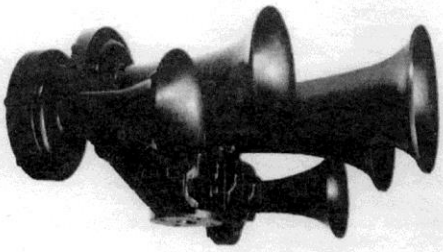
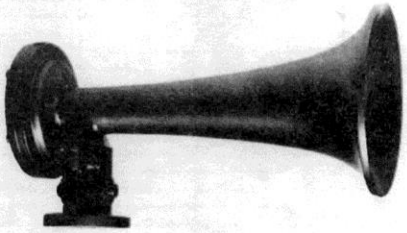
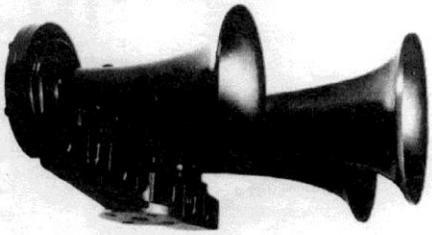
AIRCHIME®

HEARD THE WORLD OVER SINCE 1929

RAILROAD WHISTLES







NATHAN MANUFACTURING DIVISION

Windham Machine Co., Inc.

1102 Windham Road • P.O. Box 96 • South Windham, CT 06266
Tel (860) 423-4575 • Fax (860) 450-0519
e-mail: windhamac@aol.com

AIRCHIME WHISTLES

Airchime has been manufacturing whistles for over fifty years including the original three, five and six tone steam locomotive whistles.

In 1949 we were the first to develop and pioneer a new sound for the upcoming diesel locomotive that was rapidly replacing the black "iron horse" then being put out to pasture.

Our first air whistle, the model "M", was built in single, three and five chime models and was the very first whistle to give the new diesel a distinctive voice of its own. A voice far from the sound of the single tone "honkers" that were then being used and which the public did not recognize as being that of a train.

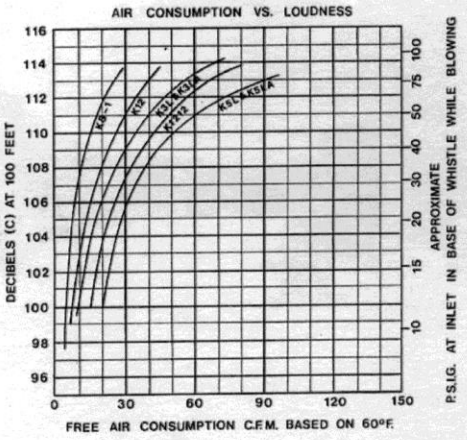
Our new Airchime sound provided greater safety at open crossings and has now become recognized all over North America and other parts of the world as that of a train.

MODEL "K" RAILROAD WHISTLE

Now it's our model "K". A modern, more efficient and simplified version of the "M", with new die-cast bells and low profile bases.

The success of the model "K" lies mainly in its bell contour and patented diaphragm design. The diaphragm consists of two identical discs that are separated by a special moulded silicone rubber ring to form a hermetically sealed reflex chamber. This allows the two discs to vibrate at the same frequency with a compensating cushion of air between. It provides the required stiffness to the diaphragm assembly, necessary for driving power, while retaining the extreme flexibility necessary for long diaphragm life. This special design also allows the whistle to operate at peak efficiency over a pressure range of from 20 PSI to 150 PSI without any diaphragm adjustment.

A further important feature of the model "K" is that all bell contours are designed to a calculated curve to most efficiently propagate and amplify sound.



FEATURES

- A louder more audible signal.
- Diaphragm parts and cap are common and fully interchangeable in all "K" models.
- Constructed of die-cast aluminum bells with strong heat treated sand cast aluminum bases.
- Diaphragms made of special "mill ordered" stainless steel to give exceptional long life.
- Will not freeze in cold weather.
- Provision to regulate both air consumption and loudness.
- Available in single, dual, triple, four and five chime models. Over 30 variations to choose from.
- Other than listed frequencies can be supplied without dimensional change to whistle.
- Any one or number of bells can be reversed 180°.
- All fasteners are stainless steel.
- Inexpensive to purchase, install, operate and maintain.
- Records show that many Airchime whistles have been in constant railroad service for over 30 years.

CHIME WHISTLES VS. SINGLE TONE

As a general guide the longer the bell length the lower the tone. The shorter the bell length the higher the tone. High frequencies or tones are more penetrating at close range whereas the lower frequencies have greater carrying power and therefore can be heard at a greater distance. Combined frequencies in the form of chime whistles give an added character and distinction to the sound. Being a combination of high and low frequencies they have a penetrating quality for close range work and carrying power for distance. Without doubt chime whistles are more distinctive and audible to the human ear.

The combination of notes used in Airchime multi-tone whistles (i.e. model K5L) offer a great advantage at railroad crossings because this sound is very difficult to "mask" whereas a single tone note will blend in with the rumbling sound of a car or truck motor in which case the sound of a single tone horn may not be detected by the human ear. It has been proved that a decibel reading in a closed automobile might not show a reading over the ambient noise, yet the human ear can clearly hear multiple tone whistles over the rumble of a car motor.

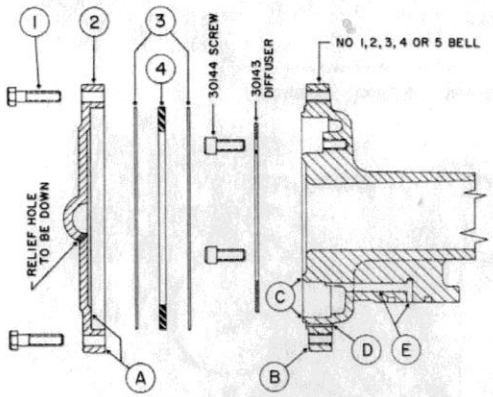
Please bear in mind that the function of a railroad whistle is to protect the public at railroad crossings and to provide safe and adequate protection for trainmen in their railroad environment. The standardization of railroad audible signals is of paramount importance in the operation of a railroad.

Airchime recommends chime models for greater safety and would suggest the following standard models as per train classification.

- Passenger trains – Model K5LA, chime whistle – see page 9.
- Freight trains – Model K3LA, chime whistle – see page 7.

Airchime model "K" whistles represent the best in audible signalling technology and are the industry standard on today's modern railroad.

"HEARD THE WORLD OVER SINCE 1929!"



MAINTENANCE

1 TO DISMANTLE, REMOVE CAP SCREWS (1) AND INSERT PIN OR WIRE IN HOLE (D) TO REMOVE DIAPHRAGMS AND CUSHION RINGS (3) AND (4)

2 CLEAN THOROUGHLY AND INSPECT DISCS (3) FOR UNUSUAL WEAR, CRACKS OR SCRATCHES

3 INSPECT CUSHION RING (4) IT SHOULD MEASURE .145 (3.68 MM) IN THICKNESS AND NOT SHOW SIGNS OF FLATTENING OR EXCESSIVE HARDENING

4 REPLACE WORN OR DAMAGE PARTS WITH FACTORY REPLACEMENTS BOTH PARTS ARE MADE FROM SPECIAL MAT. TO PRECISE SPECIFICATION GENERAL MATERIALS WILL NOT GIVE SAME RESULTS OR SERVICE

5 WIPE FACES (C) CLEAN AND INSPECT FOR NICKS OR SCRATCHES FACES (C) ARE MACHINED FLUSH IN LINE ON SAME PLANE. USE A 10" (250 MM) SMOOTH FILE TO REMOVE NICKS OR RAISES THAT MAY ALLOW AIR TO ESCAPE PAST THE DIAPHRAGM

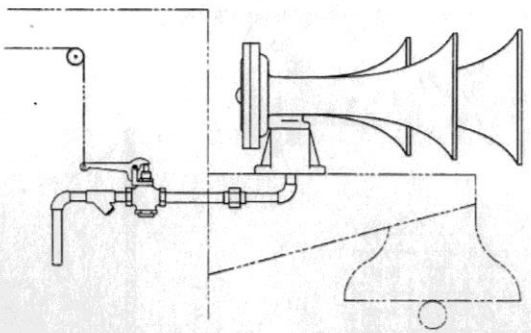
6 WIPE AND INSTALL NEW FACTORY PARTS IN ORDER SHOWN – DO NOT SQUEEZE DISCS (3) TOGETHER WHEN PLACING IN CAP (2) PARTS SHOULD TURN FREE AND LOOSE WITHOUT BINDING

7 CRACK WHISTLE VALVE TO SEE THAT AIR PASSAGES (E) ARE FREE AND CLEAR OF ALL FOREIGN MATERIALS

8 REPLACE CAP (2) WITH DISCS (3) AND CUSHION RING (4) NESTED IN PLACE

9 ALTERNATELY TIGHTEN OPPOSITE CAP SCREWS (1) TO BRING CAP (2) EVENLY AND SQUARE TO BELL FACE – DO NOT OVER-TIGHTEN

10 GIVE WHISTLE TWO OR THREE SHORT BLASTS TO SEAT DIAPHRAGMS FOLLOWED BY SEVERAL LONGER BLASTS – SOUND SHOULD BE LOUD AND CLEAR WITHOUT DISTORTION



INSTALLATION

MOUNT WHISTLE ON BELL BRACKET OR HIGH ON CAB ROOF CLEAR OF OBSTRUCTION AND PREFERABLY WITH ALL BELLS FORWARD

CONNECT TO MAIN RESERVOIR PRESSURE WITH NOT LESS THAN 5/8 I.D. COPPER TUBING USING AS FEW ELBOWS AS POSSIBLE

OPERATING VALVE MUST BE CLOSE TO WHISTLE TO OBTAIN SHARP, INSTANT, CONCISE BLASTS

BLOW LINE CLEAR OF FOREIGN MATERIAL BEFORE ATTACHING WHISTLE TO MOUNTING PAD

BE SURE TO REMOVE PLASTIC CLOSURE FROM INLET HOLE IN BASE IMMEDIATELY BEFORE ATTACHING WHISTLE

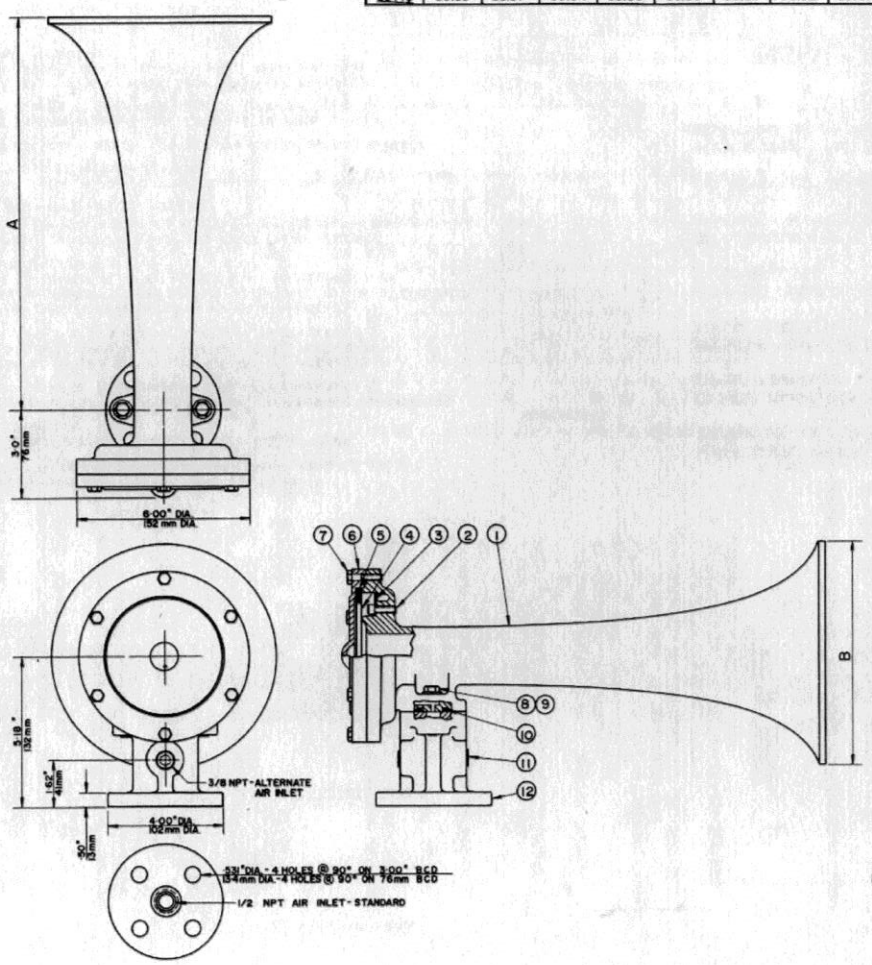
USE EAR PROTECTORS WHEN TESTING WHISTLE

WHEN WHISTLE BLOWN, PRESSURE DROP SHOULD NOT EXCEED 15 P.S.I. BELOW THAT OF MAIN RESERVOIR PRESSURE

INSTALLATION AND MAINTENANCE

MODEL AND BELL PART NUMBER								
KS-5H	KS-5	KS-4A	KS-4	KS-3A	KS-3L	KS-3	KS-2	KS-1
30113	30105	30107	30104	30106	30108	30103	30102	30101

PARTS COMMON TO ALL KS MODELS				
REF.	PART	DESCRIPTION	MATERIAL	QTY
1		BELL	DIE CAST ALUMINUM	1
2	30144	SCREW	STAINLESS STEEL	3
3	30143	DIFFUSER	SHEET ALUMINUM	1
4	30111	DIAPHRAGM DISC	STAINLESS STEEL	2
5	30112	CUSHION RING	SILICONE RUBBER	1
6	30109	DIAPHRAGM CAP	DIE CAST ALUMINUM	1
7	30110	SCREW	STAINLESS STEEL	6
8	30119	SCREW	STAINLESS STEEL	2
9	30122	LOCKWASHER	STAINLESS STEEL	2
10	30120-0	O-RING GASKET	SYNTHETIC RUBBER	1
11	C-20966-4P	PIPE PLUG	STEEL CAD. PLATED	2
12	30117	BASE	CAST ALUMINUM	1



MODEL	DIM. A	DIA. B	FR'QU'CY
KS-1	13.56" 344 mm	7.75" 197 mm	311 Hz
KS-2	9.75" 248mm	7.25" 184 mm	370 Hz
KS-3	7.06" 179mm	6.75" 171 mm	470 Hz
KS-3L	7.06" 179mm	6.75" 171 mm	440 Hz
KS-3A	7.06" 179 mm	6.75" 171 mm	415 Hz
KS-4	5.75" 146 mm	5.75" 146 mm	512 Hz
KS-4A	5.75" 146mm	5.75" 146mm	494 Hz
KS-5	4.37" 112 mm	5.5" 140mm	622 Hz
KS-5H	4.37" 112 mm	5.5" 140mm	660 Hz

NET WEIGHT - ALL MODELS WITHIN 7-5 LBS (3.25-2.25 KG)

MODEL K ONE BELL WHISTLES

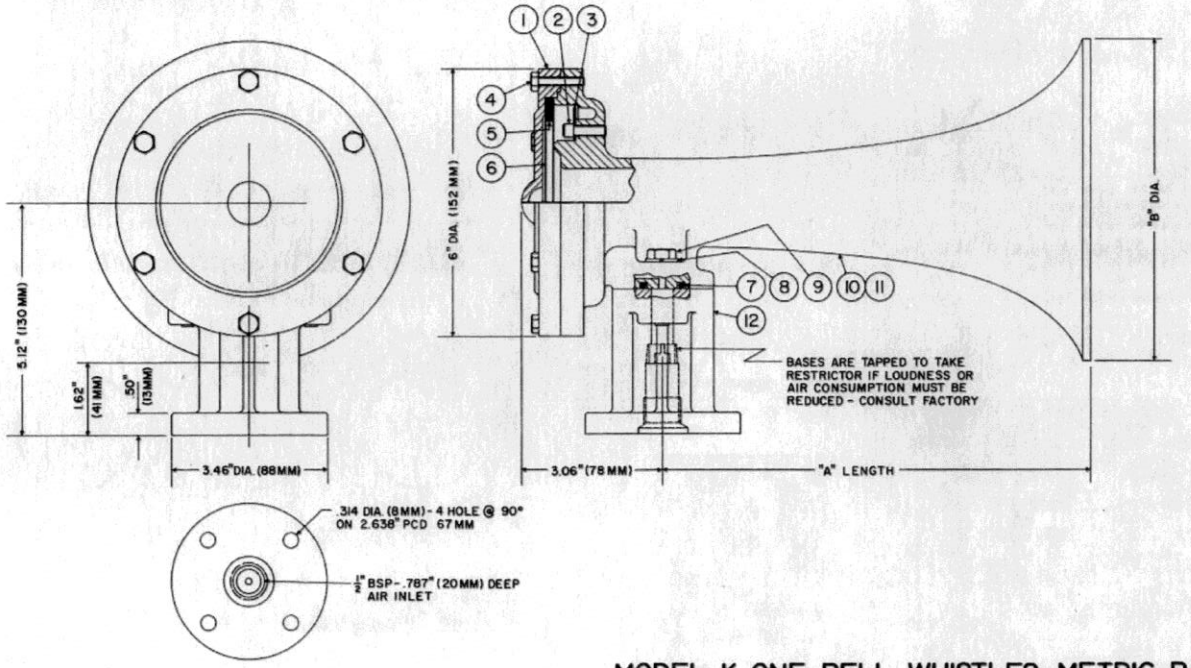
MODEL	"A" LENGTH	"B" DIA.	FREQUENCY	S.P.L. @ 5M	AIR CONSUMPTION	WORKING PRESSURE	NET WEIGHT
K - 2M	9.75 IN. (248 MM)	7.25 IN. (184 MM)	370 Hz	125 dB	24 C.F.M. (11.32 LITERS/SEC)	50-150 PSI (3.5-10.5 KG/CM²)	6.5 LBS. (2.95 KG)
K - 5M	4.37 IN. (111 MM)	5.50 IN. (140MM)	660 Hz	123 dB	22 C.F.M. (10.38 LITERS/SEC)	50-150 PSI (3.5-10.5 KG/CM²)	5 LBS (2.27 KG)

DET.	PART	DESCRIPTION	MATERIAL	USED
1	30109	DIAPHRAGM CAP	DIE CAST ALUMINUM	1
2	30144	SOC. HD CAP SCREW	STAINLESS STEEL	3
3	30143	DIFFUSER	ALUMINUM	1
4	30110	CAP SCREW	STAINLESS STEEL	6
5	30112	CUSHION RING	SILICONE RUBBER	1
6	30111	DIAPHRAGM DISC	STAINLESS STEEL	2
7	30120-0	"O" RING SEAL	BUNA "N" RUBBER	1
8	30122	LOCKWASHER	STAINLESS STEEL	2
9	30119	CAP SCREW	STAINLESS STEEL	2
10	30102	BELL BODY - K-2M	DIE CAST ALUMINUM	1
11	30105	BELL BODY - K-5M	DIE CAST ALUMINUM	1
12	30118	BASE	CAST ALUM. H.T. (T6)	1

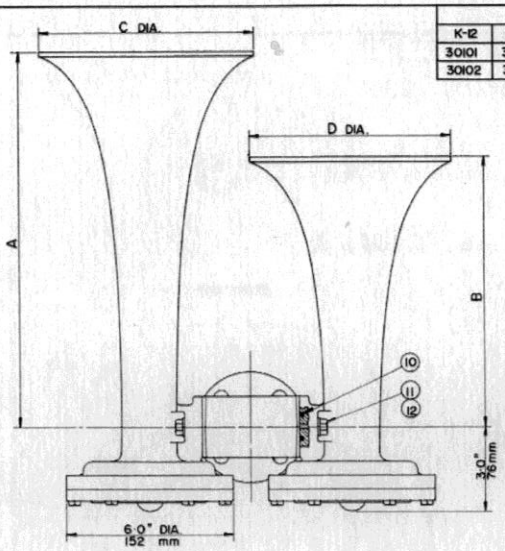
NOTE

THE LOUDNESS OF A HORN IS IN DIRECT RELATION TO THE PRESSURE AND AMOUNT OF AIR CONSUMED - THIS IS GOVERNED BY THE SIZE OF DRILLED HOLE INLET INTO HORN

CONSULT FACTORY WHEN LOUDER HORNS ARE REQUIRED TO MEET A SPECIFIC REQUIREMENT OR AIR CONSUMPTION MUST BE RESTRICTED TO MEET A SPECIFIC REQUIREMENT



MODEL K ONE BELL WHISTLES–METRIC BASE



MODEL AND BELL PART NUMBER							
K-12	K-13	K-13L	K-13A	K-14	K-14A	K-25	K-25H
30101	30101	30101	30101	30101	30101	30102	30102
30102	30103	30108	30106	30104	30107	30105	30118

FREQUENCIES		
MODEL	BELL NO.1	BELL NO.2
K-12	311 Hz	370 Hz
K-13	311 Hz	470 Hz
K-13L	311 Hz	440 Hz
K-13A	311 Hz	415 Hz
K-14	311 Hz	512 Hz
K-14A	311 Hz	494 Hz
K-25	370 Hz	622 Hz
K-25H	370 Hz	660 Hz

NOTES

BASE (REF.3) IS PRETAPPED FOR C-21019 RESTRICTOR (REF.14 TO 17) - USE ONLY WHEN AIR SUPPLY IS LIMITED OR WHEN LOUDNESS MUST BE REDUCED.

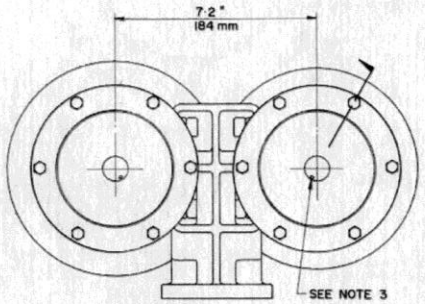
ANY BELL CAN BE REVERSED BY REMOVING SCREWS (REF.11) AND RE-ASSEMBLING BELL IN OPPOSITE DIRECTION.

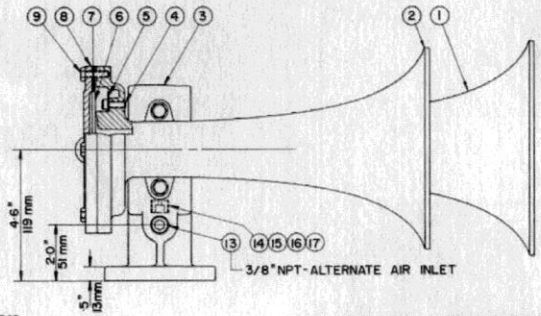
WHEN REVERSING BELLS - ROTATE CAP (REF.8) SO THAT RELIEF HOLE IS DOWN.

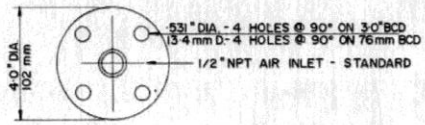
PARTS COMMON TO ALL K-2 MODELS				
REF.	PART	DESCRIPTION	MATERIAL	QTY
1		BELL	DIE CAST ALUMINUM	1
2		BELL	DIE CAST ALUMINUM	1
3	30124	BASE	CAST ALUMINUM	1
4	30144	SCREW	STAINLESS STEEL	6
5	30143	DIFFUSER	SHEET ALUMINUM	2
6	30111	DIAPHRAGM DISC	STAINLESS STEEL	4
7	30112	CUSHION RING	SILICONE RUBBER	2
8	30109	DIAPHRAGM CAP	DIE CAST ALUMINUM	2
9	30110	SCREW	STAINLESS STEEL	12
10	30120-0	O RING GASKET	SYNTHETIC RUBBER	2
11	30119	SCREW	STAINLESS STEEL	4
12	30122	LOCKWASHER	STAINLESS STEEL	4
13	C-20966-4P	PIPE PLUG	STEEL-CAD. PLATED	2
14	C-21019-26	RESTRICTOR-86 CFM	STEEL-CAD. PLATED	
15	C-21019-28	RESTRICTOR-66 CFM	STEEL-CAD. PLATED	
16	C-21019-28	RESTRICTOR-46 CFM	STEEL-CAD. PLATED	
17	C-21019-30	RESTRICTOR-32 CFM	STEEL-CAD. PLATED	

DIMENSIONS

REF.	K-12	K-13	K-14	K-25
A	13.56 in. 344 mm	13.56 in. 344 mm	13.56 in. 344 mm	9.75 in. 248 mm
B	9.75 in. 248 mm	7.06 in. 179 mm	5.75 in. 146 mm	4.37 in. 111 mm
C	7.75 in. 197 mm	7.75 in. 197 mm	7.75 in. 197 mm	7.25 in. 184 mm
D	7.25 in. 184 mm	6.75 in. 171 mm	5.75 in. 146 mm	5.50 in. 140 mm

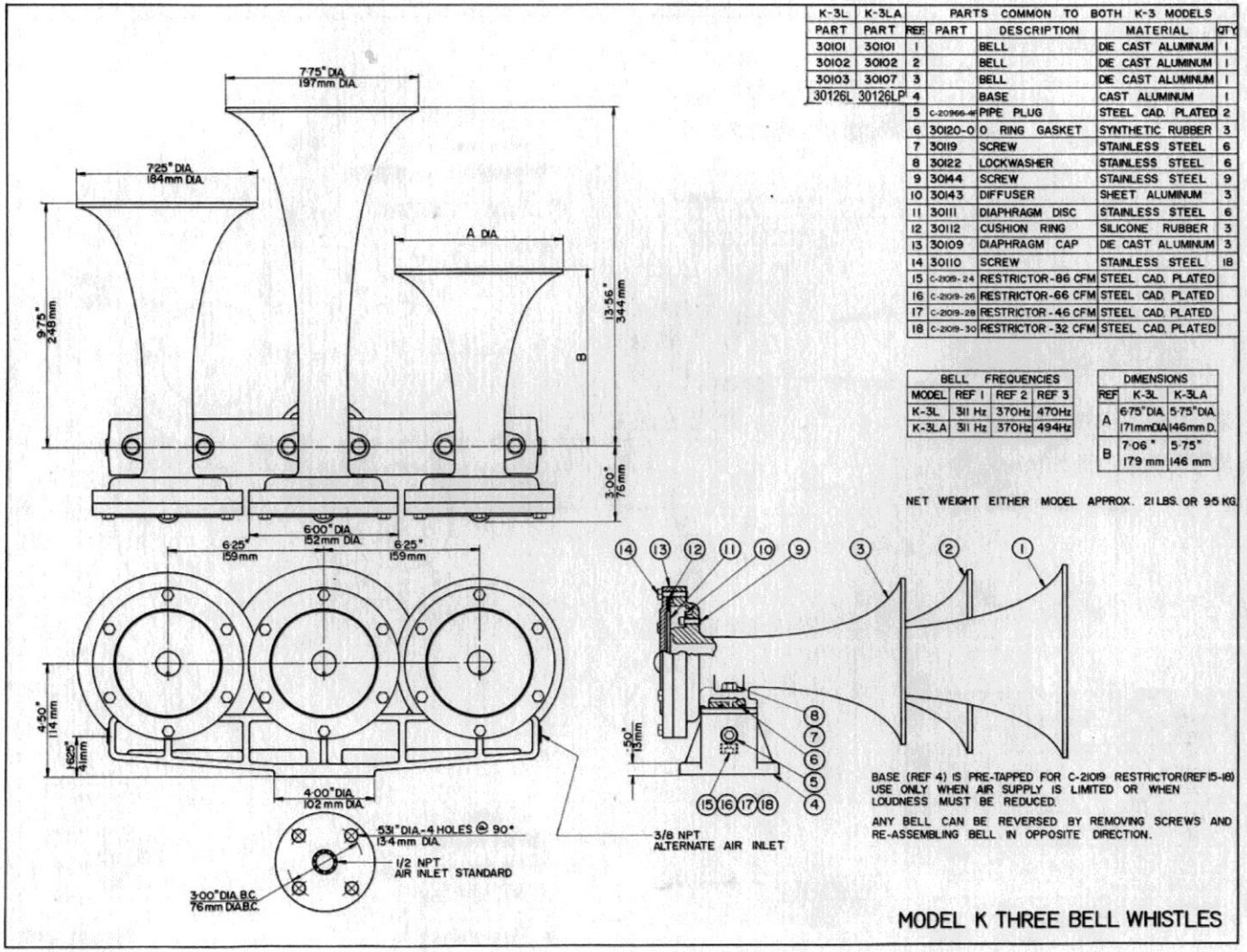






NET WEIGHT (ANY MODEL) IS WITHIN 12-14 LBS. OR 5.4 TO 6.3 Kg.

MODEL K TWO BELL WHISTLES



K-3L PART	K-3LA PART	REF.	PARTS COMMON TO BOTH K-3 MODELS PART	DESCRIPTION	MATERIAL	QTY
30101	30101	1		BELL	DIE CAST ALUMINUM	1
30102	30102	2		BELL	DIE CAST ALUMINUM	1
30103	30107	3		BELL	DIE CAST ALUMINUM	1
30126L	30126LP	4		BASE	CAST ALUMINUM	1
		5	C-20966-4F	PIPE PLUG	STEEL CAD. PLATED	2
		6	30120-0	O RING GASKET	SYNTHETIC RUBBER	3
		7	30119	SCREW	STAINLESS STEEL	6
		8	30122	LOCKWASHER	STAINLESS STEEL	6
		9	30144	SCREW	STAINLESS STEEL	9
		10	30143	DIFFUSER	SHEET ALUMINUM	3
		11	30111	DIAPHRAGM DISC	STAINLESS STEEL	6
		12	30112	CUSHION RING	SILICONE RUBBER	3
		13	30109	DIAPHRAGM CAP	DIE CAST ALUMINUM	3
		14	30110	SCREW	STAINLESS STEEL	18
		15	C-21019-24	RESTRICTOR-86 CFM	STEEL CAD. PLATED	
		16	C-21019-26	RESTRICTOR-66 CFM	STEEL CAD. PLATED	
		17	C-21019-28	RESTRICTOR-46 CFM	STEEL CAD. PLATED	
		18	C-21019-30	RESTRICTOR-32 CFM	STEEL CAD. PLATED	

BELL FREQUENCIES			
MODEL	REF 1	REF 2	REF 3
K-3L	311 Hz	370Hz	470Hz
K-3LA	311 Hz	370Hz	494Hz

DIMENSIONS		
REF	K-3L	K-3LA
A	6.75" DIA. 171mm DIA	5.75" DIA. 146mm D.
B	7.06" 179 mm	5.75" 146 mm

NET WEIGHT EITHER MODEL APPROX. 21 LBS. OR 9.5 KG.

BASE (REF 4) IS PRE-TAPPED FOR C-21019 RESTRICTOR (REF 15-18) USE ONLY WHEN AIR SUPPLY IS LIMITED OR WHEN LOUDNESS MUST BE REDUCED.

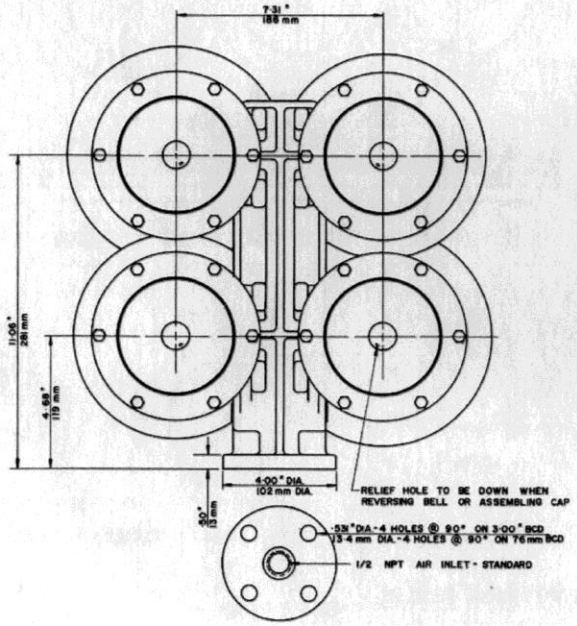
ANY BELL CAN BE REVERSED BY REMOVING SCREWS AND RE-ASSEMBLING BELL IN OPPOSITE DIRECTION.

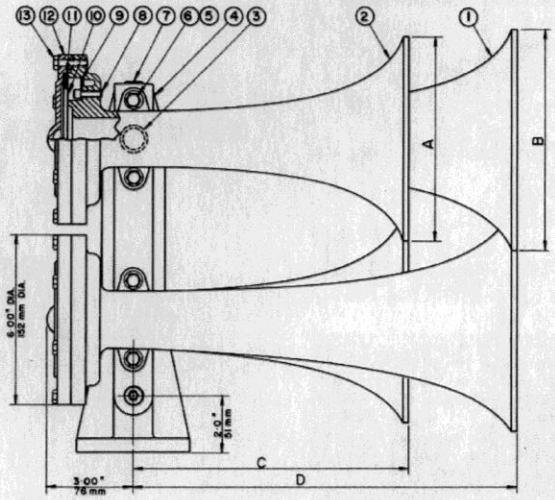
MODEL K THREE BELL WHISTLES

DIMENSIONS		
REF.	K-1212	K-2525
A	7.25" 184 mm	5.50" 140 mm
B	7.75" 197 mm	7.25" 184 mm
C	9.75" 248mm	4.37" 111 mm
D	13.56" 344mm	9.75" 248mm

FREQUENCIES		
MODEL	BELL 1	BELL 2
K-1212	311 Hz	370 Hz
K-2525	370 Hz	622 Hz

MODEL		PARTS COMMON TO BOTH MODELS			
K-1212	K-2525	REF	PART	DESCRIPTION	MATERIAL	QTY
30101	30102	1		BELL	DIE CAST ALUMINUM	2
30102	30105	2		BELL	DIE CAST ALUMINUM	2
		3	30120-0	O-RING GASKET	SYNTHETIC RUBBER	4
		4	30128	BASE	CAST ALUMINUM	1
		5	30122	LOCKWASHER	STAINLESS STEEL	8
		6	30119	SCREW	STAINLESS STEEL	8
		7	C-20966-4P	PIPE PLUG	STEEL CAD PLATED	3
		8	30144	SCREW	STAINLESS STEEL	12
		9	30143	DIFFUSER	SHEET ALUMINUM	4
		10	30111	DIAPHRAGM DISC	STAINLESS STEEL	8
		11	30112	CUSHION RING	SILICONE RUBBER	4
		12	30109	DIAPHRAGM CAP	DIE CAST ALUMINUM	4
		13	30110	SCREW	STAINLESS STEEL	24

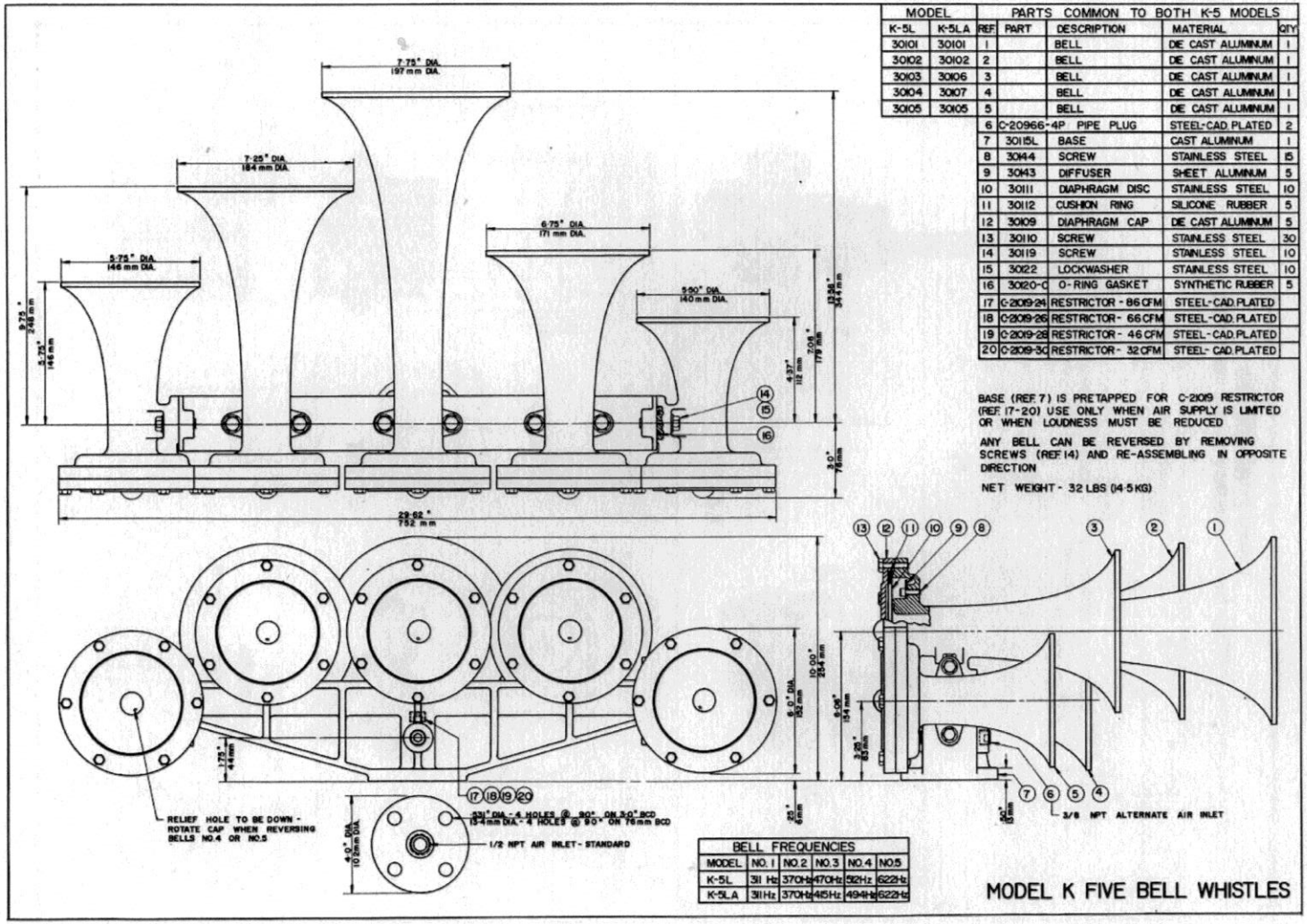




BELLS CAN BE REVERSED BY REMOVING SCREWS (REF 6) AND RE-ASSEMBLING IN OPPOSITE DIRECTION

NET WEIGHT K-1212 - 26 LBS (11.79 KG)
K-2525 - 24 LBS (10.88 KG)

MODEL K FOUR BELL WHISTLES



MODEL	
K-5L	K-5LA
30101	30101
30102	30102
30103	30106
30104	30107
30105	30105

PARTS COMMON TO BOTH K-5 MODELS				
REF	PART	DESCRIPTION	MATERIAL	QTY
1		BELL	DIE CAST ALUMINUM	1
2		BELL	DIE CAST ALUMINUM	1
3		BELL	DIE CAST ALUMINUM	1
4		BELL	DIE CAST ALUMINUM	1
5		BELL	DIE CAST ALUMINUM	1
6	C-20966-4P	PIPE PLUG	STEEL-CAD PLATED	2
7	30115L	BASE	CAST ALUMINUM	1
8	30144	SCREW	STAINLESS STEEL	15
9	30143	DIFFUSER	SHEET ALUMINUM	5
10	30111	DIAPHRAGM DISC	STAINLESS STEEL	10
11	30112	CUSHION RING	SILICONE RUBBER	5
12	30109	DIAPHRAGM CAP	DIE CAST ALUMINUM	5
13	30110	SCREW	STAINLESS STEEL	30
14	30119	SCREW	STAINLESS STEEL	10
15	30122	LOCKWASHER	STAINLESS STEEL	10
16	30120-0	O-RING GASKET	SYNTHETIC RUBBER	5
17	C-2019-24	RESTRICTOR - 86 CFM	STEEL-CAD PLATED	
18	C-2019-26	RESTRICTOR - 66 CFM	STEEL-CAD PLATED	
19	C-2019-28	RESTRICTOR - 46 CFM	STEEL-CAD PLATED	
20	C-2019-30	RESTRICTOR - 32 CFM	STEEL-CAD PLATED	

BASE (REF. 7) IS PRETAPPED FOR C-2019 RESTRICTOR (REF. 17-20) USE ONLY WHEN AIR SUPPLY IS LIMITED OR WHEN LOUDNESS MUST BE REDUCED

ANY BELL CAN BE REVERSED BY REMOVING SCREWS (REF. 14) AND RE-ASSEMBLING IN OPPOSITE DIRECTION

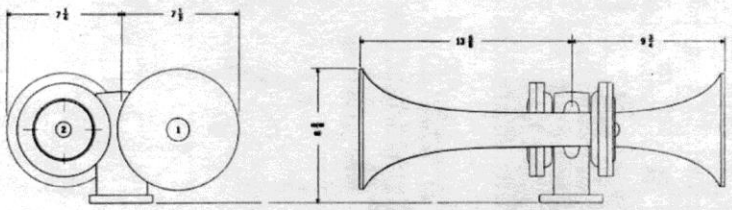
NET WEIGHT - 32 LBS (14.5 KG)

BELL FREQUENCIES					
MODEL	NO. 1	NO. 2	NO. 3	NO. 4	NO. 5
K-5L	311 Hz	370Hz	470Hz	592Hz	622Hz
K-5LA	311 Hz	370Hz	415Hz	494Hz	622Hz

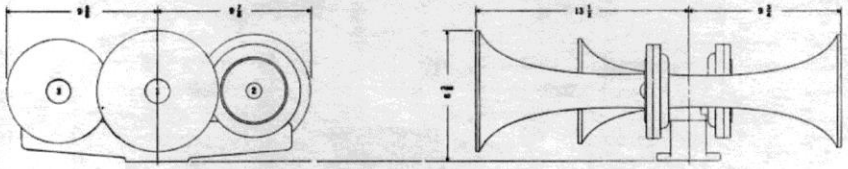
MODEL K FIVE BELL WHISTLES

TYPICAL REVERSALS

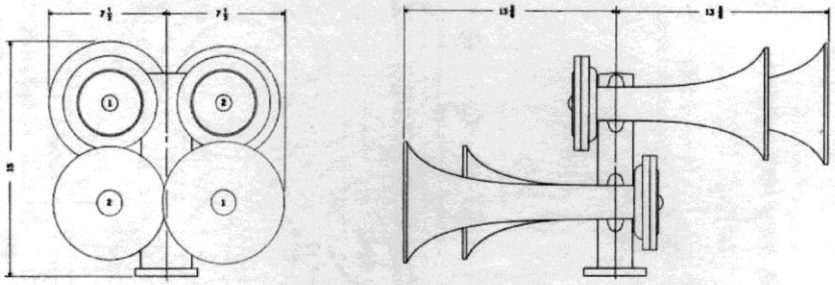
BELLS MAY BE REVERSED ON ALL CHIME MODELS



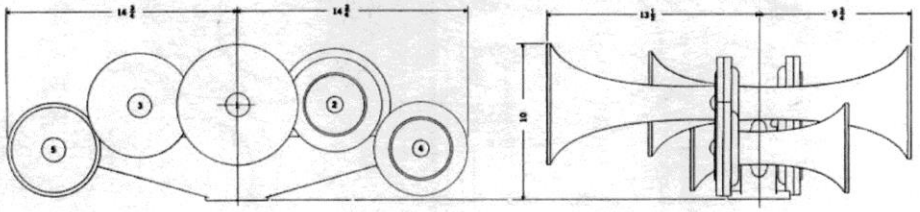
K1R2



K3LR2



K12R12



K5LR24

ACCESSORIES

The whistle installation and its method of control is important to the whistles operation and should be designed for top efficiency.

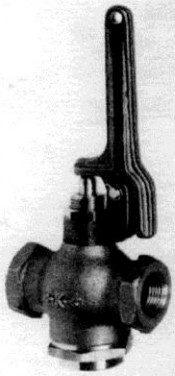
Inadequate piping contributes more than any other factor toward poor whistle performance.

Oversize piping is always a wise investment, the initial cost being for labour and not material.

It is important to install the operating valve close to the whistle. It should be properly rigged to give the engineer complete and easy control to blow the whistle.

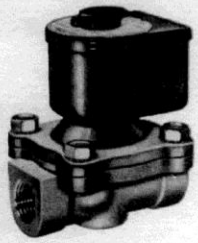
Blow out line thoroughly before attaching whistle to its mounting pad.

When testing, all pressure readings should be taken at the base of the whistle **when it's blowing**. When whistle blown, pressure drop should not exceed 15 P.S.I. below that of main reservoir pressure.



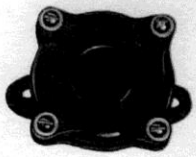
WHISTLE VALVE

For Manual operation of the whistle bronze construction, Buna "N" seat sizes 1/2 or 3/4 N.P.T.



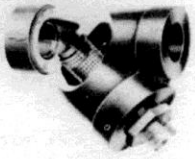
SOLENOID VALVE

For push button operation of the whistle brass construction, stainless trim and Buna "N" seat sizes 1/2 or 3/4 N.P.T.



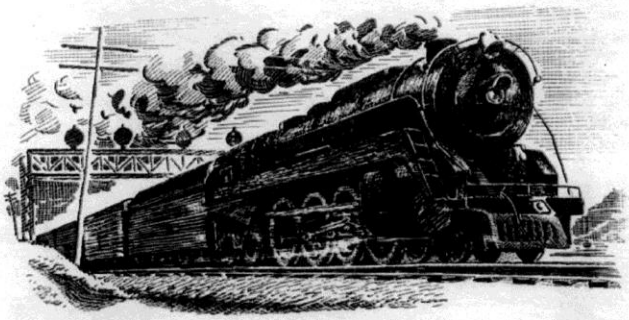
PUSH BUTTON

Heavy aluminum construction – weather proof, drilled and tapped for 1/2 conduit.



STRAINER

Bronze construction, stainless screen screwed connection sizes 1/2 or 3/4 N.P.T.



THAT WHISTLE IN THE NIGHT

Oh diesel queen of the glittering rail,
Pride of the streamlined train,
Your throbbing pistons rule the grade
Where once was Steam's Domain.
The iron horse has spent his day,
Now fades his thundering might;
But diesel, diesel save for me
That whistle in the night.

Silence forever — if you must —
The roar of steam and fire.
Let soulless men be satisfied
With the growl of a diesel flier.
The clanking rod and roaring stack
Forever fades from sight;
But diesel, diesel save for me
That whistle in the night.

Oh, let me hear that plaintive wail
Across the lonely plains,
Or hear the snow-clad peaks fling back
The voice of thundering trains.
Then in my soul there stirs a peace
That tells me all is right;
So diesel, diesel save for me
That whistle in the night.

Robert E. Swanson
Author