

Northern Telecom Decorator Telephone Sets

Northern Telecom Practices : 502-9011-200

Issue Date : 10-Feb-1979

Type: QSK420 & QSQM420 Type Candlestick

**Purpose : Identification, Connections &
Maintenance.**

DECORATOR TELEPHONE SETS
QSK420- AND QSQM420-TYPE CANDLESTICK
IDENTIFICATION, CONNECTIONS AND MAINTENANCE



Fig. 1 — 420-Type Candlestick Telephone Set

CONTENTS	PAGE	CONTENTS	PAGE
1. GENERAL	1058	4. MAINTENANCE	1060
Reason for Reissue	1058		
2. IDENTIFICATION	1058	5. ASSEMBLY OF PARTS	1062
3. CONNECTIONS	1058	6. PACKING INSTRUCTIONS	1074
Handsfree Connection	1060		
TeleDialer* 32 Connection	1060		

* Trademark of American Telecommunications Corporation

1. GENERAL

1.01 The Candlestick telephone set has a circular base with the dial mounted in it. The transmitter is situated approximately 8 inches (203 mm) above the base. The receiver hangs on the hook at the left side of the telephone set (Fig. 1).

1.02 *Reason for Reissue.* To include new and revised Figures, Charts and Tables. Because of the extent of the changes, margined arrows are not used.

2. IDENTIFICATION

2.01 Color codes for the ☐ QSK420- and QSQM420-type telephone set are listed in Table A.

TABLE A
QSK420- AND QSQM420-TYPE
TELEPHONE SETS
CODES

CODE	COLOR
QSK420A <input type="checkbox"/>	Black
QSK421A <input type="checkbox"/>	Red
QSK422A <input type="checkbox"/>	White
QSK423A <input type="checkbox"/>	Canadiana
QSQM420A	Black
QSQM421A	Red
QSQM422A	White
QSQM423A	Canadiana

2.02 The ☐ QSK420-type telephone set is a single-line, rotary dial set which is factory wired for ring party service. The set is equipped with a 3-conductor, round, spade-tip-ended mounting cord. The set can also be modified for use with NE-1A1 or NE-1A2 Key Telephone Systems (KTS).

2.03 The QSQM420-type telephone set is identical in appearance to the QSK420-type set, however, it is factory wired for individual or bridged party service and is equipped with a 4-conductor, flat, plug-ended mounting cord.

2.04 The associated apparatus for these telephone sets (which must be ordered separately) is listed in Table B.

TABLE B
ASSOCIATED APPARATUS

TELEPHONE SET CODE	NE-1A1 OR NE-1A2 KTS
QSK420A <input type="checkbox"/>	NE-D4BJ-03 Cord
QSK421A <input type="checkbox"/>	NE-D4BJ-53 Cord
QSK422A <input type="checkbox"/>	NE-D4BJ-35 Cord
QSK423A <input type="checkbox"/>	NE-D4BJ-35 Cord

Note: Associated apparatus must be ordered separately.

☐ Not required by Bell Canada

3. CONNECTIONS

3.01 Connections for all classes of service are shown in Table C. Wiring modifications for use with NE-1A1 or NE-1A2 is shown in Table E.

Note: For QSQM420-type telephone sets, all service modifications must be made within the set.

TABLE C
CONNECTIONS FOR QSK420- AND QSQM420-TYPE
TELEPHONE SETS

		COLOR	INDIVIDUAL OR BRIDGED	RING PARTY	TIP PARTY	TIP PARTY 2650 Ω IDENT
Mounting Cord at Connecting Block (for QSK420-type only)	RING	R	R	R	G	G
	TIP	G	G	G	R	R
	GRD	Y	G	Y	Y	Y
	AUX	—	—	—	—	—
Mounting Cord at Network	RING	R	L2	L2	L2 (L1)	L2 (L1)
	TIP	G	L1	L1	L1 (L2)	L1 (L2)
	GRD	Y	G	G	G	G
	AUX	BK	*	*	*	*
Ringer (Note 1)		R	A	A	A	A
		S-R	*	*	*	B
		S	*	*	*	*
		BK	G†	G	G	G
Line Switch		S	K	K	K	K
		S-Y	L2	L2	L2	L2
		S-BR	C	C	C	C
		S-G	L1 †	L1 †	L1 †	L1 †
		S-W	F	F	F	F
		S-R	GN	GN	GN	GN
		S-BK	R	R	R	R
		O	*	*	*	*
		BL	*	*	*	*

* Indicates insulate and store

† Indicates a QCM15B connector

○ Indicates wiring differences for QSQM420-type telephone set.

Note: To permanently silence ringer, remove the (R) ringer lead from terminal A of the network.

☐ Not required by Bell Canada

3.02 Schematic diagram for the □ QSK420-type telephone set is shown in Fig. 6. Schematic diagram for the QSQM420-type set is shown in Fig. 7.

3.03 The ringer volume control has a cutoff position which is obstructed by a blocking screw. To provide the ringer cutoff feature, remove the ringer according to Chart 4, and remove the blocking screw from the bottom of the ringer.

HANDSFREE CONNECTION

3.04 Connections of the QUS1A COMPANION* Handsfree unit to the telephone set must be made within the set. A 2-conductor spade-tip-ended mounting cord is required to make the connection. Connections are to be made as follows (see Fig. 2):

- connect each lead, from one end of the 2-conductor mounting cord, to a QCM12A connector;
- connect the (BK) and (Y) leads of the handsfree unit mounting cord to the same QCM12A connectors;
- connect the (R) lead of the handsfree unit mounting cord to terminal H of the network;
- connect the (G) lead of the handsfree unit mounting cord to the QCM15B connector which is connected to terminal L1 of the network.

3.05 For further information regarding handsfree connection, refer to 512-6251-400.

TELEDIALER 32 CONNECTION

3.06 Connections of the QDM2A1 TeleDialer 32 to the telephone set must be made within the set.

3.07 For individual or bridged and ring party service, proceed as follows (see Fig. 3[a]):

- disconnect the (R) telephone set mounting cord lead from terminal L2 of the network and connect to the (R) TeleDialer lead using a QCM12A connector;
- connect the (Y) TeleDialer lead to terminal L2 of the network;

- connect the (G) TeleDialer lead to the QCM15B connector which is connected to terminal L1 of the network.

3.08 For tip party service, proceed as follows (see Fig. 3[b]):

- disconnect the (R) telephone set mounting cord lead from terminal L1 of the network and connect to the (R) TeleDialer lead using a QCM12A connector;
- connect the (Y) TeleDialer lead to terminal L1 of the network;
- connect the (G) TeleDialer lead to terminal H of the network.

3.09 For further information regarding TeleDialer connections, refer to 512-1311-200.

4. MAINTENANCE

4.01 Maintenance of customer owned apparatus is the responsibility of the customer. For maintenance of company owned apparatus, field maintenance should be limited to adjusting and cleaning the line switch contacts and replacing those components listed in Table D.

4.02 For maintenance information concerning dials, ringers, etc., see the appropriate section.

4.03 Assembly of parts information is shown in Fig. 8 and parts identification is listed in Table F.

TABLE D
FIELD REPLACEABLE COMPONENTS

PART NO.	ITEM
NE-D4QH-87 or NE-D3BN * □	Mounting Cord
NE-H4CJ *	Handset Cord
NE-6QD	Dial
NE-M1A	Ringer
QNB3A6	Network
NE-U1 or QUU1A	Receiver Unit
NE-T1	Transmitter Unit

* Add the appropriate color code (i.e., NE-H4CJ-35, chameleon gray handset cord).

* Trademark of Northern Telecom Limited

□ Not required by Bell Canada

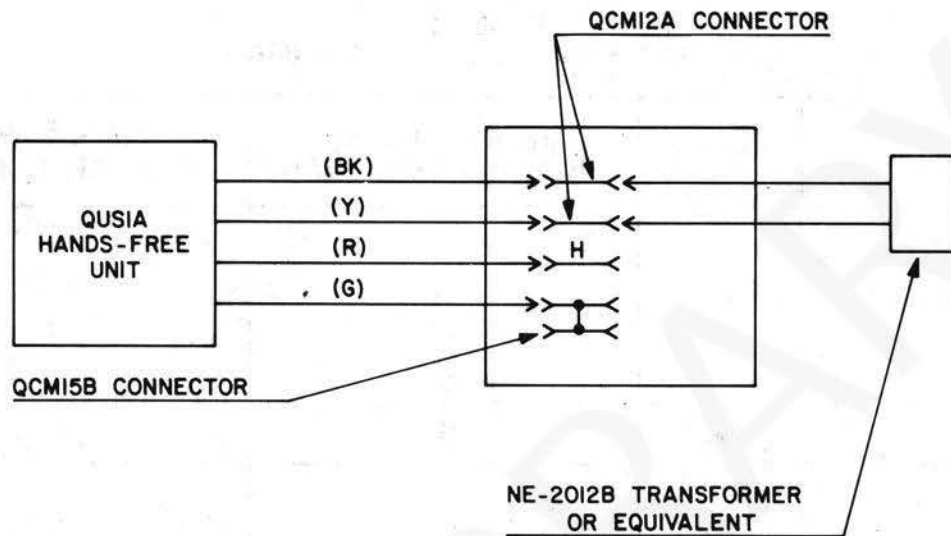


Fig. 2 — Handsfree Connections

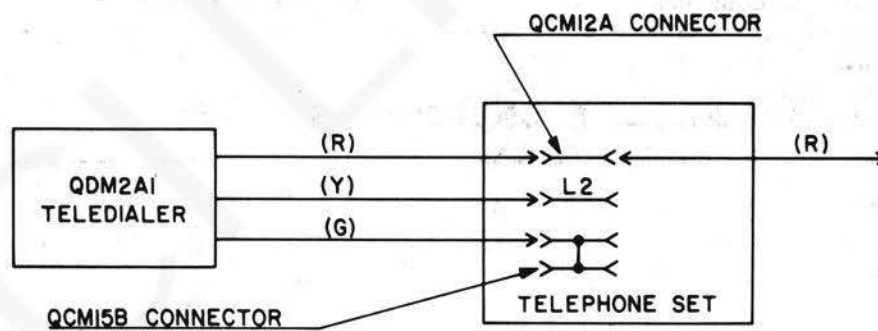


Fig. 3(a) — TeleDialer Connections for Individual or Bridged and Ring Party Service

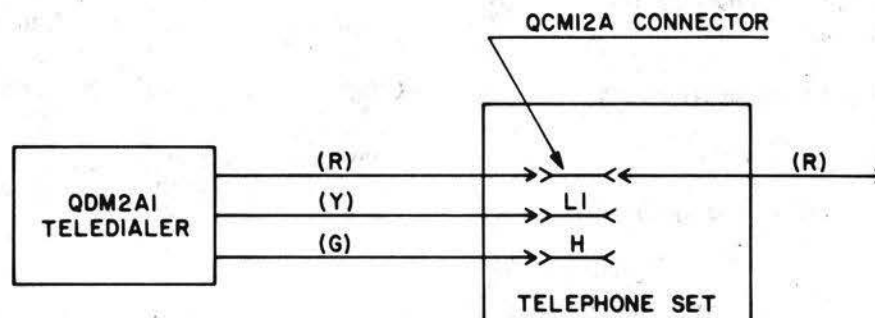


Fig. 3(b) — TeleDialer Connections for Tip Party Service

TABLE E
NE-1A1 OR NE-1A2 KTS CONVERSION

	COLOR	REMOVE FROM NETWORK TERMINAL	CONNECT TO NETWORK TERMINAL
Mounting Cord	G	—	†
	R	—	L2
	Y	—	G
	BK	—	L1
Ringer	BK	G	†
Line Switch	S-G	L1(†)	H
	S-BR	C	G
	S-W	F	C
	S	K	*
	S-Y	L2	L1
QCM15B Connector		L1	F
NE-M1W Cord or Equivalent		Strap K to L2	

† Indicates a QCM15B connector

○ Indicates wiring differences for QSQM420-type telephone set.

5. ASSEMBLY OF PARTS

5.01 The procedures for substituting the field replaceable components (see Table D) in the QSK420- and QSQM420-type telephone sets are contained in the following charts:

Chart 1 Removing the Base Assembly

Chart 2 Replacing the Dial

Chart 3 Replacing the Line Switch

Chart 4 Replacing the Ringer

Chart 5 Replacing the Network

Chart 6 Replacing the Mounting Cord

Chart 7 Replacing the Handset Cord

Chart 8 Replacing the Spider and Lead Assembly, or Bracket and Lead

CHART 1
REMOVING AND REPLACING THE BASE ASSEMBLY

STEP	PROCEDURE
REMOVAL	
1	Remove the receiver from the hook.
2	Remove the four screws (Fig. 8, Item 62) which secure the base assembly to the housing assembly.
3	Lift the housing from the base assembly. Take care not to break the two transmitter leads.
REPLACEMENT	
4	Place the housing over the dial, avoiding undue force. The fingerwheel stop and dial adapter ring — notch must be aligned.
5	Using a small screwdriver, pry the lower left adapter tab away from the dial (Fig. 4[a]). Press down on the housing until it drops (about 1/8 inch or 3.2 mm) into place.
6	Check that the other two tabs have cleared the dial. If not, push the tabs back with a screwdriver (Fig. 4[b]).

CHART 2
REPLACING OF THE DIAL

STEP	PROCEDURE
1	Remove the base assembly according to Chart 1.
2	Remove the screw (Fig. 8, Item 65) from the platform on which the dial and line switch are mounted. Lift the platform from the base.
3	Disconnect the leads from the dial.
4	Remove the three mounting screws which fasten the dial to the platform.
5	Replace the dial. See Schematic Diagram, Fig. 6 or 7, for connections.

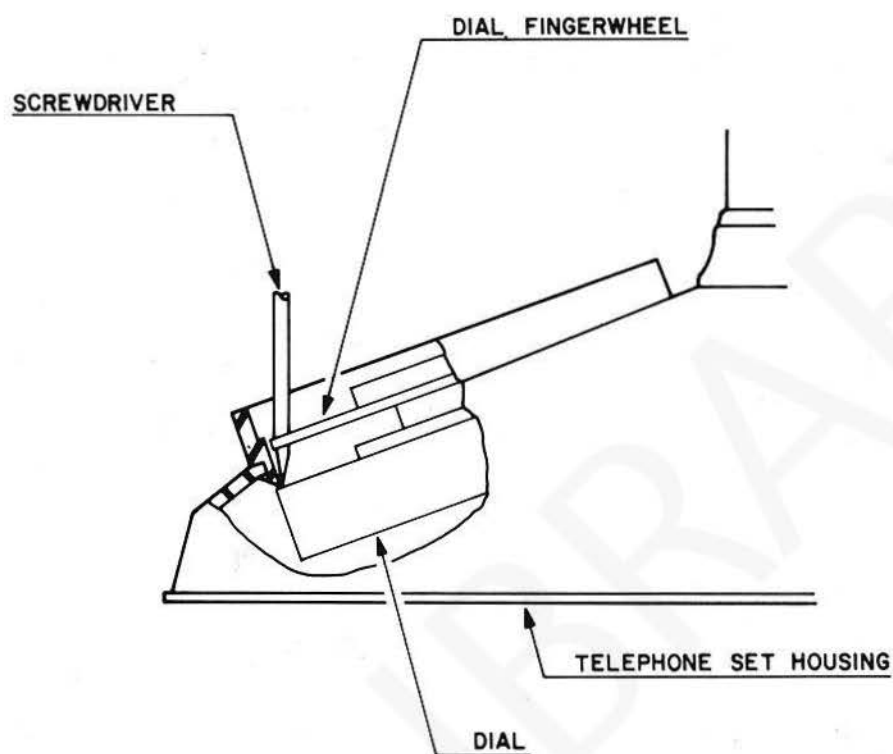


Fig. 4(a) — Installing Housing Assembly, Chart 1, Step 5

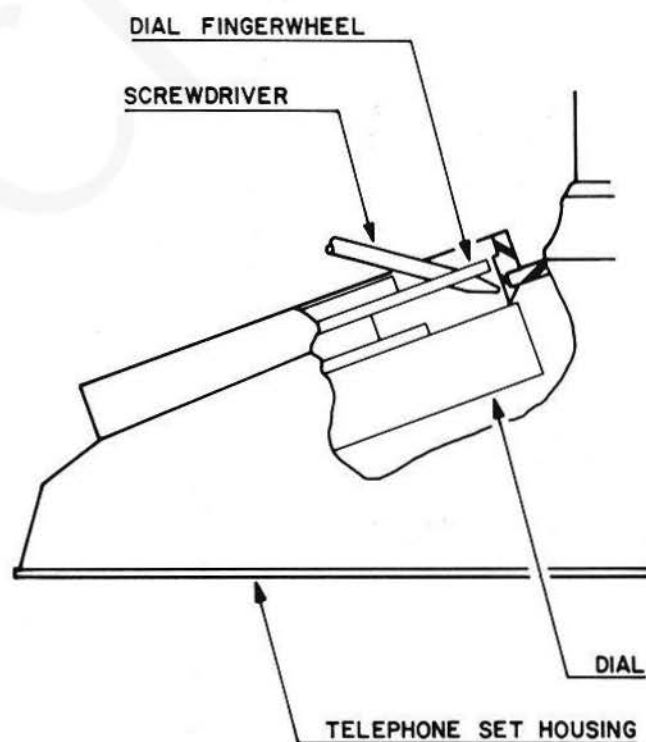


Fig. 4(b) — Installing Housing Assembly, Chart 1, Step 6

CHART 3 REPLACING THE LINE SWITCH

STEP	PROCEDURE
1	Remove the base assembly.
2	Remove the platform, per Chart 2, Step 2.
3	Disconnect the line switch leads from the network.
4	Remove the two line switch mounting screws which fasten the line switch to the platform.
5	Replace the line switch. See Schematic Diagram, Fig. 6 or 7, for connections.

CHART 4 REPLACING THE RINGER

STEP	PROCEDURE
1	Remove the base assembly.
2	Remove the platform.
3	Disconnect the ringer leads from the network.
4	Remove the two ringer mounting screws and lift the ringer from the base.
5	Replace the ringer. See Table C for connections.

CHART 5 REPLACING THE NETWORK

STEP	PROCEDURE
1	Remove the base assembly and platform.
2	Remove the ringer, per Chart 4.
3	Disconnect the leads from the network.
4	Remove the network mounting screw. Lift the end of the network containing the induction coil until the network is clear of the mounting cord and handset cord. Slide and lift the network out of the network mounting tab.
5	Replace the network. See Schematic Diagram, Fig. 6 or 7, for connections.

CHART 6 REPLACING THE MOUNTING CORD

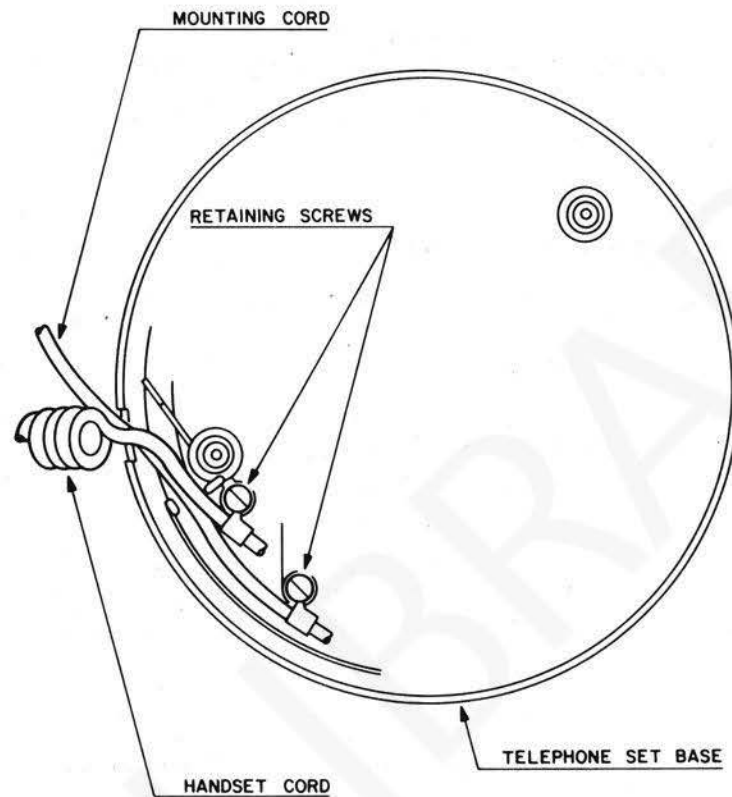
STEP	PROCEDURE
1	Remove the base assembly and platform.
2	Disconnect the mounting cord leads from the network.
3	Loosen the screw to free the staycord hook, and remove the mounting cord. (See Fig. 5[a] or 5[b]).
4	Replace the mounting cord. See Table C for connections.

CHART 7 REPLACING THE HANDSET CORD

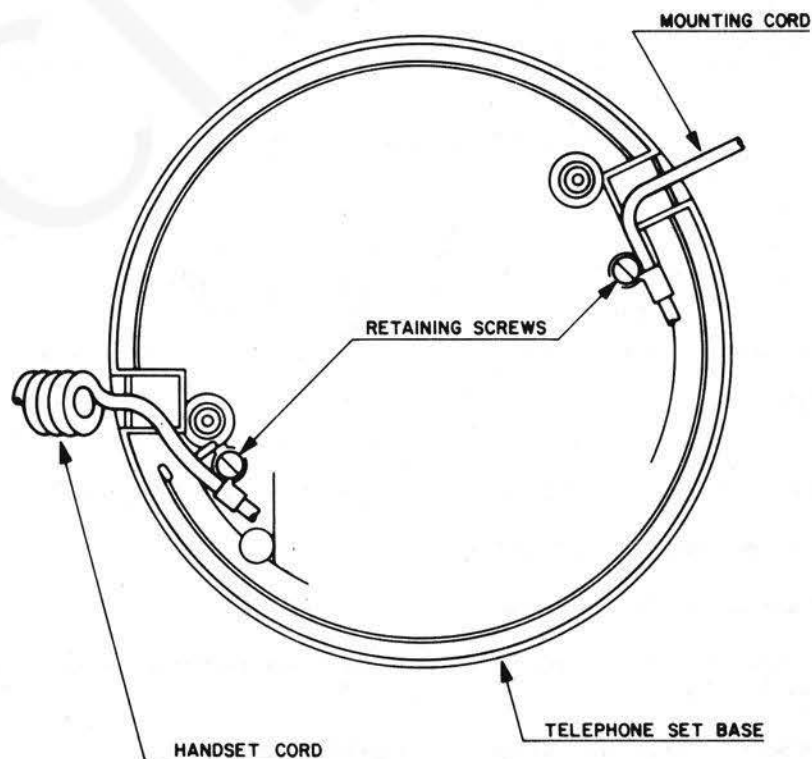
STEP	PROCEDURE
1	Remove the earpiece cap from the earpiece housing, and disconnect the handset cord leads from the receiver unit.
2	Unscrew the hook fitting (Fig. 8, Item 116) and pull the handset cord from the earpiece housing.
3	Remove the cord restraint and pull the cord from the hook fitting.
4	Remove the handset cord from the telephone set base in a similar manner to the mounting cord. (See Chart 6, Fig. 5[a] or 5[b]).
5	Replace the handset cord. See Schematic Diagram, Fig. 6 or 7, for connections.

CHART 8 REPLACING THE SPIDER AND LEAD ASSEMBLY OR BRACKET AND LEAD ASSEMBLY

STEP	PROCEDURE
1	Unscrew the transmitter cap and remove the spider and bracket from the transmitter unit.
2	Remove the base assembly and platform.
3	Disconnect the leads from the network.
4	Release the leads from the screws and washers which clamp the leads to the inside of the telephone set housing.
5	Pull the leads out through the transmitter housing assembly.
6	Replace the spider and bracket. See Schematic Diagram, Fig. 6 or 7, for connections.



**Fig. 5(a) – Method of Fastening the Mounting and Handset Cords
(prior to March 1978)**



**Fig. 5(b) – Method of Fastening the Mounting and Handset Cords
(after March 1978)**

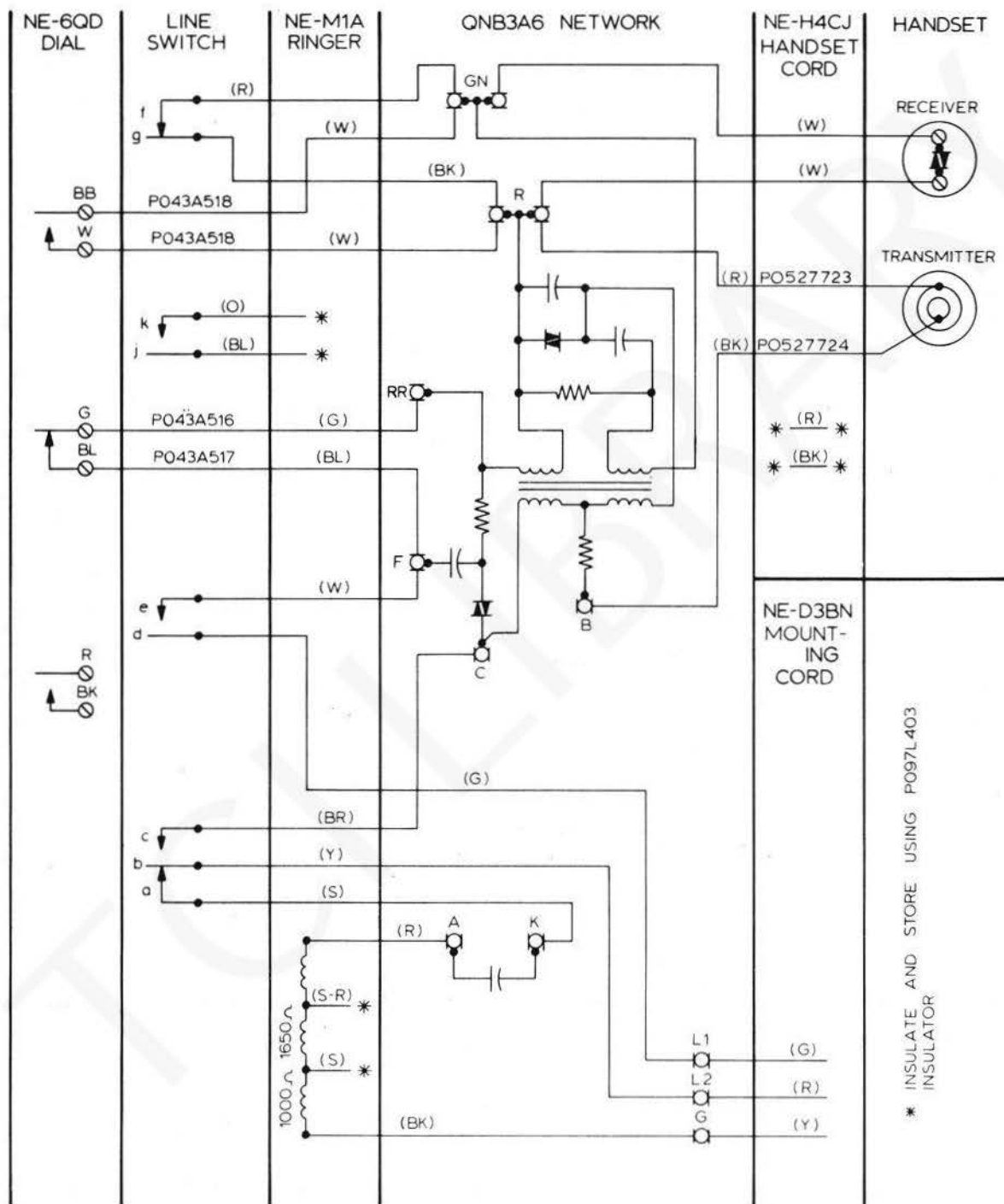


Fig. 6 — Schematic Diagram for QSQM420-Type Telephone Set

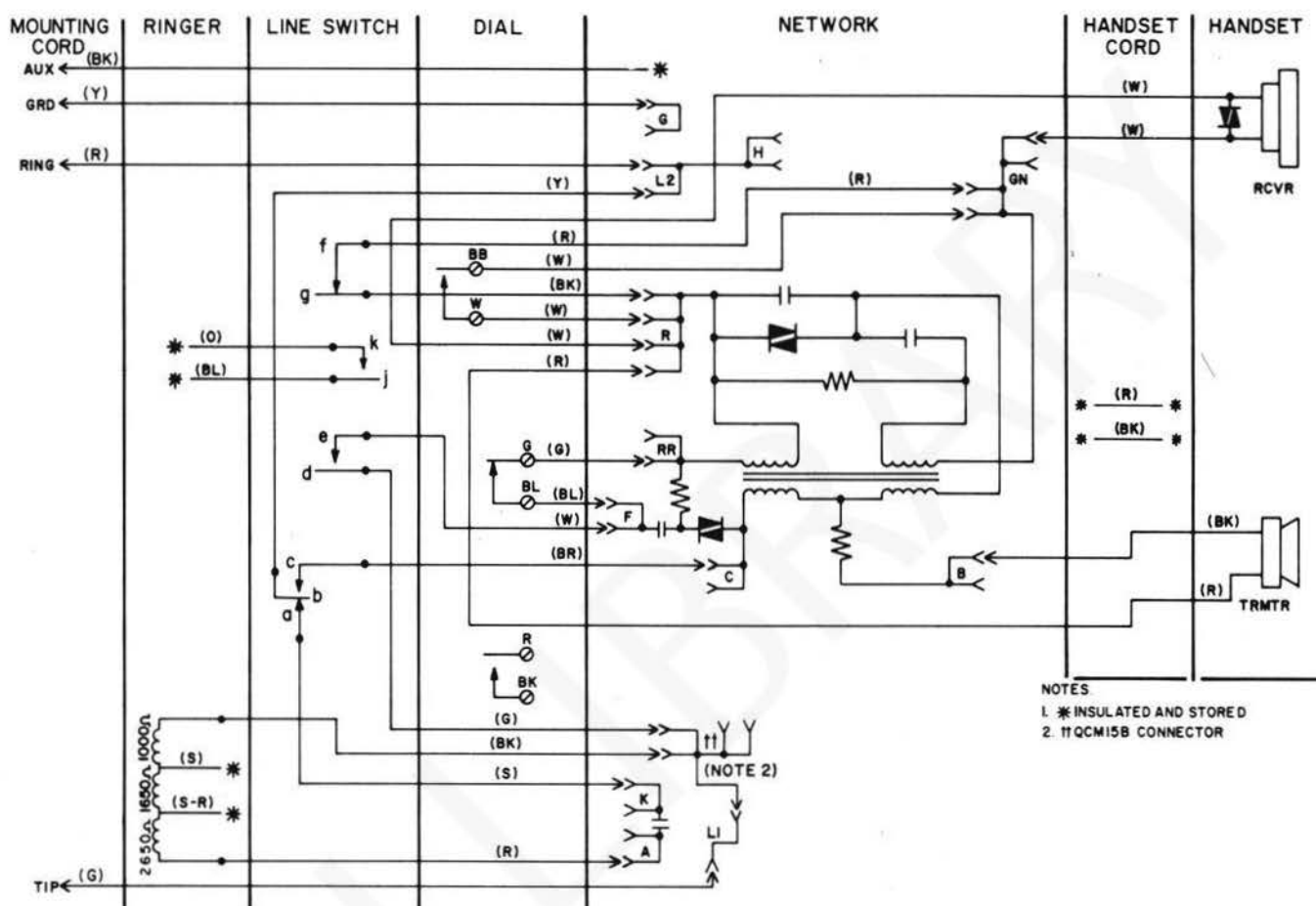


Fig. 7 — Schematic Diagram for QSK420-Type Telephone Set

CHART 9 ADJUSTING TRANSMITTER HEAD POSITION

STEP	PROCEDURE
	<i>Caution: The movement of the transmitter head cannot be restricted by over-tightening the mounting screw.</i>
1	Remove the mounting screw, spring and hinge pin assembly (Fig. 8, Items 63, 88 and 125).
2	Stretch the spring to increase its length.
3	Replace the spring, hinge pin and screw through the upper column and transmitter housing assembly.
4	Tighten the mounting screw.
	<i>Note: The key in the hinge pin must fit into the corresponding upper column key slot.</i>

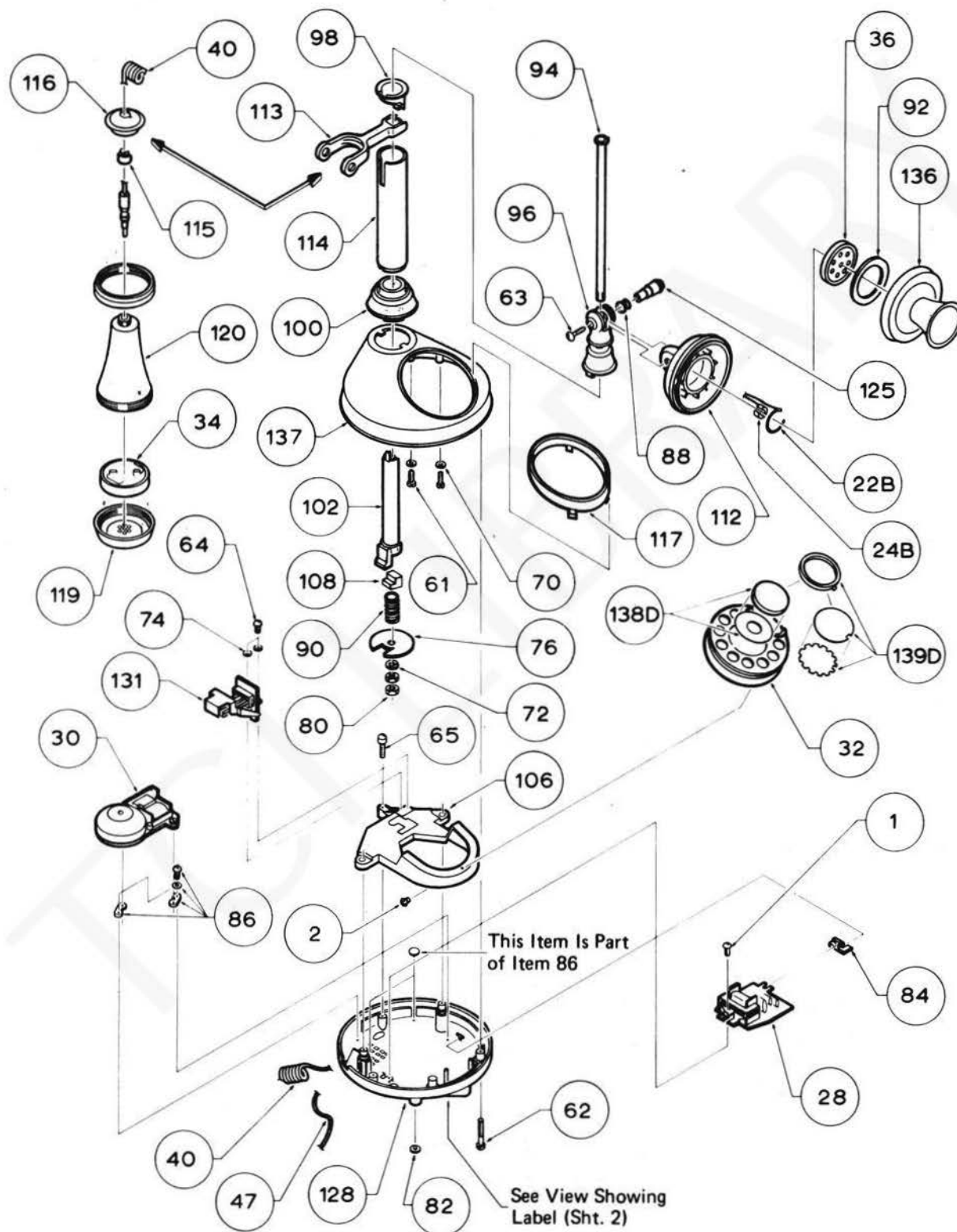


Fig. 8 — QSK420- and QSQM420-Type Telephone Set, Assembly of Parts (Table F)

TABLE F
IDENTIFICATION OF PARTS

IDENTIFICATION			DESCRIPTION	□				Q S Q M	Q S Q M	Q S Q M	Q S Q M
	NT PART	ATC		Q S K 4 2 0 A	Q S K 4 2 1 A	Q S K 4 2 2 A	Q S K 4 2 3 A				
ITEM NO.	NUMBER	PART NO.									
1	—	—	Screw, PHMS, 0.112-36 (4-36)×3/16 inch long	1	1	1	1	1	1	1	1
2	—	—	Screw, PHMS, 0.112-36 (4-36)×5/16 inch long	3	3	3	3	3	3	3	3
3	—	—	Screw, PHMS, 0.112-40 (4-40)×1/2 inch long	2	2	2	2	2	2	2	2
15B	P043A516	—	Lead Assembly Note 1	1	1	1	1	1	1	1	1
16B	P043A517	—	Lead Assembly Note 1	1	1	1	1	1	1	1	1
17B	P043A518	—	Lead Assembly Note 1	2	2	2	2	2	2	2	2
22B	P0527723	—	Bracket and Lead Assy	1	1	1	1	1	1	1	1
24B	P0527724	—	Spider and Lead Assy	1	1	1	1	1	1	1	1
	QNB3A6	—	Network	1	1	1	1	1	1	1	1
30	NE-M1A	—	Ringer	1	1	1	1	1	1	1	1
32	NE-6QD	—	Dial	1	1	1	1	1	1	1	1
34	NE-U1 or QUU1A	—	Receiver Unit	1	1	1	1	1	1	1	1
36	NE-T1	—	Transmitter Unit	1	1	1	1	1	1	1	1
40	NE-H4CJ-3	—	Cord, Handset	1	1	1	1	1	1	1	1
	NE-H4CJ-53	—									
	NE-H4CJ-35	—									
47	NE-D3BN-3	—	Cord, Mounting	1	1	1	1	1	1	1	1
	NE-D3BN-53	—									
	NE-D3BN-35	—									
	NE-D4QH-87	—									
61	C0039111	7198	Screw	2	2	2	2	2	2	2	2
62	C0039008	4189	Screw	4	4	4	4	4	4	4	4
63	C0039013	7139	Screw	1	1	1	1	1	1	1	1
64	C0038009	7109	Screw	2	2	2	2	2	2	2	2
65	C0039001	7149	Screw	1	1	1	1	1	1	1	1
70	C0039112	7144	Washer	2	2	2	2	2	2	2	2
72	C0039009	7145	Lock Washer	1	1	1	1	1	1	1	1
74	C0039002	7151	Star Washer	2	2	2	2	2	2	2	2
76	C0039036	4122	Housing Washer	1	1	1	1	1	1	1	1
80	C0039010	7143	Pal Nut	2	2	2	2	2	2	2	2
82	C0038078	2212	Foot	4	4	4	4	4	4	4	4
84	C0039053	4212	Network Mounting Tab	1	1	1	1	1	1	1	1
86	C0039054	4213	Ringer Mounting Kit	1	1	1	1	1	1	1	1

Table Continued

□ Not required by Bell Canada

TABLE F Continued
IDENTIFICATION OF PARTS

IDENTIFICATION			DESCRIPTION	□				Q	Q	Q	Q	
	NT PART	ATC		Q	Q	Q	Q	S	S	S	S	
				S	S	S	S	Q	Q	Q	Q	
				K	K	K	K	M	M	M	M	
ITEM NO.	NUMBER	PART NO.		4	4	4	4	4	4	4	4	
				2	2	2	2	2	2	2	2	
				0	1	2	3	0	1	2	3	
				A	A	A	A	A	A	A	A	
88	C0039012	4162	Spring	1	1	1	1	1	1	1	1	
90	C0039011	4119	Acuator Spring	1	1	1	1	1	1	1	1	
92	C0045638	4139	Transmitter Gasket	1	1	1	1	1	1	1	1	
94	C0039015	4120	Acuator Guide Tube	1	1	1	1	1	1	1	1	
96	C0039016	4106	Upper Fitting Column	1	1	1	1	1	1	1	1	
98	C0039020	4155	Hook Support	1	1	1	1	1	1	1	1	
100	C0039027	4107	Lower Fitting Column	1	1	1	1	1	1	1	1	
102	C0039028	4117	Actuator Sleeve	1	1	1	1	1	1	1	1	
104	C0039035	4144	Lower Ferrule	1	1	1	1	1	1	1	1	
106	C0039055	4211	Platform	1	1	1	1	1	1	1	1	
108	C0039117	4704	Actutator Button	1	1	1	1	1	1	1	1	
112	C0039017	4109-B	(Black)	1				1				
	C0039018	4109-R	Transmitter (Red)		1		1		1		1	
	C0039019	4109-W	Housing (White)			1				1		
113	C0039021	4116-B	Hook	1				1				
	C0039022	4116-R			1				1			
	C0039023	4116-W				1	1			1	1	
114	C0039024	4105-B		1				1				
	C0039025	4105-R			1					1		
	C0039026	4105-W	Column			1				1		
	C0038118	4105-M					1				1	
	C0046884	4166										
116	C0039032	4114-B	Hook Fitting	1				1				
	C0039033	4114-R			1				1			
	C0039034	4114-W				1	1			1	1	
115	C0039029	4167-B		1				1				
	C0039030	4167-R	Cord Restraint		1		1		1		1	
	C0039031	4167-W				1				1		
117	C0039050	4206-B		1				1				
	C0039051	4206-R	Dial Adaptor Ring		1		1		1		1	
	C0039052	4206-W				1				1		
119	C0039040	4113-B		1				1				
	C0039041	4113-R	Earpiece Cap		1		1		1		1	
	C0039042	4113-W				1				1		

Table Continued

□ Not required by Bell Canada

**TABLE F Continued
IDENTIFICATION OF PARTS**

IDENTIFICATION			DESCRIPTION	☐				Q	Q	Q	Q	
	NT PART	ATC		Q	Q	Q	Q	S	S	S	S	
				S	S	S	S	Q	Q	Q	Q	
				K	K	K	K	M	M	M	M	
ITEM NO.	NUMBER	PART NO.		4	4	4	4	4	4	4	4	
				2	2	2	2	2	2	2	2	
				0	1	2	3	0	1	2	3	
				A	A	A	A	A	A	A	A	
120	C0039037	4112-B	Earpiece Housing	1				1				
	C0039038	4112-R			1				1			
	C0039039	4112-W				1				1		
	C0039119	4112-M					1				1	
125	C0039049	4168	Hinge Pin Assembly	1	1	1	1	1	1	1	1	
128	C0039056	4210-1B	Base Assembly	1	1	1	1	1	1	1	1	
131	C0039057	4214	Line switch and bracket assembly	1	1	1	1	1	1	1	1	
136	C0039046	4193-B	Transmitter Cap Assembly	1				1				
	C0039047	4193-R			1				1			
	C0039048	4193-W				1				1		
	C0039121	4123-M					1				1	
137	C0039043	4123-B	Housing Assembly	1				1				
	C0039044	4123-R			1				1			
	C0039045	4123-W				1				1		
	C0039120	4123-M					1				1	
138D	C0039131	4215-B	Dial Insert	1				1				
	C0039127	4215-R			1		1		1		1	
	C0039130	4215-W				1				1		
139D	P0896341		Card Holder Parts Group (Note 2)	1	1	1	1	1	1	1	1	

Notes:

- Items 15B, 16B and 17B are shown on Fig. 2 and Fig. 3.
- Item 139D is shipped with each dial (Item 32) when ordered for replacement purposes.

☐ Not required by Bell Canada

6. PACKING INSTRUCTIONS

6.01 Candlestick telephone sets can be easily damaged in transit if they are not properly packaged. Before returning a disconnected set, carefully pack it in accordance with the following instructions.

- Obtain the original packing material.
- Gather the mounting cord as shown in Fig. 9, place the cord in a plastic bag, and secure with an elastic band.
- Take the receiver off-hook, and place a large plastic bag completely over the telephone set with the bag opening at the base.
- Position the set in the one of the foam inserts as shown. Place the mounting cord in the large rectangular recess at the bottom of the insert.
- Place a plastic bag completely over the receiver.
- Position the receiver in the insert as shown in Fig. 9. Arrange the cord so that it rests between the receiver and the telephone set.
- Place the two inserts together and put the complete assembly into the carton.

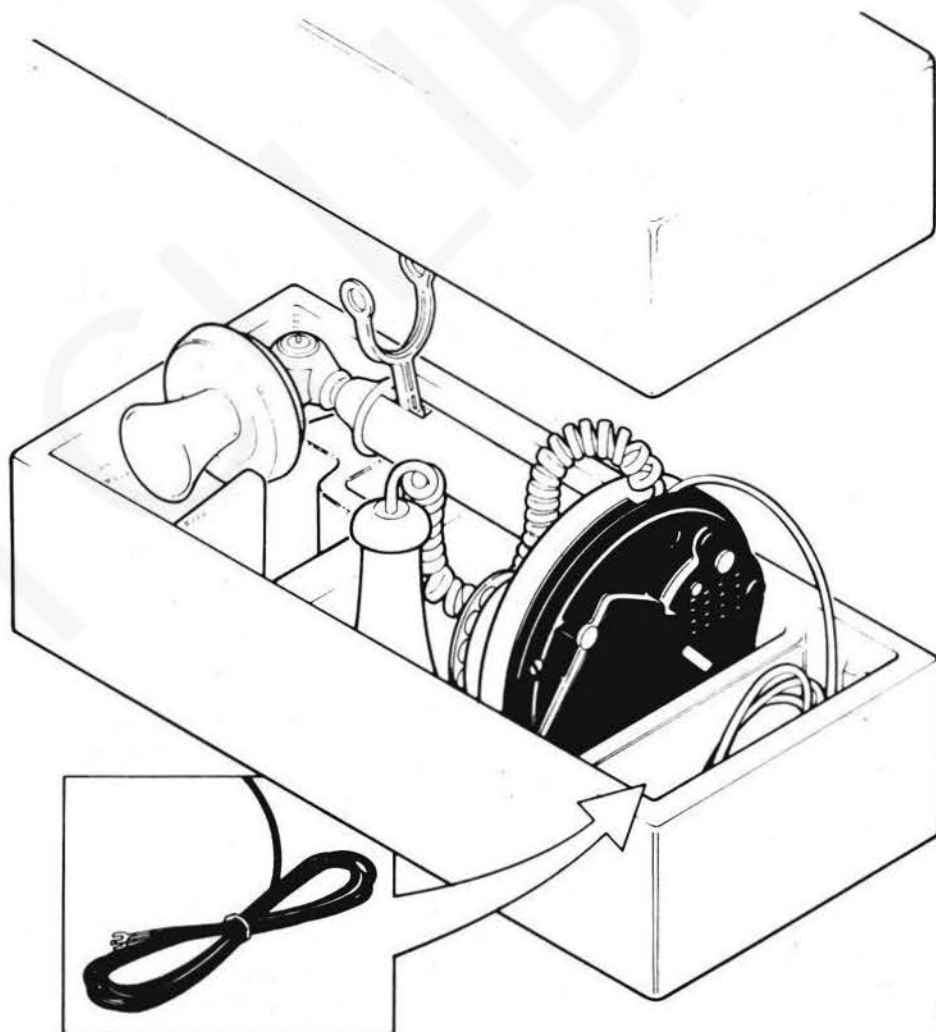


Fig. 9 — Candlestick Telephone Set Packing Instructions