Klaxon is a trademark for a brand of electromechanical horn or alerting device. Mainly used on cars, trains and ships, klaxon horns produce an easily identifiable sound often transcribed as "awooga" or "ah-oo-gah." The klaxon horn's characteristic sound is produced by a spring-steel diaphragm with a rivet in the center that is repeatedly struck by the teeth of a rotating cogwheel. The diaphragm is attached to a horn that acts as an acoustic transformer and controls the direction of the sound.

OPERATION, CARE AND MAINTENANCE OF KLAXON HORNS

First printed 1937

The Klaxon horns in use on passenger cars and commercial vehicles consist of electrically operated and hand operated models.

ELECTRICALLY OPERATED HORNS

The electrically operated horns are vibrating type units that operate on a magnetic principle to produce the warning signal. These horns are used as single units or in matched pairs with a lended tone. Current from the battery flows through the windings within the horn power plant when the circuit is completed at the horn push-button switch. The magnetic attraction of the armature toward the pole causes a tension and slight movement of the diaphragm. This movement opens the contact points in series with the horn windings, breaking the circuit. When the current is interrupted, the armature returns to its original position relieving the tension of the diaphragm. The slight return movement of the armature and diaphragm allows the contact points to close, completing the circuit. This cycle is repeated a great many times per second resulting in a rapid vibration of the diaphragm. Each horn is designed to operate at a predetermined number of cycles per second to produce its characteristic wanting signal. The pitch of the horns depends upon the number of vibrations per second, the high note horns having the greater frequency.

CONDITIONS AFFECTING HORN PERFORMANCE

The following conditions affect the performance of the horns and should be checked before attempting to make any adjustments to the instruments:

1. Low Horn Voltage - If the horn produces a weak signal, the voltage at the horn should be noted.

Connect a voltmeter from the horn terminal to ground when checking horns having one terminal.

Connect the voltmeter across the horn terminals when checking horns having two terminals. The voltage readings should not be less than 5.25 volts (six volt system) or 11 volts (twelve volt system).

A lower reading would indicate either a low battery or a high resistance in the horn circuit.

2. Low Battery - Check the battery with a voltmeter or hydrometer for condition of charge. If low, the battery should be recharged.

3. Loose or Corroded Connections in Horn Circuit

Clean and tighten connections wherever necessary. Check for defective wiring by connecting separate test leads from the horn to the battery.

A loose connection or poor contact at the horn pushbutton switch may cause the horn to operate intermittently. Shunt around the horn button to determine whether there is poor contact at the pushbutton switch.

If a horn relay is used in the circuit, remove the relay cover and see that the relay operates. The relay is connected in the battery circuit and is remotely controlled by the horn push-button switch.

(Refer to Bulletins 1 R-100, 1 R-180 and 1 R-18S for Horn Relay Adjustments and Test Data.)

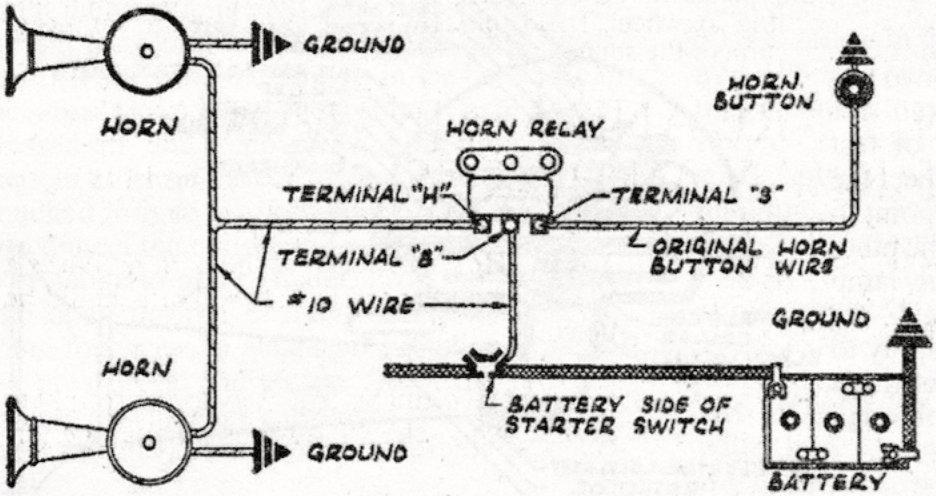

Figure 1.

HORN RELAY MUST BE CONNECTED AS SHOWN IN FIGURE 1 TO PREVENT DAMAGE TO THE UNIT.

4. Undersize Wire in Horn Circuit - The wire in the horn circuit should be of sufficient size to carry the current required to operate the horns.

USE NO. 14 (0.064" DIAMETER) WIRE OR LARGER IN THE HORN CIRCUIT FOR MODELS 16, 26 AND 31 KLAXONS

USE NO. 10 (0.1" DIAMETER) WIRE OR LARGER IN THE HORN CIRCUIT FOR MODEL 33 KLAXONS.

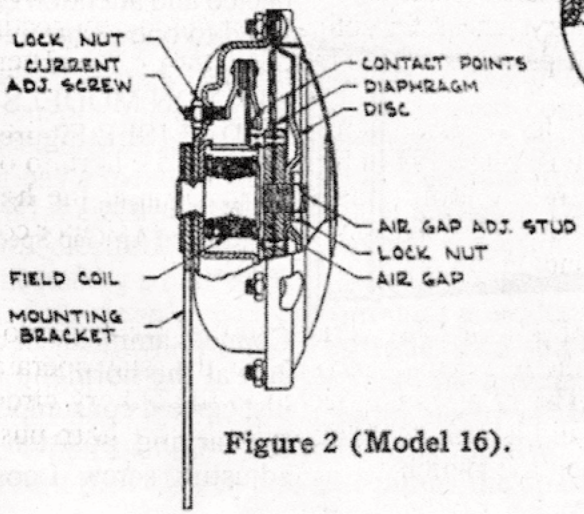

Figure 2 (Model 16).

5. Mounting - Some horns are grounded internally and have but one terminal. In this case, a good ground connection to the frame of the car should be maintained through the mounting brackets: Horns must be fastened securely in position or the tone will be affected.

6. Loose or Damaged Parts - Horns usually have a rasping sound when vital parts are loose or broken. A loose backshell may affect the tone. Tighten all collar screws, mounting nuts, and studs, and replace all damaged parts.

Some matched pairs of Model 33 horns use a long and a short projector. The long projector must be used with the power plant stamped "L" and the short projector with the power plant stamped "S" or the horns will not perform properly.

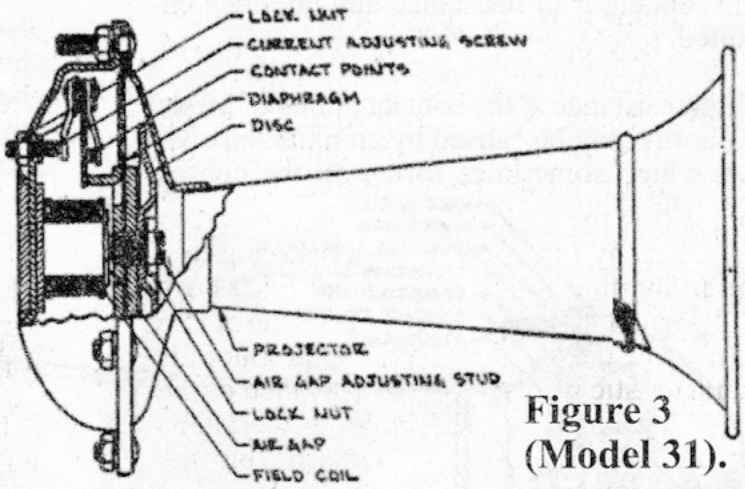

Figure 3 (Model 31).

7. Open, Shorted or Grounded Circuits in the Horn - The horn will not function properly if the field windings are open circuited, short circuited or grounded. Connect an ammeter in the horn circuit at the horn terminal. If there is no indication of current flowing when the contact points are closed, the windings are open circuited. The ammeter will in-

dicate an excessive flow of current if the windings are short circuited or grounded.

The windings in horns having two terminals may also be checked for grounded circuit by the use of test points and a test lamp. Disconnect the horn leads and touch one test point to one of the horn terminals and the other point to the horn base. If the lamp lights, the field windings are grounded. This test does not apply to horns having one terminal as these horns are grounded internally through the base.

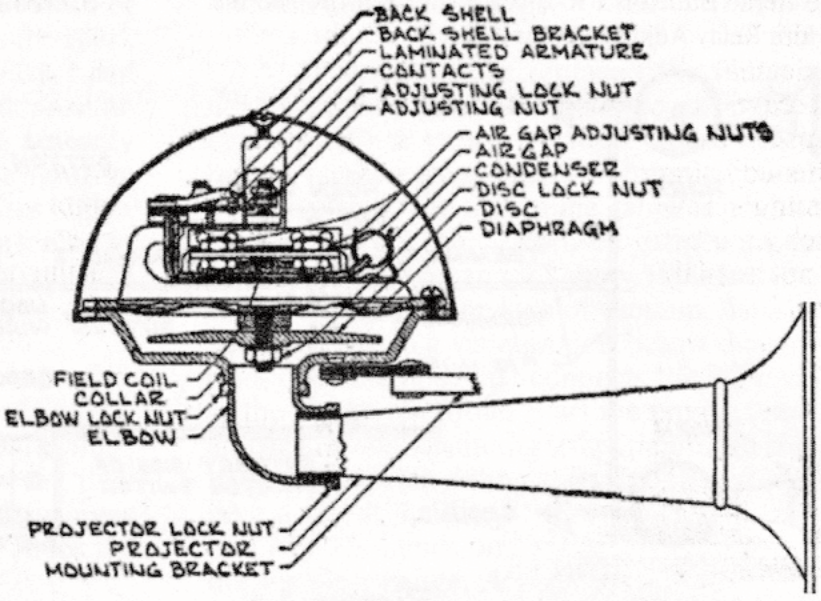

Figure 5 (Model 26-M).

8. Arcing or High Resistance at Contact Points - Excessive arcing at the contact points may be caused by improper current adjustment. An open circuit in the condenser (on Model 26 horns) or in the resistance unit (on Model 33 horns) will cause excessive arcing at the points and in some cases the contacts will be held together. The horn will not function properly if the condenser or resistance unit are open circuited.

High resistance at the contact points of Model 33 horns may be caused by an oxidized coating which sometimes forms on the contact surfaces. Usually a few light strokes with a thin contact point file will dress the points so that the horns will produce the proper tone.

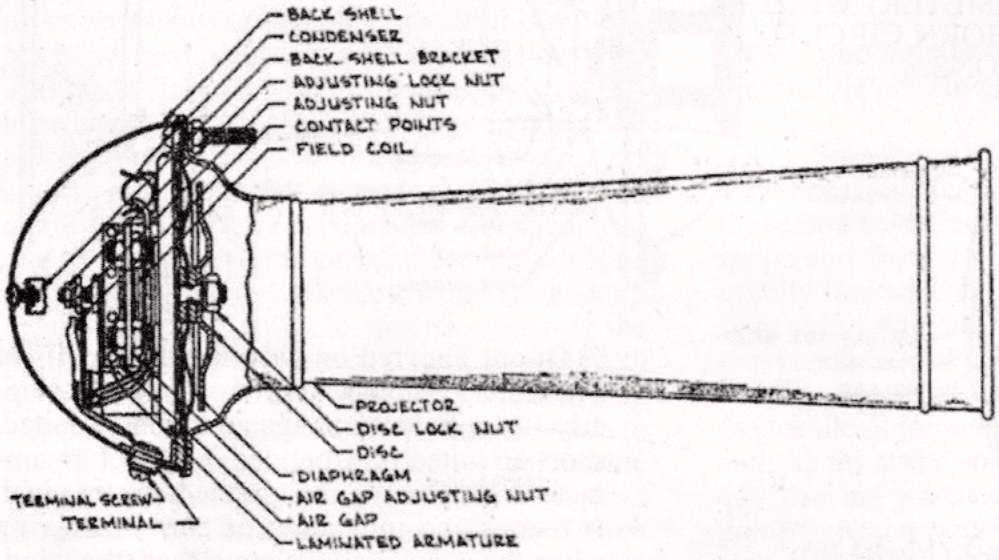

Figure 4 (Model 26-L).

ADJUSTMENTS

No adjustments should be necessary on new horns as they are carefully adjusted and tested before they leave the factory. However, if the tone is not satisfactory after checking the above conditions, it will be necessary to adjust the horns. When adjusting matched pairs, one horn should be disconnected and attention confined to one instrument.

KLAXON MODELS 16 AND 31 (SEE Figures 2 AND 3).
(Refer to Bulletin 1 K-185 for Current and Air Gap Specifications.)

Connect ammeter in circuit at the horn and adjust current consumption by varying position of adjusting screw. Loosen

the lock nut and turn current adjusting screw to the left to increase the current, to the right to decrease the current. Increasing the current increases the volume. Too much current will cause the horn to have a sputtering sound. This adjustment is very sensitive. Move adjusting screw 1/10 turn and lock in position each time before trying the horn. If ammeter is not available, adjust according to sound.

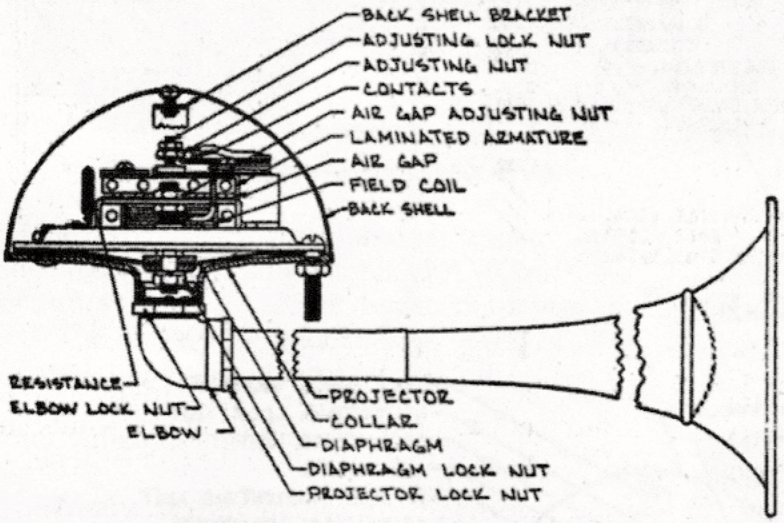

Figure 6 (Model 33-B).

If the tone of the horn is unsatisfactory after adjusting the current, remove the face plate or projector and adjust the air gap.

Loosen the lock nut and turn air gap adjusting stud to the right until it touches the core. The horn will not sound when stud is in this position. Back stud away from the core by turning of one turn to the left and lock in position. If the horn has a coarse high pitch, turn air gap adjusting stud to the left and if the pitch is too low, turn stud to the right. Move stud 1/10 turn and lock in position each time when adjusting near the correct setting.

After each horn in a matched pair has been adjusted and operated individually as instructed, connect the units together and sound for blended tone.

KLAXON MODELS 26 AND 33 (SEE Figures 4, 5,6,7,8,9).

(Refer to Bulletin 1 K-185 for Current and Air Gap Specifications.)

Remove the backshell from the horn. Connect ammeter in circuit at the horn and adjust current consumption by varying position of adjusting nut. Loosen adjusting lock nut and turn adjusting nut to the left to increase the current, to the right to decrease the current. Increasing the current increases the volume. Too much current will cause the horn to have a sputtering sound. This adjustment is very sensitive. Move nut 1/10 turn at a time and lock in position each time before trying the horn. If ammeter is not available, adjust according to sound.

The correct air gap between the armature and core is very important for proper tone. The gap must be uniform across the entire surface of the armature. The width of the gap may be determined by using a feeler gauge. Adjustments are made by means of the air gap adjusting nuts.

After each horn in a matched pair has been adjusted and operated individually as instructed, connect the units together and sound for blended tone.

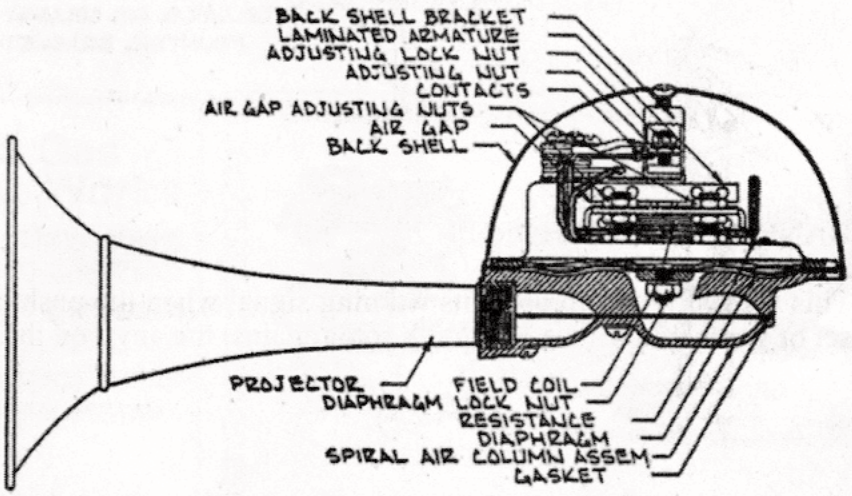

Figure 7 (Model 33-C).

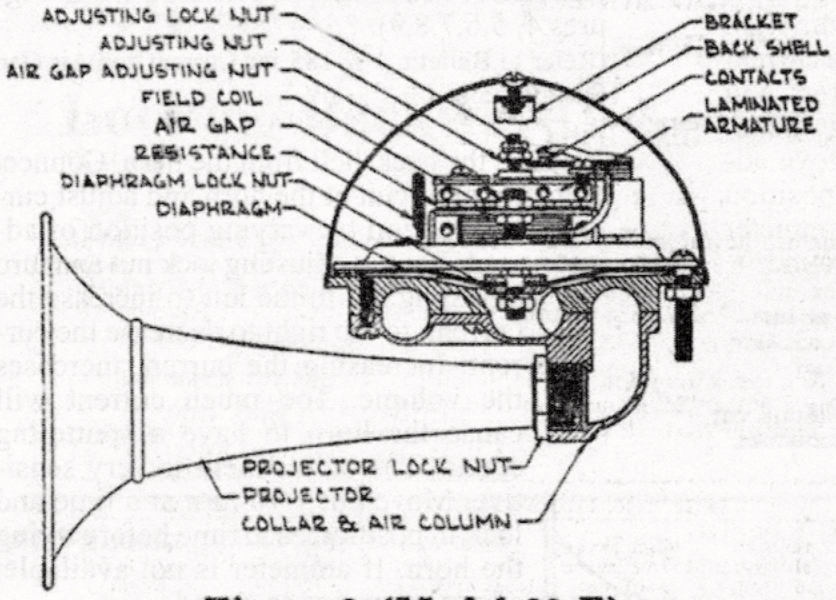

Figure 8 (Model 33-F).

NOTE: The Model 26 single six volt horns having the short projectors should be adjusted according to high note specifications and those with long projectors should be adjusted according to low note specifications.

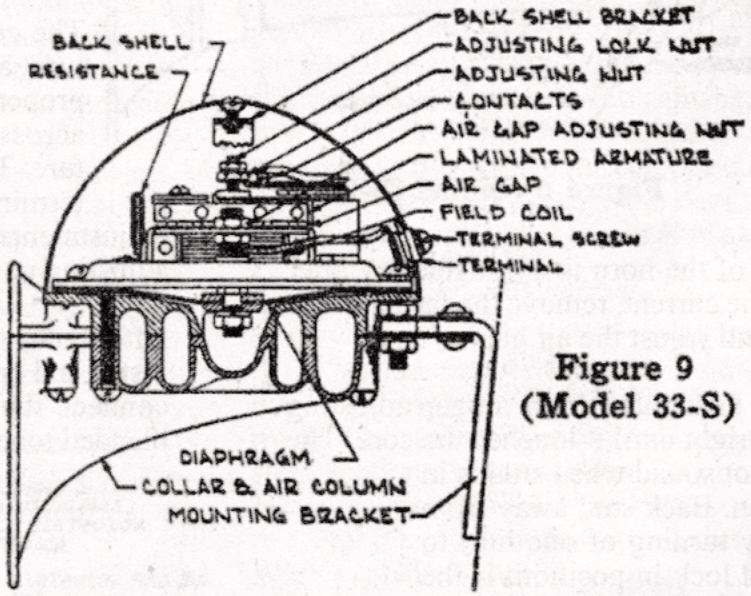

Figure 9 (Model 33-S)

HAND OPERATED HORNS

This type of horn produces its warning signal when the push-rack and pinion, operating through a set of gears, rotates the saw tooth rotor against the anvil on the diaphragm.

Delco-Remy

SERVICE BULLETIN

Subject—KLAXON HORN TEST SPECIFICATIONS

BULLETIN **1 K-185**
Date 6–1–37

NOTE OF EXPLANATION:

The model numbers of the horns can be determined from the type numbers as shown in column two—"HORN TYPE NUMBERS." The type numbers are stamped with a rubber stamp on the base of the horn, under the backshell. On these horns it is necessary to remove the backshell to locate the type number. The type numbers are not stamped on the Models 16 and 31 Horns as the test specifications are the same on all types.

Some Matched Pairs of Model 33's use a long and a short projector. The **long projector** must be used with the power plant having a letter "L" stamped on the collar into which the projector is assembled. The **short projector** must be used with the power plant having a letter "S" stamped on the collar.

HORN MODEL NUMBER	HORN TYPE NUMBERS	CURRENT CONSUMPTION			AIR GAP	
		Low Note 6 Volt Horns at 6 Volts (Amperes)	High Note 6 Volt Horns at 6 Volts (Amperes)	High and Low Note 12 Volt Horns at 12 Volts (Amperes)	High Note 6 and 12 Volt Horns (Inches)	Low Note 6 and 12 Volt Horns (Inches)
16		5-7.5	5-7.5	3-4.5	.015-.017	.020-.022
31		"	"	"	"	"
24	1911 to 1923 inc.	5.5-7.5	------	3.5-5.0	------	.027-.032
26	1375 to 1400 inc. 1501 to 1510 inc.	6.5-8.5	5-6.5	3.5-4.5	.017-.020	.025-.029
26-B	1401 to 1414 inc.	"	"	"	"	"
26-C	1415 to 1434 inc.	"	"	"	"	"
26-D	1731 to 1736 inc.	"	"	"	"	"
26-E	1475 to 1490 inc.	"	"	"	.019-.023	"
26-F	1451 to 1454 inc.	"	"	"	"	"
26-G	1761 to 1799 inc. 2201 to 2206 inc.	"	"	"	"	"
26-H	2251–2252	"	------	"	------	"
26-L	1601 to 1624 inc. 1635 to 1642 inc.	"	------	"	------	"
26-M	1700 to 1717 inc.	"	5-6.5	"	.019-.023	"
26-S	1540 to 1553 inc. 1559 to 1572 inc.	"	"	"	"	"
33	1651 to 1658 inc.	11-13	11-13	8-11	.040-.047	.050-.057
33-B	1851 to 1873 inc.	12-14	"	"	.036-.040	.045-.050
33-C	1881 to 1910 inc. 2031 to 2049 inc. 2151 to 2156 inc.	11-13	10-12	"	.032-036	.042-.046
33-D	1951 to 1966 inc.	12-14	11-13	"	.036-.040	.045-.050
33-F	2101 to 2120 inc.	11-13	9-11	"	.032-.036	.040-.044
33-G	1991-2, 1997-8	10-12	9-11	------	.030-.034	.038-.042
"	1993-4, 1996	11-13	10-12	------	.036-.040	.045-.050
33-S	2051 to 2075 inc.	"	"	8-11	.032-.036	.042-.046

S.K.