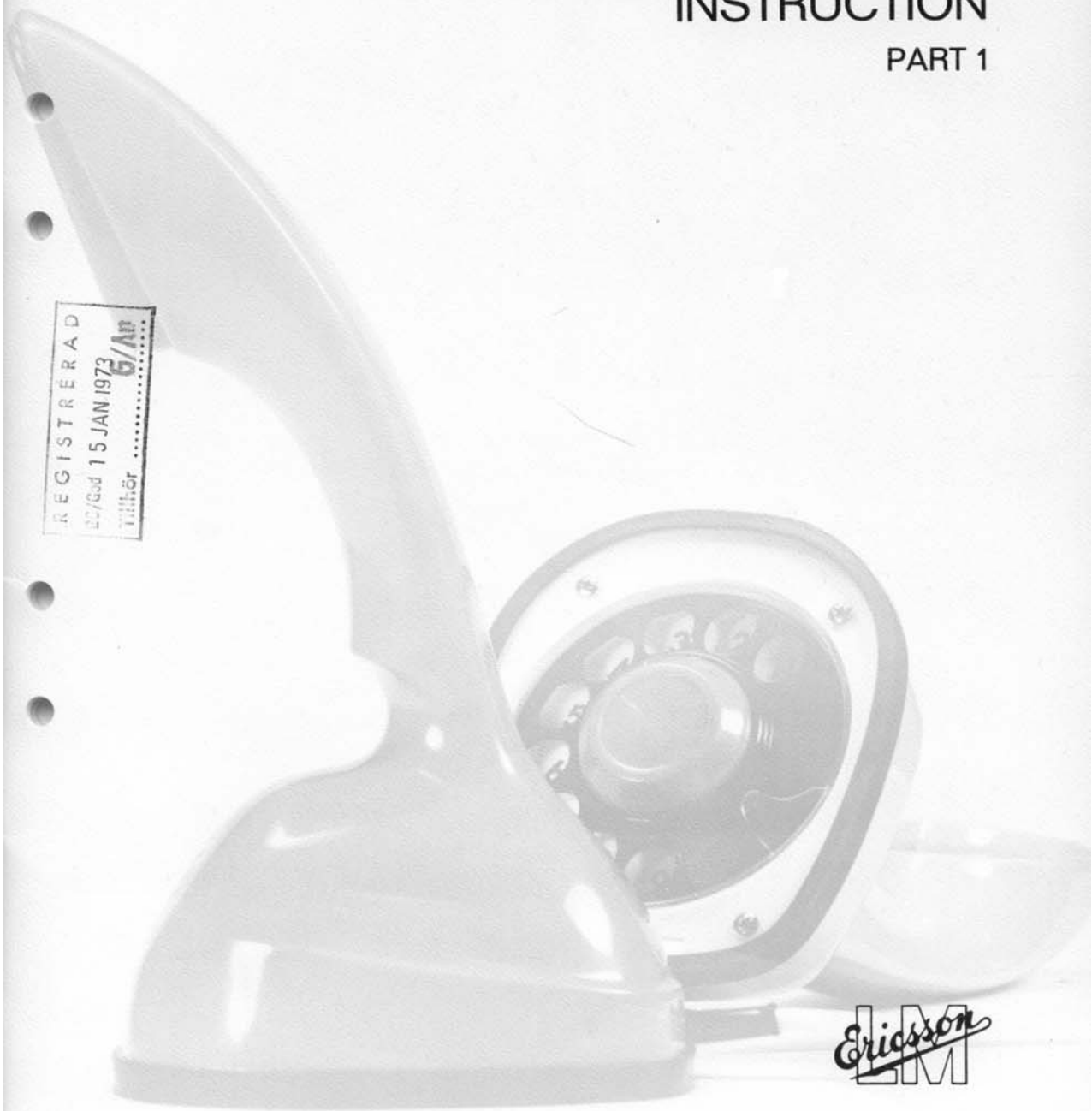
Ericofon®

SERVICE AND SPARE PARTS INSTRUCTION

PART 1



Ericsson LM

CONTENTS

1. GENERAL

Nowadays the appearance and operation of the Ericofon no longer requires any special description. The well-known profile of the world's most modern telephone meets us in every part of the world. The Ericofon is constantly gaining new admirers everywhere.

Since 1954 - the year the Ericofon was launched on the world market - the Ericofon has won increasing popularity - not least on account of the good quality design and choice of components but also because of its excellent transmission data and extremely delicate design. The millionth Ericofon was delivered during 1964.

Photos 1 and 2 show three versions of the Ericofon: From the left, an Ericofon with earth button, a standard Ericofon, and a manual Ericofon.

As a rule, the Ericofon can be connected wherever an ordinary telephone can be connected. However, the Ericofon cannot as yet replace a magneto telephone. The following account, will deal with the dismantling of a standard Ericofon. Each phase will be commented on simply and clearly so that the service technician can make himself fully familiar with the instrument.

2. THE BUILD-UP OF THE TELEPHONE

The Ericofon comprises 3 main parts:

1. Housing (Case) with transmitter and receiver insets
2. Chassis (Base Assembly) with dial and Transmission circuit
3. Coiled cord with wall terminal box

The case (housing) is made of a thermoplastic material and is available in 9 colours. The base assembly comprises among other things a die-cast metal frame on which the dial and the transmission components are mounted. The cord is a combination straight and coiled cord. Several connecting devices are available.

Dismantling an Ericofon

The four captive screws (see fig 3) which secure the base assembly to the housing are loosened. The housing can then be lifted off and the base assembly exposed, photos 4, 5 and 7. This method is always the same for all versions of the Ericofon.

To disengage the housing completely, the receiver conductor wires must be loosened. The wires are connected to captive screws on the contact springset. Figures 5 and 6 show an Ericofon with earth button. Its function is to close the La and Lb branches to earth, a procedure that is sometimes necessary with certain types of exchanges. The earth button is removed from the housing by unscrewing the threaded nipple, fig. 6.

The manual Ericofon (photo 7), which has no dial, has a much simpler mechanism than the other versions.

Fig. 8 shows the inside of the housing without the receive However, the connections come down inside the housing. The figure shows the transmitter and its locking ring (retainer clip), circuit and wiring diagram and finally the rear metal frame.

Next, the four captive screws are removed and the rubber pedestal round the number plate is eased off. The red cradle switch (stand-switch plunger) is then removed by shifting (displacing) a clip in the direction of the arrow (see fig. 9) thereby releasing the cradle switch and its spring.

Fig. 10 shows the released cradle switch and its spring and the next step - removal of the centre nut. This nut secures the figure disc, the finger wheel and the spring housing, see fig. 11 and 12. Lift out the spring housing with care so that the spring remains intact inside the housing. If the spring should jump out, don't touch it with your bare fingers. Use gloves to replace it so that its protective coating of oil is not disturbed and the spring is, as a result, not attacked by rust.

Spring housing with spring, see fig. 13.

By removing the screws holding the bracket in position the entire BC unit and buzzer can be lifted out. The buzzer can then be easily replaced, see figs. 15 and 16.

The bearing plate which secures the impulse wheel (cam) intermediate gear and governor is mounted by means of a screw fig. 17. Once the bearing plate has been removed, fig. 18, the impulse wheel, intermediate gear and governor can be lifted off, fig. 19.

The induction coil is removed by bending the retaining spring as in fig. 20.

The induction coil can then be taken out of the die-cast compartment in the base assembly, fig. 21. The springset groups with cradle switch and dial functions are then removed, as shown in, figs. 22 and 23.

Fig. 24 shows the main spindle bearing plate removed. This is done by removing the two retaining washers that fasten the bearing plate to two die-cast shanks. Note the clip now exposed which was mentioned in connection with the cradle switch in fig. 9.

Finally the centre gear wheel and main spindle can be removed. These details are kept in position by a retaining ring which can be opened. This completes the dismantling of the base assembly, the details are reassembled in reverse order.

Fig. 25a illustrates the positioning of components on the base.

Fig. 25 a Body. a) holes for case fixing screws
b) brackets for induction coil
c) pillars for main spindle bearing plate
d) fixing holes for springset
e) cord anchoring
f), g) and h) bearing holes for dial

Partial dismantling of the housing is possible. The metal frames and at the same time the transmitter inset can be removed. Note in fig. 26 how the flexible metal frame is lifted out by compressing the ends towards each other. The transmitter is also provided with a plastic insulating ring. As already mentioned the receiver is permanently sealed and cannot therefore be replaced. In the event of trouble, the entire housing should be replaced. However, fig. 27 shows a receiver glued to the receiver plate.

An exploded view of the receiver inset is shown in fig. 27 a.

1. Case
2. Alnico magnet
3. Pole pieces of ferro-nickel
4. Coil bobbins
5. Hole
6. Silk membrane
7. Diaphragm

The transmitter inset is shown in the following chapter.

3. GENERAL SERVICE RULES

The following instructions are intended for the service workshop and not for field service technicians sent out to correct faults at the subscribers. (Seethe special chapter concerning field service).

3.1 Case

The receiver inset is permanently glued in the case. When the case is ordered as a spare part it is accompanied not only by the receiver inset but also the front fixing bracket 36165 and the rack rail 361166. However, the transmitter and its insulation 361164 and the transmitter retaining ring 361163 are not included.

3.2 BC-unit

The BC-unit (fig. 28) can consist of one or two capacitors, buzzer, one or more resistors and one varistor or thermistor. All the components are mounted on a plate. The components which are included depends upon which instrument circuit is applicable. The buzzer consists of a magnetic core with coil, a spring and a moving armature with adjusting screw and has sound volume regulation. The adjusting screw is used to set the required sound volume. Electrical data can be found under chapter "Component Data".

Fig 28: The BC-unit consists of capacitors (a),resistance (e) and a buzzer on a mounting plate. The buzzer consists of a cup with the coil (d), armature (c) and adjustment screws for sound regulation (b).

3.3 Springset

The springset (fig. 29) must be carefully checked and adjusted after mounting. If for some reason the springset is damaged it should be replaced with a new one and only in emergency adjusted in sitᵤ"

Contact pressure and gap data for the springset are to be found in the chapter "Adjustment and Testing Instructions". In order to avoid oxidation and consequent contact faults the spring should not be touched by the fingers. Always use the correct tool whew, working on the springset.

3.4 Transmitter inset

The transmitter inset (fig. 30) is robust and reliable, and faults in it very seldom arise. However, a direct mechanical blow can damage the transmitter and it should in this case be replaced. Furthermore. exchange voltages can occur which are higher than the transmitter is designed for and this means that it will eventually become "burnt" with a consequent deterioration in sound fidelity. If this occurs the transmitter should be replaced. Faulty transmitters are never repaired.

Fig 30: RLA 204

a Granule chamber
b Contact cap for lower electrode
c Upper electrode silk
d Silk disc
e Hole
f Insulating ring
g Membrane
h Cover
i Diaphragm

3.5, 3.6 Induction coil

By using materials of extremely high quality this induction coil (fig. 31) takes up a minimum of space. Data on the various windings can be found in the table under the chapter "Electrical Component Data".

The inductor coil is held in place with a tensioned spring which can be carefully prized loose with a screwdriver.

3.7 Wall terminal box and signal device

There are various types of wall terminal arrangements. Fig 32 shows several variations. (See also the chapter on "Electrical Component Data" where certain spare parts are listed).

3.8 Dial

Servicing the dial mechanism unavoidably requires qualified personnel. A large part of the service instructions deal exclusively with the dial and if they are faithfully carried-out a good result is guaranteed.

3.9 Instrument cord

Earlier types of Ericofon used a spiralized textile cord which has now been replaced with a spiralized PVC-cord. Each conductor in the cord consists of several copper wires. Depending on the installation, the Ericofon cord can be in one of several different forms.

Check the following when installing or replacing a cord:

a) That the cord is connected with the correct ends to the terminal box.

b) That the cord is laid correctly in its strain-removing clamp.

c) That the cord or conductors are not pinched between the base unit and case.

d) That the conductor colouring and termination agree with the circuit diagram.

3.10 Tools

In addition to a normal supply of tools, special tools are also required. These tools are shown in fig. 33. It is important that the correct tool is used for each particular job. An ordinary screwdriver must not be imployed if the screw is designed for a cross-slotted screwdriver. Neither should flat-nose pliers be used to adjust the springset.

LMV 1091	The gram scales are used to adjust contact pressure according to the supplied adjustment instructions normal values
LMT 1001	The feeler gauge is used when adjusting contact gap
LMV 1111 and LMV 1115	Weights to be used when determining spring tension of the dial
VRT 2503	Dial Tester
10 ml	Grease gun and grease cup for grease MTV 37 Bottle of oil MTK 21
LSB 2208	Key for nuts 360154
LSH 2652 and LSH 2653	Spring-tension adjuster for the springset
LSA 1221	Cross-slotted screwdriver

4. ADJUSTMENT AND TESTING INSTRUCTIONS FOR SERVICE WORKSHOPS

4.1 Mechanical check and adjustment

All parts are checked as follows: (see spare parts list for reference)

Before assembling check that all the component parts are free from filings, burrs and other impurities.

Check especially that the bearing surfaces are clean.

The housing should be free from sharp edges which can damage the connecting cord and other conductors.

Washer (fig. 34)

The washer (2) under the centre gear wheel (1) should have its dull edge against the bearing surface of the housing (3). The shanks (4) of the washer should guide the centre gear wheel (1). The washer should be in close contact with the gear wheel.

Retaining ring (clip). (Fig. 35)

The open part of the retaining ring (clip) should be placed in front of one of the milled surfaces (a) of the main spindle (shaft) (2).

The bent part (b), which is at right angles to the opening of the retaining ring (clip), should be convex in relation to the washer(3).

Retainer plate (Fig. 36)

The retainer plates (1) should be locked firmly against the bearing plate and the lugs symmetrically stretched.

Before the retainer plates (1) are assembled they should be lubricated with drying anti-rust oil. Retainer plates previously lubricated with ordinary oil, should be degreased before lubricant is applied.

Bearing plate (3) (Fig. 36, Fig. 37)

The bearing plates should guide well on the shanks. (If the mounting holes of the bearing plates are too large, coining may be done round the holes from the underside).

Locking spring (2) (Fig. 36)

The locking spring should be well recessed towards the centre and its front part, should be close to the bearing plate (3) so that the stand-switch plunger (4) is not lifted above its normal initial position.

The surfaces of the locking spring that come in contact with the stand-switch plunger should be free from burrs and be rounded off.

The retainer plate (1) should press so tightly against the locking spring that the locking spring can be withdrawn from the centre by a force = 120 g applied to the oval hole of the locking spring.

Intermediate spindle (shaft) (Figs. 37 and 38)

The radial warpage of the gear wheel *(3)* fig. *37* in relation to the shaft (9) must not exceed ±0.05 mm and the axial warpage ±0.01 mm. The axial play of the gear wheel in relation to the intermediate shaft *(9)* should be *0.07-0.1* min. The impulse wheel *(4)* warpage must not exceed *0.2* mm. The detent springs (5-6) should engage properly in the locking slots of the impulse wheel and dog washer. In the initial position of the impulse wheel (fig. *38)* the end of the detent springs (5) should lie *0.2-1* mm inside the edge of the locking slot. The impulse cams must not be in home position or touch any of the impulse springs during operation of the dial.

The axial play of the intermediate shaft should be *0.07-0.3* mm.

Governor rotor (Fig. 39)

The governor should, when rotated slowly, function quite freely and there should be play between the governor cup and the base.

When rotating fast, only the friction shoes (1) should touch the wearing surface *(2)* of the cup.

The sliding surfaces of the friction shoes should be smooth arm, whole and have no traces of fluff.

The sliding surfaces of the friction shoes should be smooth and free from porosity. The governor axial play should be *0.07-0.25* mm., (the play is adjusted by bending the tongue of the bearing plate).

Base plate (Fig. 40)

The base plate should be free from scratches and its figures and other symbols should be well filled with paint. The paint should be evenly spread, especially around the number frame and should have no impurities.

The finger stop and internal wall of the well should have no traces of paint.

The number plate window should be clear and free from impurities and its edges should be even and sharp.

The boundary line (a) around the edge of the finger stop should be free from burrs and sharp edges.

The base plate should be concentrically placed in relation to the case (housing).

Neoprene gasket (Fig. 41)

The gasket should be fitted so that it presses evenly against the edge of the dial plate and so that the outlets in the projecting edge are opposite the rubber tabs of the case. The studs (1) for holding the subscriber number *(2)* in place should fit in the intended outlets in the case pressed against the base plate (3).

Spring housing (Figs. 42, 43 and 44)

The entire driving spring should lie inside the spring housing. The ends of the spring should be properly bent. There should be play between the outer end of the spring and the well of the finger wheel.

The minimum tension of the driving spring should be so large that if the first finger hole is loaded with a weight = 80 g and rotated towards the finger stop (position a, fig. 43), the finger wheel should return freely to its normal position (position b, fig. 43).

The maximum tension should not be so large that when the last finger hole is loaded with a weight = 150 g and rotated 6 - 10 mm past the finger stop (position a, fig. 44) the finger wheel should be pulled by the weight towards the finger stop.

Finger wheel

The finger wheel should be mounted so that the spring housing studs (a, fig. 45) are properly in position. Otherwise the spring housing will be damaged when the nut is tightened.

The finger wheel must not hide any marks on the base plate.

Stand-switch plunger (Fig. 45)

The edge (c) of the stand-switch (2) shaft should be well levelled so that the stand-switch plunger will slide easily into the main shaft (spindle) (4). The edge of the cap should be at least 0.5 mm inside the edge of the finger wheel (3).

Return spring (Fig. 45)

The spring (5) should lie inside the guide (supporting) edge (d) of the finger wheel and exert such a tension that a pressure of 25 ±5 g is required to actuate the plunger.

Springset vertical (Fig. 46)

The mounting hole of the vertical (1) should be concentric with corresponding hole in the insulating washer (2).

Stand-switch plunger assembly (Figs. 45 and 47)

The springset vertical should be mounted so that the stand-switch plunger assembly is symmetrical in relation to the stand-switch plunger's cone (taper). The distance between the lower edge of the stand-switch plunger's cone (taper) and the contact springs is adjusted in accordance with fig. 45.

Check that the contact springs are fully actuated when the assembly is on a level surface and that they are wholly unactuated when the assembly is lifted.

The contact springs should be fully actuated when the front edge of the assembly is lifted as in fig. 47.

Impulse springs (9, fig. 38 and 48)

The sliding surfaces should be smooth and free from cracks.

The springs are adjusted so that the impulse cams engage midway between the impulse springs and at a depth indicated in fig. 50.

Contact pressure and distance are adjusted as in fig. 48 in such a way that the movement of the spring is the same.

Short circuiting groups (Fig. 49) DBY 012 earlier type

When the dial returns to home position, springs 1 and 3 should

make about the middle of the impulse springs' last but one make. Break should take place between springs 1 and 2 about the middle of the impulse springs' last break.

The actuating foot of the lifting spring should be as close as possible to the centre gear wheel but clear of it when the finger wheel is depressed on dialling.

Short circuiting group (Fig. 50) DBY 111 modern type

When the dial is in home position, springs 1 and 3 should make about the middle of the impulse springs' last but one make.

The contact pressure between springs 1 and 3 should be min. 15 g immediately before the impulse springs' last make.

Break between springs 1 and 2 should take place about the middle of the impulse springs' last break.

Make between springs 4 and 5 should take place before break between springs 1 and 2.

The actuating foot of the lifting spring should be as near as possible to the centre gear wheel but clear of it when the finger wheel is depressed on dialling.

Receiver springs (earlier types)

Contact pressure and height are adjusted as in fig. 51.

Transmitter springs (Fig. 52)

The transmitter springs are adjusted as in fig. 52.

Induction coil Fig. 53)

The terminals are connected so that there can be no abrasion of its insulation against the part of the springset group.

The insulating tube (sleeve) covering the terminals of the inductor coil should be well pushed down to the side of the inductor coil frame. The insulating tube should be fixed to the stand-switch plunger assembly by rebending the open cable clamp. (Fig. 54).

Clamping clip

Clamping clip (fig. 53) should exert a pressure of at least 5 kp on the induction coil. The entire clamping clip should, except for its teeth. lie flat against the induction coil and be symmetrically placed so that all the teeth are bent the same.

Resistors and capacitors

Do not carry out soldering closer than 6 min to resistors and capacitors. Shunt excess heat from the soldering iron with a pair of pliers or the like.

Varistors

The varistor should be placed so that it receives support from the frame and is not supported by its soldering tags.

Lubrication (Fig. 55)

Lubrication should be carried out with great care since the working order of the mechanism depends on it entirely.

Since the details are treated in accordance with special instructions to prevent the lubricant from spreading over the surface, the surface treatment should not be damaged in any way.

4.2 Lubrication

Lubricant

The following part should be lubricated with MTK 21 (apply very sparely so that there is no risk of the lubricant spreading).

Teeth of the centre gear wheel, to be rolled on lint-free felt (7, fig. 45)

Teeth of the intermediate drive gear (1, fig. 37)

Gear of the intermediate drive gear, to be rolled on lint-free felt (3, fig. 37)

The dog spring (7, fig. 37)

The bearing hole in the impulse wheel (4, fig. 37)

The lubricant is applied after the impulse wheel has been mounted on the shaft.

Grease

Grease MTV 37 is applied at the following points, whereupon it should be observed that grease maybe applied more liberally than lubricant. To apply the grease, a syringe without needle should be used. See the section on tools.

The bearing of the main shaft and those of the disc against the frame and bearing plate (Pos. 18, 28, 37 and 19, fig.55).

The intermediate shaft bearing in frame and bearing plate

(Pos. 18, 27 and 26, fig. 55).

Governor shaft bearing in frame bearing plate (Pos. 18, 10 and 26, fig. 55).

Sliding surface between the lifting spring's short-circuiting group and the lifting stud of the main gear wheel (9, fig.50).

Sliding surface between the stand-switch plunger shaft and the main shaft hole (2 and 4, fig. 45).

Sliding surface between the stand-switch plunger shaft and the locking spring (2 and 4, fig. 36).

Lubricate the sliding surface between the top of the stand-switch plunger top and the stand-switch plunger springs very sparingly. This also applies to the sliding surfaces between the impulse wheel retaining springs and the bearing plate and dog washer, respectively. (5-8, 6-2, fig. 37).

The following rules must be observed very closely. If not, the operation of the telephone will be endangered.

The whole driving spring is lubricated before insertion in the spring housing, so no further lubricating should take place on assembling. The driving spring must not be touched with bare hands (fingers). They should either be oiled or provided with gloves.

Driving springs which have been removed from their housing should be rinsed and lubricated once more.

The spring housing must not be stored in such a way that it can absorb oil. Contacts and contact springs must be kept free of lubricant at all times. (EXCEPTION: the outer ends of the two operating springs of the stand-switch plunger).

The sliding surface between the friction shoes of the governor and the wearing surface of the governor cup (1-2, fig, 39). The sliding surface between the impulse wheel and the impulse spring (4-9, fig. 38).

Under no conditions may lubricants other than those specified above be used and lubricant (oil) may not be used where grease is specified and vice versa.

4.3 Mechanical check

The following checks should be made after reassembly:

that the bearing plates are firmly in position

that the finger wheel does not strike, and that it rotates freely from the finger stop

that the axial play of the main shaft is approx. 0.1 mm

that the axial play of the governor shaft is within the permitted tolerance

that the gear shafts have normal play, particularly in the governor shaft

that the stand-switch plunger runs freely and does not "bite" (the stand-switch plunger should be actuated at the edge and not in the middle)

that the operation is smooth and without abnormal noises

that the induction coil's retaining spring is firmly fixed

that there are no cold junctions or other uncertain contact points

4.4 Electrical check

Impulse ratio

Check in the impulse tester in accordance with the following table:

Impulse ratio make/break	
Nominal	Range of tolerance
33/67	31-36 / 69-64
38/62	37-40 / 63-60
40/60	40-42 / 60-58
50/50	50-52 / 50-48
60/40	58-60 / 42-40

Impulse speed

Check with frequency meter:

Impulse speed imp./sec.	
Nominal	Range of tolerance
10	9.5 - 10.5
20	19-21

Voltage test

Make a routine test with 500 VS M:

between all line parts mutually

between all line parts and housing

Insulation test

Snap (Random) check 1 000 megohms at 500 V between the same parts as for the voltage test.

5. ADJUSTMENT AND TESTING INSTRUCTIONS FOR FIELD USE

The service man's task should be simplified as much as possible before he is sent out to correct a reported fault.

On the understanding that the customer wants his telephone working immediately, the service man should quite simply replace the faulty instrument with anew one. The faulty telephone should then be returned to the workshop for repair and test.

If this is not always possible then certain parts should be taken along as reserve. These parts are case, transmitter inset, terminating cord if available or base plate, nuts 360154, helical springs 457334, stand switch plunger 457335/4/24, finger wheel 457332/10 and spring housing 410797/2 with insert.

Lastly, if there is sufficient reason, such parts as require soldering, BC-unit, springset, capacitors, resistors, induction coils and buzzers etc. Note that in this case the service man must be equipped with a rather extensive supply of tools such as multirange instrument, soldering iron and telephone receiver.

For the sake of clarity certain parts have been omitted such as, resistor, case and wall termination box etc.

Fault indication	Possible fault	Action
The telephone is "dead" or it "crackles" in the receiver.	Fault on the line. Fault in wall termination. Fault in the cord. Fault on termination in the instrument. Component fault.	PTT notified of fault. Corrected. Replaced. Corrected. Repaired at workshop.
The transmitter is "dead".	Contact fault. Transmitter faulty. Component fault.	Contacts cleaned and adjusted. Replace transmitter. Repaired at workshop.
Buzzer of bell does not work.	Loose contact or open-circuit terminations. Open-circuit capacitor Cl Open circuit in buzzer or bell coil. Other faults.	Check and correct terminations. Replace capacitor. (Repaired at workshop). Replace buzzer or bell mechanism. Repair at workshop.
Not possible to break the line.	Short-circuit in the instrument. Component fault.	Check contacts in spring set. (Repaired at workshop). Repaired at workshop.
Impulses are heard when dialling.	Short-circuit contacts not operating.	Oxide on the contacts or weak contact pressure. Repaired at workshop.

6. SPARE PARTS

6.1 Spare parts instruction

The Ericofon was brought into production in 1954 and over the past years has been introduced into all of our world-wide markets. Since different telephone administrations have placed different demands on the telephone and since it has had many varying applications within the field of communications, the number of different types have been very large. It has therefore been very difficult to keep in stock single spare parts. We have instead. therefore, chosen to stock a few single spare parts and a number of complete units. Some of these units require accurate adjustment and function testing which cannot normally be carried out by untrained technicians. We deliver units from our spare parts store adjusted and tested according to our specifications. Assembly can afterwards take place locally by the service man.

Standard screws, nuts and washers have not been included in the spare parts list since they can usually be obtained locally. However, special screws and washers have been included.

How to use the Spare Parts List and Register

Special parts, table 1-12 item

Begin from the Ericofon number. (If this has been mislaid the number can be obtained by comparing the Ericofon against the "Code key" which is to be found at the end of the service instructions).

Decide with the help of fig. 57 which part is to be replaced. Each part is numbered in the picture and the same number is to be found at the head of the spare parts register together with the part's name. Locate the register figure at the intersection of the required part and the Ericofon item number.

Example: To find wall terminal box for the Ericofon DBJ 52126:

All the wall terminal boxes can be found in column 7. The register figure at the intersection of the terminal box and DBJ 52126 is 11.

In the spare parts list relocate figure 7 and the heading "Wall Terminal Boxes". The register number can be found in the column at the far left and for the above example this is ,11, which means that the required wall terminal box is NEF 1702/9 and is intended for DBJ 52126.

The register must always be consulted before the spare parts list is employed.

Base plate, table 13

The spare parts register refers everything concerning the base plate to the spare parts list. By comparing the text in the base plate with the

text in table 13 the item number can be read off directly.

Common parts or details, table 14-37

The spare parts in this group are already common to or can appear in all Ericofon types.

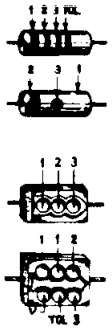
These common parts are divided into two groups, automatic instruments with dial and manual instruments without dial. Since there are not any variations of the parts, a register is not required. The item number can be found directly from table 14-37 in the spare parts list.

Colour code table

When ordering the Ericofon case, column 1, the colour must also be stated. The colour index can be found in the little table at the lower right-hand corner of the spare parts list.

Resistors in the instruments are colour-coded according to the table below.

Colour	1	2	3	Tol.	Voltage
O Black	0	0	-	-	-
O Brown	1	1	0	1%	100
O Red	2	2	00	2%	200
O Orange	3	3	000	3%	300
O Yellow	4	4	0000	4%	400
O Green	5	5	00000	5%	500
O Blue	6	6	000000	6%	600
O Violet	7	7	0000000	7%	700
O Grey	8	8	00000000	8%	800
O White	9	9	-	9%	900
O Gold	-	-	X0.1	5%	1000
O Silver	-	-	X0.01	10%	2000
O No colour	-	-	-	20%	500



6.2 Location view and spare parts

Assembly view of DBJ 510-549 (Automatic)- according to spare parts figure. (fig. 56)

The numbers agree with those in the spare parts list and spare parts figure.

For the sake of clarity certain parts have been omitted such as, resistor, case and termination box etc.