# TYPE a66 TELEPHONE

## TECHNICAL INFORMATION

# TYPE a66 TELEPHONE | Technical Information

## SUMMARY OF SPECIAL FEATURES

**1. - MODERN APPEARANCE.** Conforms to latest international design trends.

**2. - GENERAL DESIGN.** Features ease of maintenance and inspection. All components easily accessible and easily dismantled.

**3. - DIAL.** Transparent plastic finger plate - increased delayed impulse - easily removable number card - recess for protection to (and against) long fingernails - transparent dust cover - twin contacts throughout - easy access for adjustments without removing dial - smooth, quiet and easy operation.

**4. - HANDSET.** Squared section and distance between transmitter and receiver conform to latest U. S. standards. High volume, fidelity receiver and transmitter capsules.

**5. - RINGER.** New and unique design. Three position volume adjustment by switch in base.

**6. - CIRCUIT CARD.** Printed on PVC sheet. Universally understandable. Back of card designed for service record.

**7. - TERMINAL BLOCK.** Molded plastic. Extremely compact. Designed for ease of mounting and connecting.

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## 1. GENERAL.

The new ATEA type **a66** telephone combines pleasing, modern style with outstanding transmission qualities.
The telephone is easy and comfortable to use. Its appearance harmonizes perfectly with modern trends in home and office decor.

## 2. DESIGN AND CONSTRUCTION.

The general design of the type **a66** is modern and compact. Durable construction assures many years of service with a minimum of maintenance attention.
All materials used in this new subscriber set are of high quality and meet the most rigid mechanical and electrical quality control specifications.

The housing and cradle consist of one piece, made of ABS plastic injection molding material, which is an improved high impact thermoplastic material offering a good combination of toughness, scratch resistance and color stability.
The cradle and handset design assure that the handset will operate the hookswitch springs even when it is not properly replaced in the cradle.
The handset gives increased volume and improved quality of transmission and reception. It has been designed to meet American standards ; it shortened overall length not only assures better and clearer transmission but also makes it very light and easy to handle. External parts of the handset are made of the same material as the housing.
The dial has an extended number plate to facilitate number reading and to prevent errors. This extended number plate is made of the same ABS material as the telephone housing and handset. The finger plate and number card cover are made of crystal clear acrylic. A circular well under the finger wheel gives ample space for long fingernails.

## 3. COLORS

The type **a66** telephone is made in ivory and medium gray, to complement the color schemes of most homes and offices.
Ivory is suggested for most residential installations ; the medium gray color would be the most suitable for factory and office use.

## 4. HANDSET

The handset is injection molded and all connecting parts are held in place by spring action.
Transmitter and receiver capsules are firmly held in place by the earpiece and mouthpiece. Connections to these units are made through springs in their respective housings. All springs make double contacts to the capsules for maximum reliability.
The mouthpiece and earpiece are non-positional and are removed easily without tools.

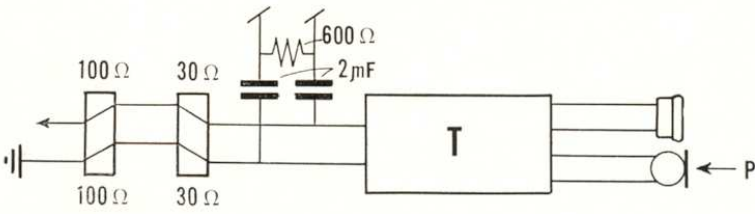
The transmitter capsule is of the immersed electrode pattern, sealed and moisture proof. It has a light metallic alloy diaphragm with a dome gold plate electrode. For transmitting frequency response, see fig. 1.
The polarized receiver capsule is equipped with an acoustical suppressor to assure a high level flat frequency response curve. For receiving frequency response, see fig. 2.
The handset cord has three conductors of 3 x 8 tinned tinsel with PVC insulation. The overall cover of the cord is also of PVC material in the same color as the telephone housing.

## 5. DIAL.

As mentioned before, the dial of this telephone has some novel features : extended number plate with circular recess ; transparent dust cover on the back ; no external metallic parts ; nylon finger stop, etc., see fig. 3 & 4.
The operation of the dial is smooth, easy and quiet and its positive action helps greatly to prevent errors.
The dial provides a " delayed impulse " by the use of 12 pulses, the last two pulses being shorted in the dial. A longer interval between digits is thus obtained.
The dial speed is held at a uniform rate of 10 pulses per second. The impulse ratio is 2 to 1, which corresponds to an average 66% break. Upon request the dial can be supplied with a cam for a 1.6 to 1 pulse ratio, corresponding to an average 62% break.
Adjustments, when required, can be made easily. All moving parts are on the back of the dial, readily accessible without removing the dial from the telephone housing. This is done simply by loosening the two dial mounting screws, and sliding back the two levers retaining the dust cover - see fig. 5.
The design of the designation card assembly gives an absolutely smooth outside surface, without rims. If it becomes necessary to remove or replace the number card, this can be done without disturbing the dial mechanism in any way. Simply insert a fingernail in the groove of the designation card cover, in front of digit 9, and lift this cover so that it can be removed easily, see fig. 6.
All dial springs have twin contacts.

## 6. INNER PARTS.

The hookswitch contact springs and lever mechanism, the induction coil, the line and handset terminals and the contact springs for the grounding button are all mounted on a com-




Transmitting Frequency Response in dB.
odB = 1 volt/1 Barye
local telephone circuit 2 x 130 Ω - 24 V

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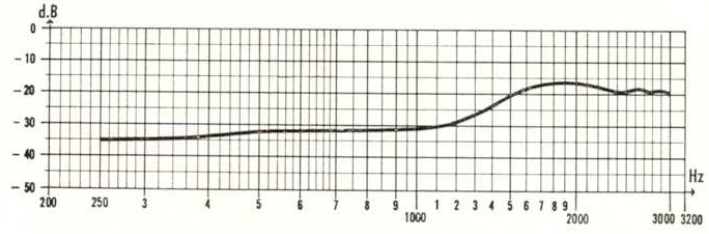


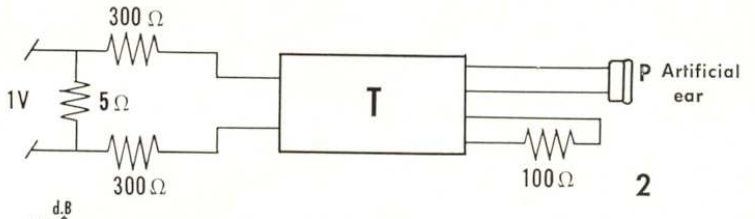


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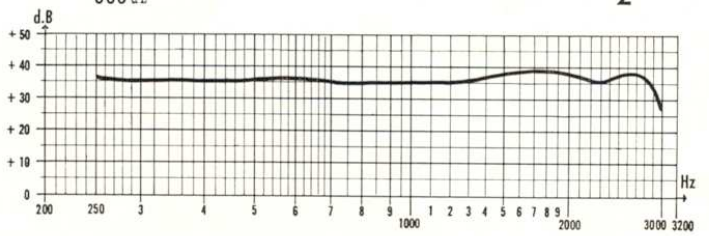
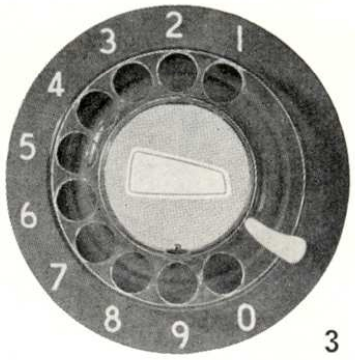



Receiving Frequency Response in dB - odB = 1 Barye/1 volt

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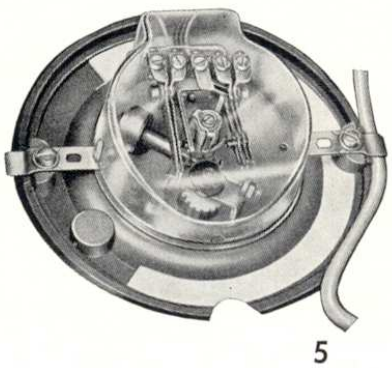

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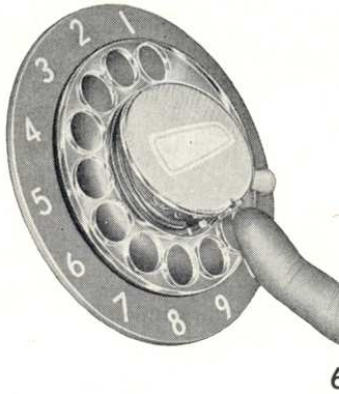


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mon metallic frame which is held in place in the outer telephone case by only two screws, so that inspection and replacement operations require a minimum of time and tools. The induction coil has three windings including the anti-sidetone winding, and is fitted with a high grade silicon iron core of ample dimensions. On the average line of 600 ohms impedance, a suitable balance is achieved between transmission and reception efficiency. Another novel feature is that the frame supports the circuit label in such a way as to give complete information not only on the circuit of the set, but also on the correct connecting of the handset and line cord terminals. The terminals printed on this label correspond exactly with their real position in the telephone.

Special care has been taken to make this circuit label as universally comprehensible as possible. Clear symbols have been used and all wires (cabling and cord conductors) are marked by direct color printing. Is this way no abbreviations of wire colors are needed and translation lists are not necessary.

This circuit label is printed on PVC sheet. It is easily removable. The back of the label provides three columns that can be used to record maintenance and repairs. These columns are A for the date, B for coded information and C for the number or name of the company's agent.

The terminal strip is made of toughened polystyrene with intermediate ribs between the terminals, eliminating in this way all possibilities of faulty connections or short circuits, and improving the insulation.

All contact springs have pure silver twin contacts.

The switching takes place after an idle stroke of the hookswitch plungers, and a certain follow of the make contact springs is also provided, so that all contacts are securely closed when the handset is removed.

## 7. BASE PARTS.

The ringer with its gongs and condenser is mounted on a rigid pressed steel and zinc plated base.

The ringer is of an absolutely new design. It has only one coil. The polarizing magnet is very small and made of a new magnetic alloy giving a strong magnetic flux. The armature with rod and hammer is combined in one piece on which thin residual plates of hard temper non-magnetic material are spot welded. Intensive life-tests on this ringer have shown that the adjustments made at the factory remain unchanged for very long periods.

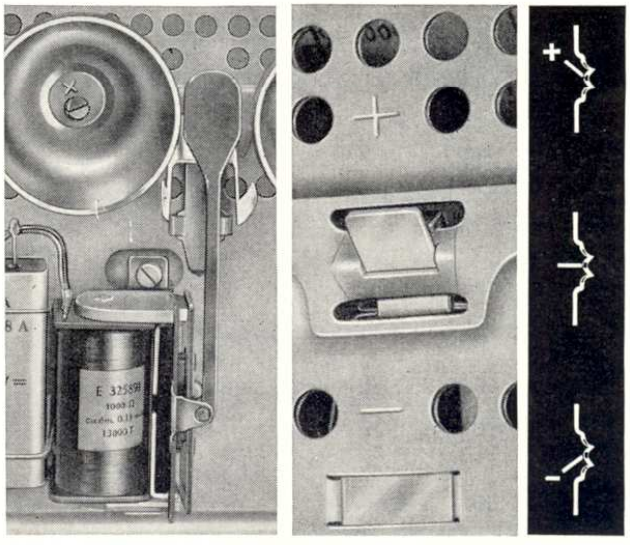
The two gongs of the ringer are mounted on the base. They are made of heavy brass in two different thicknesses, so that a very pleasant and loud ringing tone is produced.

Between the two gongs in mounted a special lever extending through the base and enabling the user to adjust the volume of the bells. The markings on the base plate for maximum and minimum ringing volume are « + » and « — », their meaning being clear in all languages. In the « + » position, there is no attenuation and the ringer gives its maximum output, i.e. a strong, clear sound. In the intermediate position, the vibration of the gongs is slightly damped. In the « — » position of the lever two springs are interposed between the hammer of the ringer and the gongs, making the ringer operate as a buzzer, see fig. 7.

The 1MF condenser mounted on the base has a metal case. It is hermetically sealed, moisture proof and has a test voltage of 600V D.C.

The base is fitted with four large feet, of light gray rubber, securely attached to the base plate, see fig. 8.

The base plate itself is attached to the cover by two captive screws.

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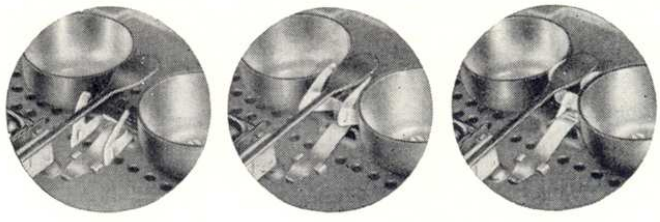
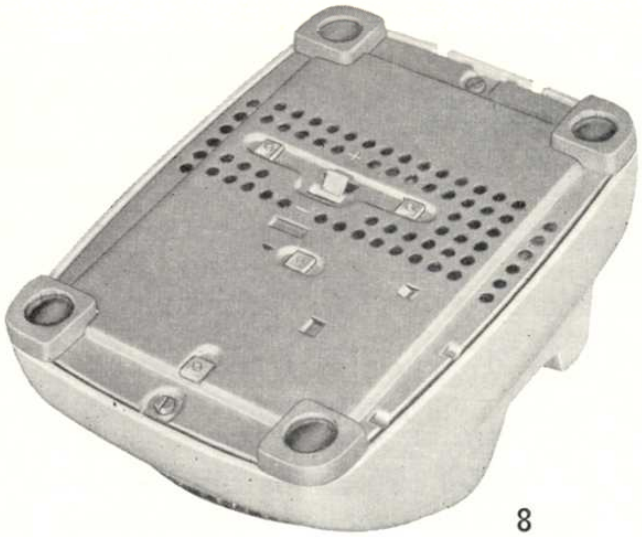


## 8. GROUNDING BUTTON.

The new ATEA **a66** telephone is available with a grounding button, see fig. 9, for use with private automatic branch exchanges (PABX operation).



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## 9. WIRING.

The inside wiring is made of PVC covered 24 SWG (0.5 mm) tinned copper wire.
All connections are soldered from point to point at the back of the common frame. A flexible 3 conductor PVC insulated cord interconnects the components mounted in the cover to those mounted in the base.

## 10. LINE CORD.

The three conductor line cord is of the same construction and color as the handset cord. Standard length is 6'7" (2m).

## 11. TERMINAL BLOCK.

The terminal block is of modern design and reduced dimensions. The two main parts (the base and the cover) are made of toughened polystyrene. Terminals are mounted on the base, side by side and separated by ribs. They are fitted with special shaped washers to facilitate connection, see fig. 10.
The base of the terminal block can be securely attached to the wall by means of only one wood screw, and the cover is fastened to the base with a centrally located unlosable screw.

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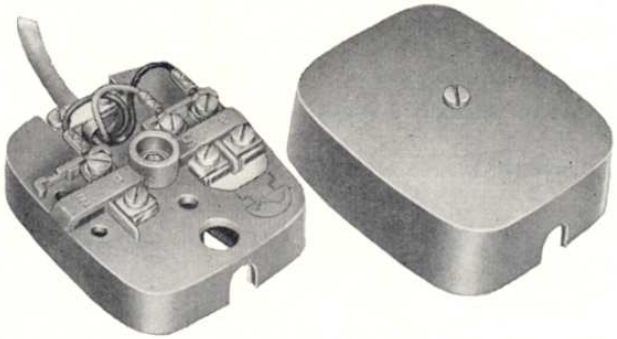
## 12. CIRCUITS.

Figs. 11 and 12 show the circuits of the ATEA **a66** telephones. Fig. 11 is the standard automatic telephone and fig. 12 the type with grounding button.
Both models have the same basic circuit and have been engineered to provide efficient transmission and reception combined with a low level of sidetone under all operating conditions.
Terminals are provided for connection of an extension ringer if desired.
Special care has been taken to protect the impulse contacts of the dial, the 1MF condenser in series with the 470 ohms resistor acting as spark suppressor.
The condenser also improves the transmission efficiency of the telephone.
A click suppressor is connected across the receiver circuit to protect the subscriber's ear against peak voltages.



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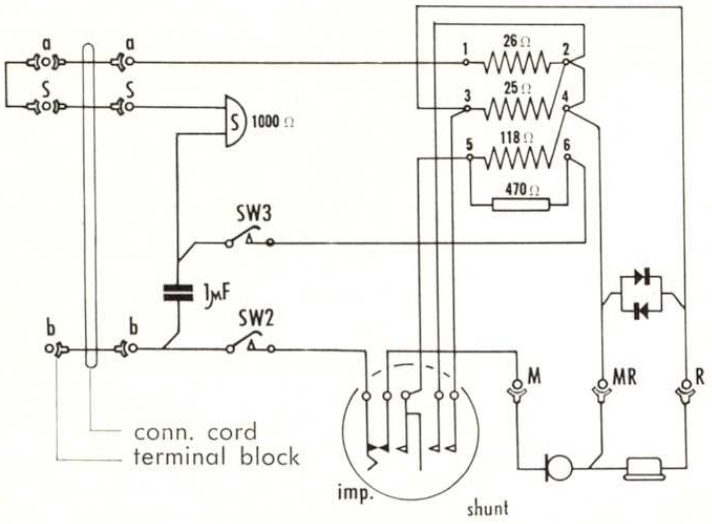


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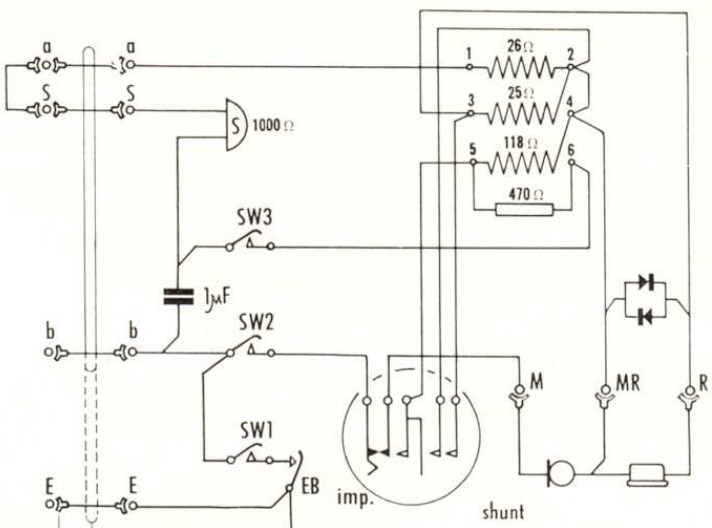


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## SIZE AND WEIGHT.

The base dimensions of the telephone :

width = 5 9/16" = 141 mm.
length = 7 19/32" = 193 mm.

Net weight of the complete set, including terminal block and cords :

3 Lbs. 2 oz = 1,420 kg.

Handset only :

10 oz. = 0,280 kg.


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