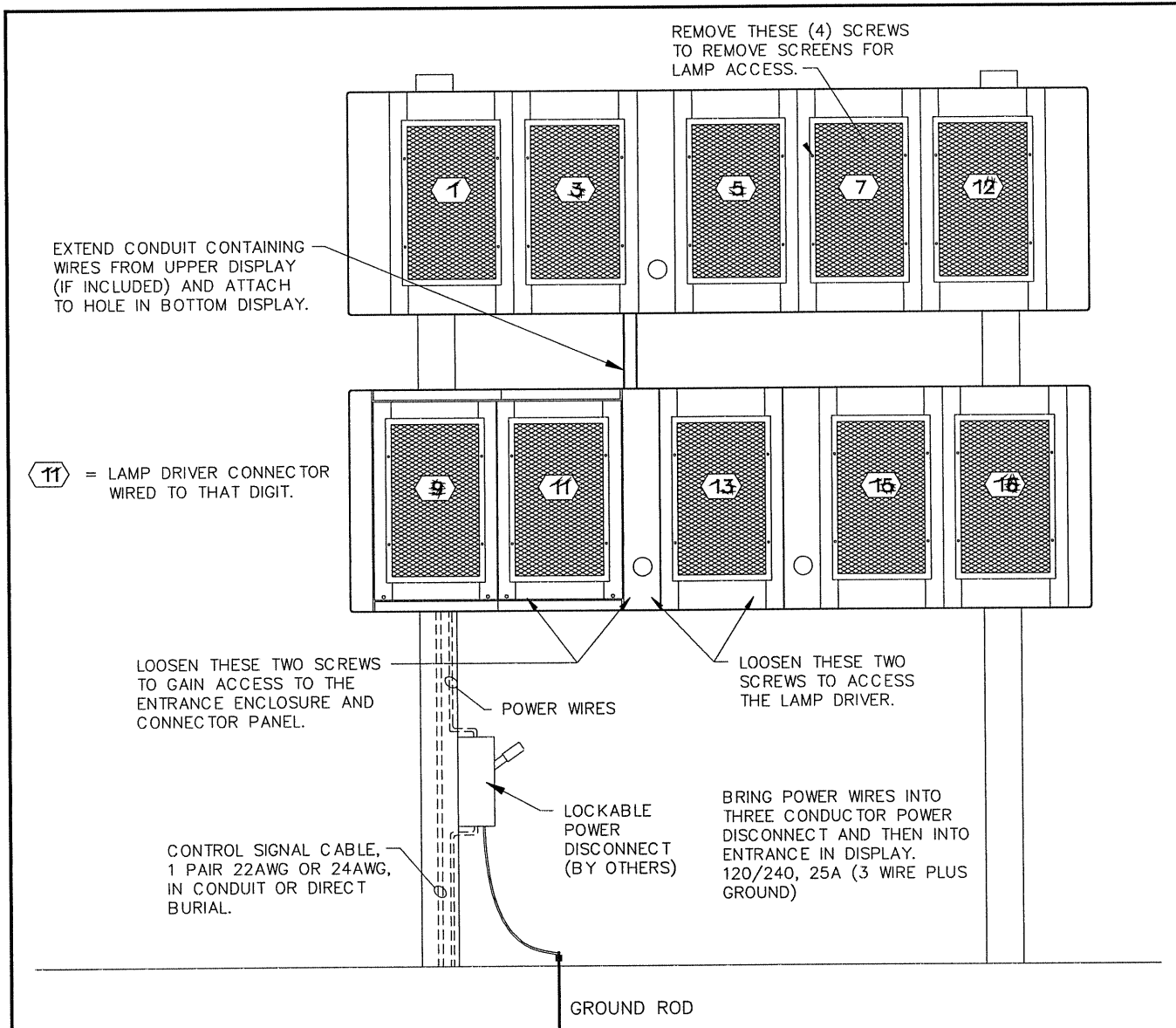
Drill a 1 1/4" diameter hole in the bottom of the 5-digit MPH display, just inside whichever pole you wish to mount the finish light on.

Loosen screws in bottom of digit number 11 and open upwards to access the connector plate.

Route cable from finish light through hole in bottom of MPH display and plug into jack #10 on the connector plate, **refer to detail B**. Coil excess cable and lay in bottom of MPH display.

Close and secure digits.

WARNING: Each lamp circuit can drive a maximum of 85 Watts. Therefore a relay may be required to drive larger loads.



11 = LAMP DRIVER CONNECTOR WIRED TO THAT DIGIT.

LOOSEN THESE TWO SCREWS TO GAIN ACCESS TO THE ENTRANCE ENCLOSURE AND CONNECTOR PANEL.

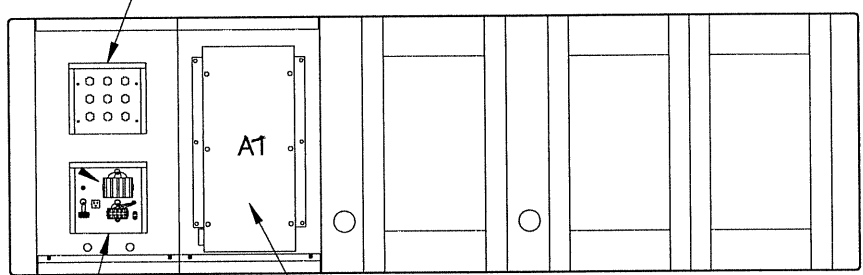
LOOSEN THESE TWO SCREWS TO ACCESS THE LAMP DRIVER.

CONTROL SIGNAL CABLE, 1 PAIR 22AWG OR 24AWG, IN CONDUIT OR DIRECT BURIAL.

BRING POWER WIRES INTO THREE CONDUCTOR POWER DISCONNECT AND THEN INTO ENTRANCE IN DISPLAY. 120/240, 25A (3 WIRE PLUS GROUND)

GROUND ROD

ROUTE CABLES FROM UPPER SECTION (IF INCLUDED) TO HERE AND CONNECT TO THESE CONNECTORS.



ENTRANCE ENCLOSURE

LAMP DRIVER IS LOCATED INSIDE THIS ENCLOSURE.

REV.	DATE	DESCRIPTION	BY	APPR.
3	21DEC94	ADDED THIRD DIGIT TO ET DISPLAY INSERTED 2ND DECIMAL BETWEEN 2ND AND 3RD DIGITS OF MPH DISPLAY	JJO	
2	15MJUL91	ADDED SAFETY DISCONNECT AND MOUNTING BEAMS.	JLH	
1	17MAY89	ADDED CABLE CONDUIT BETWEEN UPPER AND LOWER DISPLAYS.	JLH	AVB

DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: CHRONDEK DISPLAYS			
TITLE: COMPONENT LOCATIONS, CH-24-DS			
DES. BY: AVANBEMMEL	DRAWN BY: AVANBEMMEL	DATE: 23MAR89	
REVISION	APPR. BY: AVB	1081-R04A-37449	
	SCALE: 1=25		

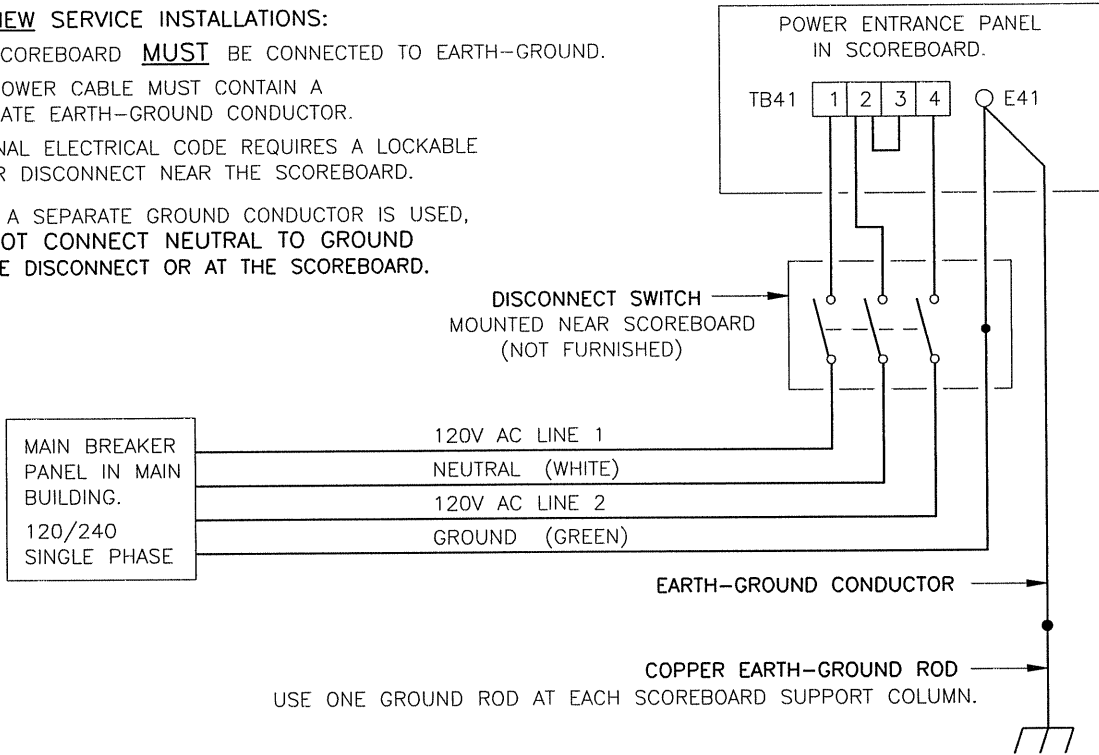
FOR NEW SERVICE INSTALLATIONS:

THE SCOREBOARD **MUST** BE CONNECTED TO EARTH-GROUND.

THE POWER CABLE MUST CONTAIN A SEPARATE EARTH-GROUND CONDUCTOR.

NATIONAL ELECTRICAL CODE REQUIRES A LOCKABLE POWER DISCONNECT NEAR THE SCOREBOARD.

WHEN A SEPARATE GROUND CONDUCTOR IS USED, DO NOT CONNECT NEUTRAL TO GROUND AT THE DISCONNECT OR AT THE SCOREBOARD.



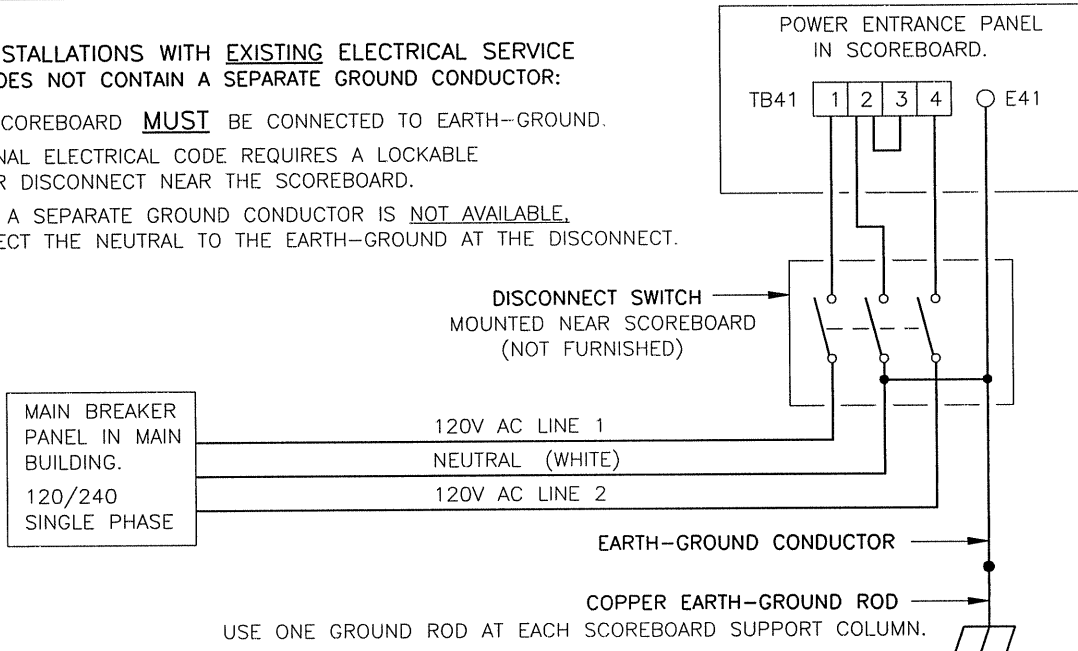
FOR LIGHTNING PROTECTION, DAKTRONICS RECOMMENDS A THREE-CONDUCTOR DISCONNECT THAT CAN BREAK BOTH HOT LINES AND THE NEUTRAL.

FOR INSTALLATIONS WITH EXISTING ELECTRICAL SERVICE THAT DOES NOT CONTAIN A SEPARATE GROUND CONDUCTOR:

THE SCOREBOARD **MUST** BE CONNECTED TO EARTH-GROUND.

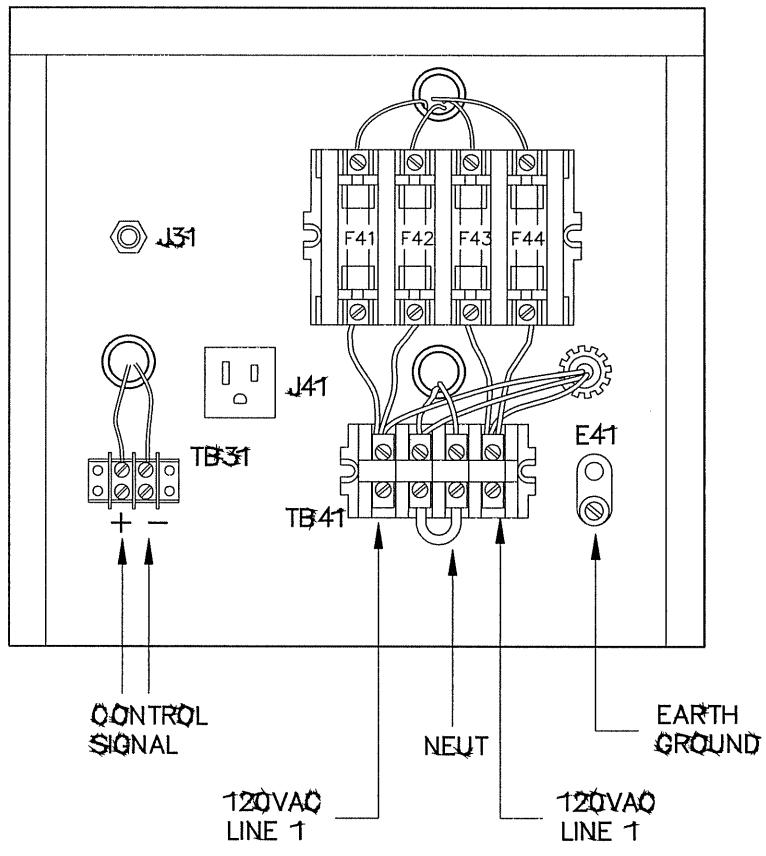
NATIONAL ELECTRICAL CODE REQUIRES A LOCKABLE POWER DISCONNECT NEAR THE SCOREBOARD.

WHEN A SEPARATE GROUND CONDUCTOR IS NOT AVAILABLE, CONNECT THE NEUTRAL TO THE EARTH-GROUND AT THE DISCONNECT.



DAKTRONICS, INC. BROOKINGS, SD 57006	
PROJ: OUTDOOR SCOREBOARDS	
TITLE: POWER WIRING AND GROUNDING	
DES. BY:	DRAWN BY: AVB DATE: 09NOV90
REVISION	APPR. BY:
	SCALE: NONE
1091-R03A-45220	

REV	DATE	DESCRIPTION	BY	APPR.
1	06MAY91	ADDED FIGURE FOR USING EXISTING SERVICE.	AVB	



DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: CHRONDEK

TITLE: ENTRANCE COMPONENTS, CH-24-DS

DES. BY: DRAWN BY: AVB DATE: 23 MAR 89

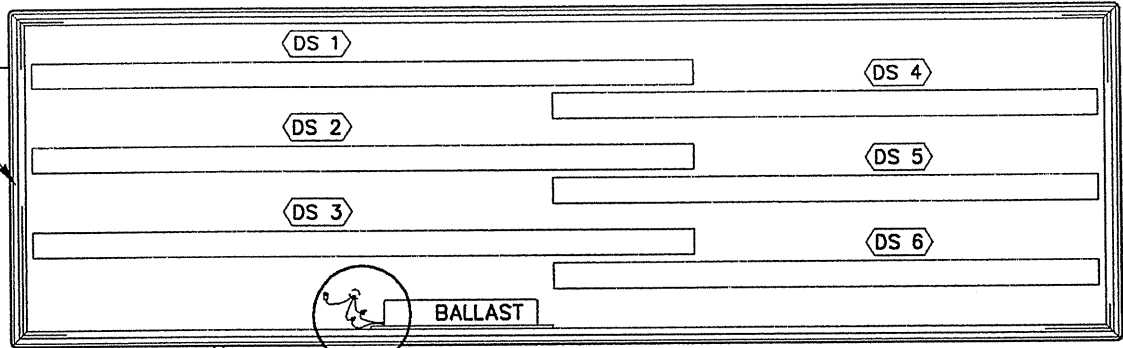
1	12 JUN 92	CHANGED FROM "B" TO "A" SIZE DWG. CHANGED "MS" TO "CH" IN DWG TITLE.	C FICK	
REV.	DATE	DESCRIPTION	BY	APPR.

REVISION	APPR. BY:
	SCALE: NONE

1081-R04A-37450

ADV/SPONSOR
PANEL

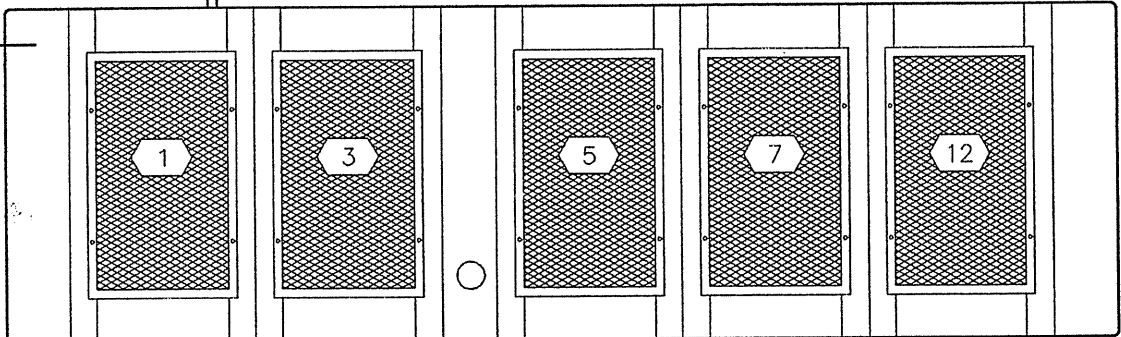
REMOVE SCREWS
TO REMOVE
RETAINER AND
SLIDE FACE OUT.



1/2" CONDUIT

SEE DETAIL "A"

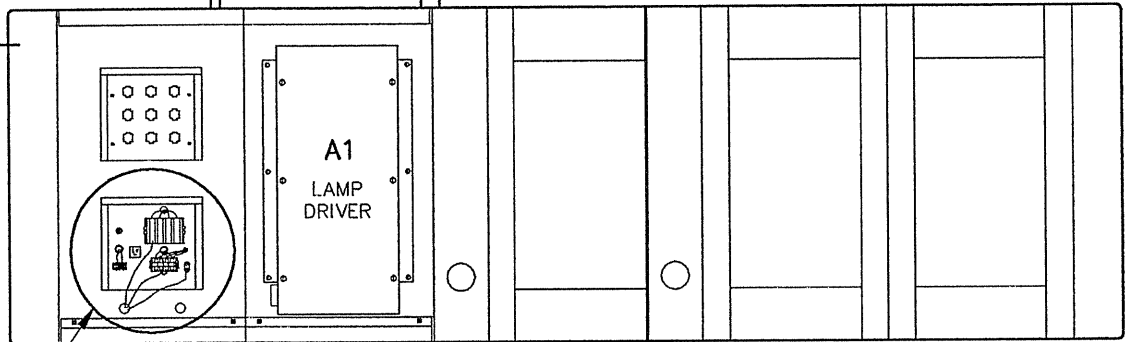
ET DISPLAY



1/2" CONDUIT

PVC CONDUIT

MPH DISPLAY



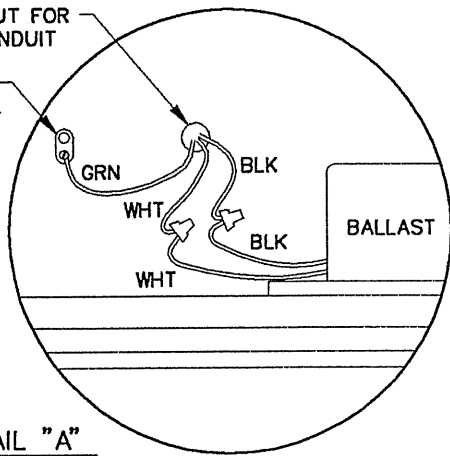
FACE OF ADV PANEL
AND HINGED DIGIT
FRAMES REMOVED TO
SHOWN COMPONENT
LOCATIONS.

SEE DETAIL "B"

FRONT VIEW

KNOCKOUT FOR
1/2" CONDUIT

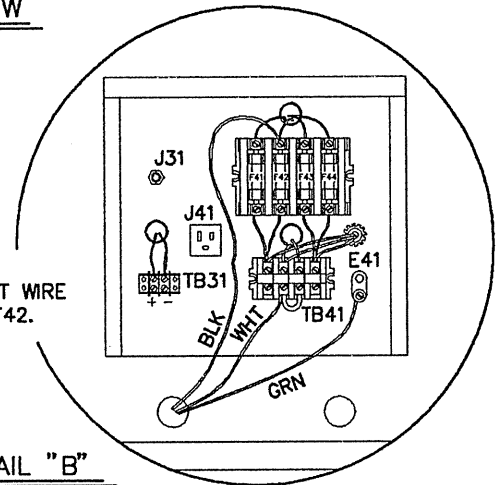
GROUND
TERMINAL



DETAIL "A"

NOTE:

CONNECT HOT WIRE
TO TOP OF F42.

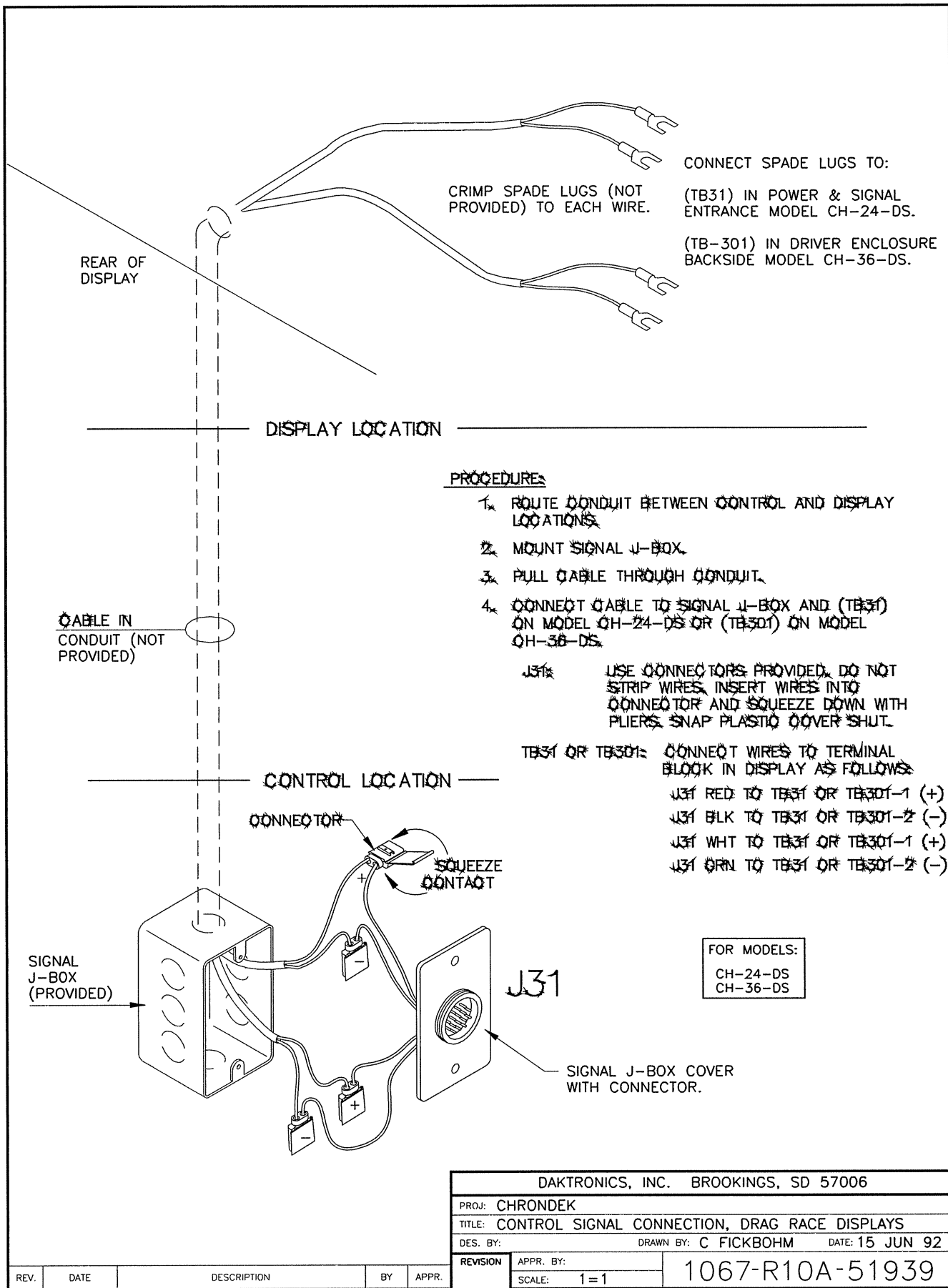


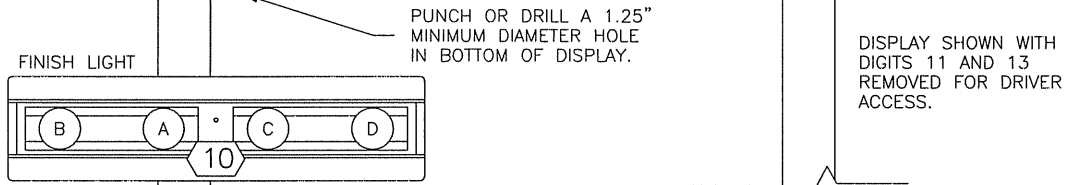
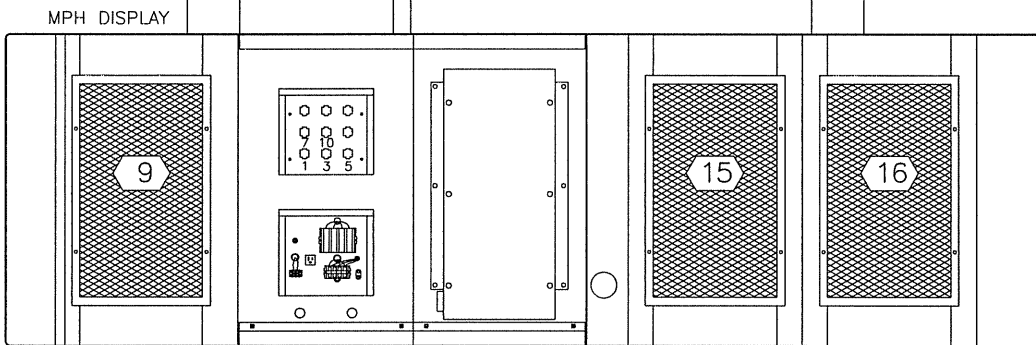
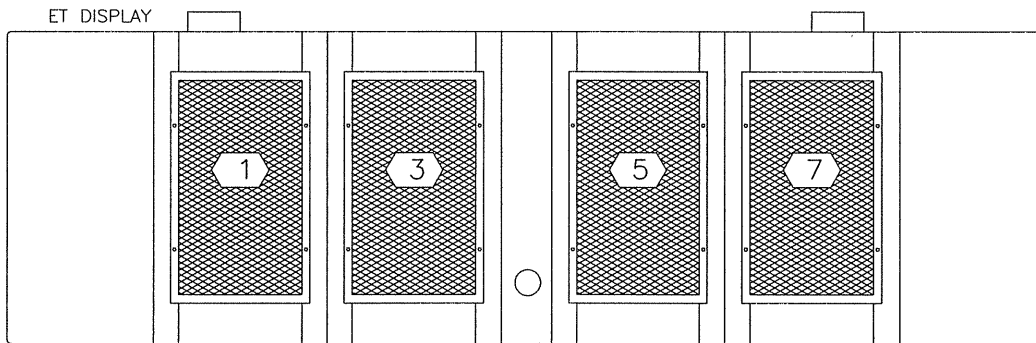
DETAIL "B"

DAKTRONICS, INC. BROOKINGS, SD 57006

REV.	DATE	DESCRIPTION	BY	APPR.
2	21DEC94	ADDED DIGIT TO RIGHT SIDE OF ET DISPLAY. ADDED DECIMAL AND MOVED HINGED DIGITS OF MPH DISPLAY.	JJU	
1	12 JUN 92	CHANGED FROM "B" TO "A" SIZE DWG.	C FICK	

PROJ: CHRONDEK	DATE: 6 JUN 89
TITLE: INSTALLATION, ADV-24DS-BL	
DES. BY:	DRAWN BY: JLH
APPR. BY:	1081-R10A-38222
SCALE: NONE	





PUNCH OR DRILL A 1.25" MINIMUM DIAMETER HOLE IN BOTTOM OF DISPLAY.

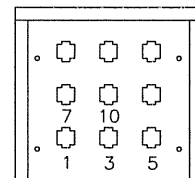
DISPLAY SHOWN WITH DIGITS 11 AND 13 REMOVED FOR DRIVER ACCESS.

ROUTE CABLE FROM FINISH LIGHT THROUGH HOLE IN BOTTOM OF MPH DISPLAY.

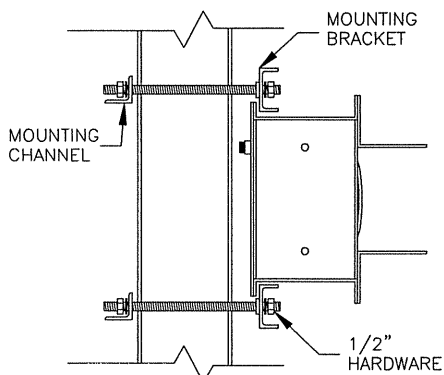
PLUG INTO JACK #10 ON CONNECTOR PLATE, SEE DETAIL B.

THE LETTER ON EACH LAMP IS THE SEGMENT WHICH THAT LAMP IS CONNECTED TO ON THE DRIVER. THE NUMBER ON THE DIGITS AND FINISH LIGHT IS THE DRIVER CONNECTOR IT IS CONNECTED TO.

MOUNT FINISH LIGHT SLIGHTLY TO THE INSIDE OF CENTER ON THE POLE SO THE POWER CABLE CLEARS THE POLE.



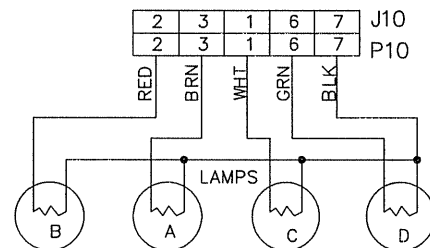
DETAIL B



DETAIL A

FINISH LIGHT MOUNTING
1=10

LAMP LETTER	LAMP COLOR	CHRONDEK PART NUMBER
A	RED	DS1186
B	BLUE	DS1187
C	GREEN	DS1185
D	AMBER	DS1184



FINISH LIGHT SCHEMATIC

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: CHRONDEK DISPLAYS

TITLE: INSTALLATION, FIN-LIGHT, CH-24-DS

DES. BY: JHEIDERSCHIEDT DRAWN BY: JHEIDERSCHIEDT DATE: 13JUL90

REVISION APPR. BY:

SCALE: 1=20

1081-R10A-43387

REV.	DATE	DESCRIPTION	BY	APPR.

SECTION 3: SERVICE

DISCONNECT POWER TO DISPLAY BEFORE SERVICING

3.1 Lamp Replacement

The primary service required by the CH-24-DS display is to replace burned-out lamps. See page 3-3 for an illustration of lamp changing. Replacement lamps are 120V, 25W frosted, medium base, available at your local store or directly from Chrondek, part number DS-1029.

The Adv/Sponsor panel uses 60 inch and 72 inch, 120V, 85W cool white fluorescent lamps, Chrondek part numbers DS-1049 and DS-1037 respectively. Refer to the top figure on page 2-11 for an illustration of how to access lamps.

Do not use lamps larger than those originally installed in the display. Using higher power lamps will likely cause fuse failures in the display and could exceed the current levels that the display's circuits can safely handle.

3.2 Lamp Driver

In the display, the task of switching lamps on and off is performed by the lamp driver. Page 2-8 shows the location of the lamp driver in the display. Page 3-4 is an illustration of the lamp driver and the fuses located in it.

The lamp driver has 21 connectors, providing power and signal inputs and outputs to digits. The functions of these connectors are as follows:

<u>Connector no.</u>	<u>Function</u>
1 - 16	Outputs to digits
17	Signal Input
18	Power input for outputs 1-8 (120V)
19	Power input for driver logic and fan (120V)
20	Power input for outputs 9-16 (120V)
24	Dim option selector

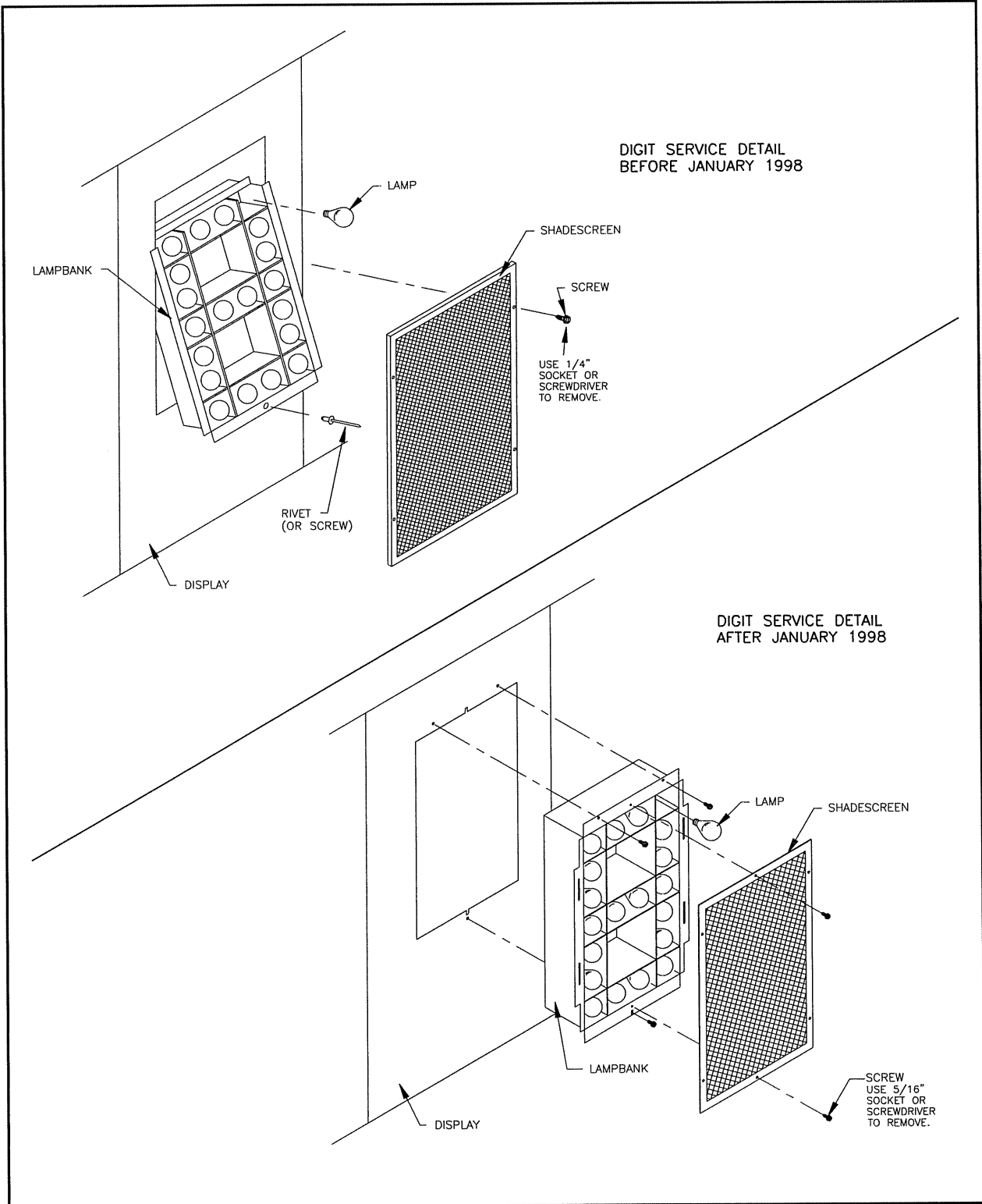
On page 2-8, the numbers on the digits refer to the lamp driver output connector wired to each digit.

3.3 Digit Segmentation

In a digit certain lamp always go on and off together. These groupings of lamps are known as "segments". Each digit has eight segments, referred by letters A through H. Page 3-5 illustrates these segments and shows which connector pin and wire color is wired to each segment.

3.4 Schematic

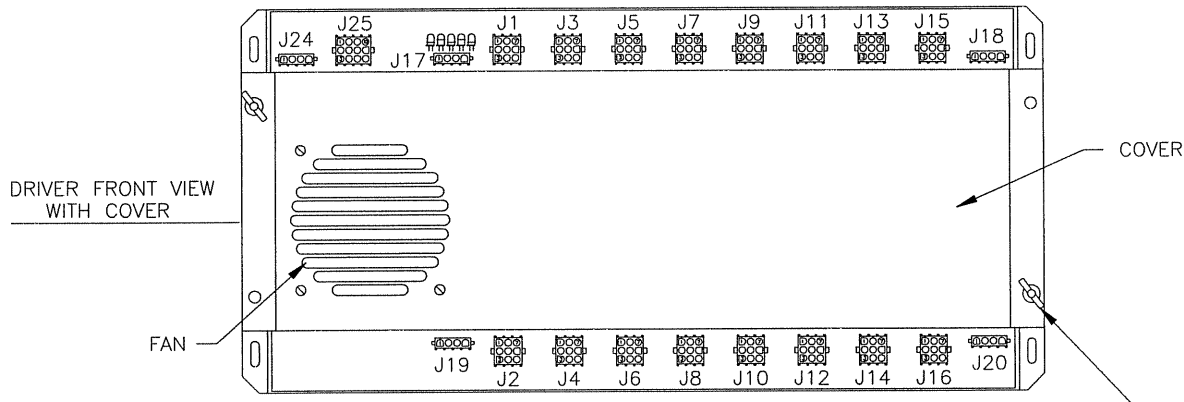
The schematic diagram on page 3-6 shows the power and signal inputs into the display and to the lamp driver. The component numbers correspond to those shown on page 2-10.



DIGIT SERVICE DETAIL
BEFORE JANUARY 1998

DIGIT SERVICE DETAIL
AFTER JANUARY 1998

DAKTRONICS, INC. BROOKINGS, SD 57006				
PROJ: OUTDOOR SCOREBOARDS				
TITLE: DIGIT SERVICE				
DES. BY:		DRAWN BY: TERRY P.		DATE: 31 JULY 86
REV.	DATE	DESCRIPTION	BY	APPR.
2	10NOV97	ADDED DIGIT SERVICE AFTER JANUARY 1998 CHANGED SCALE FROM 1=10 TO 1=15	BDP	
1	5 MAR 91	CHANGED FROM "B" TO "A" SIZE DWG.	CF	
REVISION		APPR. BY:	1064-E10A-27674	
		SCALE: 1=15		



REMOVE TWO WING NUTS TO REMOVE COVER AND GAIN ACCESS TO FUSES.

J24

PIN	FUNCTION	PIN	FUNCTION
1	NETWORK+	7	ADDR 3 -
2	NETWORK-	8	NTW GND -
3	NTWREF-P	9	NTW GND -
4	ADDR 0 -	10	FAN SW HOT
5	ADDR 1 -	11	FAN HOT
6	ADDR 2 -	12	NEUT

J17

PIN	FUNCTION
1	SIGNAL +
2	SIGNAL -
3	N.C.
4	N.C.

J1 - J16

PIN	FUNCTION
1	SEG C
2	SEG B
3	SEG A
4	SEG F
5	SEG E
6	SEG D
7	COMMON
8	SEG H
9	SEG G

J18

PIN	FUNCTION
1	LAMP NEUT
2	LAMP NEUT
3	LAMP HOT 1, 3, 5, 7
4	LAMP HOT 2, 4, 6, 8

J24

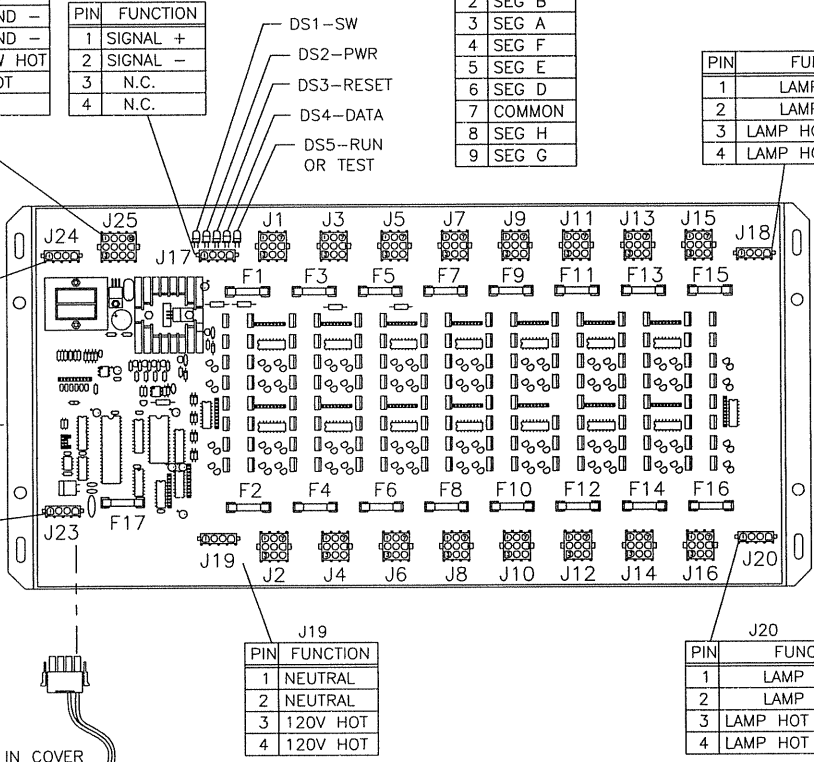
PIN	FUNCTION
1	-5V
2	DIM SEL 1
3	-5V
4	DIM SEL 2

DRIVER FRONT VIEW WITH COVER REMOVED

J23

PIN	FUNCTION
1	FAN SW HOT
2	N.C.
3	FAN HOT
4	NEUT

PLUG FROM FAN IN COVER CONNECTS TO J23



J19

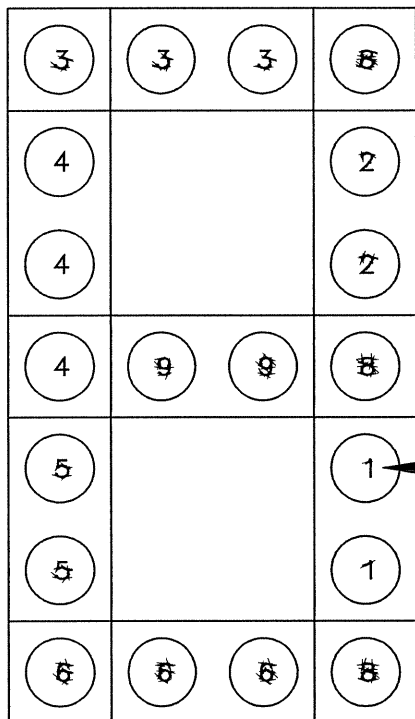
PIN	FUNCTION
1	NEUTRAL
2	NEUTRAL
3	120V HOT
4	120V HOT

J20

PIN	FUNCTION
1	LAMP NEUT
2	LAMP NEUT
3	LAMP HOT 9,11,13,15
4	LAMP HOT 10,12,14,16

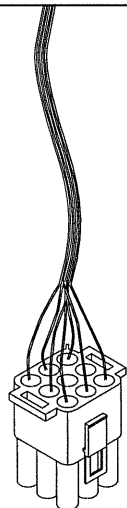
F1 THRU F16 ARE TYPE AGC-10, DAKTRONICS PART NUMBER F-1006. F17 IS TYPE AGC-1/2, DAKTRONICS PART NUMBER F-1000

DAKTRONICS, INC. BROOKINGS, SD 57006				
PROJ: MULTIPLEX CONTROLLERS				
TITLE: LAMP DRIVER, 16 COL., W/FAN				
DES. BY: JLH		DRAWN BY: JLH		DATE: 20 FEB 89
REV.	DATE	DESCRIPTION	BY	APPR.
2	29 APR 97	ADDED TABLES OF PINS AND FUNCTIONS.	AVB	AVB
1	5 MAR 91	CHANGED FROM "B" TO "A" SIZE DWG.	CF	
REVISION		APPR. BY:	1033-R04A-37070	
		SCALE: 1=5		



4 x 7 LAMP MATRIX DIGIT

CONNECTOR PIN NUMBER
WIRED TO THAT SEGMENT

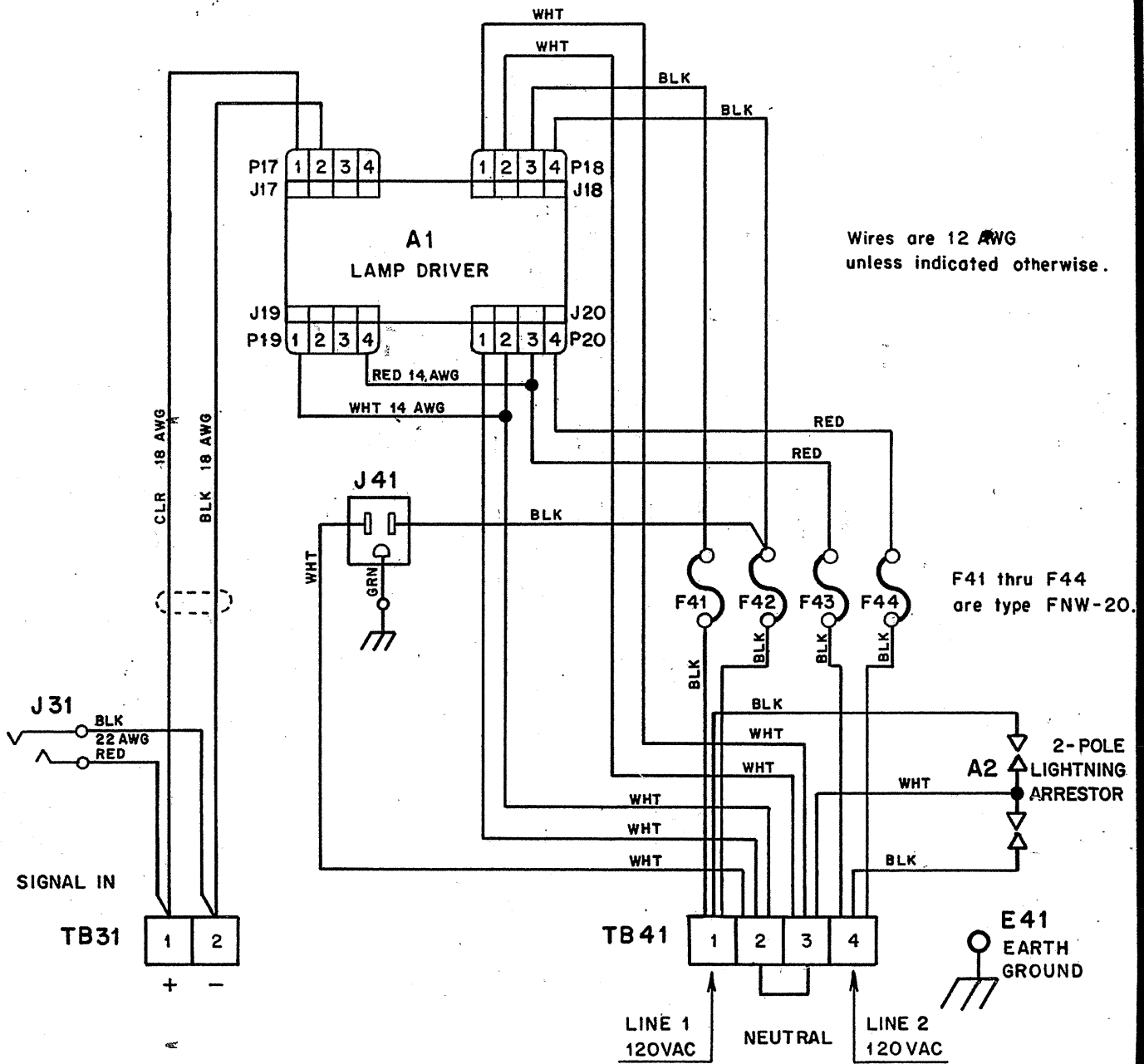


LAMP DRIVER
CONNECTOR

COLOR CODE		
PIN NO.	WIRE COLOR	DRIVER SEGMENT
1	ORANGE	0
2	RED	8
3	BROWN	A
4	BLUE	F
5	GRN OR PNK	E
6	YEL OR TAN	D
7	BLACK	COMMON
8	GRAY	H
9	VIOLET	G

DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: OUTDOOR SCOREBOARDS			
TITLE: SEGMENTS, 4 x 7 LAMP MATRIX DIGIT			
DES. BY:	DRAWN BY: AVB	DATE: 18 APR 89	
REVISION	APPR. BY:	1064-R04A-37685	
	SCALE: 1=1		

1	5 MAR 91	CHANGED FROM "B" TO "A" SIZE DWG.	CF	
REV.	DATE	DESCRIPTION	BY	APPR.



3.5 Trouble - Shooting

This is a list of possible problems that may occur and their possible solutions.

<u>Observed Problem</u>	<u>Possible Cause</u>
One lamp won't light	Burned-out Lamp Broken wire behind digit
Digit segment won't light	Broken wire Poor contact at driver connector Internal driver malfunction
Entire digit won't light	Service breaker tripped Main fuse blown Poor contact at connector, pin 7 Fuse blown in driver
Half the display won't light	Service breaker tripped Main fuse blown Poor contact at main power connection P18 disconnected
Entire display won't light	Power disruption Poor signal connection Driver logic fuse blown Control not connected to display P20 disconnected
Segment stays lit	Broken wire behind digit Internal driver malfunction
Garbled display	Control malfunction Internal driver malfunction

If a problem is observed in one digit, the cause may be isolated by swapping plugs on the driver. That is, connect the plug from the digit into a different jack. If the same digit shows the same problem, the cause may be in the digit or wiring. If the problem moves to another digit, then the cause is probably an internal driver problem.

Use a volt meter at driver inputs to determine if power is being supplied to the driver. An ohmmeter can be helpful in finding broken wires and bad connections. Internal electronic problems must be corrected by Chrondek or an authorized service center.

3.6 Replacement Parts

CHRONDEK

<u>Part Name or Description</u>	<u>Type</u>	<u>Part Number</u>
Lamp Driver		A-1033-42
J-Box, Signal, 16-Pin		A-1010-26
Cable, Timer/Interface/J-box		A-1067-40
Fuse, main power, 20A	FNW-20	F-1016
Fuse, Lamp Driver, 10A	AGC-10	F-1006
Fuse, Driver Logic, 1/2A	AGC-1/2	F-1000
Digit Lampbank, 24" 4x7		A-1064-02
Digit Screen, 24" 4x7		S-1064-02
Socket, Med. Base		X-1046
Lamp, 25W Frosted		DS-1029
Lamp, Fluorescent, 60" 85W		DS-1049
Lamp, Fluorescent, 72" 85W		DS-1037

For parts not listed, or for more information about installation or service, please call Chrondek. Our phone number is (605) 697-4000, or call toll-free 1-888-247-6633.

Chrondek, Inc. is a subsidiary of Daktronics, Inc.