

KB-30 Electronic Horn System

INSTALLATION, OPERATION, AND MAINTENANCE INSTRUCTIONS

1) **GENERAL** - The Kahlenberg KB-30 is an Electronic Horn/Hailing system for marine use that produces in excess of 130 dB (1/3 Octave Band) @ 1 Meter, as required by IMO Regulations for vessels up to 75 meters in length. The KB-30 also serves as a voice amplification unit. The KB-30 System consists of two major components being the KB-30 Horn/Driver Unit, and the M-511D control/microphone unit. The function of the KB-30 Horn is that of a high powered speaker. The function of the M-511D Whistle Control is to provide convenient operation of a sound signaling device from a single control panel for At-Will, Restricted Visibility, and Maneuvering signaling as required. The M-511D also generates the SOLAS General Alarm Signal, or may be integrated with another alarm system on board which generates this signal. **The M-511D is to be used with the KB-30 Electronic Horn Assembly, and can also be used with an additional secondary signaling device such as a Kahlenberg Air Horn.** A horn selector switch is included on the M-511D to select between the KB-30 and secondary horn.

2.) Contents of the KB-30 Horn System Include:

- (1) KB-30 Horn Assembly, including mounting bracket and cable per Drg. 3-6445
- (1) M-511D Control Unit, including console mount unit per Drg. 3-6435, microphone connection cable, microphone, and microphone mounting bracket per Drg. 3-6436
- (1) Spare Fuse, 5 x 20mm 3 Amp Fast Burn
- (1) Spare Fuse, 5 x 20mm 8 Amp Fast Burn

2) OPERATION -

- **D.C. VOLTAGE REQUIREMENT:** _____ **24 VOLTS D.C.**
- **CURRENT REQUIREMENT OF M-511D:** _____.25 Amps
- **SWITCHING CAPACITY OF M-511D:** _____ **1.75 Amps Maximum ("Horn 1")**
_____ 8 Amps Maximum (KB-30 Horn/Hailer)

CAUTION: THE M-511D IS FUSE PROTECTED, HOWEVER, BE CERTAIN NOT TO EXCEED THE 1.75 AMP MAXIMUM SWITCHING CAPACITY. THIS CAN OCCUR IF MULTIPLE DEVICES ARE CONNECTED TO THE HORN 1 CIRCUIT SUCH AS ADDITIONAL LIGHTS OR SOUND PRODUCING DEVICES. A SUITABLE RELAY MUST BE INSTALLED FOR CONTROLLING THESE DEVICES.

The M-511D is designed to activate the KB-30 Electronic Horn, and/or an additional solenoid valve or similar horn-activating device operating on 24 Volts D.C.. The "HORN SELECTOR" switch is used to select which horn will be activated by the M-511D. "Horn 1" setting (the default setting on power up) will send signals to the solenoid valve (if installed) for an air horn. **"Horn 2" setting will send signals to the KB-30 Electronic Horn. If only using the KB-30 Electronic Horn with the M-511D, "Horn 2" must be selected.** Once "Horn 2" is selected, the control will save this setting when it is turned off. Note that in the case of a dual horn installation, remote at-will push buttons if installed will activate both horns simultaneously when the HORN SELECTOR switch is set on "Horn 2". When "Horn 1" is selected, only the air horn (if installed) will be activated by remote push buttons.

The Activation of the signal sent to the horns can be accomplished several ways depending upon the type of signal desired. For "At-Will" operations use the "Manual/At-Will" button, this button will signal the device instantly at all times regardless of the mode of operation. There are five (5) predetermined Restricted Visibility codes within the M-511D and they are indicated on the associated button of the keypad. For a definition of these codes and their uses, refer to the reference sheet included with these instructions. Pressing the "Auto On/Off" button activates the five code buttons. Upon activation of the Automatic mode, the red LED light of the activated code will light and signaling of the device for that code will commence after a 10 second delay. This designed delay is to prevent commencement of the activated code prior to selection of a new code or proper preparation at listening posts. A new code can be selected at any time during automatic operation and will commence after the 10 second delay. Termination of the Automatic Mode can be accomplished by either depressing the "Auto On/Off" button, activating any of the Maneuvering Signal codes, activating the "At-Will" button (the latter two will also cause instantaneous signaling of the device), or activating the "General Alarm" button.

The M-511D has the ability to change the cycle times between restricted visibility signaling. The default setting is 120 seconds between blasts, which is also regulation. When initially powered up the 120 second LED on the "Auto On/Off" will be lit, signifying the 2-minute interval. The other two intervals are 90 seconds, and 60 seconds. To change the signaling interval depress and hold the "Auto On/Off" button for 5 seconds then release and the next LED will be lit, continue this procedure until the desired interval is attained.

For quick easy signaling of required maneuvering codes the M-511D includes four (4) preset codes with a descriptive reference included on the keypad. For a complete explanation of these codes please refer to the attached reference sheet. When a maneuvering code button is pressed, the horn will instantaneously signal the code and terminate the Auto mode (if on).

IMPORTANT NOTE:

The KB-30 Horn is an intermittent duty unit designed for normal "at-will" and automatic signaling requirements. The demand placed on the horn driver is great when in horn signaling modes. To protect the unit, a thermal disconnect switch in the horn driver will

shut off the unit for several seconds if the horn is used excessively over a short period of time. The M-511D Control also includes software which will reduce the volume at the horn if the horn button is depressed for more than 10 seconds continuously. These features are by design to protect the horn driver from overcurrent situations that might cause damage to the unit.

The M-511D is designed to be used as a single unit or in conjunction with other M-511C units, and with multiple remote "At-Will" buttons, such as the Kahlenberg M-131A, M-126, or any customer supplied two contact button. Refer to the wiring diagram included with these instruction sheets for your particular application.

General Alarm Code: The M-511D is also equipped with a General Alarm code which is activated by depressing and holding the "General Alarm" button for 3 seconds. This function will stop all other functions on the M-511D and can only be stopped by depressing the "Auto On/Off" button. When the General Alarm is activated all three LED's on the "Auto On/Off" button will be illuminated at the same time.

Microphone: The M-511D also includes a remote microphone connection with female console mount jack, microphone and microphone mounting bracket for hailing purposes. When the microphone is activated, the voice signal overrides all other functions of the M-511D Controller.

Auxiliary Input: The M-511D allows for an input signal from a mono output jack from a radio, CD Player or similar device. This signal will be broadcast over the KB-30 Horn Speaker, but will be overridden by the horn signal or voice commands from the microphone.

4) INSTALLATION -

WARNING: BE SURE TO SHUT OFF POWER, TAG OUT, AND VERIFY NO VOLTAGE IS PRESENT BEFORE INSTALLING OR ATTEMPTING TO SERVICE THIS UNIT. FAILURE TO FOLLOW THIS WARNING COULD RESULT IN SERIOUS INJURY OR DEATH.

The M-511D mounts easily into a console and is secured by fastening the bezel to the console with four (4) #8 x 1-1/4" self-clinching studs already attached. An opening of 4-3/8" wide by 2-7/8" high should be made in the console where the unit is to be placed. The M-511D is shipped with 1 loose gasket for installations exposed to the elements. The gasket has a removable adhesive backing and is used to provide a seal between the Bezel and Console. Simply remove the adhesive backing and secure in place. An additional bead of RTV silicone sealant may be applied around the perimeter of the Bezel for additional weather protection.

ELECTRICAL CONNECTION DETAILS: IMPORTANT!!!

THE ENTIRE 50 FT (15 METERS) OF SUPPLIED 16AWG (2 x 1.3mm) MARINE CABLE MUST BE INSTALLED BETWEEN THE KB-30 HORN AND M-511D CONTROL.

USE OF WIRE LARGER IN DIAMETER OR SHORTER IN LENGTH CAN CAUSE PERMANENT DAMAGE TO THE HORN. USE OF WIRE SMALLER IN DIAMETER OR LONGER IN LENGTH WILL RESULT IN LOSS OF HORN OUTPUT.

FOR INSTALLATIONS WHERE MORE THAN 15 METERS OF CABLE ARE NEEDED, CONSULT THE FACTORY FOR SPECIFIC WIRE DIAMETER REQUIRED.

It is suggested that the wiring to the male terminal plugs be completed prior to securing the bezel (Refer to the attached wiring diagram).

Connect the terminal plug to the timer. It is recommended that the perimeter of the terminal block be sealed with a RTV silicone sealant.

****NOTE: Once power is connected to the KB-30, a low level white noise will be produced by the horn speaker. This is normal and is the sound of low level current at the horn used to heat the driver and prevent condensation.**

5) **CARE AND MAINTENANCE** - The M-511D Whistle Control is designed to provide many years of maintenance free operation. However, included with the M-511D are replacement fuses for each of the circuit boards as referenced on the attached parts list. There are no additional spare parts we suggest you keep on hand. However if any parts listed on the attached Parts List drawings are required for any reason, please refer to the associated part number when ordering. If the M-511D should fail to operate properly please contact Kahlenberg Brothers Company for recommended action or return to Kahlenberg for prompt analysis and repair.

When cleaning the membrane switch panel, we recommend the use of Windex (or equivalent) or a mild soap/water solution applied with a soft cotton cloth.

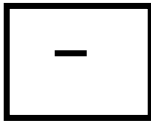
6) **DRAWING REFERENCES**

Outline Dimensions:	#3-6435
Parts List:	#3-6436
Wiring Diagram:	#3-6443

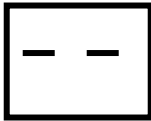
****For custom installations other than those shown in the above wiring diagrams see custom wiring diagrams provided by Kahlenberg or contact Kahlenberg Industries with specific requirements.**

RESTRICTED VISIBILITY CODES**RULE 35
INTERNATIONAL & INLAND**

IN OR NEAR AN AREA OF RESTRICTED VISIBILITY, WHETHER BY DAY OR NIGHT,
THE SIGNALS PRESCRIBED IN THIS RULE ARE AS FOLLOWS:



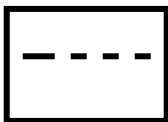
One Prolonged Blast (Every 2 minutes)
Making Way through the water



Two Prolonged Blasts (Every 2 minutes)
Underway but stopped and making no way through the water



One Prolonged Blast and Two Short Blasts (Every 2 minutes)
Vessel not under command
Vessel restricted in her ability to maneuver
Vessel constrained by her draft
Sailing Vessel
Vessel engaged in fishing
Vessel engaged in towing or pushing another vessel



One Prolonged Blast and Three Short Blasts (Every 2 minutes)
A Vessel towed or if more than one Vessel is towed the last Vessel of the tow, if manned. When practicable, this signal shall be made immediately after the signal made by the towing Vessel.



One Short Blast, One Prolonged Blast, One Short Blast (Every Minute)
Vessel at Anchor

*Note: The above is intended as a quick reference guide only and in no way is intended to be a replacement for the complete Rule 35 as included in the 72' COLREGS

MANEUVERING CODES

RULE 34

INTERNATIONAL - RULE (A)

WHEN VESSELS ARE IN SIGHT OF ONE ANOTHER, A POWER-DRIVEN VESSEL UNDERWAY, WHEN MANEUVERING AS AUTHORIZED OR REQUIRED BY THESE RULES, SHALL INDICATE THAT MANEUVER BY THE FOLLOWING SIGNALS ON HER WHISTLE:



One Short Blast
"I am altering my course to Starboard"



Two Short Blasts
"I am altering my course to Port"



Three Short Blasts
"I am operating Astern Propulsion"



Five Short Blasts
"Danger"
Failure to understand intentions or actions, or in doubt

*Note: The above is intended as a quick reference guide only and in no way is intended to be a replacement for the complete Rule 34 as included in the 72' COLREGS

INLAND - RULE (A)

WHEN POWER-DRIVEN VESSELS ARE IN SIGHT OF ONE ANOTHER AND MEETING OR CROSSING AT A DISTANCE WITHIN HALF A MILE OF EACH OTHER, EACH VESSEL UNDERWAY, WHEN MANEUVERING AS AUTHORIZED OR REQUIRED BY THESE RULES:



One Short Blast
“I intend to leave you on my Port side”
In Agreement



Two Short Blasts
“I intend to leave you on my Starboard side”
In Agreement



Three Short Blasts
“I am operating Astern Propulsion”
In Agreement



Five Short Blasts
“Danger”
Doubt Safety of Proposed Maneuver

*Note: The above is intended as a quick reference guide only and in no way is intended to be a replacement for the complete Rule 34 as included in the 72' COLREGS

INLAND - RULE (C)

WHEN IN SIGHT OF ONE ANOTHER (I) A POWER DRIVEN VESSEL INTENDING TO OVERTAKE ANOTHER POWER DRIVEN VESSEL SHALL INDICATE HER INTENTION BY THE FOLLOWING SIGNALS ON HER WHISTLE:



One Short Blast

**“I intend to overtake you on your Starboard side”
In Agreement**



Two Short Blasts

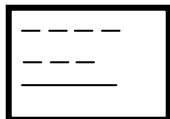
**“I intend to overtake you on your Port side”
In Agreement**



Five Short Blasts

**“Danger”
Failure to understand intentions or actions, or in doubt**

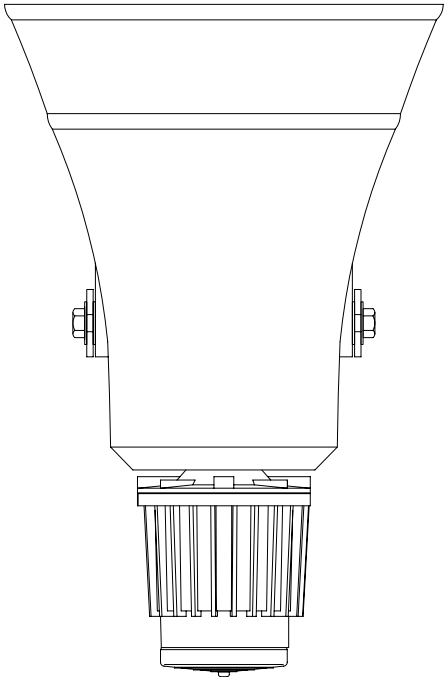
GENERAL EMERGENCY ALARM CODE:



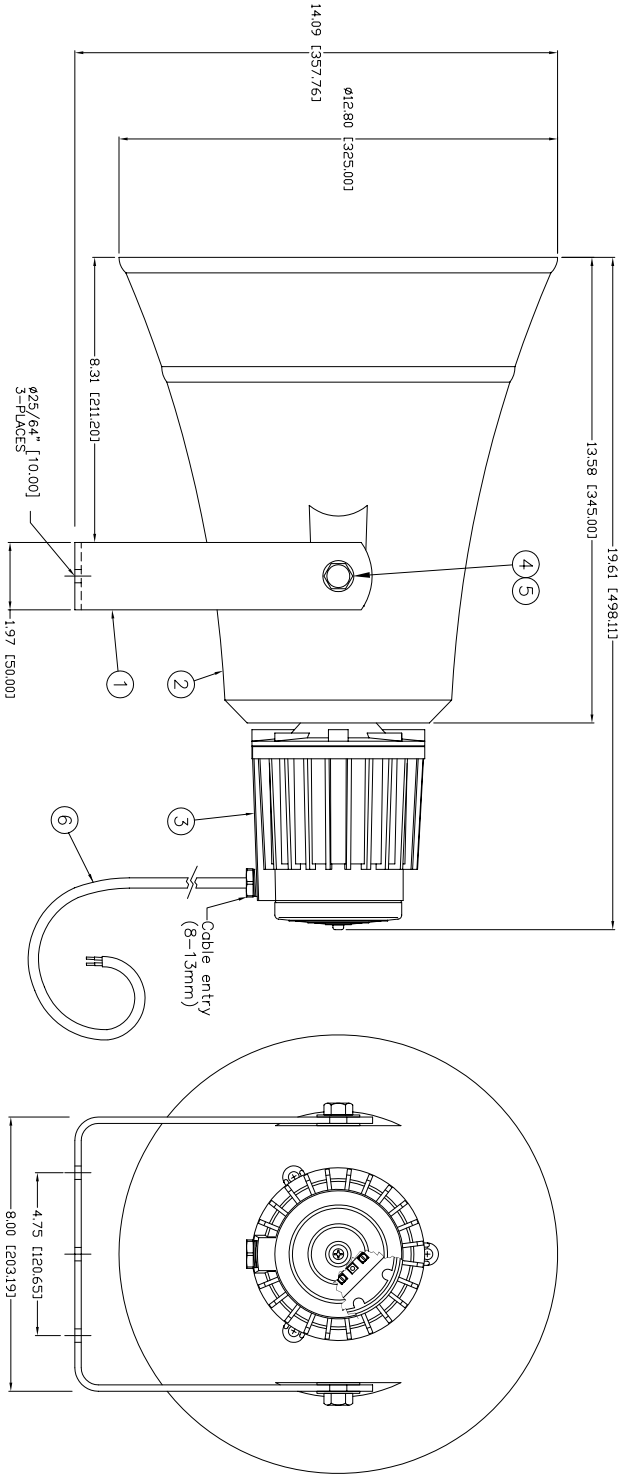
Seven Short Blasts followed by 1 long blast (repeats every 10 seconds)
IMO SOLAS GENERAL EMERGENCY ALARM SIGNAL

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REV.	BY	DATE	DESCRIPTION	APP'D.
A	ZJN	08/10/07	ADDED CABLE SIZE TO CABLE ENTRY NOTE	EMK
B	ZJN	09/10/07	ADDED TEMPERATURE RANGE NOTE	EMK
C	ZJN	11/20/08	ADDED ITEMS 4 & 5	EMK
D	ZJN	10/03/11	ADDED ITEM 6	EMK



ITEM	PART NO.	DESCRIPTION	QUAN.
1	P564-03	MOUNTING BRACKET	1
2	PT001-007	PROJECTOR	1
3	PT120-002	DRIVER UNIT	1
4	W009-059SS	SCREW, HEX HD., M12 X 1.75 X 30mm	2
5	W078-023SS	WASHER, FLAT, 1/2" 316 S.S.	2
6	P557-04	CABLE, 16 AWG MARINE GRADE	50'



TECHNICAL DATA

Frequency: 695 Hz
Sound Pressure Level (dB(A) at 1 meter): 130dB
Sound Pressure Level (1/3 octave at 1 meter): 131dB
Electric Power: 24 V.D.C.
Power Consumption: 100 Watts
Protection of Ingress: IP67
Temperature Range: -30°F (-34°C) to 120°F (49°C)
Material (Projector): Fiberglass laminated polyester
(Driver): Aluminum alloy
(Mounting Bracket): Polished 304 stainless steel
Finish: Matherhorn White polyurethane
Net Weight: 15 Lbs.
Shipping Weight: 23 Lbs.

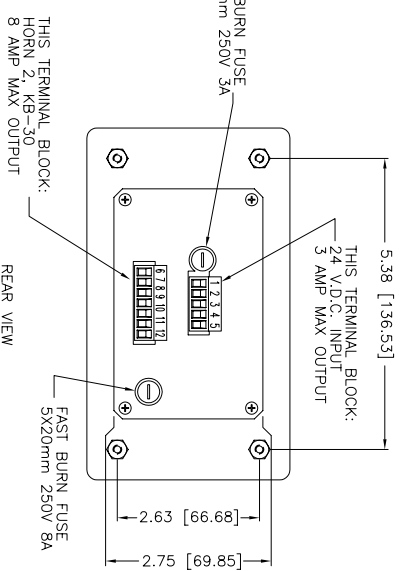
Price: \$ U.S.D. Net. Co.
(Valid for 60 days, F.O.B. Two Rivers, WI, U.S.A.)

Kahlenberg

KAHLENBERG BROS. CO. TWO RIVERS, WI, U.S.A.
OUTLINE DIMENSIONS
MODEL KB-30
ELECTRIC HORN

DATE	DRAWN	CHECKED	DRWG. NO.	REV.
07/31/07	ZJN	EMK	3-6445	D

*Conforming to International Maritime Regulations
For Vessels Less Than 75 Meters in Length*

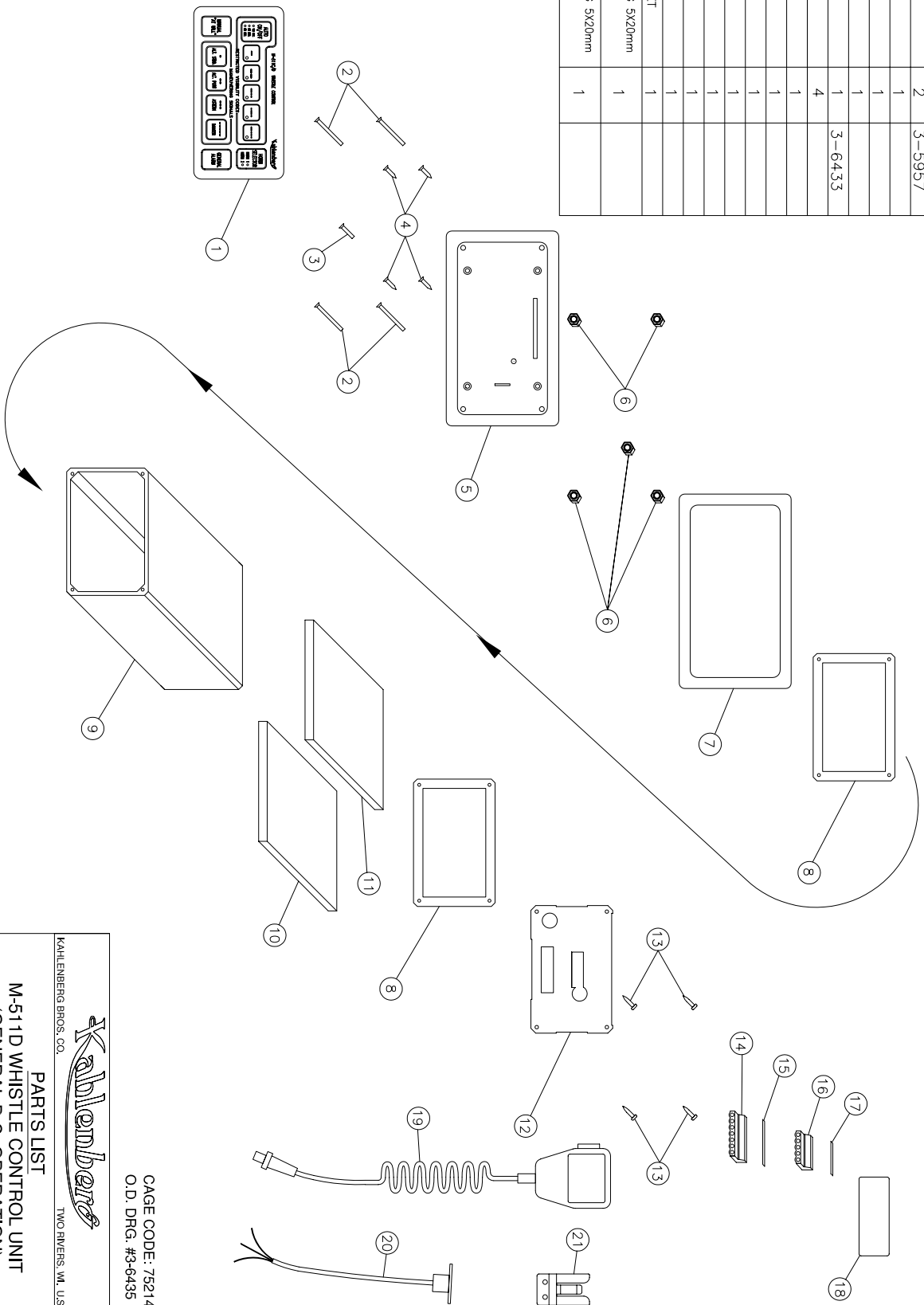


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3-6436

ITEM#	PART #	DESCRIPTION	QUAN	DWG. #
1	P546-03	MEMBRANE SWITCH PANEL	1	3-6418
2	P167-06	STUD, SELF CLINCHING 8-32 X 1-1/4"	4	
3	P167-07	STUD, SELF CLINCHING 8-32 X 3/8"	1	
4	W100-002	#4 FLAT HEAD SHEET METAL SCREW 1/2" LONG, S.S.	4	
5	P247-08	BEZEL	1	3-6352
6	W018-016ST	NUT, 8-32	5	
7	P547-02	GASKET	1	3-5957
8	P547-01	GASKET	2	3-5957
9	P436-14	ENCLOSURE X 4.5" LONG	1	
10	P540-06	CIRCUIT BOARD	1	
11	P540-04B	CIRCUIT BOARD	1	
12	P247-11	COVER PANEL, REAR	1	3-6433
13	W100-003	#4 PAN HEAD SHEET METAL SCREW 1/2" LONG, S.S.	4	
14	P544-03	PLUG	1	
15	P269-07	LABEL	1	
16	P544-02	PLUG	1	
17	P269-06	LABEL	1	
18	P269-08	LABEL	1	
19	P541-02	MICROPHONE	1	
20	P541-03	MICROPHONE EXTENSION CORD	1	
21	P546-04	MICROPHONE MOUNTING BRACKET	1	
22	P542-02	FUSE (SPARE), 8A 250V FAST ACTING 5X20mm FOR CIRCUIT BOARD P540-06	1	
23	P542-03	FUSE (SPARE), 3A 250V FAST ACTING 5X20mm FOR CIRCUIT BOARD P540-04B	1	

REV.	BY	DATE	DESCRIPTION	APP'D.
A	ZJN	08/07/07	ADDED ITEMS 22 & 23 (SPARE FUSES)	EMK
B	ZJN	06/29/11	ITEM 22 WAS 3A, ITEM 23 WAS 5A	EMK



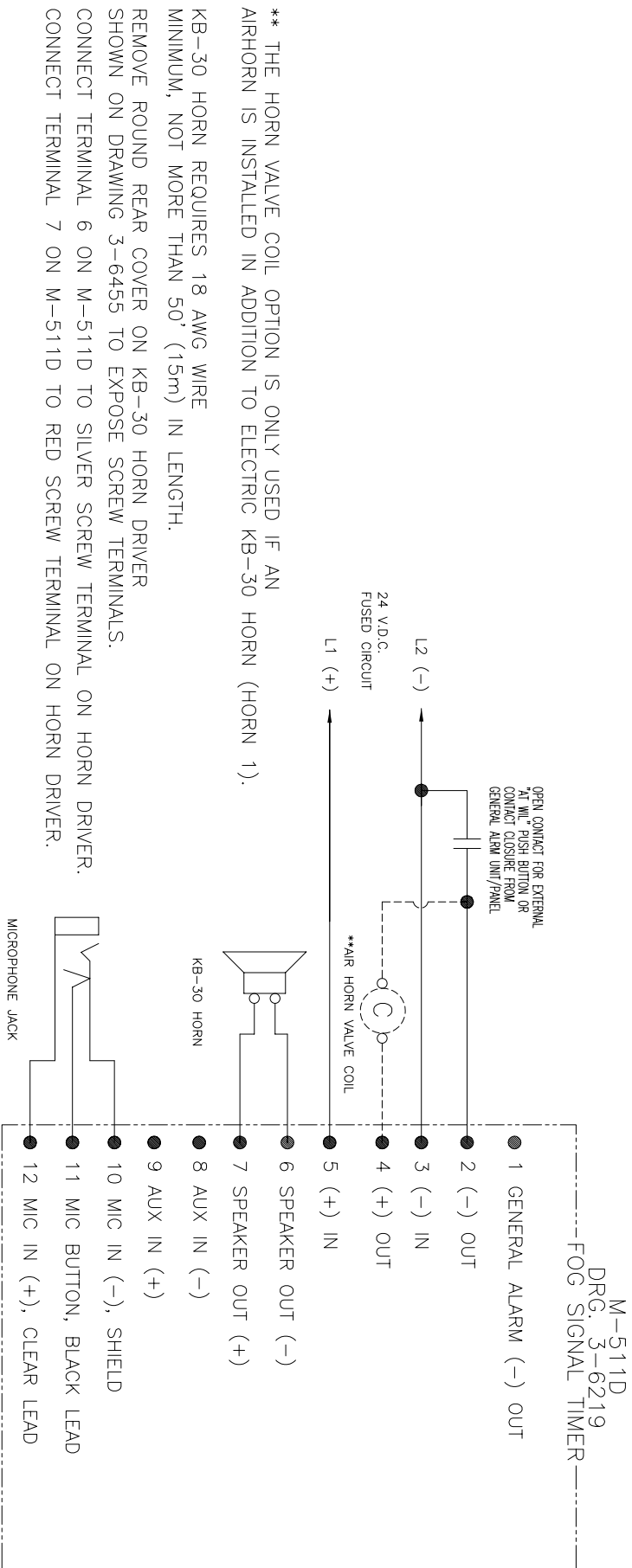
Kahle
Kahle Brothers Co.

PARTS LIST
M-511D WHISTLE CONTROL UNIT
(GENERAL D.C. OPERATION)

CAGE CODE: 75214
O.D. DRG. #3-6435

DR.	DATE	OK'D.	SCALE	DRWG. NO.	REV.
ZJN	06/29/07	EMK	N.T.S.	3-6436	B

REV.	BY	DATE	DESCRIPTION	APP'D.
A	ZJN	08/10/07	ADDED WIRE SIZE & LENGTH NOTE	EMK
B	ZJN	11/13/07	ADDED DRIVER CONNECTION NOTE	EMK
C	ZJN	03/30/09	ADDED OPEN CONTACT NOTE	EMK
D	ZJN	10/27/09	REMOVED 12VDC POWER SUPPLY OPTION	EMK



** THE HORN VALVE COIL OPTION IS ONLY USED IF AN AIRHORN IS INSTALLED IN ADDITION TO ELECTRIC KB-30 HORN (HORN 1).

KB-30 HORN REQUIRES 18 AWG WIRE MINIMUM, NOT MORE THAN 50' (15m) IN LENGTH.

REMOVE ROUND REAR COVER ON KB-30 HORN DRIVER SHOWN ON DRAWING 3-6455 TO EXPOSE SCREW TERMINALS.

CONNECT TERMINAL 6 ON M-511D TO SILVER SCREW TERMINAL ON HORN DRIVER.

CONNECT TERMINAL 7 ON M-511D TO RED SCREW TERMINAL ON HORN DRIVER.

Kahlenberg KAHLENBERG BROS. CO. TWO RIVERS, WI. U.S.A.				
WIRING DIAGRAM				
M-511D WITH KB-30 ELECTRIC HORN, MOMENTARY "AT-WILL" OPEN CONTACT & OPTIONAL AIRHORN SOLENOID COIL				
DR.	DATE	CKD.	SCALE	DRWG. NO.
ZJN	07/03/07	EMK	N.T.S.	3-6443
				REV.
				D