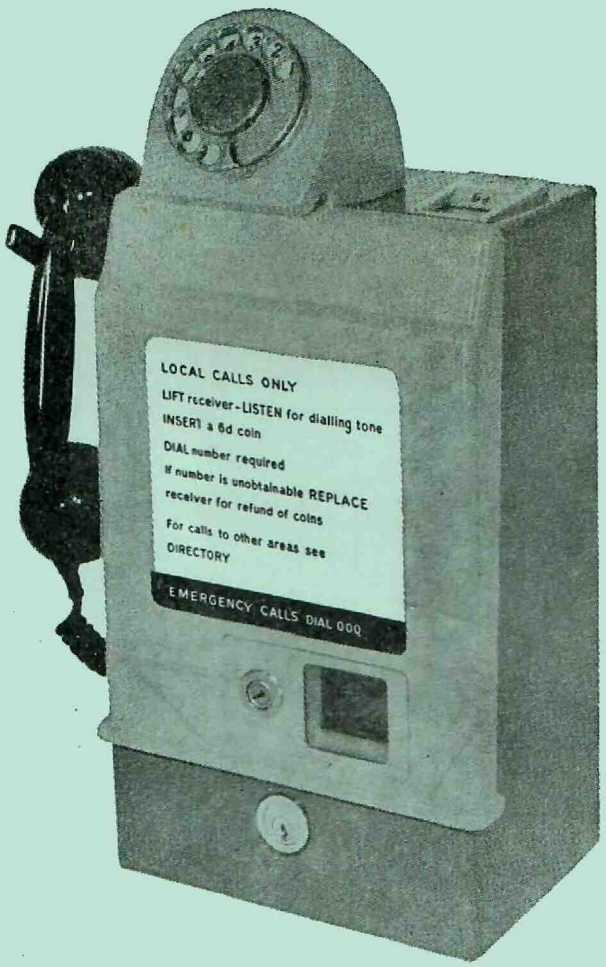
MAINTENANCE & SPARE PARTS MANUAL

for

EASIPHONE

With 7c Conversion L.P. and ARK Mod.



Elliott Automation (Pty.) Ltd.

Associated Automation Division

SYDNEY: 22-24 Tooronga Terrace, Beverly Hills. Phone: 50-0301
MELBOURNE: Easiphone, 517-519 Little Collins St. Phone: 62-7271
BRISBANE: 13 Dogget Street, Fortitude Valley. Phone 58-2849
ADELAIDE: 224 Hutt Street ..... Phone: 8-5382-3
PERTH: 166 Murray Street ..... Phone: 21-9448

TOK KEY CODE

ABCDEFGHJK
1234567890

EG. EEK = 550 or 350 or 750

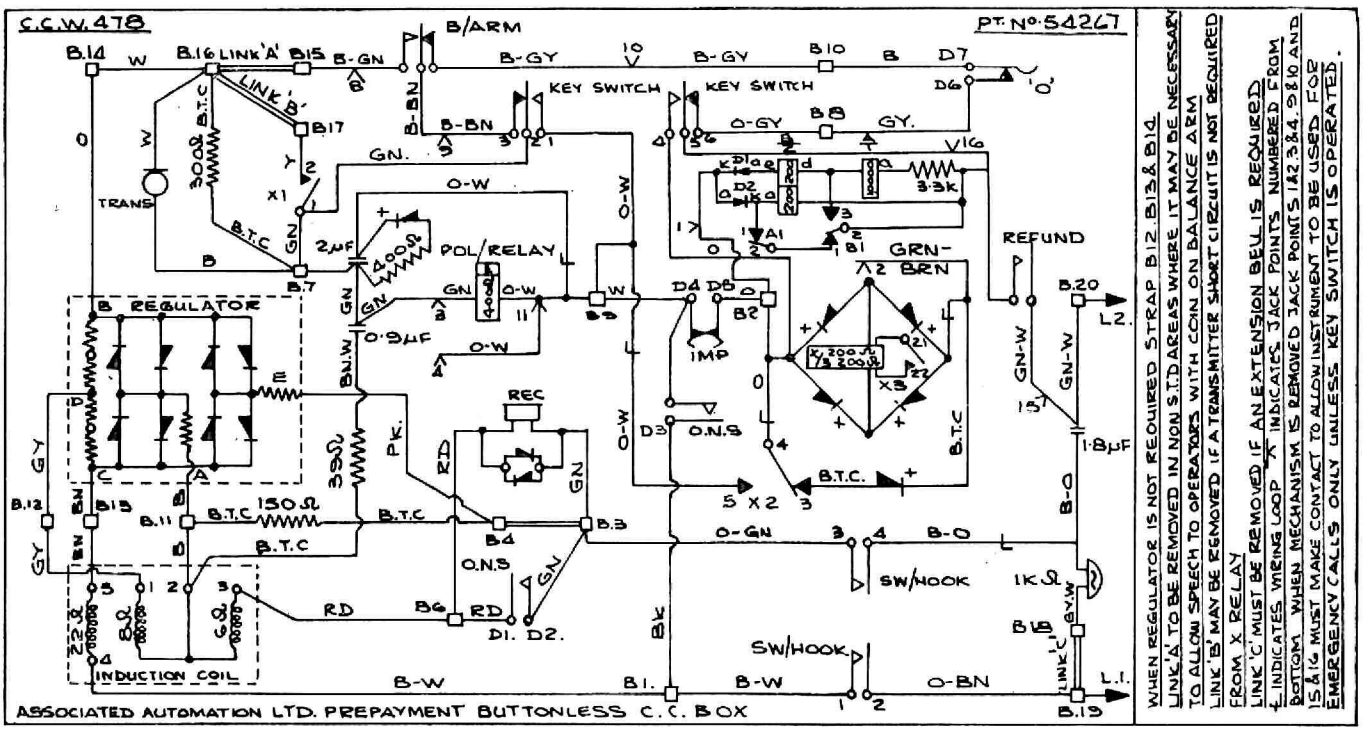
EG. DCJ = 6439
6039
6239
6639

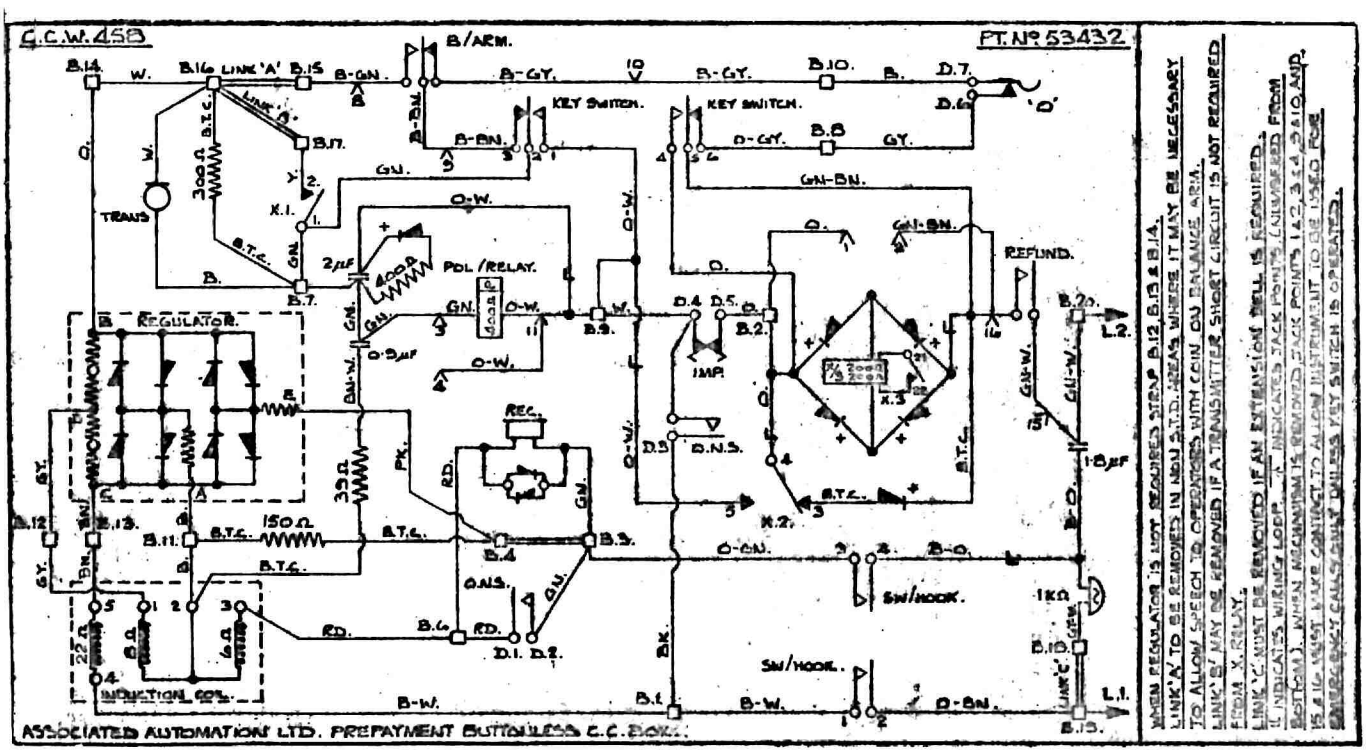
WILL FIT

KEY BLANKS

TOK - D75

Cash Box - D48R


C.C.W. 478
PT. No. 54267
B/ARM
KEY SWITCH
KEY SWITCH
TRANS
POL/RELAY
REGULATOR
REC
IMP
O.N.S
B.T.C.
REFUND
SW/HOOK
SW/HOOK
INDUCTION COIL
ASSOCIATED AUTOMATION LTD. PREPAYMENT BUTTONLESS C.C. BOX
WHEN REGULATOR IS NOT REQUIRED STRAP B.12. B.13. & B.14.
LINK 'A' TO BE REMOVED IN NON S.T.D. AREAS WHERE IT MAY BE NECESSARY
TO ALLOW SPEECH TO OPERATORS WITH COIN ON BALANCE ARM
LINK 'B' MAY BE REMOVED IF A TRANSMITTER SHORT CIRCUIT IS NOT REQUIRED
FROM X. RELAY
LINK 'C' MUST BE REMOVED IF AN EXTENSION BELL IS REQUIRED.
* INDICATES WIRING LOOP ✕ INDICATES JACK POINTS NUMBERED FROM
BOTTOM. WHEN MECHANISM IS REMOVED JACK POINTS 1 & 2, 3 & 4, 9 & 10 AND
15 & 16 MUST MAKE CONTACT TO ALLOW INSTRUMENT TO BE USED FOR
EMERGENCY CALLS ONLY UNLESS KEY SWITCH IS OPERATED.


C.C.W. 458
PT. No. 53432
B/ARM.
KEY SWITCH.
KEY SWITCH.
TRANS.
POL/RELAY.
REGULATOR.
REC.
IMP.
O.N.S.
B.T.C.
REFUND.
SW/HOOK.
SW/HOOK.
INDUCTION COIL.
ASSOCIATED AUTOMATION LTD. PREPAYMENT BUTTONLESS C.C. BOX.
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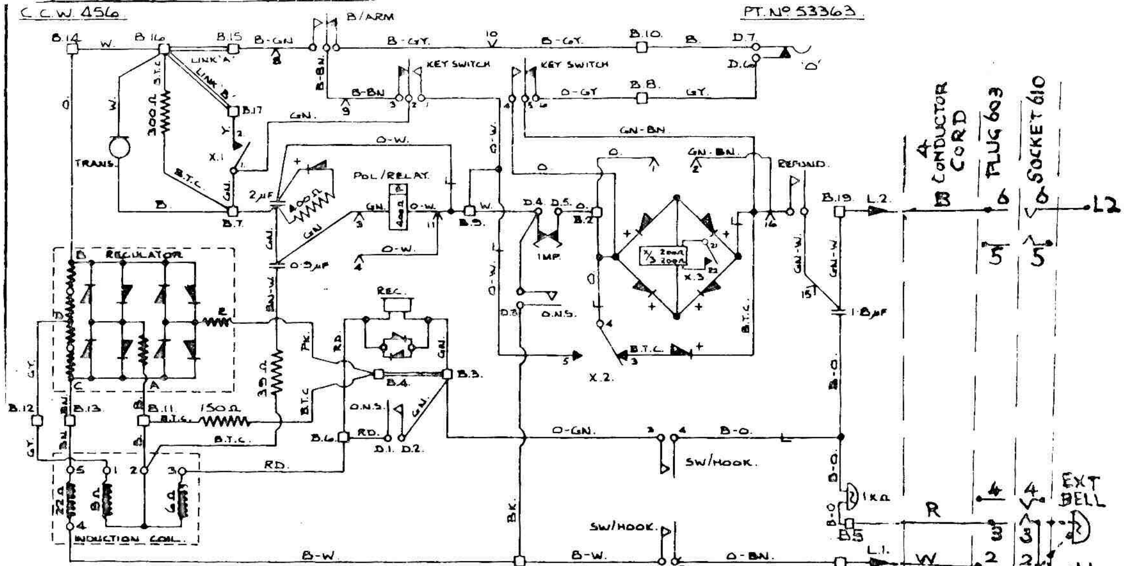
* INDICATES WIRING LOOP ✕ INDICATES JACK POINTS NUMBERED FROM
BOTTOM. WHEN MECHANISM IS REMOVED JACK POINTS 1 & 2, 3 & 4, 9 & 10 AND
15 & 16 MUST MAKE CONTACT TO ALLOW INSTRUMENT TO BE USED FOR
EMERGENCY CALLS ONLY UNLESS KEY SWITCH IS OPERATED.

C.C.W. 456 — PT. No 53363.



PREPAYMENT BUTTONLESS C.C. BOX.

WHEN REGULATOR IS NOT REQUIRED STRAP B.12, B.13, & B.14.
LINK 'A' TO BE REMOVED IN NON S.T.D. AREAS WHERE IT MAY BE NECESSARY TO ALLOW SPEECH TO OPERATORS WITH COIN ON BALANCE ARM.
LINK 'B' MAY BE REMOVED IF A TRANSMITTER SHORT CIRCUIT IS NOT REQUIRED FROM X. RELAY.
⏚ INDICATES WIRING LOOP. ⊼ INDICATES JACK POINTS. (NUMBERED FROM BOTTOM).
WHEN MECHANISM IS REMOVED, JACK POINTS 1 & 2, 3 & 4, 9 & 10, AND 15 & 16 MUST MAKE CONTACT TO ALLOW INSTRUMENT TO BE USED FOR EMERGENCY CALLS ONLY UNLESS KEY SWITCH IS OPERATED.

IF EXTENSION BELL REQUIRED—
REMOVE LINK BETWEEN TERMS. 2 & 3 IN SOCKET
CONNECT EXTENSION BELL TO THESE TERMINALS

SERVICE & MAINTENANCE MANUAL

FOR

THE "EASIPHONE".

PRE-PAYMENT BUTTONLESS TELEPHONE COIN COLLECTING BOXES.

2200GT2

AUSTRALIA.

Contents

Manufacturers:- Associated Automation Limited.,
70, Dudden Hill Lane,
London, N.W.10.
England.

(A member of the Elliott Automation Group)

Manual No. 206.

16. 8. 1963.

1. INTRODUCTION

1.1. This is an instrument comprising telephone components, (dial, handset, bellset) together with a coin collecting mechanism. It is intended for use in private premises such as hotels, garages, etc., where the owner of the premises may, by operating a key, use the instrument as a private telephone, but at other times the instrument may be used by occupants of the hotel, etc. etc., as a coinbox.

1.2. It is possible to use this instrument on local calls prescribed by the A.P.O. for which the user will insert a sixpenny coin. The A.P.O. will charge a lower fee for such calls. In cases where the A.P.O. require a greater fee the call will be blocked by a condition returned from the exchange, after which it will be impossible to dial further digits in the setting up process of that particular call.

2. MECHANICAL FEATURES

2.1. The case is of a pleasing new design suitable for either wall or table mounting. The cash compartment is a shallow sliding drawer with its own lock.

2.2. The mechanism generally is the same as provided in the A.P.O. multi-coin attachments and so will provide easy maintenance.

3. ELECTRICAL FEATURES

3.1. The telephone circuit used is of the latest improved transmission standards and is approved by the A.P.O.

3.2. The dial is the B.P.O. No.22 type arranged to permit the dialling of digit '0' when no coins are inserted. This permits emergency use on "000".

3.3. The instrument is basically of the buttonless prepayment type, the operation of which is described in para. 4. The money is deposited by a special heavy duty polarized relay which is not affected by the additional feature of the blocking 150 millisecond line reversal sent back by the exchange on certain route codes. This reversal operates the X relay which then short circuits the dial and also the transmitter.

4. OPERATION OF LOCAL COIN BOX

4.1. Fee Call

The handset is removed from the switchhook, the line break delay mechanism is operated and, after a delay of sufficient duration to prevent switchhook dialling, the telephone loop is connected to the exchange. On receipt of dial tone, a 6d. coin is inserted in the mechanism. This operates the balance arm contacts, removes the short circuit on the dial and puts a short circuit on the handset transmitter.

(a) After dialling a local number, when the called party answers, the polarised relay operates and deposits the 6d. coin in the cash compartment; this removes the short circuit on the transmitter and the conversation can proceed.

(b) If a barred code is dialled a 150 millisecond line reversal is returned by the exchange which does not operate the cashing in relay, but operates the X relay, the contacts of which put a short circuit on the dial springs thus preventing the dialling of any further digits.

4.2. Free Calls

(a) Emergency code "000" may be dialled at any time without inserting coins by using the No.22 dial as previously described. This is also possible as in the multi coin attachment, when the mechanism is removed for maintenance.

(b) Certain other A.P.O. codes will also be available as free calls (i.e. not metered) but it will be impossible to dial any digit other than 0 unless a coin is inserted. Since this short circuits the transmitter, it is obvious that although the money is not collected, a conversation is still impossible.

INSTALLATION

For convenience in packing, the fixing bolts and nuts are wrapped separately and the keys are tied inside the refund cup.

Before erection, the mechanism, and cash drawer should be removed.

The mechanism is housed in the upper compartment of the case and the cash drawer in the lower. Both compartments are fitted with independent locks.

To remove the mechanism, lift the latch on the money funnel and swing the mechanism clear of the case. It may then be lifted from its hinges. When the cash drawer has been removed, the box may be secured to a wall or backboard by means of the nuts and bolts supplied. Alternatively, it may be required to fix the coin box to a table or bench; this may be done by removing the base fixing bracket and securing this to the table or bench then sliding the box on to the bracket. The bracket is released by a catch (Item 194) at the rear of the cash drawer compartment.

1. For use as coin box on normal local call.

Lifting the receiver puts the telephone circuit as a loop calling condition across the exchange line pair after the operation of the mechanical line break delay. (Set for $1\frac{1}{2}$ - 2 seconds).

At this stage, providing the exchange line is in correct condition, dial tone is returned from the exchange, but calls other than emergency "000" cannot be dialled until a 6d piece is inserted, since the balance arm contact short circuits the dial impulse springs together with the X and polarized relays. Insertion of the coin (if accepted by the mechanism) causes the balance arm to operate. This removes the short circuit, allowing dialling to proceed. At the same time, normal line current passes through the polarized relay causing it to move to a biased position ready for correct full operation on receipt of a full line reversal. This current for correct operation of the polarized relay may be as low as 8 milliamps but this figure must not be used since the operation of the X relay on a short line reversal is also involved as discussed later. In order to permit distortionless dial pulses to be transmitted, operation of the dial, short circuits the telephone circuit at D3-D4, and the dial pulses are sent from a physical loop circuit via only the rectifier shunting the X relay, to the exchange.

To prevent "clicks" in the earpiece, dial contacts D1-D2 short-circuit the receiver.

When the called subscriber answers, a loop condition is returned to the transmission bridge in the exchange which initiates metering usually by means of a reversal of polarity of the A and B lines. This reversal being extended back to the caller, causes the operation of the polarized relay which cashes in the coin. The X relay also operates, but has no effect at this stage. The balance arm now restores to normal, removing the short circuit on the transmitter and placing a short circuit across both relays which releases them. Thus speech is now possible from what is virtually a standard telephone circuit with no relay resistance in the path.

In the event of the called subscriber being engaged, unobtainable or not answering, no line reversal is applied, the coin is not cashed in and is refunded when the caller replaces the handset on the switch hook.

2. Coin box used to dial trunk codes.

Should the caller dial a trunk access code it is intended that in certain circumstances access further into the trunk route shall be barred. On such codes, therefore, a 150 millisecond line reversal is applied back to the calling coinbox. This causes the X relay to operate, since with reversed polarity, the rectifier normally shunting the X relay no longer permits the shunt to be operative. X2 contact disconnects the shunt circuit of the X relay and places a short circuit on the dial impulse springs and thus prevents further digits from being transmitted to the exchange. X1 contact also places a short circuit on the transmitter to prevent any possibility of speech.

The X relay will operate on line currents as low as 17 milliamps and thus imposes no severe conditions on the line loop resistance which is limited only by transmission requirements. The X relay is a double wound coil, the second winding being short circuited by X3 contact to provide a slug condition giving approx. 125 milliseconds release lag. This feature is to render fraudulent usage difficult, (a quick "flash" disconnection by the switch hook causing the release of the X relay.) It will still be possible to release the X relay, but the delay so imposed will provide a line disconnection of sufficient duration to permit some exchange equipment to release. The polarized relay requires a line reversal of 450 - 500 milliseconds to operate and consequently is unaffected by the 150 millisecond line reversal.

3. Instrument used as private telephone.

The hirer of the instrument is supplied with a Yale type key which may be removed from the coin box in only the unoperated position leaving the instrument to operate as a coin box. Insertion and turning of the key converts the instrument to an ordinary telephone since one changeover

springset breaks the balance arm short circuit on the dial and also short circuits the X relay. The other springset short circuits the polarized relay. In this condition the telephone may be used with no restrictions on the entire system.

4. Incoming calls.

In any of the foregoing conditions incoming calls may be accepted as for an ordinary telephone.

5. Special features.

a) The 2 microfarad capacitor across the 400 ohm polarized relay is necessary in order to pass without undue attenuation, dialling tone, busy tone and ringing tone from the exchange. Also to permit the transmission of coin signals from a coin transmitter (if fitted) to a manual exchange. In addition, a 400 ohm resistance in series with a rectifier shunts the polarized relay so as to reduce the effective loop resistance.

b) For this particular Australian circuit a coin transmitter is not fitted since the use of the coin boxes is to be limited to local automatic calls.

c) An automatic volume regulator is used which can be short circuited if not required, or for fault locating.

d) In accordance with A.P.O. requirements a removable link has been fitted 15 - 16 in the "make" side of the balance arm changeover springset. With this link removed, it will be possible to speak to an operator even with a coin inserted. Link 16 - 17 removed, makes the transmitter short circuit applied by X1 contact, inoperative.

e) In the event of having to remove the coinbox mechanism, certain jack points (marked "X" on the wiring diagram) make contacts and permit the coinbox to be used for emergency only by dialling "000". The subscribers key will of course, still convert the coinbox to an ordinary telephone.

Description of Mechanical components.

The coin box mechanism is fitted with a coin plate, coin chute, quadrant tube and balance arm, together with the necessary parts for ensuring the refund of coins. There is also a spring bank, operated by the coins, governing the electrical features of the circuit and a polarised relay for cashing in the money.

At the back of the case is mounted a Bell Set comprising ringer, bell gongs, induction coil and condensers, which provide the ordinary features of a telephone circuit, in addition to these, are the X relay with its rectifier elements and the key switch.

The mechanism and bell set are connected by means of a plug and jack which is automatically engaged when the mechanism is swung into place.

When originating a call, the handset is lifted off the receiver hook whose contacts (Item 117) are 'made' immediately. The upper pair of contacts on the mechanism (refund) are 'made' after an interval controlled by the escapement (Item 23).

The maximum coin size acceptable by the mechanism (6d) is dimensionally such as will pass through the slot in the coin plate assy (Item 362).

A coin, after passing through the coin slot, enters the chute (Item 26) and rolls along supported at its top edge by the detector (Item 62). The detector is secured at such a height that coins smaller than the recognised minimum diameter are unsupported at their top edge and fall away under the detector and are refunded. The position of the detector is governed by its design and is not adjustable.

After being checked for diameter, a coin, reaching the end of the chute falls down into the quadrant tube (Item 361) and comes to rest on the balance arm (Item 27), which tilts, causing the lower change-over springset (the balance arm springset) on the mechanism to operate. Thus releasing the short circuit on the dial switch, and placing a short circuit on the transmitter. Hence, once a coin is on the balance arm it is possible to dial the required number. When the called subscriber answers, the line polarity from the exchange is reversed. This reversal operates the polarised relay (Item 126) whose operating fork is normally biassed to the right-hand side. When the line reversal takes place it swings to the left and, at mid-travel, comes into contact with the relay lever (Item 127) which is driven by it and releases the pin of the quadrant assembly. The quadrant tube (Item 361) is then unsupported and, under gravity, swings over, allowing the money to be deposited into the cash box.

When the conversation has ended, or the subscriber is unable to obtain the required number, the handset is replaced.

This causes:-

(a) The quadrant lever (Item 129) to swing the quadrant assembly (Item 13) carrying the quadrant tube (Item 361) over to the right-hand side to the refund position, which then returns the fee in the case of an unsuccessful call.

(b) The receiver hook contacts to be 'broken'.

(c) The upper refund contacts to be broken.

(d) The clockwork escapement (Item 23) to be operated, thus ensuring that the contacts remain 'broken' for a sufficient period to allow the line to be cleared.

When receiving a call, the act of lifting the handset off the receiver hook renders the instrument available for use.

To safeguard the caller from losing coins should he operate the telephone incorrectly, the escapement lever (Item 145) working in conjunction with the quadrant spring (Item 10) ensures that the quadrant (Item 13) with its quadrant tube (Item 361) is returned to its central position when inserting a coin. This prevents the loss of coins inserted after a successful call if the handset has not been replaced.

Maintenance.

Chute Unit Assy (Item 26)

After extended periods of use, these parts tend to become coated with a substantial greasy deposit due to the continual passage of coins. When it is necessary to clean them, careful dismantling and brushing in hot soapy water, followed by rinsing, thorough drying, and careful re-assembly is all that is necessary.

Balance Arm (Item 27)

The back centre screw (Item 36) is screwed up tightly in the factory and any adjustment should be made on the front centre screw (Item 35) which should be locked by means of the nut provided, giving an easy pivot for the balance arm without appreciable shake.

The balance arm weight (Item 54) should be adjusted so that it tilts under the weight of one 6d coin.

Contacts Adjustment.

Contact blade pressures for the refund springs should be kept within 40 - 60 grams; this necessitates the use of a spring tester and careful adjustment. The test load must be applied as close as possible to the contact points.

Contact blade pressures for the balance arm springs should be kept within 10-15 grams. Special care is needed when setting. They should be set so that they break properly with the normal movement of the balance arm when depressed by the weight of the coin. The moving spring should not, on any account, be adjusted to exert any pressure on the balance arm bush (Item 34) in the normal position, otherwise the maximum sensitivity will be lost.

The minimum clearance between contact points when broken by the normal operation of the mechanism should not be less than 0.010" (0.254 m.m.).

All contacts are set before leaving the Works, and it is recommended that the adjustment is not interferred with unless absolutely necessary. Only trained and experienced personnel should attempt to reset springs.

Polarised Relay (Item 126)

The resistance of the relay is 400 ohms, and the complete unlocking action of the mechanism should take place with a current of 14 milliamps passing through the relay. In accordance with A.P.O. requirements this relay has been shunted with a 400 ohm resistor in series with a rectifier to reduce the line loop resistance.

The correct functioning of the relay necessitates that all pawl and pivot centres and working faces associated with the relay shall be free, clean and sweet in their action. Occasionally add one drop of high quality clock oil to the bearing holes (see Plate 3). On no account over-oil, as excess oil attracts dust particles which impair the functioning of the unit.

The spring anchor (Item 139) should be adjusted so that the relay lever (Item 127) will free the quadrant (Item 13), to swing into the depositing position, when a load of 10 grams is applied to the end of the relay lever, but should not release at a load of 7 grams. This test should be made with the balance arm (Item 27) depressed under the weight of a coin.

Dial (Item 310)

This may be removed very easily and quickly for maintenance in the following manner as shown in Photograph EA3. Remove knurled nut, Item 365 and pull dial housing clear of case, easing the dial cord through. The dial fixing screw is then loosened and the dial may be removed from the dial grip assembly item 308.

Escapement Assembly (Item 23)

This is adjusted carefully before leaving the Works and requires no attention other than a periodical check that no screws have worked loose, and the application of a drop of high quality clock oil to all pivots and bearings.

It should be checked that the coin lever (Item 130) is fully returned by its spring (Item 135) after the insertion of a coin, thus ensuring the full drive of the clockwork escapement mechanism (Item 23).

Handset Cradle Mechanism.

The adjustment of the handset cradle spring (Item 125) is important. The telephone handset is just heavy enough to overcome this spring and the tension of the contact spring. With the mechanism assembly (Item 304) removed from the case assembly (Item 302) the tension of the handset cradle spring (Item 125) should be just sufficient to prevent a weight of 300 grammes on the handset from depressing the switch hook. The tension of the contact spring should be kept as close to the 15 grams minimum as possible, as excessive tension reduces the effective weight of the handset.

General Mechanical Check.

Periodically, the complete functioning of the mechanism should be verified. All bearings should be checked for free movement and a small quantity (1 drop) of high quality clock oil applied to the following:-

Coin lever pivot (Item 130)

Quadrant pivot	(Item 13)
Relay lever pivot	(Item 127)
Balance arm pivot	(Item 27)
Receiver hook spindle	(Item 121)
Connecting link lever pivot	(Item 116)
Switch arm spindle	(Item 128)

The coin lever (Item 130) should be checked to ensure that it is free to swing under the action of its spring when a coin is inserted. All screws and nuts should be secure.

Inserting New Mechanism (Item 304) into Case.

When a spare mechanism is being fitted, the following points should be observed:-

(a) That there is no undue gap between the coin plate and the underside of the top of the case. If a gap is left, it may be possible to slide very thin coins through the gap. In the event of a capacious gap resulting, the mechanism hinges (Items 11 & 12) should be bent carefully to allow the mechanism to take its correct position.

(b) That the mechanism latches properly and cannot be withdrawn unless catch on the money funnel (Item 301) is lifted.

(c) That the plug (part of Item 363) and jack (part of Item 343), slide into one another properly without undue deformation or tendency to foul. Adjustment of position of the plug on the mechanism can be obtained by means of the elongated fixing holes in the angle bracket (Item 53).

Wiring.

All coils are specially treated to suit tropical conditions, and the wiring is P.V.C. insulated.

All connections should be checked periodically for dry joints or loose connections. All connecting ends have been left long to allow for re-connecting should a break occur in service.

The insulation resistance of the complete instrument should not be less than 20 meg ohms at 250 volts, as manufactured.

Marking.

A serial number for the mechanism is stamped on the bell plate (Item 364) and the case bears a serial number for the complete instrument.

Spare Parts.

An illustrated list of spare parts is appended to assist in the ordering of parts from the manufacturers. All enquiries should state the item number, description, part number and the quantities required.

Spare Parts List

The EASIPHONE. (Buttonless Prepayment Coin Collecting Telephone)

AUSTRALIA.

PART NO. 53201 - Catalogue Code No. 2200GT2.

Item No.	Description	Qty.	Part No.	Illustration
301	Money Funnel Assembly	1	52355	Photo EA2
302	Case Assembly	1	53204	
303	Cash Box Assembly	1	53211	
304	Mechanism Assembly	1	53239	
305	Bell Set Assembly	1	53240	
306	Lock Assembly	1	53241	
307	Front Cover Assembly	1	53246	
308	Dial Grip Assembly	1	53260	Photo EA3
309	Handset Assembly (completed)	1	53415	
70	Support Stud	1	231	
194	Base Fixing Catch	1	409	Photo EA1
310	Dial	1	53155	Photo EA3
311	Dial Housing	1	53203	" "
312	Lock Catch	1	53215	
313	Denomination Block	1	53220	" "
314	Switch Hook	1	53221	Photo EA1
315	Instruction Plate	1	53227	
316	Base Fixing (Bracket)	1	53229	Photo EA1
317	Key	1	53245	
318	Dial Cord	1	53326	Photo EA2
319	Grommet	1	53357	
320	Paster Diagram	1	53363	
321	Nameplate	1	53367	
322	Transfer	1	53384	
323	Shield	1	53387	Photo EA2
324	Special Screw for 53241 (Item 306)	4	85493	
325	Cordage Clip	1	85691	
365	Dial Clamp Nut for fixing Item 308	1	85466	Photo EA3
	Screw for 53240 (Item 305)	3	S.206.BL	
	Screw for 53221 (Item 314)	2	S.233.BL	
	Screw for 52355 (Item 301)	4	S.4157.E	
	Screw for 53215 (Item 312)	2	S.4181.BL	

Item No.	Description	Qty.	Part No.	Illustration
	Screw for 53220 (Item 313)	2	S.651.E	
	Screw for 85691 (Item 325)	2	S.678.BL	
	Bolt for fixing	4	S.1209.AR	
	Nut for 52355 (4 off)(Item 301)	6	N.12.BL	
	Nut for 53215 (2 off)(Item 312)			
	Nut for 53260 (Item 308)	1	N.19.BL	
	Nut for 53221 (Item 314)	2	N.20.BL	
	Nut for fixing	4	N.160.AR	
	Washer for fixing	4	W.19.E	
	Washer for 53215 (Item 312)	2	W.68.BL	
326	Hinge Bracket	2	53214	
327	Lock Tube for Cash drawer	1	53228	
328	Lock for Cash drawer	1	53247	
329	Escutcheon Plate Assy	1	53218	
330	Clamp Tube	1	53219	
331	Front Cover Strap	1	53222	
	Front Cover	1	53236	
332	Nut Special (for Item 330)	1	85467	
	Screw for 53222 (Item 331)	3	S.275.BL	
	Washer for 53222(Item 331)	3	W.283	
333	Dial Grip Bracket Assy (Part of Item 308)	1	53270	Photo EA3
	Screw (welded to Item 333)	1	S.2101	
334	Handset Cord	1	85438	
335	Rectifier	1	85533	
168	Sleeving Black	1	85578	
336	Receiver inset 4T	1	85648	
337	Transmitter inset 13C	1	53421	
338	Handset Body	1	53414	
339	Earpiece	1	53412	
340	Mouthpiece	1	53413	
341	Ring, metal (earpiece)	1	53423	
115	Connecting Link Assembly	1	50178	
116	Lever Assembly	1	50179	
131	Contact Bush Assembly *	1	50976	
117	Contact Spring Assembly	1	50180	
342	Baseplate Assembly	1	53257	
343	Cable Form & Jack Assy	1	53258	
344	Connection Strip Assy	1	85756	
133	Wire Clip	1	324	
77	Gong	1	50188	
78	Gong	1	50189	
121	Spindle (Receiver hook)	1	50191	
80	Ringer	1	50922	
124	Moving Bracket	1	51052	
125	Spring (Handset cradle)	1	51536	
345	Wiring Link	2	52887	
264	Bush (for Item 354) *	2	52936	
346	Condenser Clip	1	52937	

Item No.	Description	Qty.	Part No.	Illustration
265	Bracket Strip (for Item 354)	1	52938	
368	Resistor (300 ohm)	1	53037	
347	Relay (200 + 200 ohm coil)	1	53279	
348	Switch (Key operated 2C)	1	53300	Photo EA2
349	Rectifier (Full Wave)	1	53323	
350	Rectifier (Half Wave)	2	53324	
281	Regulator	1	53325	Photo EA2
369	Key switch Bracket	1	53355	
350	Resistor (400 ohm)	1	53373	
351	Condenser 7712 (2mF)	1	85196	
352	Bracket (for Item 354)	1	85512	
353	Condenser 7719 (1.8 + 0.9mF)	1	85539	
354	Induction Coil	1	85540	
355	Resistor (150 ohm)	1	85684	
356	Resistor (39 ohm)	1	85685	
	Screw for 50188 (Item 77)	2	S.289A	
	Screw for 50189 (Item 78)			
	Screw for 50180 (Item 117)	2	S.415.A	
	Screw for 50922 (Item 80)	2	S.426.E	
	Screw for 53355 (Item 349)	2	S.479.E	
	Screw for 52937 (Item 346)	2	S.603.E	
	Screw for 324 (Item 133)	1	S.611.E	
	Screw for 85756 (Item 344)	2	S.626.BL	
	Screw for 53258 (Item 343)	3	S.637.E	
	Screw for 85540 (Item 354)	2	S.657.E	
	Screw for 53325 (Item 281)	2	S,834.BL	
	Shoulder Screw for 50178 (Item 115)	1	SH.225.BL	
	Shoulder Screw for 50178 (Item 115)	1	SH.236.BL	
	Nut for 50976 (Item 131)	1	N.2.A	
	Nut for 50179 (Item 116)	1	N.19.E	
	Washer for B5756 (Item 344)	2	W.28.BL	
	Washer for 50179 (Item 116)	1	W.135.E	
	Washer for 50191 (Item 121)	2	W.250.E	
	Split Pin for 50191 (Item 121)	2	P.12	
357	Connection Tag	19	805	
358	Wiring Link	2	52887	
359	Connection Strip	1	85757	
	Screw	19	S.537.A	
11	Hinge Bracket Bottom Assembly	1	329	Photo EA4
12	Hinge Bracket Top Assembly	1	330	" "
19	Centre Flap Assembly	1	346	" "
126	Polarised Relay Assembly	1	23125	Plate 3
13	Quadrant Assembly	1	50011	Photo EA4
16	Coin Lever Assembly	1	50012	" "
27	Balance Arm Assembly	1	50013	Plate 4
127	Relay Lever Assembly	1	50017	Photo EA4

Item No.	Description	Qty.	Part No.	Illustration
128	Switch Arm Assembly	1	50019	Photo EA1
112	Coin Drop Tube Lever Assembly	1	50020	at rear of 361
129	Quadrant Lever Assembly	1	50021	
130	Coin Lever Assembly	1	50022	Photo EA4
60	Main Frame Assembly	1	50067	
47	Back Cover Assembly	1	50068	
26	Chute Assembly	1	50915	Plate 6
23	Escapement Assembly	1	51056	Photo EA4
360	Refund Hopper Assembly		53230	Photo EA1
361	Drop Tube and Baffle Assembly	1	53251	Photo EA4
362	Coin Plate Assembly	1	53252	Photo EA4
363	Cable Form and Contact Assembly	1	53259	Photo EA4
33	Balance Arm Frame	1	28	Plate 4
34	Balance Arm Pin Bush	1	31	Plate 4
35	Balance Arm Centre Screw (long)	1	32	Plate 4
36	Balance Arm Centre Screw (short)	1	33	Plate 4
64	Coin Guide	1	91	Plate 6
44	Refund Platform (right)	1	111	Plate 5
50	Centre Flap Pin	1	120	
53	Angle Plate	1	146	Photo EA4
133	Wire Clip	1	324	
134	Lever	1	50002	Photo EA4
135	Coin Pin Spring	1	50024	Photo EA1
10	Quandrant Spring	1	50027	Photo EA4
136	Stop	1	50028	Photo EA4
137	Relay Lever Spring	1	50029	Photo EA4
138	Bush	2	50030	
139	Spring Anchor	1	50031	Photo EA4
140	Switch Arm Spring	1	50033	
141	Switch Arm Bush	1	50034	
142	Switch Arm Spindle	1	50035	
43	Refund Platform (left)	1	50121	Plate 5
143	Sleeve	1	50127	
144	Shoulder Screw	1	50128	
56	Quadrant Stud	1	50612	
57	Segment Stud	1	50613	
145	Escapement Lever	1	51061	Photo EA4
54	Balance Arm Weight	1	51297	Plate 4
146	Spring Stud	1	51531	
	Wire Clip	1	51983	
	Spring Stud	1	51532	
62	Coin Detector (6d piece)	1	52582	Plate 6
364	Bell Plate (bottom)	1	53256	Photo EA4
367	Refund Flap	1	53226	Photo EA4
	Screw for 111 (2 off)(Item 44)	11	S.406.A	
	" " 23125 (2 off) (Item 126)			
	" " 50027 (1 off) (Item 10)			
	" " 50067 (5 off) (Item 60)			
	" " 50121 (1 off) (Item 43)			

Item No.	Description	Qty.	Part No.	Illustration
	Screw for 91 (Item 64)	1	S.408.A	
	Screw for 146 (2 off) (Item 53) Screw for 329 (2 off) (Item 11) Screw for 330 (2 off) (Item 12) Screw for 50915 (2 off) (Item 61) Screw for 51056 (2 off) (Item 23) Screw for 53252 (1 off) (Item 362) Screw for 53259 (2 off) (Item 363)	13	S.413.A	
	Screw for 91 (Item 64)	1	S.422.A	
	Screw for 28 (Item 33)	1	S.423.A	
	Screw for 28 (Item 33)	1	S.436.A	
	Screw for 50121 (1 off) (Item 43) Screw for 53230 (1 off) (Item 360)	2	S.458.A	
	Screw for 53256 (Item 364)	2	S.472.A	
	Screw for 53251 (Item 361)	2	S.474.A	
	Screw for 50002 (Item 134)	2	S.4114.A	
	Screw for 50021 (Item 129)	1	S.4118.E	
	Screw for 53230 (Item 360)	2	S.601.A	
	Screw for 111 (1 off) (Item 44) Screw for 50121 (1 off) (" 43)	2	S.606.A	
	Screw for 50019 (" 128)	1	S.609.E	
	Screw for 324 (1 off) (" 133) Screw for 51983 (1 off)	2	S.6038.A	
	Screw for 51297 (Item 54)	1	S.6047.E	
	Screw for 53259 (Item 363)	3	S.6063.A	
	Nut for 32 (Item 35)	1	N.4.A	
	Nut for 91 (Item 64)	1	N.10.A	
	Nut for 50028 (1 off) (Item 136) Nut for 50034 (1 off) (Item 141) Nut for 50612 (1 off) (Item 56) Nut for 50613 (1 off) (Item 57)	4	N.18.A	
	Spring for 50020 (Item 112)	1	SP.321	
	Washer for 50027 (Item 10)	1	W.5.A	
	Washer for 50613 (Item 57)	1	W.22.A	
	Washer for 50021 (Item 129)	1	W.73.A	
	Washer for 50128 (Item 144)	1	W.119.A	
	Washer for 51056 (Item 23)	2	W.120.A	
	Washer for 50612 (1 off) (Item 56) Washer for 50613 (1 off) (Item 57)	2	W.294.A	
	Split Pin for 50020 (Item 112)	1	P.96	
	Pin for 50019 (1 off) (Item 128) Pin for 50021 (1 off) (Item 129)	2	P.108	
	Pin for 50022 (Item 134)	1	P.177	
	Shoulder Screw for 52582 (Item 109)	2	SH.425.A	
	Shoulder Screw for 51061 (Item 145)	1	SH.437.A	
	Shoulder Screw for 50034 (Item 141)	1	SH.235.A	

POLARISED RELAY ASSY. (ITEM 126).

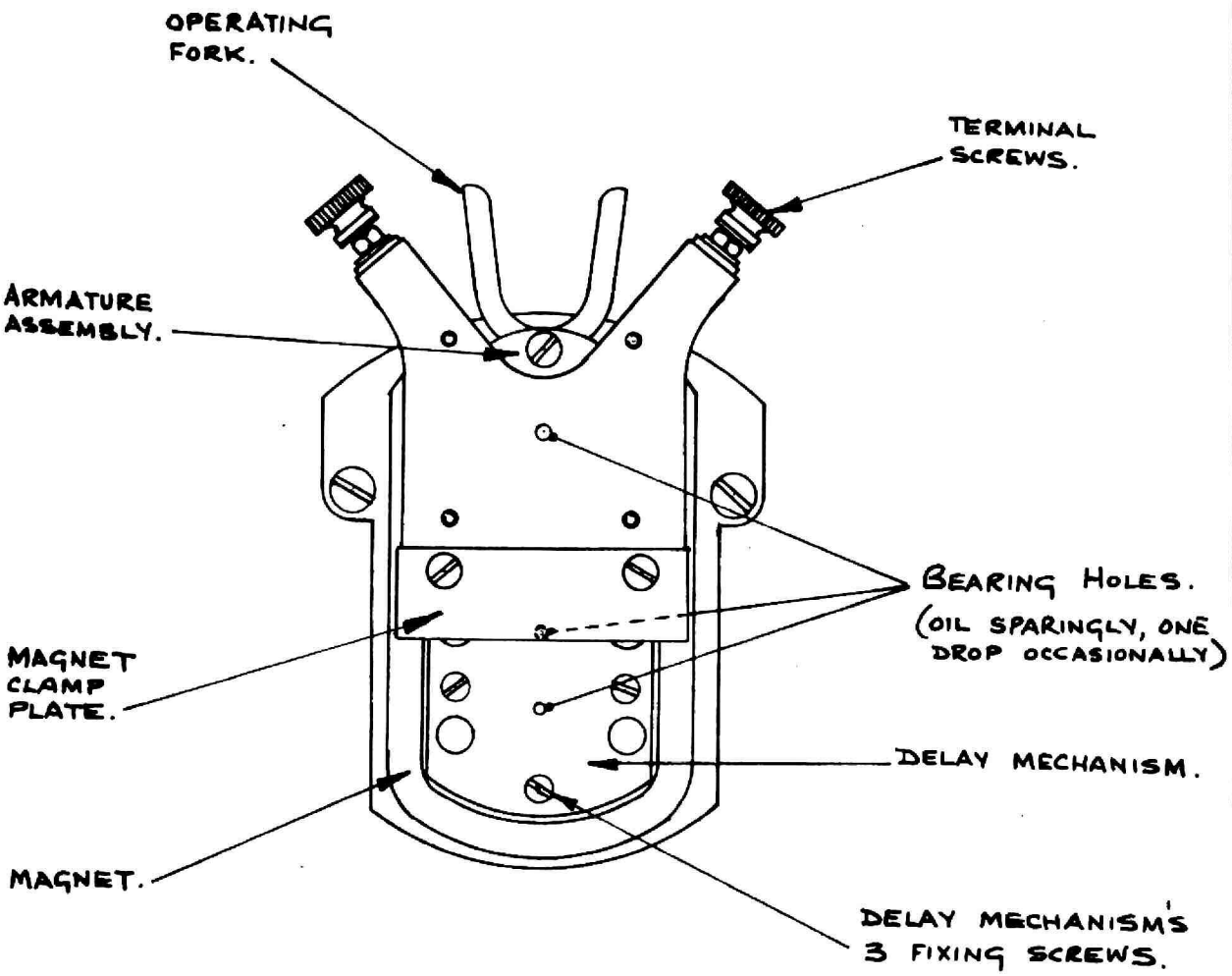
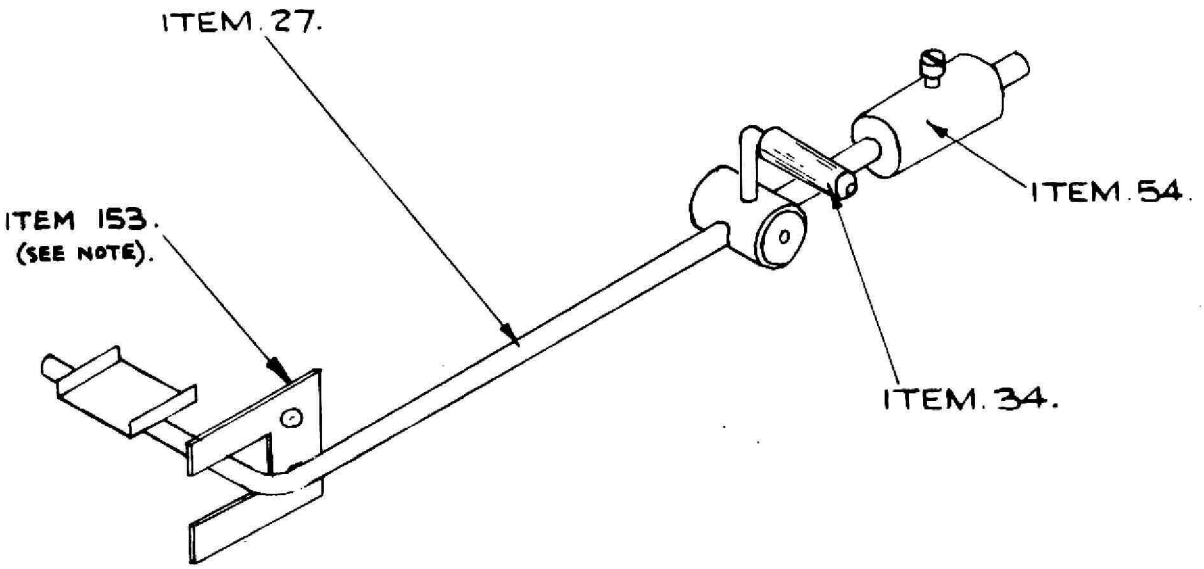
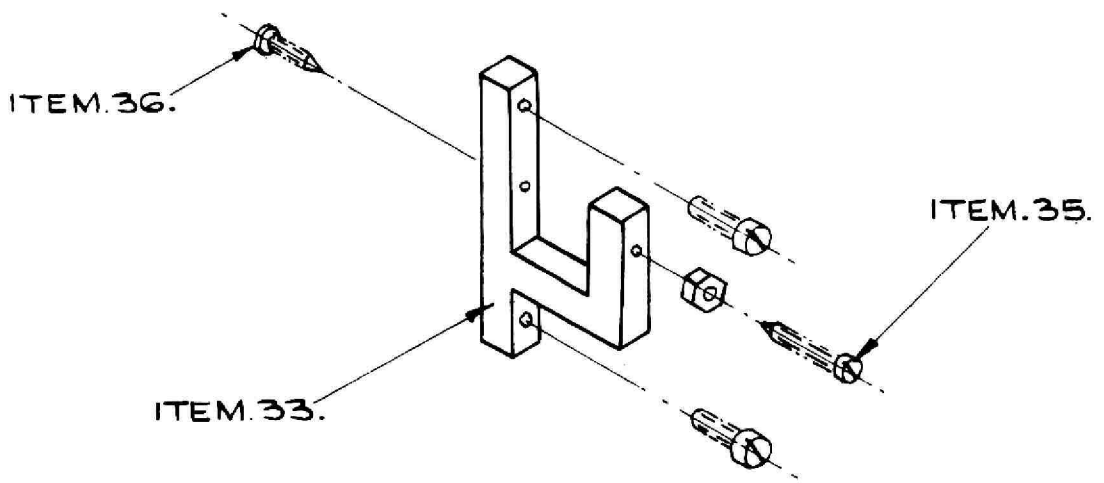


PLATE 3.

BALANCE ARM ASSEMBLY
(ITEM. 27.)
AND DETAILS.

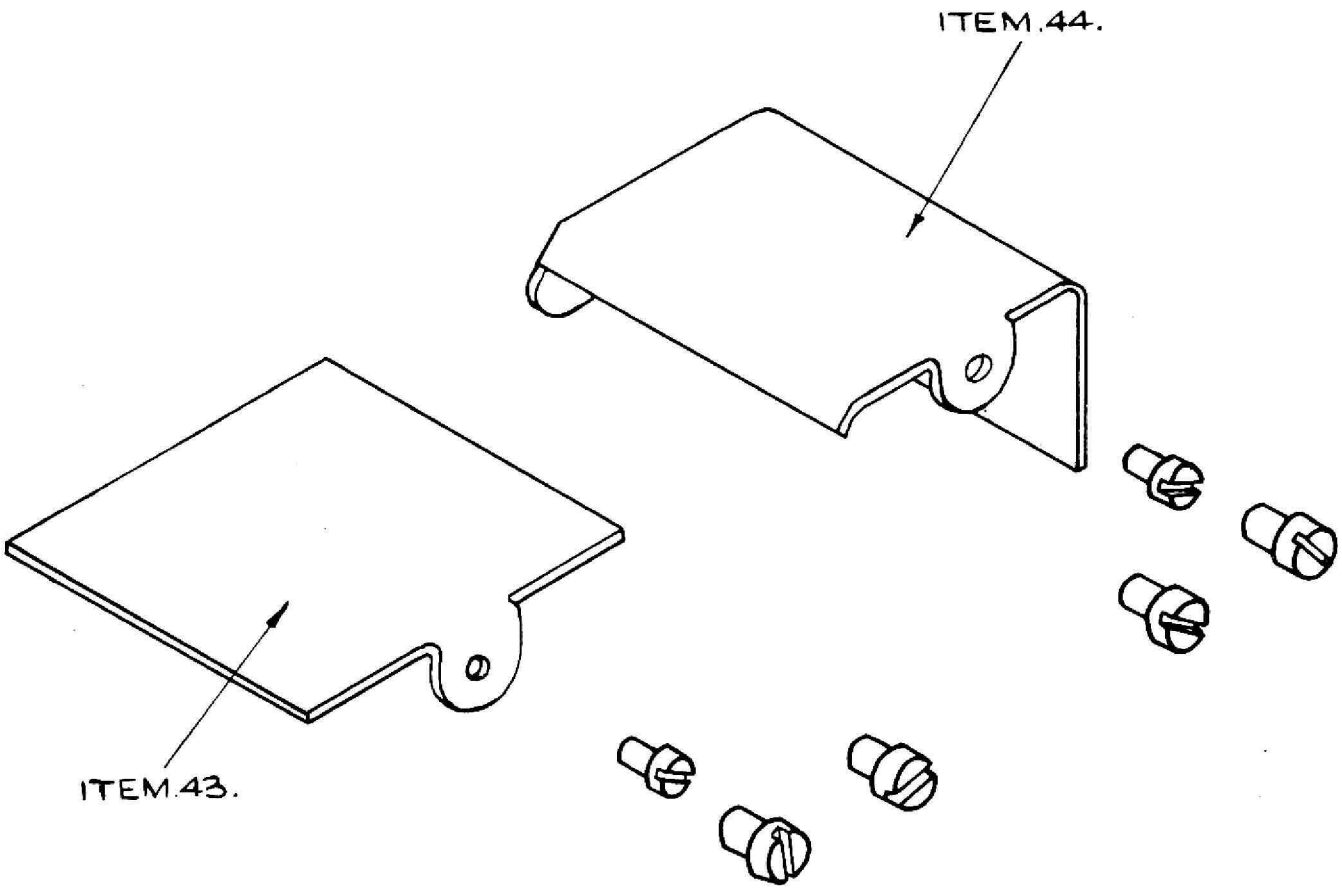
NOTE! SIZE OF COIN DETERMINES WHETHER ITEM 153 IS FITTED.





MECHANISM DETAILS.

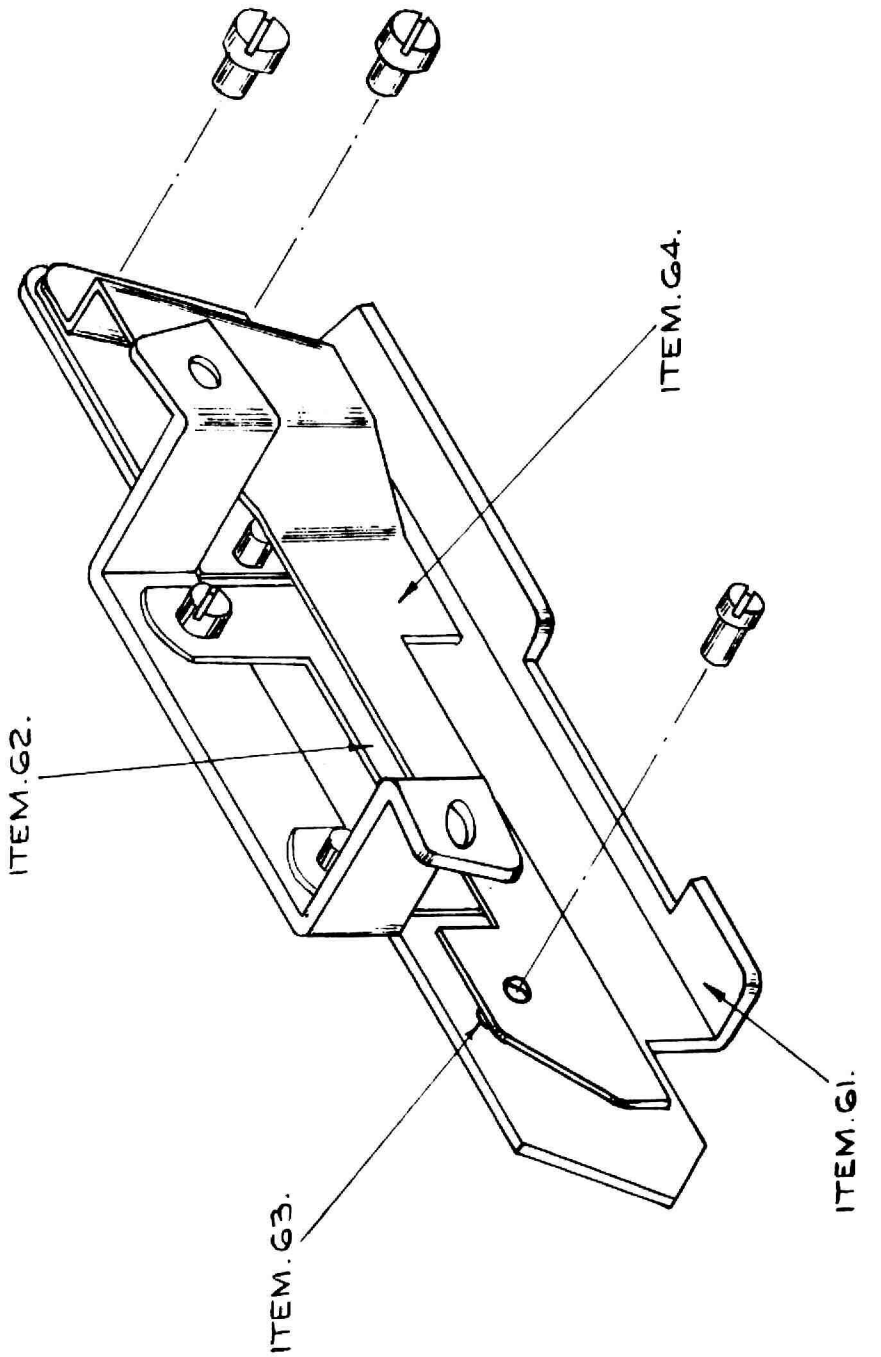
PLATE. 4.



MECHANISM DETAILS

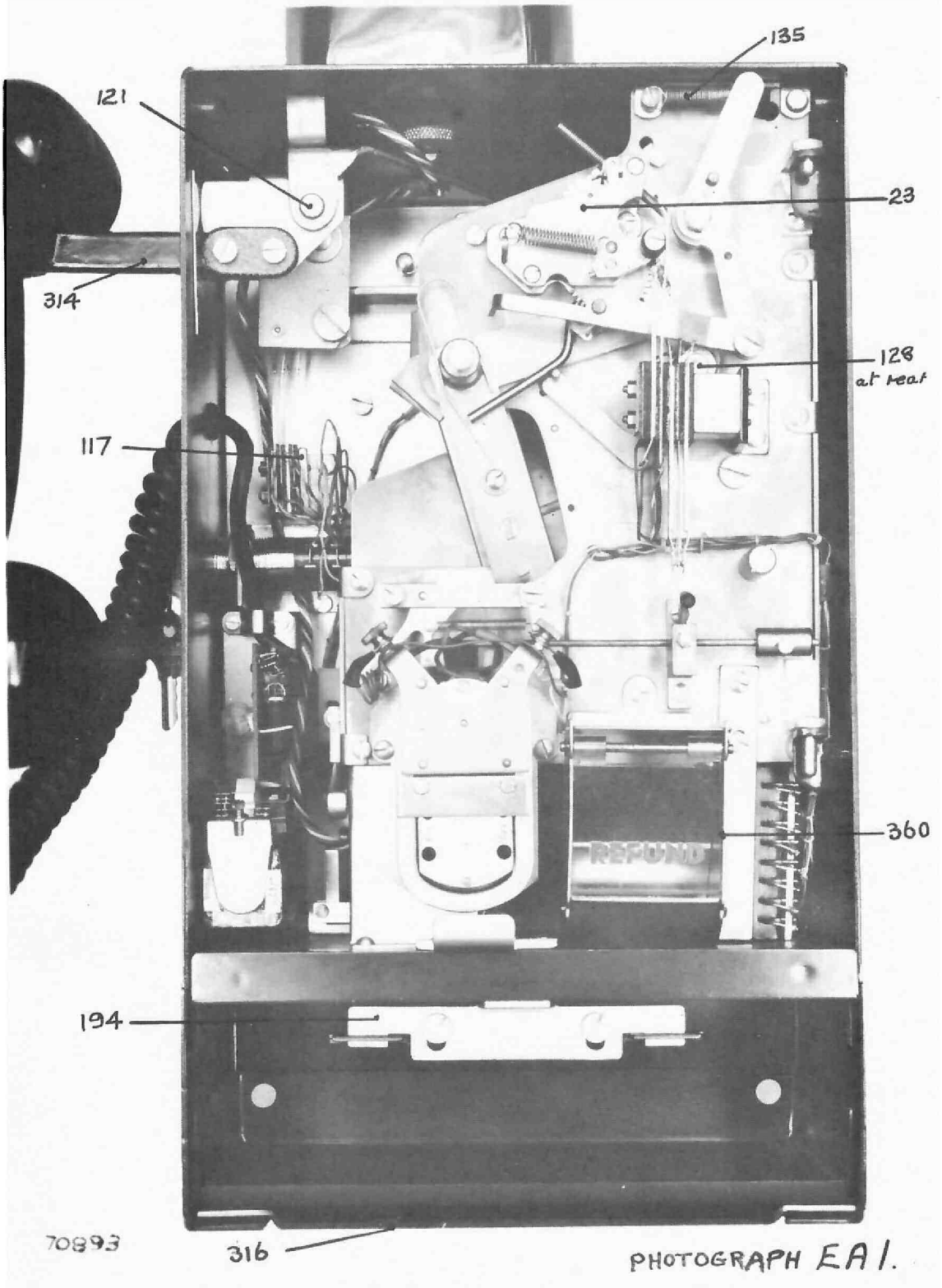
PLATE.5.

CHUTE ASSEMBLY.
(ITEM.26.)

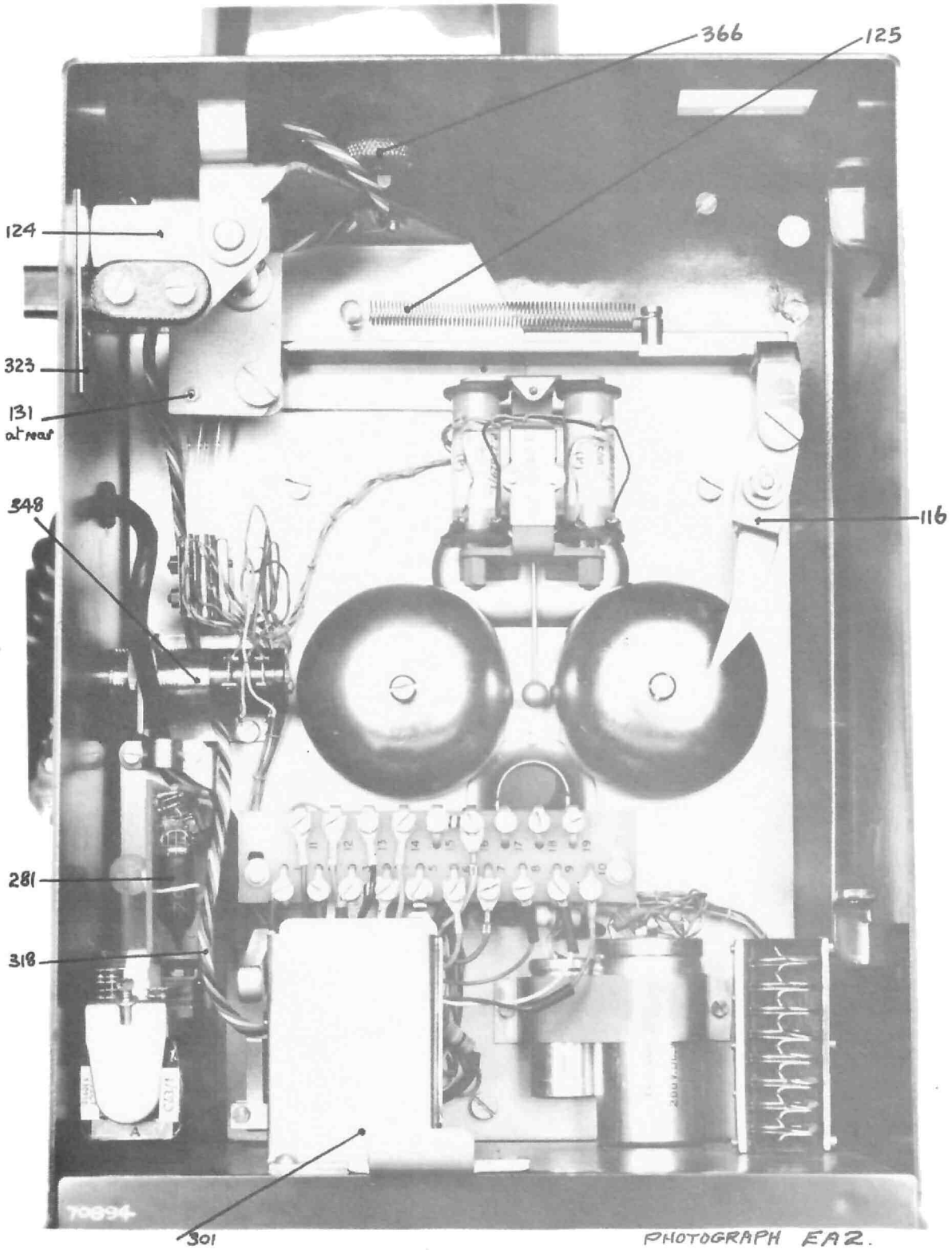


MECHANISM DETAILS.

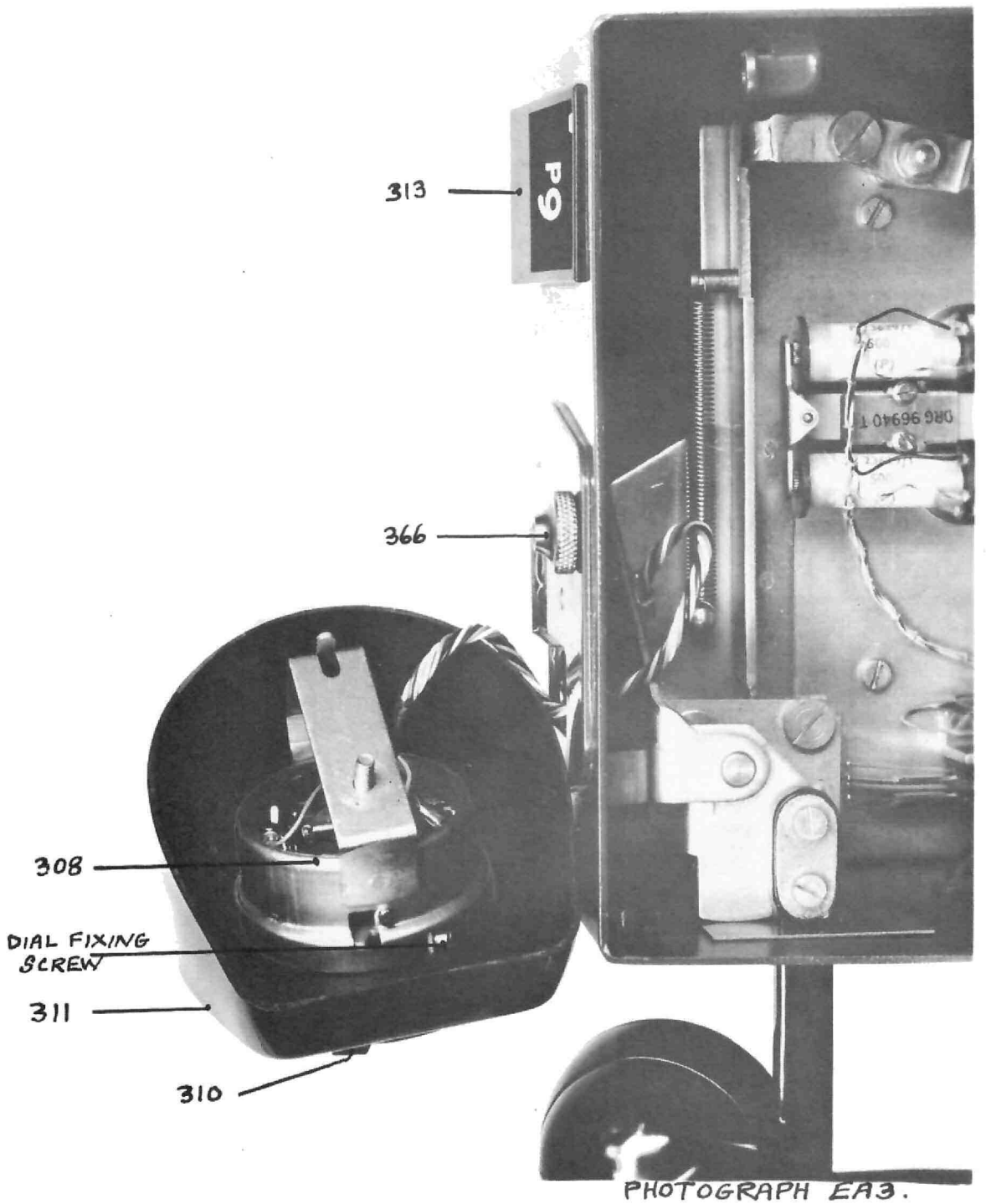
PLATE.6.



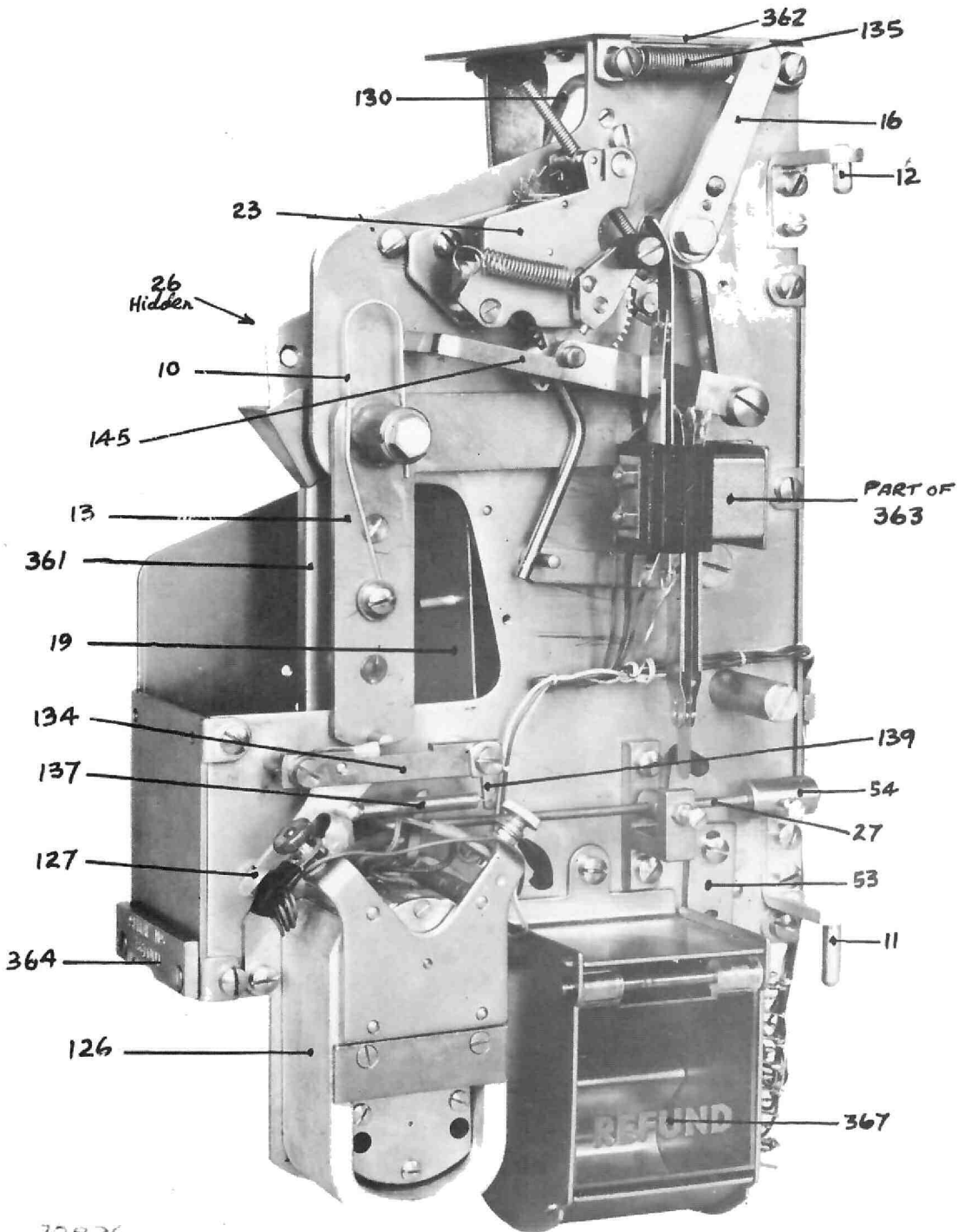
PHOTOGRAPH EA1.



PHOTOGRAPH EA2.



PHOTOGRAPH EA3.



PHOTOGRAPH EAA

MODIFICATION TO EASIPHONE TO OPERATE ON A 7c CALLING FEE

Remove door

Remove mechanism

Remove denomination block moulding secured by two c/sk screws and replace with new one

Place mechanism on a table and proceed as follows:-

Disconnect two wires to polarised relay, remove two fixing screws, lift out relay and put in a safe place.

Remove two screws holding delay unit, carefully lift out unit, making sure not to lose two spacing washers.

Remove two screws fixing coin selector & lift out selector.

Remove quadrant pivot screw and lock nut and lift out quadrant assy.

Remove coin flap pivot screw and lift out flap.

Remove three screws fixing refund hopper and lift off.

Remove two screws fixing L/H coin guide angle (looking from underneath).

Remove two screws fixing coin slot plate remove plate and replace with new one.

Using drill template drill two holes in quadrant arm and rivet on aux weight.

Using drill templates drill three holes in rear mechanism cover to mount microswitch. Drill two holes in L/hand bend cover to mount microswitch limiter bracket and De-burr,

Remove two screws securing coin tube to quadrant arm. Position coin tube in new tube outer bending and refix tube assy to quadrant arm using same two screws.

Assemble quadrant tube assy to mechanism.

P.T.O

Feed in and secure microswitch to rear mechanism cover by two screws,

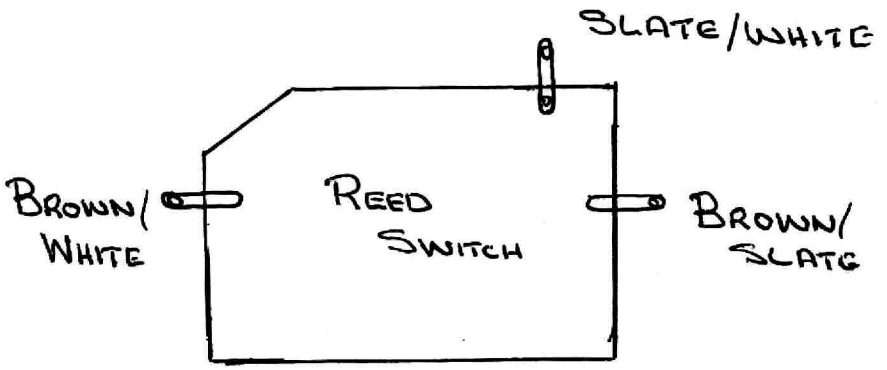
Secure microswitch limiter bracket to inside of mechanism cover by two screws.

Ensure that microswitch arm operates switch with follow on movement within the limiter bracket.

Assemble mechanism in reverse order using a new coin flap (cut away to miss microswitch arm) and a new bank of coin chutes.

Wire in the microswitch to diagram supplied.

Test.



BROWN/SLATE ↔ JACK 10
BROWN/WHITE ↔ JACK 9
SLATE/WHITE ↔ JACK 8

CONFIDENTIAL.

Operation ofmodification to Easiphone to work with LP registers.

The relay unit shown on sketch SK.2635 is inserted in the "L2" line between the refund springs and the dial impulse springs, Line "L2" is normally at negative potential.

When the handset is lifted, a loop is extended to the exchange via diode D2 and contacts A1 and B1 normal, relays A and B are thus short circuited at this stage.

The fleeting reversal of polarity (150 $\pm$ 30 milliseconds) transmitted from the exchange during the first inter-digital pause, causes relay A to operate and at the same time presents a high resistance (13.500 ohms) loop to the exchange register, denoting the telephone is being used as a coin box.

When the polarity restores to normal, relay B operates over its a-b winding, and at B1 places a short circuit across relay A which releases. Relay B holds during the break periods of further dialled impulses by the slugging effects of the closed circuit formed by diodes D1 and D2 with the two windings of rely B (series aiding).

The permanent reversal of polarity applied when the called subscriber answers, holds relay B over its d-e winding to maintain the short circuit across Relay A to allow the operation of the polarised coin collecting relay. The balance arm restoring when the coins have been collected, short circuits relay B which releases, no relays are thus in circuit during speech.

L.P. CONVERSION ON EASIPHONE.

TO WORK ON LP -LM OR STEP BY STEP EXCHANGE.

BELL SET ASSEMBLY.

(1) REMOVE GREEN/BROWN WIRE FROM TERMINAL 5 OF KEY SWITCH AND TAPE.

(2) REMOVE GREEN/BROWN WIRE FROM TERMINAL 16 OF U-JACK BUT LEAVE GREEN/BROWN LOOP TO U-JACK TERMINAL 2 AND RE-CONNECT GREEN/BROWN WIRE ON U-JACK 13

(3) RUN A NEW WIRE GREEN/BROWN FROM TERMINAL 5 OF KEY SWITCH TO TERMINAL 16 OF U-JACK.

MECHANISM.

(1) FIT RELAYS.

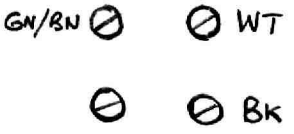
(2) FIT TERMINAL BLOCK 1 PR. NEXT TO REED SWITCH.

(3) RUN GREEN/BROWN WIRE FROM TERMINAL 16 OF U-JACK TO TOP LEFT TERMINAL ON 1 PR. BLOCK.

(4) RUN BLACK WIRE FROM U-JACK 13 TO BOTTOM RIGHT ON TERMINAL BLOCK.

(5) CONNECT ORANGE WIRE FROM RELAYS TO U-JACK TERMINAL 1.

(6) CONNECT WHITE WIRE ON TOP RIGHT OF TERMINAL BLOCK.



LP CONVERSION FOR LP WORKING ONLY.
WILL NOT WORK ON ANY OTHER TYPE OF EXCHANGE.

BELL SET.

(1) REMOVE GREEN/BROWN WIRE FROM TERMINAL 5 OF KEY SWITCH AND TAPE.

(2) REMOVE GREEN/BROWN WIRE FROM TERMINAL 16 OF U-JACK AND TAPE BUT LEAVE GREEN/BROWN LOOP TO TERMINAL 2 OF U-JACK.

(3) RUN A NEW WIRE GREEN/BROWN FROM 5 OF KEY SWITCH TO TERMINAL 16 OF u-JACK.

MECHANISM.

(1) FIT RELAYS.

(2) CONNECT ORANGE WIRE FROM RELAY TO U-JACK TERMINAL 1.

(3) CONNECT WHITE WIRE FROM RELAY TO U-JACK TERMINAL 16.

EASIPHONE MODIFICATION FOR ARK WORKING

For Serial 3000 onwards

1. Unsolder the two green/brown wires on U jack 16 on bellset. Connect the two wires and insulate.

2. Disconnect orange wire from Tag 4 on Key Switch and insulate. Join Tag 4 on Key Switch to U. Jack 16 on Bell Set.

3. STRAP OUT JACK POINTS No 1 and No 2 ON MECHANISM.

EASIPHONE MODIFICATION FOR ARK WORKING

For Serial 1000 to 2500

BELL SET ASSEMBLY

1. Remove Green/Brown wire from terminal 5 of Key Switch and tape.

2. Remove Orange wire from terminal 4 of Key Switch and tape.

3. Remove Green/Brown wires from terminal 16 of U Jack. Connect Green/Brown loop wire from U Jack 2 to terminal No. 5 of Key Switch. Reconnect other Green/Brown wire off U Jack 16 to U Jack 13.

4. Run an Orange wire from No. 4 terminal of Key Switch to U Jack 16.

MECHANISM

1. Fit Relay.

2. Fit Terminal Blaock 1 pr. next to Reed Switch.

3. Run Green/Brown wire from terminal 16 of U Jack to top left terminal on 1 pr block.

4. Run Black wire from U Jack 13 to bottom right on 1 pr terminal block.

5. Connect Orange wire from relay to U Jack terminal 1.

6. Connect White wire to top right of Terminal Block.

7. Strap out U Jack points 1 and 2.

T.D.O. 35.

PROJECTION :- THIRD ANGLE OR AMERICAN

ASSOCIATED AUTOMATION LTD

ISSUE 1. 3-2-70. REDRAWN.
ISSUE 2. 20-4-70.

FIG. 1.
WITH AUTO VOL REG.

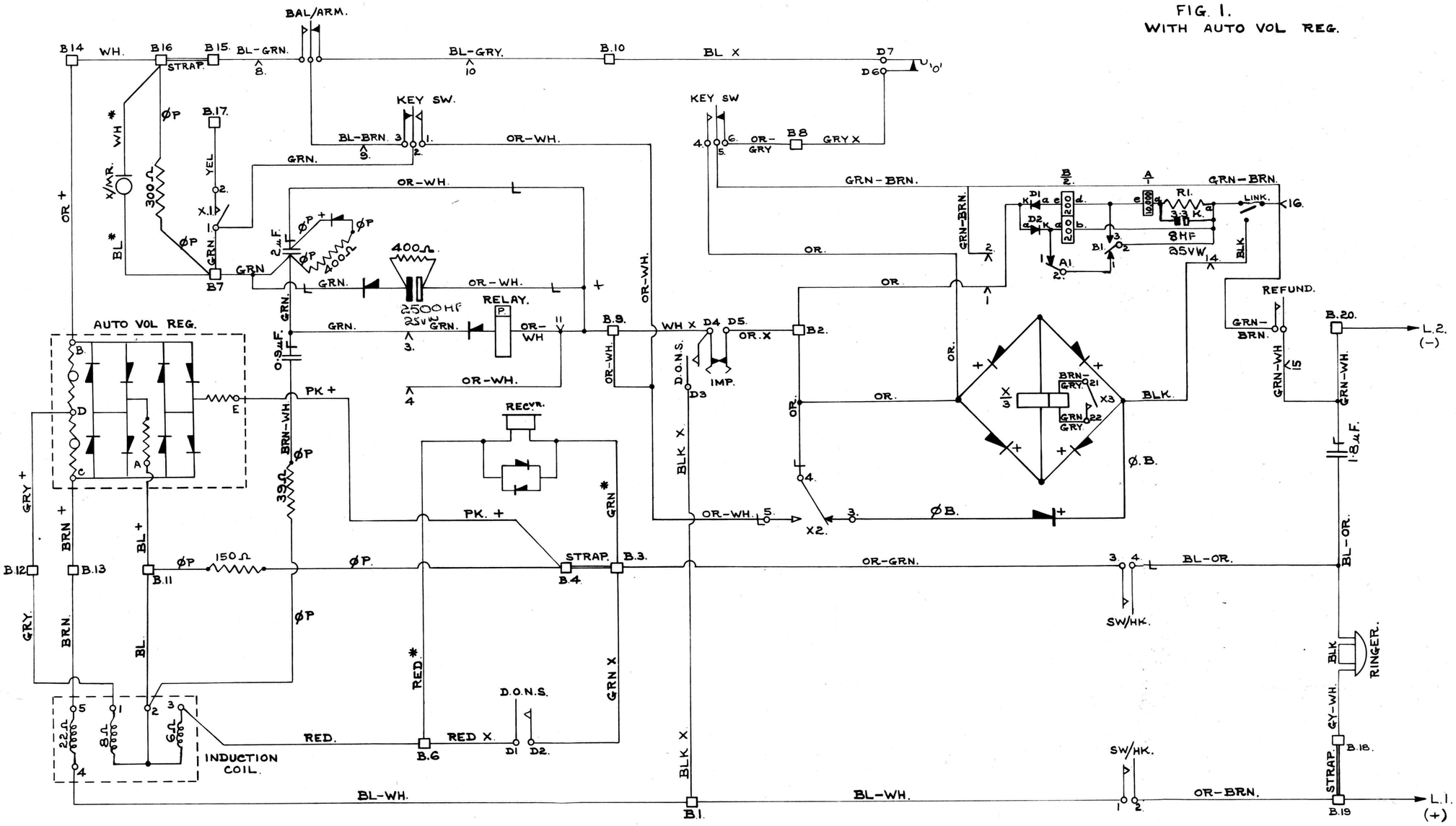


FIG. 2. WITHOUT AUTO VOL. REG.

STRAP TERMINALS.
B.12, B.13 + B.14.

SYMBOLS.

B.1 □ BELL SET TERMINALS.

D.1 ○ DIAL TERMINALS.

JACK POINTS. (NUMBERED FROM BOTTOM.)

WIRING LOOP.

* HANDSET CORD.

\+ AUTO VOL REG LEADS.

X DIAL CORD.

ØP SLEEVING (PINK)

ØB SLEEVING (BLACK).

NOTES:-

1. JACK POINTS 1+2, 3+4, 9+10. + 15 +16 MAKE WHEN MECHANISM IS REMOVED TO ALLOW COIN BOX TO BE USED AS AN ORDINARY TELEPHONE.
2. IF EXTENSION BELL IS REQUIRED, REMOVE STRAP BETWEEN B.18 + B.19 + FIT BELL TO THESE TERMINALS.
3. DIAGRAM SHOWS KEY SWITCH IN POSITION FOR PUBLIC USE (ie. FEE PAYING, BUT WITH TRUNK FACILITIES BARRED) FOR PRIVATE USE OPERATE KEY SWITCH (ie - NO CALLING FEE BUT WITH TRUNK FACILITIES AVAILABLE).
4. IF SHORT CIRCUIT THROUGH RELAY CONTACTS X1 IS REQUIRED ON TRANSMITTER, STRAP TERMINALS B.16 + B.17.
5. IF IT IS NECESSARY TO ALLOW SPEECH TO OPERATOR WITH COIN ON BALANCE ARM, REMOVE STRAP BETWEEN TERMINALS B.15 + B.16.
6. LINK WIRE IS FOR USE WHEN L.P. RELAYS ARE NOT BEING USED.

TYPE. 2200.

DIAGRAM SHOWS WIRING OF THE LEASE BOX WITH COMBINED TELEPHONE CIRCUIT + COVERS 2-POSSIBILITIES.

FIG. 1 - WITH AUTO VOL REG.

FIG. 1+2 - WITHOUT AUTO VOL REG.

REMOVE ALL BURRS.

APPROX: SURFACE AREA

UNLESS OTHERWISE STATED
LIMITS ON HOLE DIAMETERS ± .
LIMITS ON HOLE CENTRES ± .
(i.e. BETWEEN HOLES OR HOLE DIMENSIONS FROM A DATUM LINE)
LIMITS ON DECIMAL DIMENSIONS ± .
LIMITS ON FRACTIONAL DIMENSIONS ± .

MATERIAL	
FINISH	
NEXT ASSY.	
DRAWN Rwk.	CHECKED Rwk.
TRACED	CHECKED
SCALE	PASSED
CUSTOMER'S REFERENCE	
USED ON	

COIN COLLECTOR (LEASE BOX WITH L.P.).

WIRING DIAGRAM.

CCW. 478.

TDO 35

PROJECTION :- THIRD ANGLE OR AMERICAN

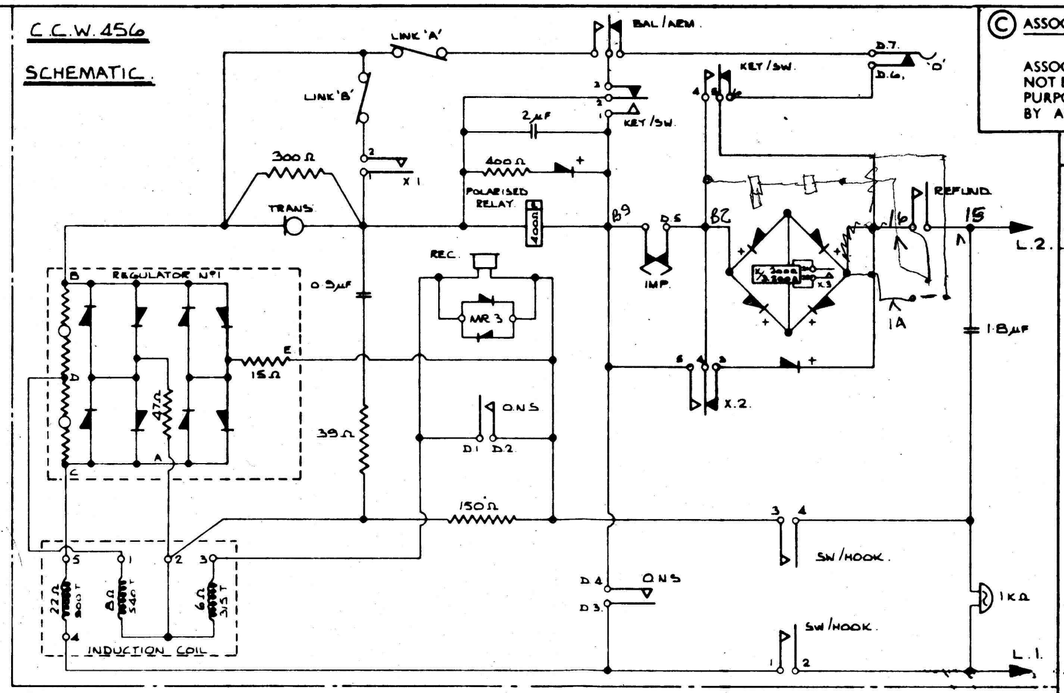
ASSOCIATED AUTOMATION LTD

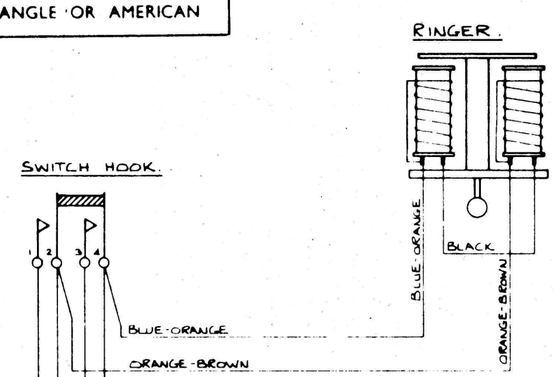
ISSUE 6.
5-6-63
RED/BROWN. SCHEMATIC CHANGE - 400 Ω RESISTANCE & HALF WAVE RECTIFIER ADDED ACROSS POLARISED RELAY 'BREAK' CONTACTS & ADDED TO KEY SWITCH WIRING CHANGED TO CONFORM TO SCHEMATIC CHANGE

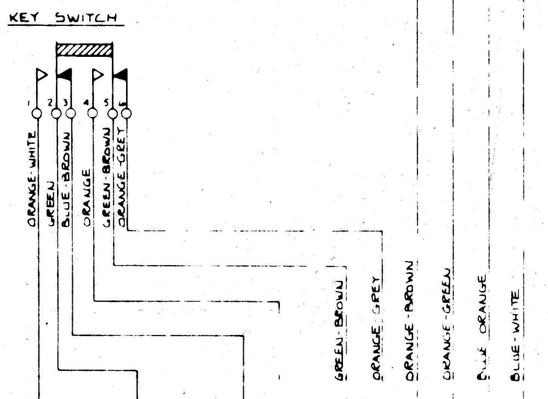
ISSUE 7.
21-6-63.

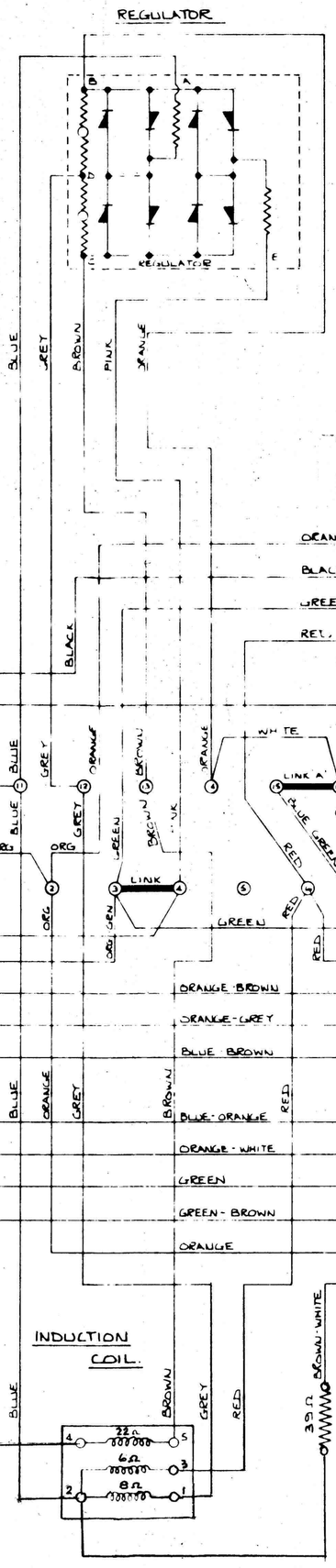
C.C.W. 456

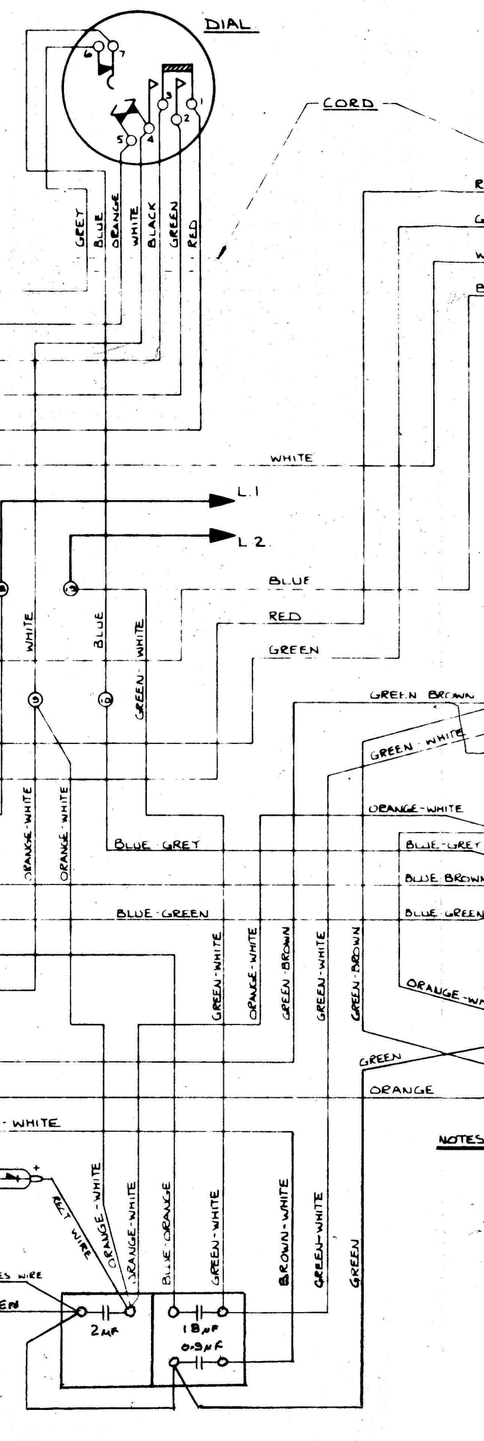
SCHEMATIC.

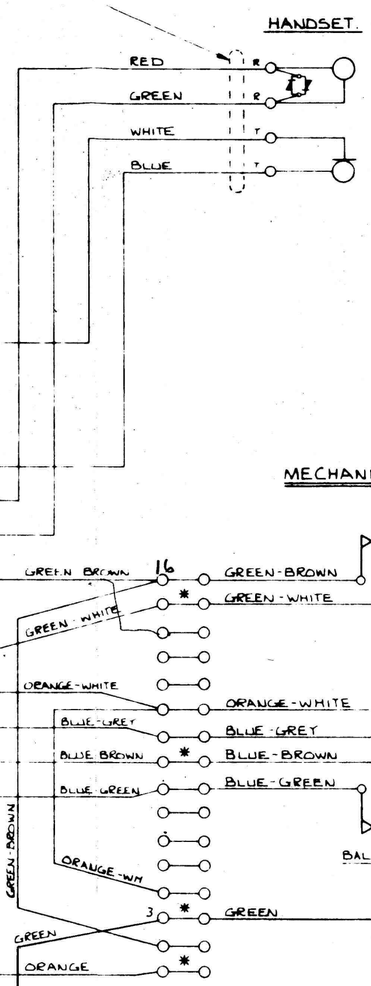


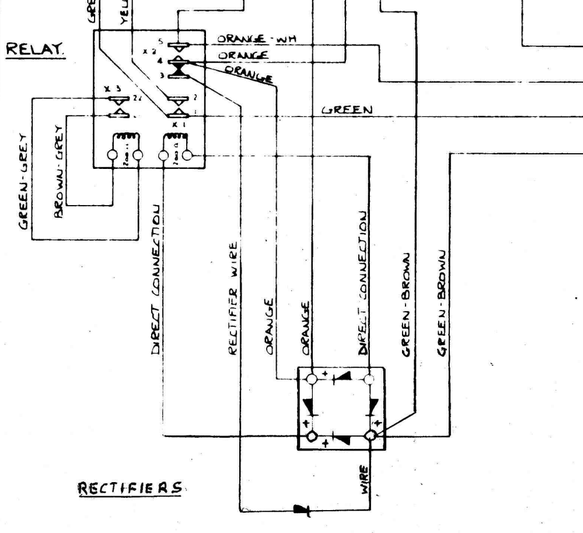












NOTES:- * THESE PAIRS OF CONTACTS TO MAKE WHEN MECHANISM IS REMOVED, TO ALLOW INSTRUMENT TO BE USED FOR EMERGENCY CALLS ONLY UNLESS KEY SWITCH IS OPERATED.

LINK 'A' TO BE REMOVED IN NON S.T.D. AREAS WHERE IT MAY BE NECESSARY TO ALLOW SPEECH TO OPERATORS WITH COIN ON BALANCE ARM. LINK 'B' MAY BE REMOVED IF A TRANSMITTER SHORT CIRCUIT IS NOT REQUIRED FROM X' RELAY

IF REGULATOR IS NOT REQUIRED TERMINALS 12, 13 & 14 MUST BE LINKED TOGETHER.

(34)

UNLESS OTHERWISE STATED
LIMITS ON HOLE DIAMETERS :-
LIMITS ON HOLE CENTRES :-
(i.e. BETWEEN HOLES OR HOLE DIMENSIONS FROM A DATUM LINE)
LIMITS ON DECIMAL DIMENSIONS :-
LIMITS ON FRACTIONAL DIMENSIONS :-

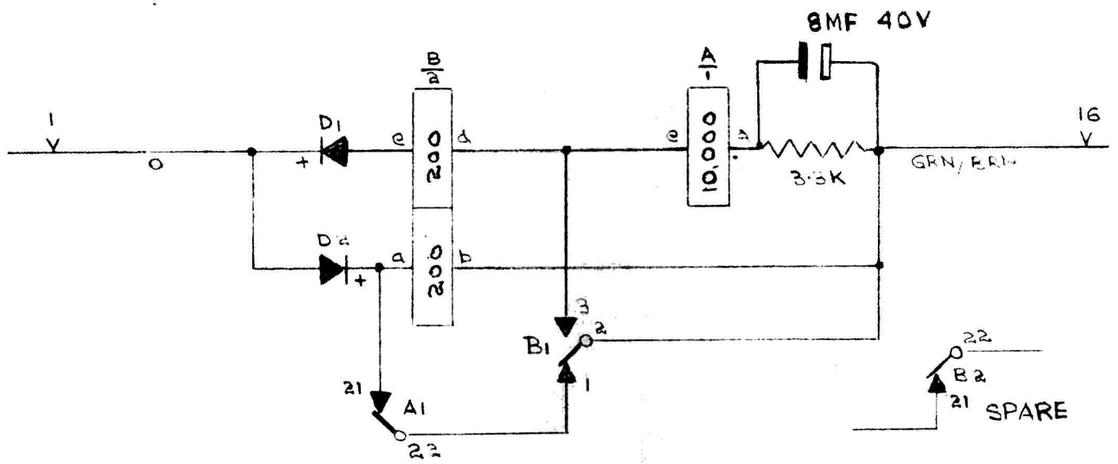
MATERIAL	
FINISH	
NEXT ASSY. 5325B.	
DRAWN	CHECKED
TRACED	CHECKED
SCALE /	PASSED
CUSTOMER'S REFERENCE	
USED ON COIN COLLECTOR. (PREPAYMENT BUTTONLESS).	

WIRING DIAGRAM

CCW 456

PATENT APPLIED FOR

1 REMOVE GRN/BRN WIRE FROM SPRING 5 OF KEY SWITCH & TAPE
2 REMOVE GRN/BRN WIRE FROM U16 (TOP 'U' JACK) BUT LEAVE LOOP OF GRN/BRN TO U2 & TAPE
3 RUN NEW WIRE FROM SPRING 5 OF KEY SWITCH TO U16
4 4-4BA CH SCREWS ARE PROVIDED TO ATTACH MODIFICATION UNIT TO L/H SIDE OF MECHANISM. WIRE AS SHOWN IN DIAGRAM



"ADD-ON" UNIT MODIFICATION OF "EASIPHONE" TO WORK TO FLEETING EARTH FROM LP REGISTERS IN CROSSBAR EXCHANGES

MATERIAL: PATTERN:

G			TITLE: MODIFICATION FOR LP REGISTERS		TYPE:
F					
E			DWN: RUDD	ELLIOTT-AUTOMATION PTY. LTD. SYDNEY — AUSTRALIA	SIZE:
D			TRCD:		
C			CHKD:		DWG. No.: SK2635 / REV. A
B			DATE: 26·6·70	TELEPHONE DIVISION	
REVISIONS:			SCALE		

ALL DIMENSIONS ARE IN INCHES DO NOT SCALE THIS PRINT