

NAVSHIPS 365-2064

I. C. INSTRUCTION BOOK NO. 33B

INSTRUCTION BOOK
LOUDSPEAKER, DYNAMIC
TYPE IC/SBA-4J
TYPE IC/SBG-4J

JENSEN MANUFACTURING COMPANY
CHICAGO 38, ILLINOIS

Contract Nobs 61898

INSTRUCTION BOOK No. I37

BUREAU OF SHIPS - NAVY DEPARTMENT - WASHINGTON, D.C.

499 USS CANBERRA CAG-2

RR

498 USS BOSTON CAG-1

NAVSHPIS 365-2064
I.C. INSTRUCTION BOOK No. 33B

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Contract NObs 59409
Contract NObs 61425
Contract NObs 61898

499 USS CANBERRA CAG-2
498 USS BOSTON CAG-1

JENSEN INSTRUCTION BOOK No. 137

BUREAU OF SHIPS — NAVY DEPARTMENT — JULY, 1953

GUARANTY

WE GUARANTEE that all of the equipment described in this book is in accordance with the requirements of the contract. We also guarantee all equipment against defects in material and workmanship which may develop within one year after delivery.

General Data

This instruction book covers two loudspeakers used as components in Shipboard announce Systems. Both are double reentrant horn type loudspeakers rated as High Power. Both are corrosion resistant and blastproof. They differ in the accessibility of the volume adjustment as listed below.

Navy Type Designation	IC/SBA-4J	IC/SBG-4J
BuShip Stock No.	S17L-91451-1001	S17L-91451-1002
Volume Adjustment	Internal Jumper on Terminal Board	External Rotary Tap Switch
Voltage	70/50	
Frequency Response	500-6000 cycles per second	
Power Input	7.5 watts max.	
Weight Unpacked	23 lbs.	
Packed	30 lbs.	
Dimensions	13" diameter x 10" deep	

SECTION 1

Introduction

1.1 SCOPE

This instruction book contains information pertinent to High Power Loudspeakers used on Shipboard Announcing Systems. For information on overall system operation and other components, refer to the applicable instruction book.

1.2 DEFINITIONS OF TECHNICAL TERMS

ACOUSTIC FEEDBACK

This is commonly called "feedback" or howl. This condition is caused by acoustical energy from the loudspeaker feeding back into the microphone or other acoustically sensitive devices in the input of the same amplifier.

DISTORTION

Distortion is a change in wave form occurring in a transducer or transmission medium.

DECIBEL

A Decibel (abbreviated db) is a unit of measure of the ratio of two amounts of power. If the amounts of power to be compared are P_1 and P_2 , then

$$\text{Number of decibels} = 10 \log_{10} \left(\frac{P_1}{P_2} \right)$$

LEVEL

Level is the magnitude of a signal expressed in terms of the number of decibels above or below an arbitrarily chosen reference. The common reference for sound pressure levels is .0002 dynes per square centimeter which is near the threshold of hearing.

SOUND AXIS

The sound axis of a reproducer is an imaginary line passing through the center of the radiating surface of the reproducer and perpendicular to this surface. Maximum sound output will usually be found on this axis.

HORN

A horn is an acoustic transducer consisting of a tube of varying sectional area.

LOUDSPEAKER

A loudspeaker is an electro-mechanical device which converts electrical energy into sound energy. (The shorter term, speaker, is frequently used where no ambiguity will result, as in compound terms.)

TRANSFORMER TURNS RATIO

The ratio of the number of turns in one winding to the number of turns in another winding.

TRANSFORMER VOLTAGE RATIO

The ratio of voltage between one winding and that of another winding determined by the transformer turns ratio.

LOUDSPEAKER, DYNAMIC TYPES IC/SBA-4J AND IC/SBG-4J

SECTION 2

Description

2.1 TYPE IC/SBA-4J

These are compression type loudspeakers with double folded horns designed to produce high acoustic output with a minimum of power input. Type IC/SBA-4J is intended for locations where the acoustic output level should remain reasonably constant at all times. Volume adjustment is provided inside the loudspeaker by taps on the transformer. These taps provide volume and power input adjustments as listed below:

FULL POWER	
— 6 db	7 watts
— 12 db	1.75 watts
— 18 db	.437 watts
— 24 db	.110 watts
	.027 watts

2.2 TYPE IC/SBG-4J

The loudspeaker volume adjustment for the type IC/SBG-4J is provided by a tap switch accessible from the outside of the speaker. This tap switch provides the same volume adjustments available on the IC/SBA-4J loudspeaker as listed above.

2.3 TRANSFORMER

These loudspeakers Type IC/SBA-4J and IC/SBG-4J are designed to operate directly from a 70 volt audio distribution line or from a 50 volt line when a series protective resistor is used. The amplifiers with which these loudspeakers are intended to be used are designed to maintain a constant 70 volt output voltage independent of the loudspeaker load. Therefore there is no necessity for the use of a dummy load or balancing resistors when loudspeakers are disconnected from the line. Problems relating to impedance matching have been eliminated. Each loudspeaker is equipped with a line matching transformer. The electrical input power is 7 watts when the primary is connected to either a 50 or 70 volt audio power line and when the secondary is connected for "FULL" power output.

SECTION 3

Installation

3.1 CHOICE OF LOCATION

Mount loudspeakers so that the space in front is clear of obstructions and the sound axis of the loudspeaker is directed toward the center of the area which is to be covered. In locating loudspeakers keep in mind their sound distribution characteristics. Intelligibility will decrease as the listener moves farther away from the loudspeaker or too far to one side (away from the sound axis). In open air the intelligibility of the sound axis should be good up to about thirty degrees in any direction from the axis. In enclosed spaces this intelligibility increases to about forty degrees. Clearance should be provided on all sides to facilitate maintenance.

3.2 MOUNTING PROCEDURE

The loudspeakers may be pointed downward at any angle desired as long as they are mounted for proper drainage.

These loudspeakers are not watertight but are waterproof and salt-spray resistant. Drain holes are provided for the normal mounting position to drain off moisture which may enter the speaker. Two terminal tubes (4), Figure 7, are provided on one side of the loudspeaker. Mount the loudspeaker with these tubes downward if the loudspeaker is exposed to moisture or condensation.

To mount the loudspeaker, remove the horn (75) Figure 7, by loosening the three bolts (86), Figure 7, which can be seen by looking directly into the mouth of the horn.

Removal of the horn will expose the mounting plate (6), Figure 7, in which three mounting holes have been provided. Use the template supplied with each loudspeaker to obtain the proper locations for the three mounting studs or bolts. After fastening the speaker to the bulkhead bring the ship's wiring through one or both of the terminal tubes provided. The ship's wiring is connected to the proper terminals on the right hand terminal block (21-A) as shown on Figure 7. The ship's wiring is connected to MCC COM — and either MC 70V or MCX 50V depending upon the input line voltage. The power adjustment settings on the IC/SBA-4J are identified on the terminal block as follows: "FULL", -6db, -12db, -18db, and -24db. Loudspeakers are normally shipped with the jumper connected for FULL power output. The Elementary Wiring Diagram for the ship will indicate the proper primary and secondary tap for each speaker installation. The above adjustments may be made by moving the jumper wire which is connected to the terminal marked FULL to the secondary tap specified by the elementary wiring diagram.

SECTION 4

Adjustments

4.1 METHOD OF ADJUSTING VOLUME

These loudspeakers are not necessarily intended to operate at full power. By adjustment of the secondary connections of the line matching transformer the output of the loudspeaker may be varied to suit the requirements of the location of each individual speaker. In the type IC/SBA-4J this adjustment is made by choosing the proper tap connections on the terminal block inside the speaker. The type IC/SBG-4J provides the same choice of output adjustments by a tap switch accessible from the outside of the loudspeaker.

SECTION 5

Maintenance

5.1 PREVENTIVE MAINTENANCE

The nature of the construction and operation of these loudspeakers is such that preventive maintenance is not required for most installations. However, when a loudspeaker is installed in a location where it is subjected to considerable spray, salt incrustation is likely to occur. Under these conditions, to maintain optimum performance, clean the sound chamber and blast valve periodically. (See 5.5 for details.) In addition, inspect all solder joints, especially those on the head assembly, while the loudspeaker is disassembled. No period can be set for this cleaning as the requirements will vary.

5.2.1 REPLACEMENT AND REPAIR OF WIRING ASSEMBLY

REPLACEMENT OF WIRING ASSEMBLY

Take off horn (75) by loosening three screws (86). Remove incoming ship's wiring from terminal block (21-A). Remove leads to driver unit (48). In type IC/SBG-4J remove set screw (36), knob (35), and nut (34) from tap-switch. Remove driver unit (48) by removing 4 screws (67). Remove screws (40) holding terminal strips, and four screws (38) holding transformer in place. The complete strips, and four screws (38) holding transformer in place. The complete wiring assembly will now slip from the case for necessary repairs. However, a new wiring assembly may be taken from the spare parts box and put in the loudspeaker so that it will operate while the repairs are being made. Check the type number on the loudspeaker against the spare parts list, for the correct wiring assembly. Place the new wiring assembly in the loudspeaker by reversing the above procedure. Use the screws, lockwashers, (and in the case of Type IC/SBG-4J loudspeakers, nut, lockwasher, knob, and set screw) previously removed to fasten the assembly in place. Refer to Figure 7 for the correct location of the parts.

REPAIR OF WIRING ASSEMBLY

Check the continuity of the wiring of the faulty assembly against the applicable wiring diagram of Figure 7. Replace any faulty wires found. Check the resistance between terminals of the transformer (not terminal strip) against the values in Column 2 of Table 1.

TABLE 1

Terminals	Resistance (Ohms)	Voltage with 115 V., 60 c.p.s. between terminals Center and 2
Center-1	36-44	60-76
Center-2	51-63	115
3-4	.08-10	1.0-1.2
3-5	.13-17	1.7-2.1
3-6	.27-33	3.1-3.9
3-7	.58-72	7.3-8.9
3-8	.95-1.18	17.5-21.5
Center-3	Open	
Center-case	Open	
3-Case	Open	

Apply 115 volts, 60 c.p.s. to terminals Center and 2. Read the secondary voltages and check against the values in Column 3 of Table 1.

CAUTION: Make this test quickly. The low frequency used will overheat the transformer if the line voltage is connected for more than a minute or two. If either resistance or voltage varies from the values in Table 1, replace the transformer.

LOUDSPEAKER, DYNAMIC TYPES IC/SBA-4J AND IC/SBG-4J

5.2.2 REPLACEMENT AND REPAIR OF DRIVER UNIT

REPLACEMENT OF DRIVER UNIT

Loosen three screws (86) and remove horn (75). Disconnect wires from terminal of driver unit (48). Remove four screws (67) and lift out driver unit. Place driver unit face up on a clean flat surface. Do not place directly on a steel desk or table. Put a non-magnetic material under the unit if only a steel surface is available. Obtain a new unit and place it beside the old one with the terminals pointing in the same direction. Remove the three screws (62) holding the spacer (60) in place, and lift off the unit. Remove the blast valve (52) and the gasket (50) unless these have come off with the spacer. Transfer these three parts to the new unit, maintaining their same relative positions. Make sure the gasket fits into the recess on the unit. Fasten the spacer in place using the screws and lockwashers removed. Place the unit in the loudspeaker making sure the terminals are next to the leads in the wiring assembly. Fasten in place with the screws and lockwashers previously removed. Connect the voice coil leads to the unit. Replace the horn, making sure that gaskets (58) and (72) are in their proper place, and tighten the screws.

REPAIR OF DRIVER UNIT

In the instructions that follow, the numbers in parenthesis refer to the piece numbers on Figure 8. Set the driver unit on a flat, clean non-magnetic surface. Remove six screws (39), and lift head assembly (20) straight up. Inspect gap between top plate (10) and core tip (13) for dirt which would interfere with the motion of the voice coil. Fold a piece of scotch tape double so that there will be adhesive on both sides. Insert the tape in air-gap with the fold at right angles to the surface of the top plate. Pull the tape around the gap and remove. Repeat this operation with fresh tape until air-gap is entirely clean. If the sound chamber and diaphragm are to be left off for any appreciable length of time, cover the gap of the structure with scotch tape to keep out steel particles and dirt. Remove covering tape just before sound chamber and diaphragm assembly are installed in place.

If unit was removed because of rattles or intermittent sound, examine voice coil for loose wires or cracks. If no defects are found, hold head assembly in hands with diaphragm upward. Gently press the diaphragm downward and release slowly while holding the assembly close to the ear. A faint rubbing noise indicates dirt between diaphragm and sound chamber. Remove dirt usually by shaking the assembly. Remove salt incrustation inside assembly by pouring a little warm water through the holes in the sound chamber onto the diaphragm, shaking and draining. Repeat several times.

CAUTION: DO NOT LOOSEN OR REMOVE SCREWS (32) WHICH HOLD DIAPHRAGM TO SOUND CHAMBER.

To replace head assembly, place over magnetic structure so that the terminals are next to the lead slots. Lower the head assembly and rotate slightly until pins engage holes; then force into contact with magnetic structure.

Fasten in place with screws and lockwashers previously removed. Test driver unit with a maximum of 10 volts 60 cycles (115 volts, 60 cycles in series with an 80 ohm resistance of 100 watt, 115 volt lamp) across the terminals for a maximum of 10 seconds. There should be discernible a low-pitched hum that is free from buzzes, rattles, or other extraneous noises. When the driver has been repaired, return it to spare parts box.

SECTION 6

Parts Identification

6.1 LIST OF ILLUSTRATIONS

Figure 3	Parts for IC/SBA-4J	page 11
Figure 5	Parts for IC/SBG-4J	page 13
Figure 6	Parts for NL-100 Driver Unit	page 14

6.2 INTRODUCTION

Parts are identified by the item number as shown on the assembly drawings and stock list, Figures 7 and 8. Except for wiring assembly and tapswitch, all parts for the IC/SBA-4J and IC/SBG-4J are common. All parts numbers listed are the contractor's, since these are the only numbers that will completely identify the parts.

6.3 Parts List

FIG.	ITEM	NAME	FUNCTION	NO. REQ.	UNIT OF ISSUE	JENSEN PART NO.	SNSN
5,7,9	31	TAP SWITCH: non shorting, 5 position 6 solder lugs, not enclosed, ceramic 2-1/8" dia., x 2" long overall, 1/4" stainless steel shaft with flat and tapped for 6-32 set screw, brass nickel plated bushing 3/8" x 3/8" long, with non turning device on bushing, Ohmite Model 111-5 Spec. 35601.	Select transformer secondary on IC/SBG-4J.	1	1	11869	H17JRM-11869
3,5,7,9,	52	VALVE, blast: stainless steel case with phosphor bronze diaphragm; rated 9.5 psi; round case with 2 projecting pins 5/32" dia. on 2-3/32" ctrs.; 2-3/8" dia. x 1/4" thick; held by separate spacer plate; 2 drain holes.	To protect driver diaphragm from gun blast	1	1	11662	H17JRM-10035
3,5,7	58	GASKET: horn; neoprene; 27/32" ID x 1-1/4" OD x 3/16" thick.	Seals horn to blast valve.	1	1	11720	H17JRM-10039
3,5,7	50	GASKET: blast valve; neoprene 1-27/32" ID; 2-3/8" OD x 1/8" thick.	Seals blast valve to driver unit.	1	1	11647	H17JRM-10040
3,5,7	60	SPACER: phenolic; 4" x 4" x 21/64" thick; three mtg. holes 7/32" dia. on 1-13/16" radius at 75, 195, 315 degrees; 2 drain slots.	Retains blast valve.	1	1	11721	H17JRM-10042
2,4	72	GASKET: case; rubber; "0" ring; 8" dia. x 1/4" thick.	Seals case to horn.	1	1	11722	H33P1561-1500
7	86	SCREW: captive; slotted hex head; brass nickel plated; 5/16"-18 rolled thread portion 3/8" long, unthreaded shank .280" to .287" dia.	Fasten horn to case.	3	1	11736	H17JRM-10037

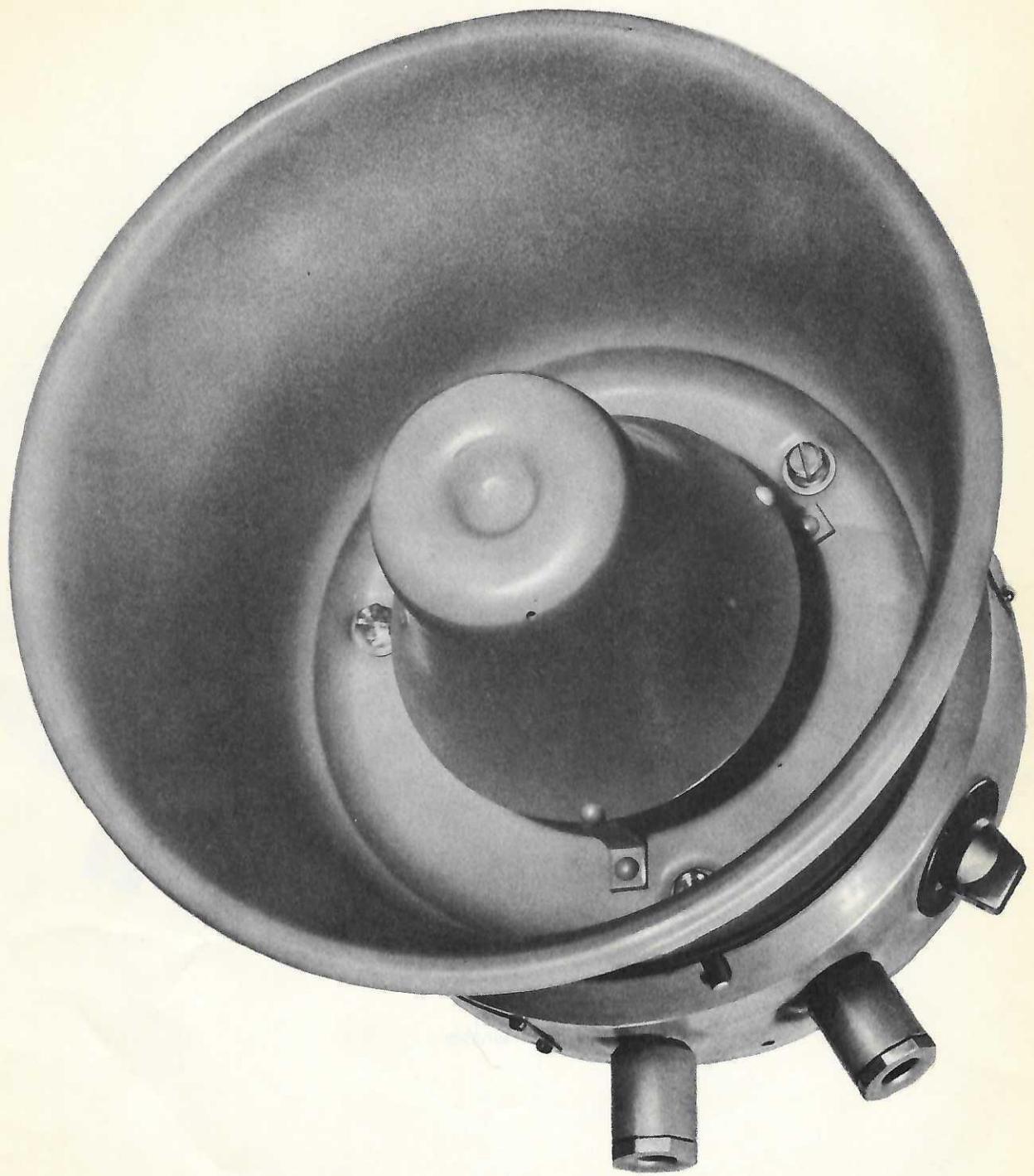


FIG. 1
Loudspeaker, Type IC/SBG-4J, Front View

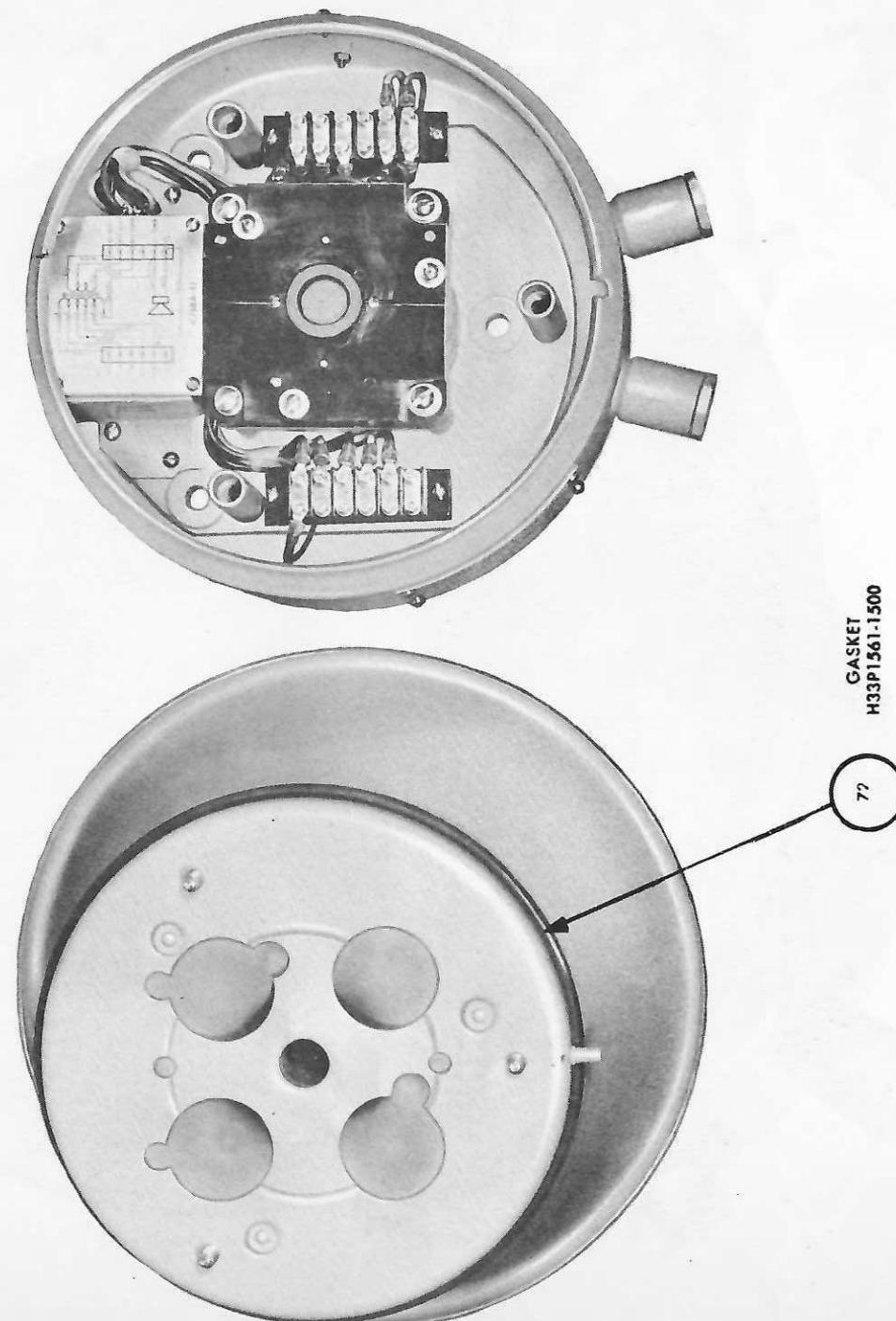


FIG. 2
Loudspeaker, Type IC/SBA-4J, Horn Removed

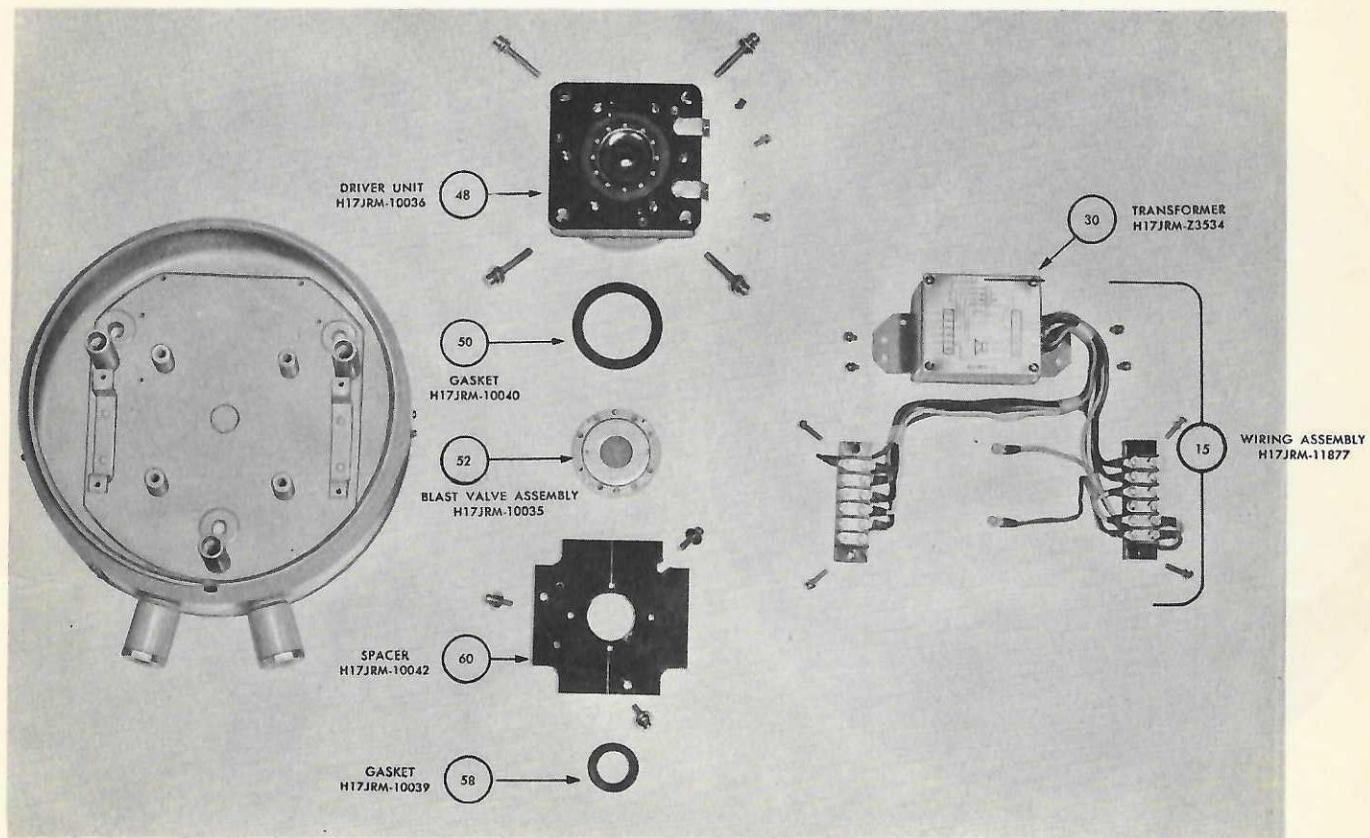


FIG. 3
Loudspeaker, Type IC/SBA-4J, Disassembled

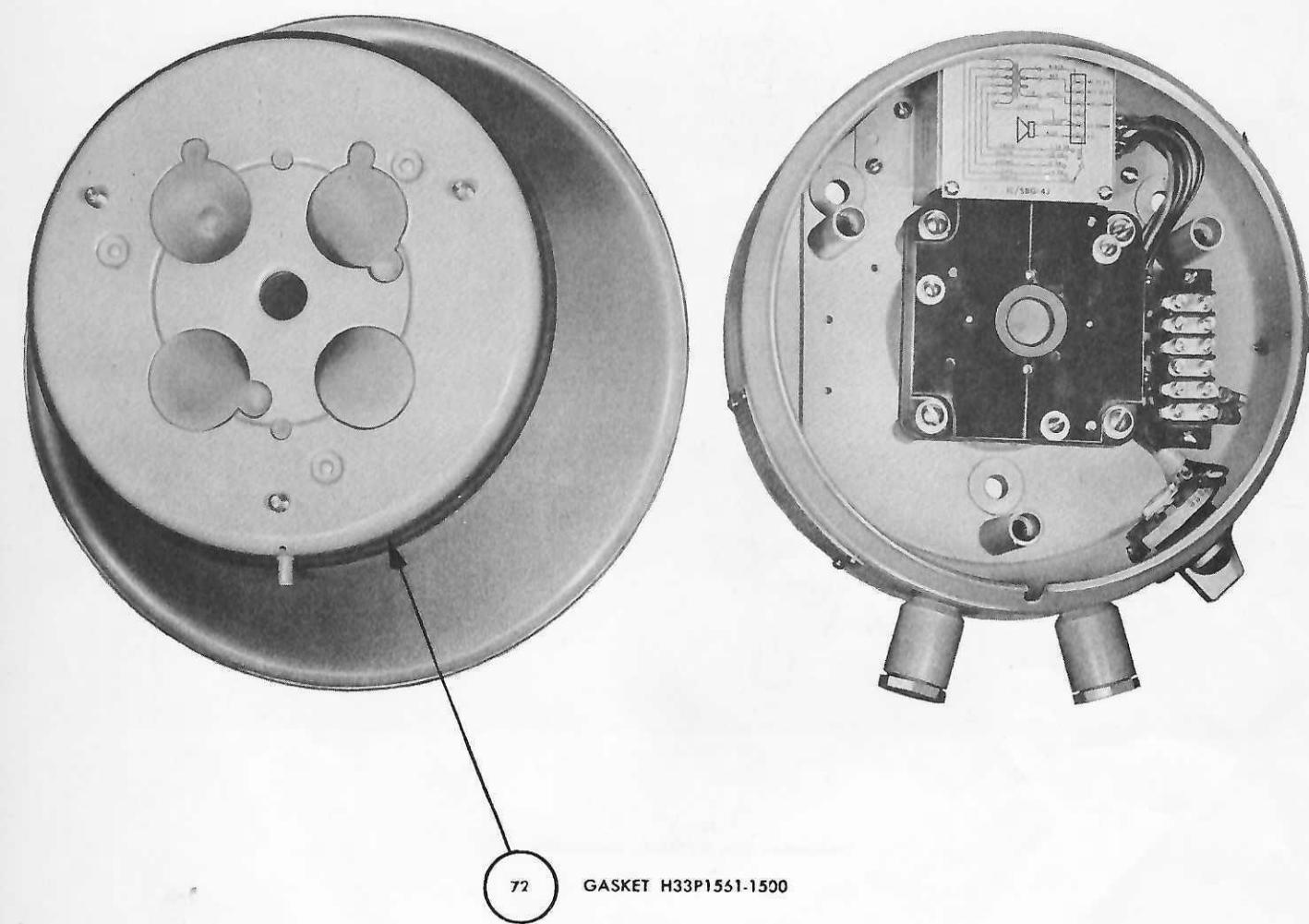


FIG. 4
Loudspeaker, Type IC/SBG-4J, Horn Removed

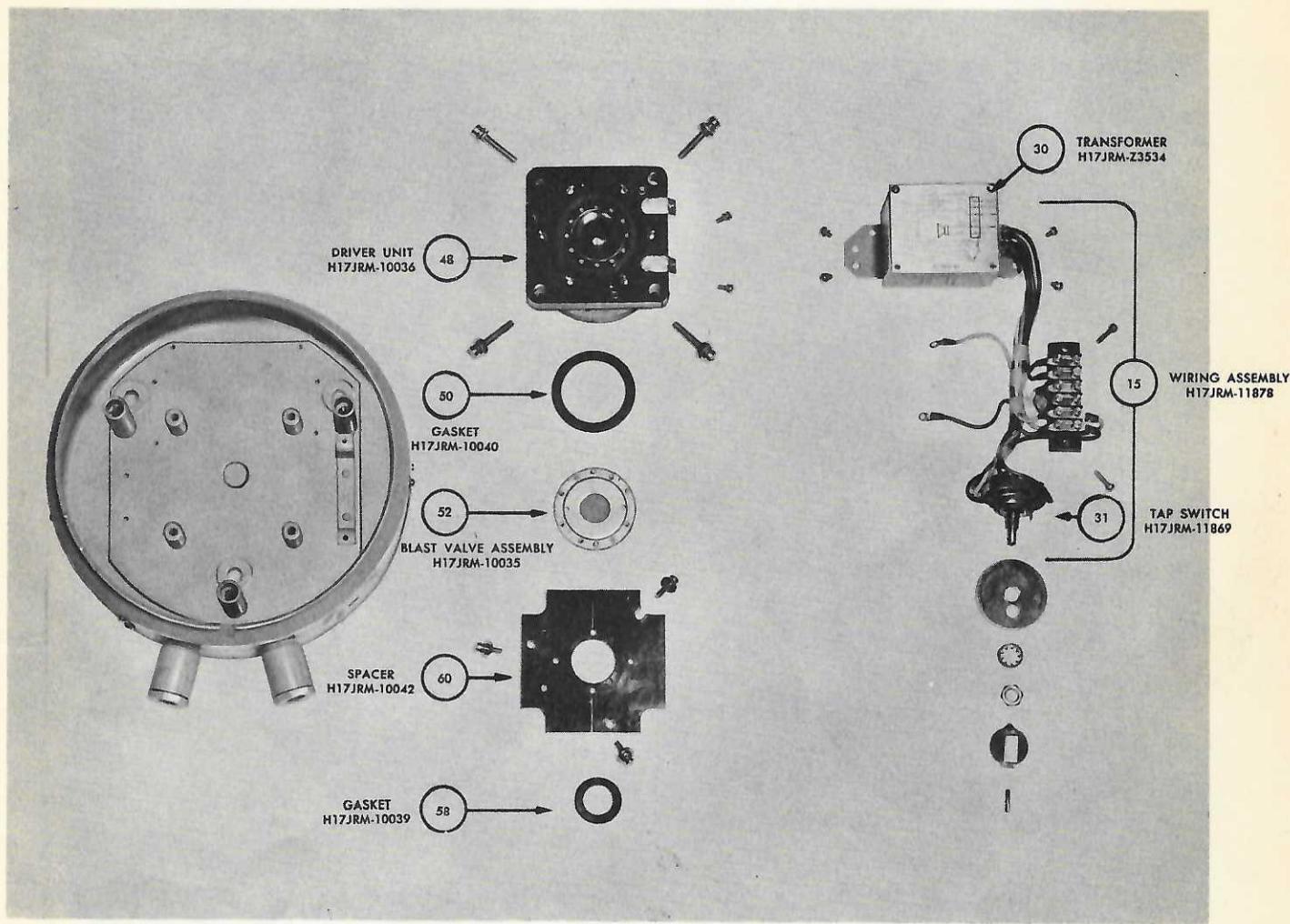


FIG. 5
Loudspeaker, Type IC/SBG-4J, Disassembled

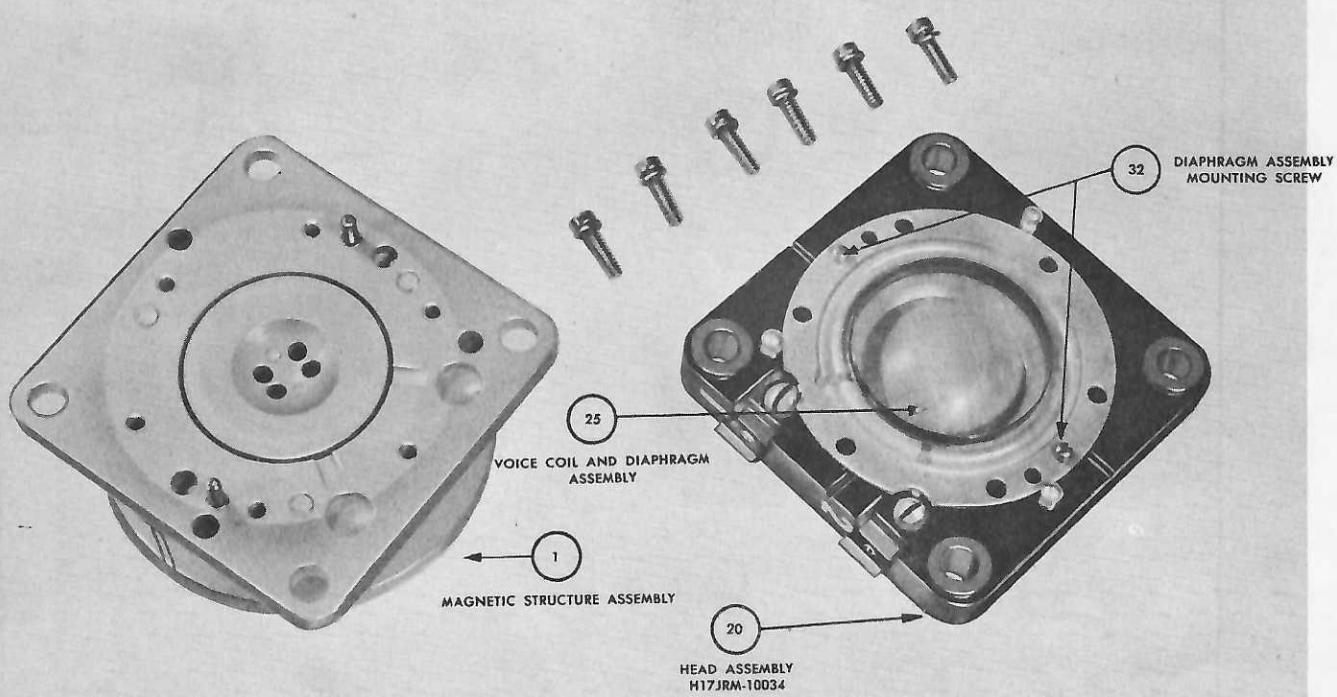
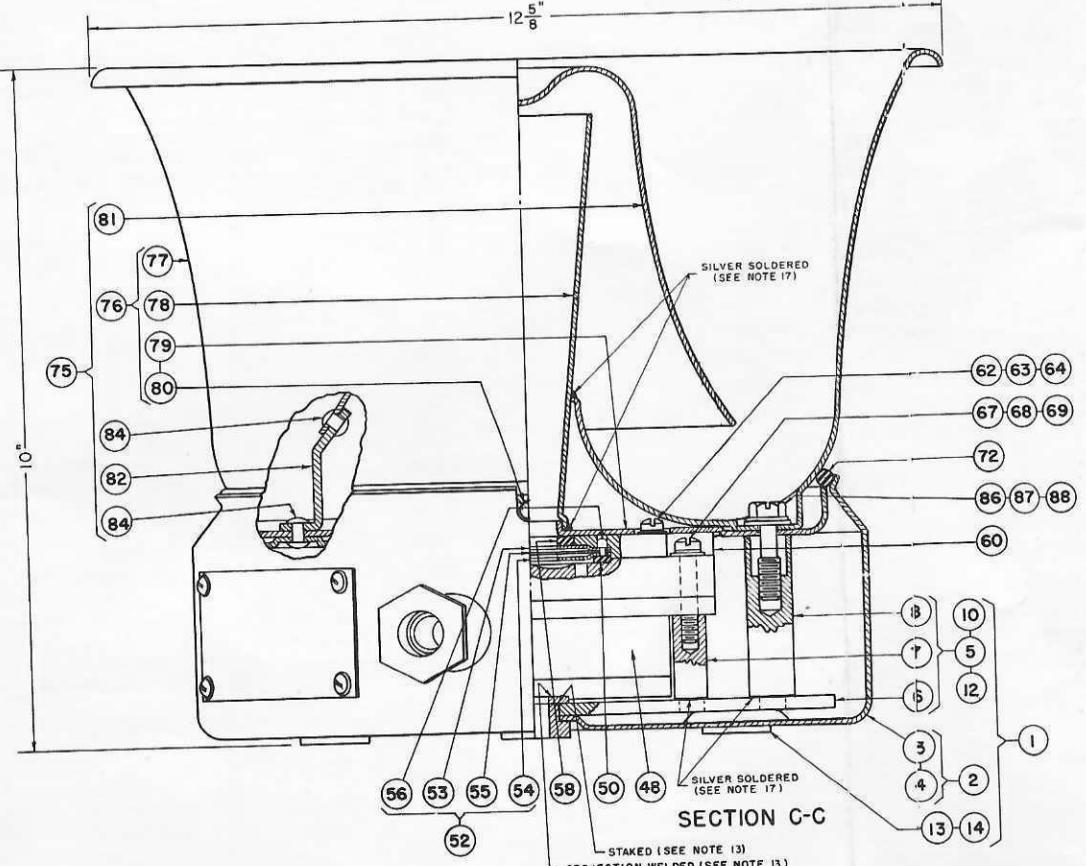
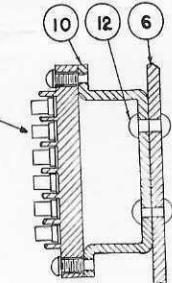
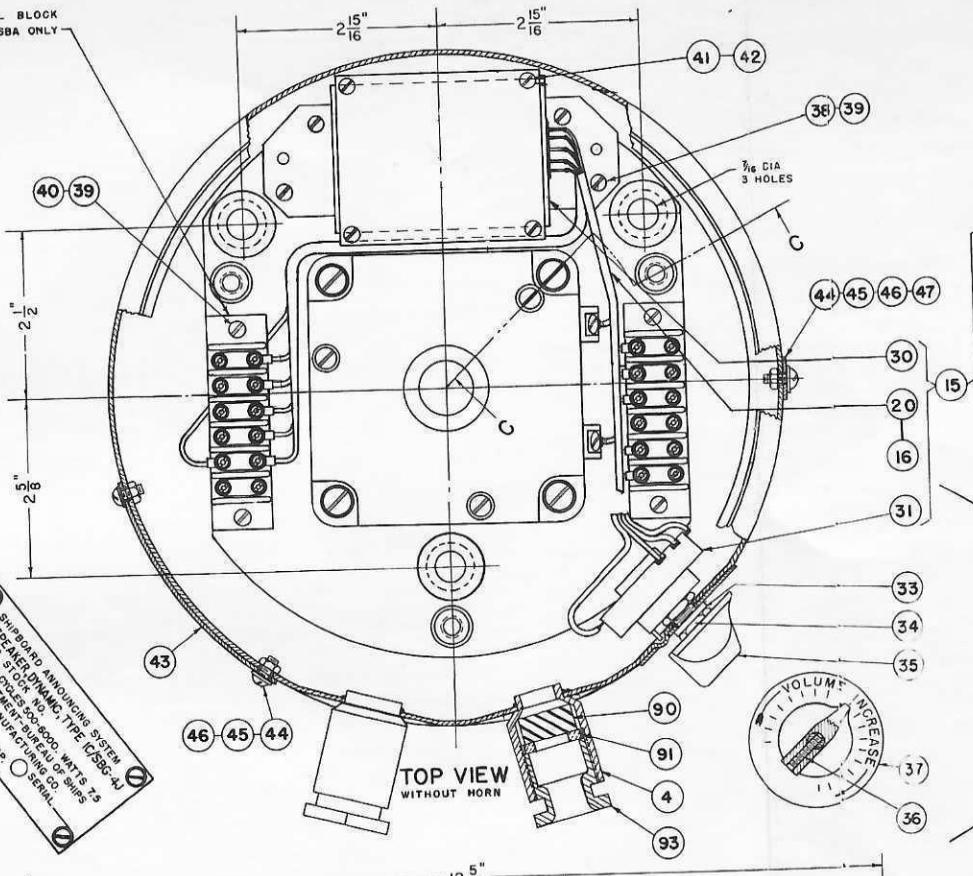


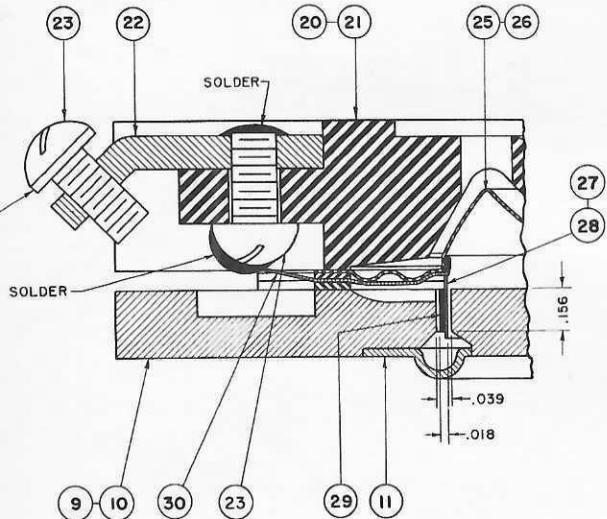
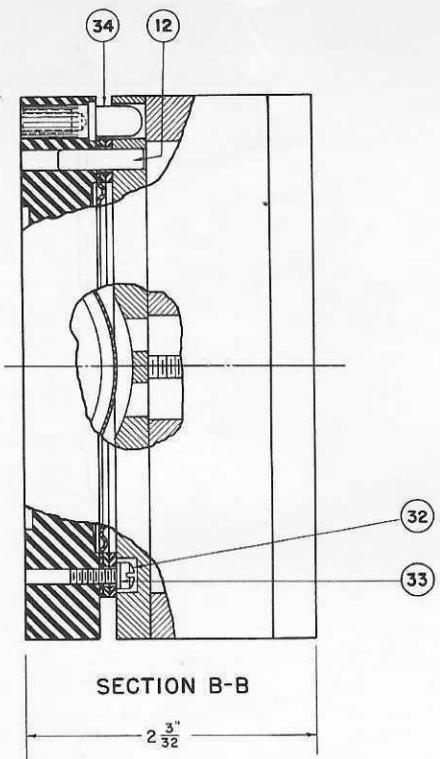
FIG. 6
Driver Unit Type NL-100, Disassembled

THIS TERMINAL BLOCK
USED ON 10/SBA ONLY



PIECE NO.	NAME OF PIECE	PIECES REQ.	MATERIAL	MATERIAL SPEC.	REMARKS	MANUFACTURER'S DWG. OR CODE NO.	REVISIONS							
							ZONE	REV.	DESCRIPTION	MFR. DATE	USN APPD DATE			
3	REDRAWN TO STANDARD FORMAT													
QUANTITIES ARE FOR ONE REPRODUCER														
1	MAGNETIC STRUCTURE ASSEMBLY	1	ASSEMBLY		NOTE 5,6	11668								
2	MAGNET	1	ALNICO II	COMM.		11650								
3	MAGNET	1	ALNICO V	"		11651								
4	CORE PLATE	1	STEEL	"	NOTE 3,4	11655								
5	MAGNETIZING COIL	1	ASSEMBLY		" 7	11667								
6	NO.19 S.C.C.P.E. WIRE	AS REQ.	COPPER	COMM.										
7	TAPE - $1\frac{1}{2}$ " X 3"	2	VINYL	"	NOTE 10									
8	NO.16 SLEEVING-BLACK- 2" LONG	2	VARNISHED COTTON	"										
9	TOP PLATE ASSEMBLY	1	ASSEMBLY			11666								
10	TOP PLATE	1	STEEL	COMM.	NOTE 3,4	11630								
11	CENTERING RING	1	STAINLESS STEEL	16-8	" 2	11656								
12	$\frac{1}{32}$ " X $\frac{1}{8}$ " DOWEL PIN	2	STAINLESS STEEL	16-8	" 2									
13	CORE TIP	1	STEEL	COMM.	" 3,4	11636								
14	$\frac{1}{4}$ "-20 X $1\frac{1}{2}$ " F.H.M.SCR.	3	BRASS	"										
15	NO.8-32 X $1\frac{1}{16}$ " F.H.M.SCR.	2	BRASS	"										
16														
17														
18														
19														
20	HEAD ASSEMBLY	1	ASSEMBLY		NOTE 1,14	11669								
21	SOUND CHAMBER	1	MOULDED PHENOLIC	JAN-P-14 MTS-E-1		11629								
		2	BRASS, $\frac{1}{2}$ H	COMM.		11643								
22	TERMINAL													
23	No.8-32 X $\frac{1}{8}$ " R.H.M.SCR.	4	BRASS	COMM.										
24	NO.8 LOCKWASHER-INTERNAL TEETH	2	PHOS. BRONZE	"										
25	V.C. & DIAPHRAGM ASSEMBLY	1	ASSEMBLY		NOTE 8	11661								
26	DIAPHRAGM	1	MOULDED PHENOLIC	COMM.		11660								
27	VOICE COIL ASSEMBLY	1	ASSEMBLY			11659								
28	VOICE COIL BOBBIN STRIP	1	PHENOLIC	COMM.		11657								
29	NO.34 P.E.GU. WIRE	AS REQ.	COPPER	"										
30	VOICE COIL LEAD	2	BERILLIUM COPPER	BERILLIUM COPPER	HARDEN & HOT TIN DIP-NOTE II	11658								
31	GASKET	2	LAMINATED PHENOLIC	PHENOLIC	NOTE 9	11635								
32	NO.4-40 X $\frac{1}{8}$ " FIL.H.M.SCR.	2	BRASS	COMM.										
33	NO.4 LOCKWASHER-INTERNAL TEETH	2	PHOS. BRONZE	"										
34	GUIDE PIN	3	BRASS, $\frac{1}{2}$ H	"		11755								
35														
36														
37														
38														
39	NO.10-24 X $\frac{1}{8}$ " FIL.H.M.SCR.	6	BRASS	COMM.										
40	NO.10 LOCKWASHER-INTERNAL TEETH	6	PHOS. BRONZE	"										

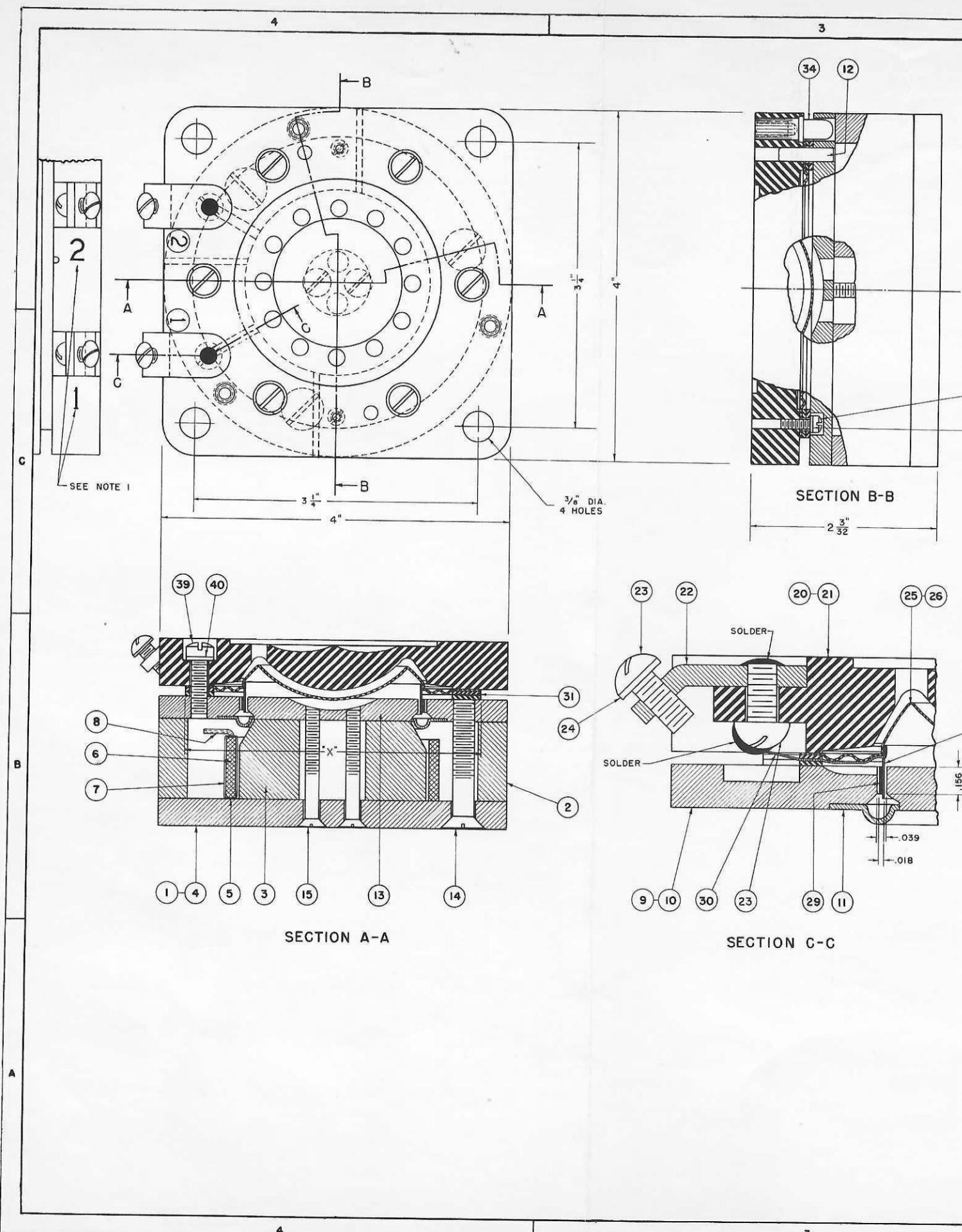
DRAWN BY	DATE	MASTER DRAWING	JENSEN MFG. CO.	
V.E. H. HILL		DRIVER UNIT	CHICAGO 38, ILL.	
TECHED BY	DATE	NL-100	11670-J	
T.J.C.	6-0-53		NAVY DEPT. BU SHIPS DWG NO REV	
CHECKED BY	DATE		S6502 H 3 000 431 3	
			SCALE: 2-1 B-4-1 WT: CALC. 4.4 LBS.	



NOTES

1. $\frac{1}{4}$ " CHARACTERS ON SOUND CHAMBER (PIECE 21) LOCATED AS SHOWN, STAMP ON WITH RED PRINTERS INK & COVER WITH ONE COAT OF CLEAR LACQUER.
2. PASSIVATE BY DIPPING IN 20 % NITRIC ACID SOLUTION FOR 30 SECONDS & RINSE THOROUGHLY.
3. CADMIUM PLATED .0004" - .0006" THICK.
4. PROCESS WITH IRIDITE (ALLIED RESEARCH PRODUCTS, CHICAGO, ILL.) OR EQUIVALENT.
5. CHROMATE PRIMER 52 PIS
6. FINISH GREY BAKING ENAMEL EXCEPT SURFACE MARKED X" 2.5 GY 6.0/0.5 LIGHT GRAY YELLOW GREEN ALKYD-RESIN BASE ENAMEL (MAAS & WALDSTEIN CO., NEWARK, N.J.)
7. DIP IN HARVEL 612-C (IRVINGTON VARNISH & INSULATOR CO., IRVINGTON, N.J.) AND BAKE 4 HRS. AT 250°
8. VOICE COIL IN ITEM 25 IS 43/2 TURNS NO.34 B.B.S. GA. PLAIN ENAMELED WIRE, WIRE 278" LONG, NOMINAL RES. 6 $\frac{1}{2}$ OHMS D.G. AT 68°F. A.C. IMPEDANCE AT 500-2000 CPS VARIES FROM 11 TO 16 OHMS ACCORDING TO THE TYPE OF HORN TO WHICH IT IS COUPLED.
9. SPRAY WITH 74F FUNGICIDAL VARNISH (BROOKLYN VARNISH CO., BROOKLYN, N.Y.)
10. TAPE (ITEM 7) MAY BE OBTAINED FROM MINNESOTA MINING & MFG. CO., SAINT PAUL, MINN.
11. MATERIAL FOR VOICE COIL LEADS (ITEM 30) MAY BE OBTAINED FROM WILBUR B. DRIVER CO., NEWARK, N.J.
12. IN LIST OF MATERIAL, UNDER MANUFACTURER'S DWG. OR CODE NO. "ASSEMBLIES AND THEIR SUPPLEMENTARY DRAWINGS" ARE INCLUDED BETWEEN ARROWS.
13. SHOULD THE VOICE COIL FAIL THE HEAD ASSEMBLY (ITEM 20) IS REPLACED AS A UNIT.
14. STANDARD NAVY STOCK NUMBER FOR HEAD ASSEMBLY (ITEM 20) IS H17JRM-10034

QUANTITIES ARE FOR ONE REPR.			
PIECE NO.	NAME OF PIECE	PIECES REQ.	MATERIAL
1	MAGNETIC STRUCTURE ASSEMBLY	1	ASSEMBLY
2	MAGNET	1	ALNICO V
3	MAGNET	1	ALNICO V
4	CORE PLATE	1	STEEL
5	MAGNETIZING COIL	1	ASSEMBLY
6	NO.19 S.C.C.P.E. WIRE	AS REQ.	COPPER
7	TAPE - $\frac{1}{2}$ " X 3"	2	VINYL
8	NO.16 SLEEVING-BLACK- 2" LONG	2	VARNISHED COTTON
9	TOP PLATE ASSEMBLY	1	ASSEMBLY
10	TOP PLATE	1	STEEL
11	CENTERING RING	1	STAINLESS STEEL
12	$\frac{5}{32}$ " X $\frac{1}{8}$ " DOWEL PIN	2	STAINLESS STEEL
13	CORE TIP	1	STEEL
14	$\frac{1}{4}$ "-20 X 1 $\frac{7}{8}$ " F.H.M.SCR.	3	BRASS
15	NO.8-32 X 1 $\frac{1}{16}$ " F.H.M.SCR.	2	BRASS
16			
17			
18			
19			
20	HEAD ASSEMBLY	1	ASSEMBLY
21	SOUND CHAMBER	1	MOULDED PHENOLIC
22	TERMINAL	2	BRASS, $\frac{1}{2}$ IN.
23	NO.8-32 X $\frac{3}{8}$ " R.H.M.SCR.	4	BRASS
24	NO.8 LOCKWASHER - INTERNAL TEETH	2	PHOS. BRONZ
25	V.C. & DIAPHRAGM ASSEMBLY	1	ASSEMBLY
26	DIAPHRAGM	1	MOULDED PHENOLIC
27	VOICE COIL ASSEMBLY	1	ASSEMBLY
28	VOICE COIL BOBBIN STRIP	1	PHENOLIC
29	NO.34 P.E. GU. WIRE	AS REQ.	COPPER
30	VOICE COIL LEAD	2	BERYLLOM COPPER
31	GASKET	2	MOULDED PHENOLIC
32	NO.4-43 X $\frac{3}{16}$ " FIL. H.M.SCR.	2	BRASS
33	NO.4 LOCKWASHER-INTERNAL TEETH	2	PHOS. BRONZ
34	GUIDE PIN	3	BRASS, $\frac{1}{2}$ IN.
35			
36			
37			
38			
39	NO.10-24 X $\frac{5}{32}$ " FIL. H.M.SCR.	6	BRASS
40	NO.10 LOCKWASHER-INTERNAL TEETH	6	PHOS. BRONZ



MAINTENANCE PARTS KIT STOCK NO. S17-M-133502-197 REPRODUCED FROM JENSEN MANUFACTURING CO'S DWG. NO.11901-D BUREAU OF SHIPS NO. S6502-3196510							
APPLICATION - LOUDSPEAKER, DYNAMIC MANUFACTURED BY JENSEN MANUFACTURING CO. CHICAGO 38, ILL. NAVY CONTRACT NOS							
ITEM NO.	NO. PER KIT	NAME OF PART	JENSEN SERVICE PART NO.	PIECE NO.	JENSEN DWG. NO.	BUREAU DWG. NO.	STANDARD NAVY STOCK NO.
1	8	HEAD ASSEMBLY	11669	20	11670-J	S6502-3000431	H17JRM-10034
2	2	DRIVER UNIT (NL-100)	11670	48	11900-J	S6502-3196509	H17JRM-10036
3	1	TAP SWITCH	11669	31			H17JRM-11869
4	2	TRANSFORMER	2-3534	30			H17JRM-2-3534
5	1	WIRING ASSEMBLY TYPE SBA	11877	15			H17JRM-11877
6	1	WIRING ASSEMBLY TYPE SBG	11878	15			H17JRM-11878
7	3	BLAST VALVE	11662	52	11900-J	S6502-3196509	H17JRM-10035
WEIGHT OF SPARE PARTS UNPACKED 17.5 POUNDS							
IDENTIFICATION OF EQUIPMENT FOR WHICH SPARE PARTS ARE INTENDED.				WHEN RE-ORDERING ALWAYS REFER TO JENSEN MFG. CO. DRAWING & PIECE NUMBERS.			
LOUDSPEAKER, DYNAMIC TYPE IC/SBA-4J & IC/SBG-4J DATE: 8-19-52				NO. OF SHEETS 2 SHEET NO.1			

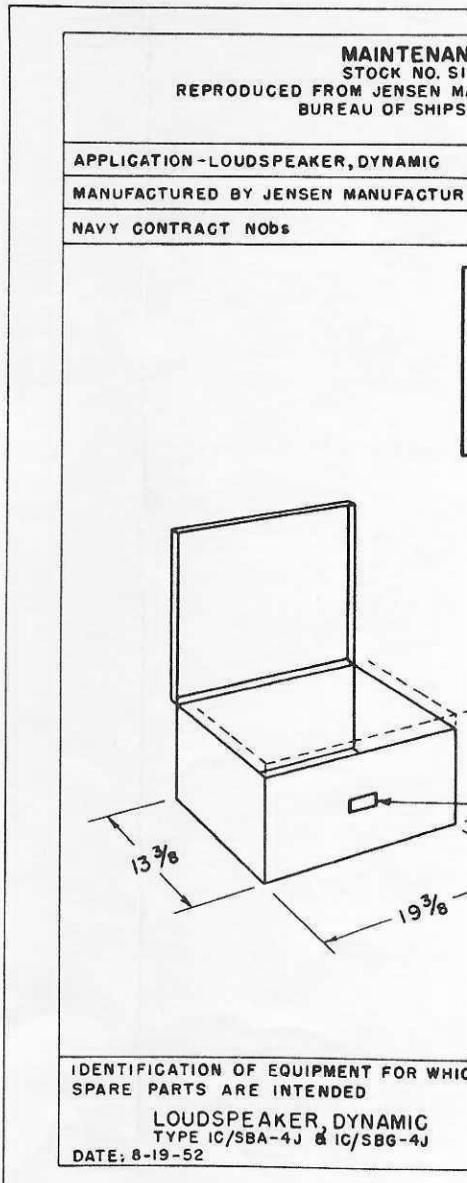


FIG. 9
 Maintenance Parts Kit Plan

1901-D

	STANDARD NAVY STOCK NO.
31	H17JRM-10034
9	H17JRM-10036
	H17JRM-11869
	H17JRM-2-3534
	H17JRM-11877
	H17JRM-11878
09	H17JRM-10035

ALWAYS REFER DRAWING & PIECE

SHEET NO.1

MAINTENANCE PARTS KIT STOCK NO. S17-M-133502-197 REPRODUCED FROM JENSEN MANUFACTURING CO'S DWG. NO.11901-D BUREAU OF SHIPS NO. S6502-3 196 510	
APPLICATION-LOUDSPEAKER, DYNAMIC	
MANUFACTURED BY JENSEN MANUFACTURING CO. CHICAGO 38, ILL.	
NAVY CONTRACT NOS	
<input type="radio"/> SHIPBOARD ANNOUNCING SYSTEM <input type="radio"/> MAINTENANCE PARTS KIT BU.SHIPS STOCK NO. S17-M-133502-197 LOUDSPEAKER TYPE IC/SBA-4J & IC/SBG-4J NAVY DEPARTMENT-BUREAU OF SHIPS JENSEN MANUFACTURING CO. CONTRACT INSP. SERIAL NOS	
GROSS WEIGHT 45 LBS. CALC.	
IDENTIFICATION OF EQUIPMENT FOR WHICH SPARE PARTS ARE INTENDED LOUDSPEAKER, DYNAMIC TYPE IC/SBA-4J & IC/SBG-4J DATE: 8-19-52	
WHEN RE-ORDERING ALWAYS REFER TO JENSEN MFG. CO. DRAWING & PIECE NUMBERS. NO. OF SHEETS 2 SHEET NO.2	

 DWG. NO.
 S6502-C-3 196 510
 BUSHIPS

DRAWN BY DATE V.E.J 8-19-52		MASTER DRAWING		JENSEN MFG. CO. CHICAGO 38, ILL. 11901-D			
TRACED BY DATE T.J.C. 6-25-53		MAINTENANCE PARTS KIT STD. NAVY STK. NO. S17-M-133502-197 SCALE: NTS WT. CALC. 45 LBS.		NAVY DEPT BUSHIPS DWG. NO. REV.			
CHECKED BY DATE						S6502 C 3 196 510	
APPD DATE							

FIG. 9
Maintenance Parts Kit Plan