

## P A R T 6

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◆ Appendices marked with this symbol apply only to special applications of the Model Seventy-five teleprinter and are not included in the standard equipment manual. They will, however, be obtainable on request.

- ◆ Appendix G Synchronous Motor
- ◆ Appendix H Tape Reader Attachment
- ◆ Appendix J Silencing Cover
- ◆ Appendix K Parallel Input (5-wire) Version
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## LIST OF ILLUSTRATIONS

- Fig. 6.1 Model Seventy-five Tools
- Fig. 6.2 Model Seventy-five Tools
- Fig. 6.3 Fault Localisation Table
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## APPENDIX A

### IMPERIAL/METRIC CONVERSION TABLE

Inches	Millimetres	Inches	Millimetres	Inches	Millimetres
.001	.025	.034	.864	.067	1.70
.002	.051	.035	.889	.068	1.73
.003	.076	.036	.914	.069	1.75
.004	.102	.037	.940	.070	1.78
.005	.127	.038	.965	.071	1.80
.006	.152	.039	.991	.072	1.83
.007	.178	.040	1.02	.073	1.85
.008	.203	.041	1.04	.074	1.88
.009	.229	.042	1.07	.075	1.90
.010	.254	.043	1.09	.076	1.93
.011	.279	.044	1.12	.077	1.95
.012	.305	.045	1.14	.078	1.98
.013	.330	.046	1.17	.079	2.00
.014	.356	.047	1.19	.080	2.03
.015	.381	.048	1.22	.081	2.06
.016	.406	.049	1.24	.082	2.08
.017	.432	.050	1.27	.083	2.11
.018	.457	.051	1.30	.084	2.13
.019	.483	.052	1.32	.085	2.16
.020	.508	.053	1.35	.086	2.18
.021	.533	.054	1.37	.087	2.21
.022	.559	.055	1.40	.088	2.23
.023	.584	.056	1.42	.089	2.26
.024	.610	.057	1.45	.090	2.29
.025	.635	.058	1.47	.091	2.31
.026	.660	.059	1.50	.092	2.34
.027	.686	.060	1.52	.093	2.36
.028	.711	.061	1.55	.094	2.39
.029	.737	.062	1.58	.095	2.41
.030	.762	.063	1.60	.096	2.44
.031	.787	.064	1.63	.097	2.46
.032	.813	.065	1.65	.098	2.49
.033	.838	.066	1.68	.099	2.51

## APPENDIX B

### LUBRICANTS

Creed No.	Part No.	Supplied In.	Description	Equivalents
1	TA 1095	¼ pint tin	Thin oil - SAE 10	Shell Clavus oil 17 Castrol Magna RS G.P.O. oil No.12
2	TA 1096	¼ pint tin	Medium oil - SAE 30	Shell Talpa oil 30 Castrol XL G.P.O. oil No.14
4	TA 1097	2 oz. tin	Lithium base soft grease	AeroShell 6B Castrol Spheerol AP.3
5	TA 1098	2 oz. tin	Semi-fluid water-resistant grease	Shell Mytilus A Castrol Impervia CL Mobilgrease No.1
6	TA 1317	2 oz. tube	High melting-point molybdenum disulphide grease	Rocol MT-LM
7	TA 1331	2 oz. tin	Lithium base soft grease	Shell Alvania No.1 Castrol Spheerol AP.1
8	TA 1330	¼ pint tin	Thin oil - SAE 20	Shell Tellus oil 33
9	TA 1333	¼ pint tin	Thin oil - SAE 10	Shell Tellus oil 29
10			Thick oil - SAE 140	Shell Omala 79 Mobilube GX140
11	TA 1358	¼ pint tin	Thin oil + molybdenum disulphide	Rocol MO4

## APPENDIX C

### TOOLS AND ACCESSORIES

#### 1. TOOLS

Description	Quantity	Part No.	Reference
Spring Hook	1	TA 1008	D, Fig.6.1
Spring Hook	1	TA 1130	A, Fig.6.1
Tommy Pin - Medium	1	TA 1011	} E, Fig.6.2
Tommy Pin - Small	1	TA 1020	
Tommy Pin - Large	1	TA 1360	
Spanner OBA - 2BA	2	TA 1039	B, Fig.6.2
Spanner 2BA	1	TA 1367	A, Fig.6.2
Spanner 4BA - 6BA	2	TA 1022	} B, Fig.6.2
Spanner 8BA - 10BA	2	TA 1036	
Box Spanner 2BA	1	TA 1375	
Screwdriver 4 x 1/10 in.	1	TA 1053	Q, Fig.6.1
Screwdriver 5 x 5/32 in.	1	TA 1187	S, Fig.6.1
Screwdriver 5 x 1/4 in.	1	TA 1148	P, Fig.6.1
Autoplex Tension Gauge 0-4 lb	1	1285/35	} R, Fig.6.1
Autoplex Tension Gauge 0-12 oz	1	1285/84	
Allen key	1	17504A	H, Fig.6.2
Tweezers	1 pair	8199	M, Fig.6.1
Oilcan (For medium oil)	1	8620	E, Fig.6.1
Oilcan -- (For thin oil)	1	16771	J, Fig.6.1
Feeler Gauge .003 in.	1	TA 1344	} C, Fig.6.2
Feeler Gauge .004 in.	1	TA 1345	
Feeler Gauge .005 in.	1	TA 1346	
Feeler Gauge .006 in.	1	TA 1347	
Feeler Gauge .008 in.	1	TA 1348	
Feeler Gauge .010 in.	1	TA 1349	
Feeler Gauge .015 in.	1	TA 1350	
Feeler Gauge .020 in.	1	TA 1351	
Feeler Gauge .0625 in.	1	TA 1352	
Feeler Gauge .005 in.	1	TA 1339	
Feeler Gauge .010 in. Angled End	1	TA 1340	
Feeler Gauge .032 in. Angled End	1	TA 1341	
Feeler Gauge .045 in. Angled End	1	TA 1342	
Feeler Gauge .045 in. Curved End	1	TA 1343	
Slip Gauge .1250/.1094 in.	1	TA 1337	} J, Fig.6.2
Slip Gauge .2187/.1562, .4375/.5000 in.	1	TA 1338	
Circlip Applicator No.2	1	TA 1373	} F, Fig.6.1
Circlip Applicator No.3	1	TA 1374	
Spring Clip (For Transmitter machines only)	1	TA 1384	M, Fig.6.2
Contact Burnisher (For Transmitter machines only)	1	TA 1027	L, Fig.6.2
Contact Adjuster (For Transmitter machines only)	1	TA 1402	K, Fig.6.1
Timing Disc (For Transmitter machines only)	1	TA 1316	B, Fig.6.1
Stroboscope 140 dvs	1	TA 1117/ 140	L, Fig.6.1
Tape Pitch Gauge	1	TA 1385	H, Fig.6.1
Typehead Clamp	1	TA 1353	C, Fig.6.1
Lapping Block (For machines with Reperforating Attachment only)	1	TA 1301	G, Fig.6.1

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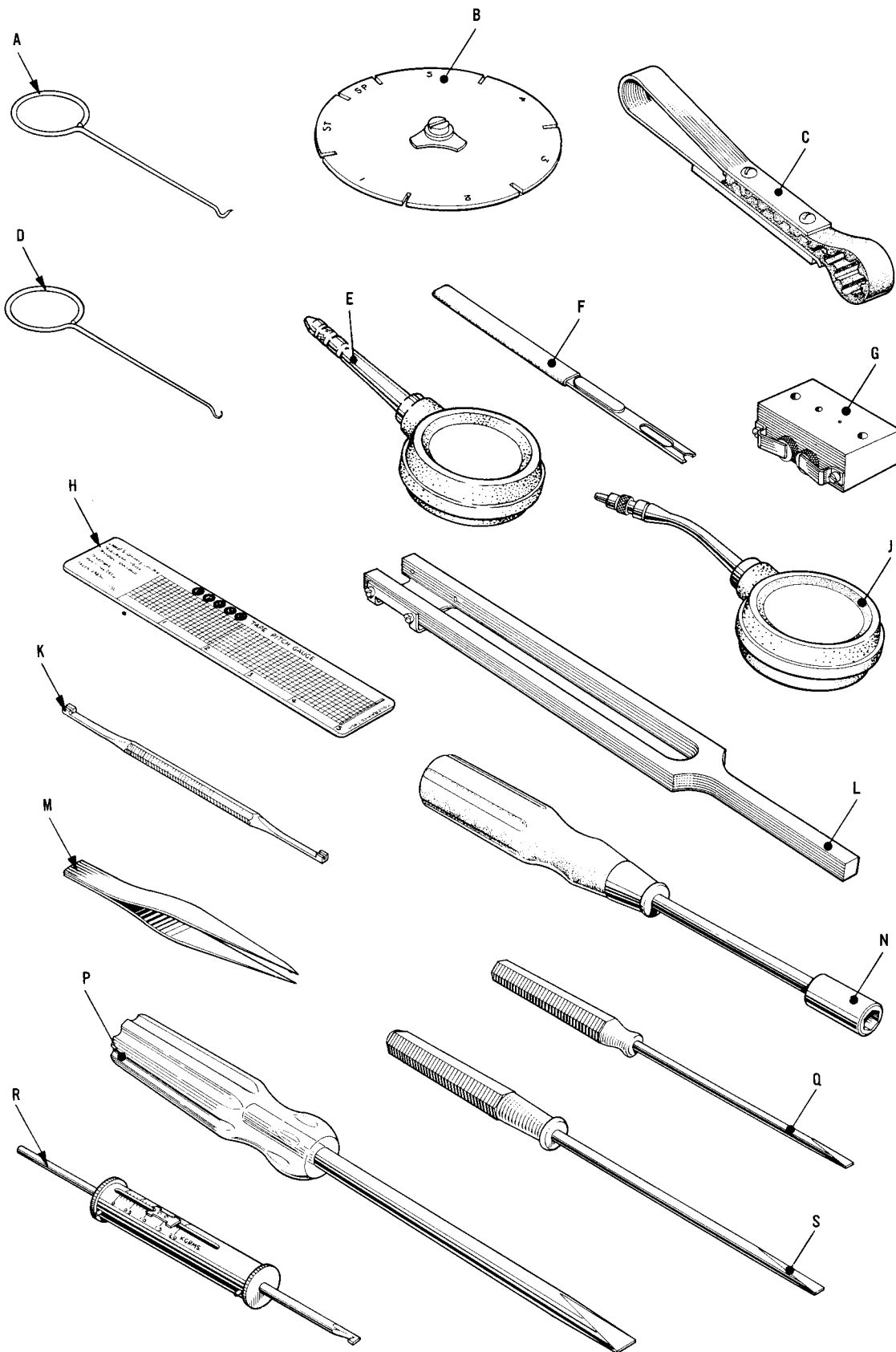


Fig. 6.1 MODEL SEVENTY-FIVE TOOLS

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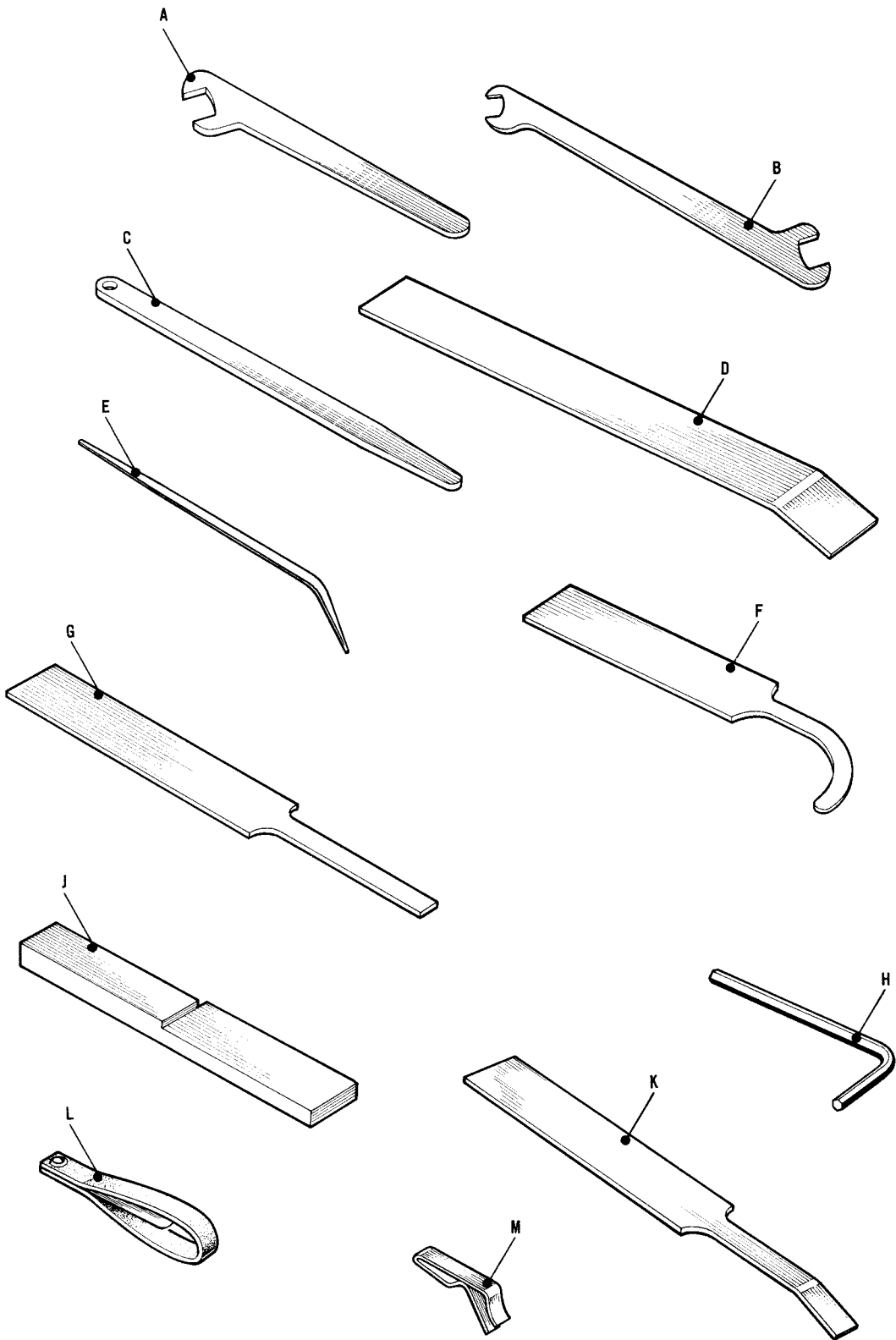


Fig. 6.2 MODEL SEVENTY—FIVE TOOLS

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2. ACCESSORIES

Description	Quantity	Part No.
Lubricant No.2 - ¼ pint tin	1	TA 1096
Lubricant No.4 - 2 oz. tin	1	TA 1097
Lubricant No.6 - 2 oz. tube	1	TA 1317
Lubricant No.7 - 2 oz. tin	1	TA 1331
Lubricant No.9 - ¼ pint tin	1	TA 1333
Paper Roll, code word 'ABABY'	1	8682
Paper Tape Reel - 11/16 in. wide, code word 'ABAST' (For machines with Reperforating Attachment only)	1	8184
Copy of Typehead Chart	1	
Copy of Keyboard Chart	1	
Equipment Manual EM75	1	



## APPENDIX D

### FAULT LOCATION

#### GENERAL

The efficient correction of faults depends upon a thorough knowledge of the principles of operation of the teleprinter and the type of circuit in which it is being used. Without this knowledge it may be possible to restore the machine temporarily to a working condition, but there will be no guarantee that it will continue to work satisfactorily for any length of time. This is because a fault may sometimes be cleared temporarily by adding a compensating maladjustment to the machine, e.g. bias in the incoming signals can be compensated by biasing the electromagnet. Such practises should be avoided because they have a cumulative effect on the serviceability of the teleprinter and, in time, any slight change in the circuit conditions or in the adjustment of the remainder of the machine will probably lead to a series of faults. The cause of the trouble should be systematically localised and, if adjustment is required, rectified by using the standard adjustments only.

Since a logical analysis of the fault symptoms is essential, wherever possible it is recommended that known test messages are used in conjunction with a second machine. Suitable test messages and their uses are given on page 18. If no other teleprinter is available and the machine is fitted with a keyboard and transmitter, the 'Self-test' method described in Part 2, page 3 may be used.

The Fault Localisation Table, Fig.6.3, provides a systematic preliminary procedure for localising faults. This table is applicable to a simple point-to-point arrangement of two Model Seventy-five teleprinters but most of the procedure can be used, with very little alteration, for other arrangements.

HOME STATION		DISTANT STATION		PROBABLE LOCATION OF FAULT
RECEPTION	LOCAL RECORD	RECEPTION	LOCAL RECORD	
Correct	Faulty	Faulty	Correct	Home keyboard or associated linkages
Faulty	Correct	Correct	Correct	(a) Home magnet or selector (b) Distant transmitter (c) No distant signalling power
Faulty	Faulty	Correct	Correct	Home translator and linkages or typehead
Faulty	Correct	Correct	Faulty	Distant keyboard or associated linkages
Correct	Correct	Faulty	Correct	(a) Distant magnet or selector (b) Home transmitter (c) No home signalling power
Correct	Correct	Faulty	Faulty	Distant translator and linkages or typehead
Faulty	Correct	Faulty	Correct	Line or line equipment

Fig. 6.3 FAULT LOCALISATION TABLE

The majority of faults on the Model Seventy-five teleprinter will be found to be due to one or more of the following five causes.

- Maladjustment - cleared by local adjustment.
- Lack of lubrication - cleared either by lubricating or by cleaning and lubricating, possible necessitating local adjustment.
- Excess of dirt or foreign bodies - cleared by cleaning and lubricating, possibly necessitating local adjustment.
- Worn parts - cleared either by local adjustment, or by changing parts followed by local adjustment.
- Broken parts - cleared by changing parts followed by local adjustment.

The Fault Localisation Chart, Fig.6.4, and its associated text will act as an approximate guide to most general fault possibilities.

Fig.6.4 Reference	Fault	Probable Cause	Rectification
	<u>MOTOR</u>		
1	Motor will not start (Receive)	(a) Dirty or disconnected plug connexions (b) Starter switch operating link maladjusted (c) Starter switch linkage stiff (d) Worn brushes (e) Dirty commutator	Clean or re-connect Adjustment No.37 Remove cause of stiffness Renew Clean and polish
2	Motor will not start (Transmit)	(a) Dirty or disconnected plug connexions (b) Trip shaft maladjusted (c) Starter switch linkage stiff (d) Worn brushes (e) Dirty commutator	Clean or re-connect Adjustment No.38 Remove cause of stiffness Renew Clean and polish
3	Motor will not stop	(a) Incorrect engagement of starter switch spindle (b) Starter switch hold-out lever maladjusted (c) Starter switch hold-out bush maladjusted (d) Trip shaft maladjusted	Adjustment No.14 Adjustment No.15 Adjustment No.16 Adjustment No.38
4	Motor speed incorrect	(a) Incorrect governor spring tension (b) Governor contacts incorrectly set or damaged (c) Variation in mains voltage (d) Motor or governor components	Adjustment No.81 Adjustment Nos.18 and 19 Adjust governor spring to suit See Fig.1.10 - Renew components if necessary



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Fig.6.4 Reference	Fault	Probable Cause	Rectification
5	Motor speed varying	(a) Governor contacts incorrectly set or damaged (b) Worn brushes (c) Worn commutator (d) Faulty connexion in mains circuit	Adjustment Nos.18 and 19  Renew Skim and polish Repair connexion
<u>RECEPTION</u>			
6	Occasional mis-selections	(a) Pecker retention arm hook maladjusted (b) Incorrect pecker clearance (c) Pecker traverse maladjusted (d) Electromagnet/rockshaft linkage loose or jammed (e) Excessive play in pecker assembly (f) Worn selection pins (g) Weak pin springs (h) Excessive side-play in selector camshaft	Adjustment No.30  Adjustment No.39  Adjustment No.40  Re-position linkage and tighten rockshaft operating arm screw  Renew worn parts  Renew Renew Renew bearings
7	Random mis-selections	(a) Motor speed incorrect (b) Excessive bias on electromagnet (c) Pecker retention arm hook maladjusted (d) Rockshaft tight (e) Incorrect pecker clearance (f) Pecker traverse maladjusted (g) Pin-box endplate loose (h) Electromagnet/rockshaft linkage loose or jammed (j) Excessive play in pecker assembly (k) Worn selection pins (l) Weak pin springs (m) Excessive side-play in selector camshaft	See paragraph 4 above  Adjustment No.2  Adjustment No.30  Adjustment No.34 Adjustment No.39  Adjustment No.40  Tighten  Re-position linkage and tighten rockshaft operating arm screw  Renew worn parts  Renew Renew Renew bearings

Fig. 6.4 Reference	Fault	Probable Cause	Rectification
8	Garbling or displaced elements	(a) Motor speed varying (b) Incorrect translator clutch trigger backstop clearance (c) Incorrect translator clutch abutment engagement (d) Translator clutch maladjusted (e) Incorrect selector detent clearance (f) Excessive play in selector detent (g) Selector clutch maladjusted (h) Rockshaft tight (j) Translator trip maladjusted (k) Translator clutch abutment pivot dry (l) Selector detent pivot dry (m) Selector camshaft binding on drive spindle (n) Selector drive gear partially loose (p) Worn selector camshaft (q) Worn selector detent (r) Worn translator detent	See paragraph 5 above Adjustment No. 3 Adjustment No. 4 Adjustment No. 28 Adjustment No. 31 Adjustment No. 32 Adjustment No. 33 Adjustment No. 34 Adjustment No. 36 Lubricate Lubricate Remove cause of binding Tighten Renew Renew Renew
<b>TRANSMISSION - LOCAL RECORD AND DISTANT STATION</b>			
9	Mis-selections	(a) Trip lever pivot incorrectly set (b) Incorrect push rod lift (c) Combination bar reset mechanism maladjusted (d) Incorrect selector bar/selection pin alignment	Adjustment Nos. 21 and 70 Adjustment No. 22 Adjustment No. 69 Adjustment No. 71

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Fig. 6.4 Reference	Fault	Probable Cause	Rectification
		(e) Incorrect selector bar/selection pin clearance	Adjustment No.72
		(f) Lag weight release lever maladjusted	Adjustment Nos.73 and 74
		(g) Keyboard combination bars stiff	Remove cause of stiffness
		(h) Weak combination bar springs	Renew
		(j) Keyboard push rods stiff	Remove cause of stiffness
		(k) Keyboard selector bars stiff	Remove cause of stiffness
		(l) Swarf between run out and trip bars	Clean
		(m) Worn trip lever pivot	Renew
		(n) Worn selection pins	Renew
		(p) Weak pin springs	Renew
	<u>TRANSMISSION -</u> <u>DISTANT STATION ONLY</u>		
10	Stop signal failure	(a) Incorrect setting of transmitter read-out contacts	Adjustment Nos.23 and 82 or 83
		(b) Send-receive switch contacts maladjusted	Adjustment No.78
		(c) Send-receive switch delay maladjusted	Adjustment No.79
11	Start signal failure	(a) Incorrect setting of transmitter read-out contacts	Adjustment Nos.23 and 82 or 83
		(b) Send-receive switch contacts maladjusted	Adjustment No.78
12	Mis-selection on any one element	(a) Incorrect setting of transmitter read-out contacts	Adjustment Nos.23 and 82 or 83
		(b) Incorrect setting of transmitter contacts	Adjustment No.82 or 83
13	Mis-selection on any adjacent elements	(a) Incorrect setting of transmitter read-out contacts	Adjustment Nos.23 and 82 or 83
14	Garbling or displaced elements	(a) Motor speed incorrect	See paragraph 4 above
		(b) Transmitter levers stiff	Remove cause of stiffness
		(c) Transmitter lever stop bracket displaced	Clamp bracket in its lowest position

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Fig. 6.4 Reference	Fault	Probable Cause	Rectification
	<u>FUNCTIONAL</u>		
15	Maloperation of any one function	(a) Function bar reset mechanism maladjusted (b) Print release lever maladjusted (c) Weak function bar operating spring (d) Function bar stiff (e) Function bar unit incorrectly fitted	Adjustment No.5  Adjustment No.6  Renew  Remove cause of stiffness  Refit unit correctly
16	Maloperation of more than one function	(a) Function bar reset mechanism maladjusted (b) Print release lever maladjusted (c) Function bar unit incorrectly fitted	Adjustment No.5  Adjustment No.6  Refit unit correctly
17	Line feed failure	(a) Line feed operating lever latch maladjusted (b) Weak line feed operating lever spring (c) Maloperation of any one function	Adjustment No.42  Renew  See paragraph 15 above
18	Line feed irregular	(a) Platen retention lever maladjusted (b) Line feed overthrow stop maladjusted (c) Platen pressure rollers too light	Adjustment No.43 or 44  Adjustment No.46  Adjust to increase pressure
19	Line feed paper drift	(a) Platen pressure rollers unequal	Adjust to equalise pressure
20	Carriage return failure	(a) Carriage return operating lever latch maladjusted (b) Insufficient carriage return pawl lift (c) Carriage return pawl latch maladjusted (d) Incorrect carriage return spring tension (e) Typehead carriage stiff (f) Weak carriage return operating lever latch spring (g) Maloperation of any one function	Adjustment No.11  Adjustment No.41  Adjustment No.41  Adjustment No.52  Remove cause of stiffness  Renew  See paragraph 15 above

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Fig. 6.4 Reference	Fault	Probable Causes	Rectification
21	Case shift failure	(a) Shift bellcrank lever not centralised (b) Shift retainer stiff (c) Weak shift retainer spring	Adjustment No.8 Remove cause of stiffness Renew
22	No case change	(a) Shift bellcrank lever not centralised (b) Shift retainer stiff (c) Maloperation of any one function	Adjustment No.8 Remove cause of stiffness See paragraph 15 above
23	Bell signal failure	(a) Faulty contact spring settings (b) Function reset bar or switch arm maladjusted (c) Maloperation of any one function	Adjustment No.90 Adjustment No.90 See paragraph 15 above
24	Letter feed failure on a printing character	(a) Print release lever maladjusted (b) Letter feed operating lever latch maladjusted (c) Excessive typehead carriage end-play (d) Incorrect position of feed and retention pawls (e) Weak letter feed operating lever latch spring (f) Worn pivot of feed and retention pawls	Adjustment No.6 Adjustment No.10 Adjustment No.48 Adjustment No.51 Renew Renew
25	Letter feed failure on space	(a) Letter feed operating lever latch maladjusted (b) Maloperation of any one function	Adjustment No.10 See paragraph 15 above
26	Printing on functions	(a) Print release lever maladjusted (b) Non-print hook maladjusted	Adjustment No.6 Adjustment No.9
27	Letter feed on functions	(a) Print release lever maladjusted (b) Letter feed operating lever latch maladjusted (c) Weak letter feed operating lever latch spring	Adjustment No.6 Adjustment No.10 Renew



Fig. 6.4 Reference	Fault	Probable Cause	Rectification
28	Failure of print action	(d) Worn pivot of feed and retention pawls (a) Non-print hook maladjusted	Renew Adjustment No.9
	<u>PRINTING</u>		
29	Faint characters	(a) Excessive typehead/platen clearance (b) Print beam stop screw maladjusted (c) Ribbon feed failure (d) Ribbon changeover failure	Adjustment No.55 Adjustment No.56 Adjustment No.67 Clean and adjust changeover mechanism
30	Irregular printing at the beginning of a line	(a) Excessive typehead carriage end-play (b) Incorrect position of retention pawl or pawl-latch (c) Incorrect carriage return spring tension (d) Incorrect carriage return damping	Adjustment No.48 Adjustment Nos.49 and 50 Adjustment No.52 Adjustment Nos.53 and 87
31	Irregularity in height of printed characters	(a) Typehead rear splined shaft maladjusted (b) Incorrect engagement of push rod/No.2 aggregate motion bellcrank (c) Incorrect engagement of shift rod/shift bellcrank (d) Typehead movement stiff (e) Weak typehead lift spring (f) Worn typehead bushes	Adjustment No.59 Adjustment No.64 Adjustment No.64 Remove cause of stiffness Renew Renew
32	Sideways displacement of printed characters	(a) Eccentric pivot of typehead corrector maladjusted (b) Corrector track rail height maladjusted (c) Incorrect engagement of the push rods and the appropriate aggregate motion bellcrank (d) Typehead rotary motion stiff	Adjustment Nos.17 and 57 Adjustment No.58 Adjustment Nos.60, 61, 62 or 63 Remove cause of stiffness

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Fig. 6. 4 Reference	Fault	Probable Cause	Rectification
33	Incorrect characters printed	(e) Weak aggregate motion spring  (a) Eccentric pivot of typehead corrector maladjusted  (b) Incorrect engagement of the push rods and the appropriate aggregate motion bellcrank  (c) Aggregate motion lever (usually No.1) off its cam follower	Renew  Adjustment Nos.17 and 57  Adjustment Nos.60, 61, 62 or 63  Reset
34	Incorrect density of printed characters	(a) Print spring maladjusted (b) Incorrect typehead/platen clearance (c) Print beam stop screw maladjusted (d) Corrector track rail height maladjusted (e) Ribbon worn in patches (f) Worn platen	Adjustment No.54 Adjustment No.55 Adjustment No.56 Adjustment No.58 Renew Renew
35	<u>ANSWER-BACK</u> Unit fails to trip from WRU? signal	(a) Lag disc spring unwound (b) Incorrect release lever lift (c) Lag weight release lever latch maladjusted (d) Vertical trip link maladjusted (e) Incorrect trip from function bar (f) Maloperation of any one function	Rewind spring Adjustment No.26 Adjustment No.74 Adjustment No.107 Adjustment No.108 See paragraph 15 above
36	Unit trips but fails to operate	(a) Incorrect release lever lift (b) Incorrect position of feed pawl (c) Feed pawl stop maladjusted (d) Weak lag disc spring (e) Weak feed pawl spring	Adjustment No.26 Adjustment No.111 Adjustment No.112 Renew Renew
37	Unit operates but sends incorrect code	(a) Selector bar/selection pin maladjusted	Adjustment Nos.71 and 72

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Fig. 6.4 Reference	Fault	Probable Cause	Rectification
38	'Here Is' fails to operate	(b) Incorrect position of feed pawl (c) Feed pawl stop maladjusted (a) Lag disc spring unwound (b) Incorrect release lever lift (c) Lag weight release lever latch maladjusted (d) 'Here Is' trip bell-crank maladjusted (e) Incorrect position of feed pawl (f) Feed pawl stop maladjusted	Adjustment No.111 Adjustment No.112 Rewind spring Adjustment No.26 Adjustment No.74 Adjustment No.106 Adjustment No.111 Adjustment No.112
<u>REPERFORATING ATTACHMENT</u>			
39	Fails to feed or punch	(a) Incorrect position of interposer (b) Worn fork driving plate	Adjustment No.101 Renew
40	Feeds but does not punch	(a) Unit incorrectly fitted (b) Worn fork driving plate	Refit unit correctly Renew
41	Ragged tape holes	(a) Tape guide mal-adjusted (b) Worn punches or die plates	Adjustment No.102 Renew
42	Tape pitch faulty	(a) Tape guide mal-adjusted (b) Incorrect feed hole pitch adjustment	Adjustment No.102 Adjustment No.103



















## APPENDIX E

### LOCTITE SEALANT

#### GENERAL

Loctite sealant is a liquid polymer which possesses the property of hardening into a tough plastic bond when confined between closely-fitting metal parts. Nuts, screws and other fasteners retained with the medium strength grade of this sealant can later be released with ordinary hand tools.

Although this sealant does not harden off while exposed to air even when on a metal surface, once it is in close contact with metal in the absence of air, it begins to harden within a few minutes and reaches 85% of its final strength within 4 to 12 hours at 72°F. Loctite is effective on all common metals including steel, iron, brass, aluminium alloys, copper and silver.

The hardening process can be speeded up either by applying heat or by treating the components involved with an activating rinse called Locquic. The bonding time of components previously treated with activator is reduced to about an hour. This activating rinse can also be used to prime the surface of non-metallic and plated parts and so render them capable of being bonded together with Loctite.

The sealant is produced in six main strengths, each of which is made up in various degrees of viscosity. To discriminate between these strengths, the manufacturers tint each one a different colour. The various degrees of viscosity within a particular strength are identified by a reference letter marked on the package and on the sealant container.

At present only *Grade C* Loctite is used on the Model Seventy-five teleprinter. This grade has a shear strength of 300 - 400 psi and a viscosity of 10 - 15 degrees centipoise. It is a blue-tinted liquid with a consistency similar to paraffin. Stocks of Loctite Grade C can be obtained from the Service Division under reference TA1435. The activator Locquic is held under reference number TA1436, and is suitable for all grades of sealant and material.

#### APPLICATION

1. Treat components which are to be sealed with a degreasing solvent such as white spirit or trichlorethylene to remove oil or grease. Allow the components to dry off.
2. Dip the components into Locquic priming rinse and then allow them to dry off again. *It is important to be sure that activated parts are quite dry before any of the sealant is applied.* If the components form part of major units secured to the machine, apply the priming rinse to the unit with a small brush. Shield adjacent parts while doing this to prevent the rinse splashing on to moving parts of the machine. Rinsed components can be stored before use, and do not necessarily lose their activation in storage.
3. A small quantity of the Loctite sealant (one drop is usually sufficient) may now be applied direct from the container to the threaded parts of the nut or screw involved, and the parts can then be screwed together. The sealant will harden off in about an hour, and thereafter the two components will be locked together until such time as a turning force sufficient to break down the plastic bond is applied to them.
4. The sealant may also be applied to a fully assembled and tightened nut or screw by placing a drop of sealant at the point where the two threaded portions of the fastener meet each other. The liquid will then be drawn up into the joint by capillary attraction and will harden between the threads. The presence of a ring of sealant on the outside of the joint after a few minutes indicates that the threaded portion of the screw has been filled.
5. To re-use nuts and screws previously treated with sealant and activator, apply a drop of sealant to their threads either before or after tightening.



## APPENDIX F

### GLOSSARY OF TERMS

The following explanations of telegraph terms, except where they are derived from standard glossaries, are not intended to be exact definitions of universal application. They are included as descriptions of some of the commoner usages of telegraph terms, chiefly as these apply to Creed teleprinters.

Abbreviation: (BS) = British Standard

Answer-Back	<p>A device which, when released by the receiving mechanism in response to an appropriate signal from the distant end, controls the transmitter and causes it to send back automatically the identity of the called station. This facility assures the calling operator:-</p> <ol style="list-style-type: none"><li>(1) that he is connected to the station desired,</li><li>(2) that the called teleprinter is operating, even if it is unattended, and</li><li>(3) if operated at the end of a message, that the whole message has been received.</li></ol>
Baud	<p>The unit of telegraph speed. Telegraph signals are characterised by intervals of time of duration equal to or greater than the shortest or elementary interval. Telegraph speed is, therefore, expressed as the inverse of the value of the elementary interval in seconds. A speed of one elementary interval per second is termed one baud (BS).</p> <p>The elementary interval for teleprinter transmission is 20 milliseconds i.e. 1/50th of a second. Therefore, the telegraph speed is 50 bauds (see Telegraph Speed).</p>
Bias Distortion	<p>Distortion due to either the marking or spacing elements of the signals being lengthened due to asymetry in the transmitting and receiving apparatus (BS).</p>
Cadence Speed	<p>For teleprinters this is the telegraph speed in words per minute. Two teleprinters having the same telegraph baud speed do not necessarily have the same cadence speed:</p> <p>For a telegraph baud speed of 50 bauds, using 7-unit transmission, the cadence speed is 71.4 words per minute.</p> <p>For a baud speed of 50 bauds, using 7-1/2-unit transmission, the cadence speed is 66.6 words per minute.</p>
Case	<p>In telegraphy this term is often used synonymously with shift.</p>
Character	<p>A printed symbol. Characters may be letters, figures, punctuation marks or signs. Signs may be sub-divided into operation signs (e.g. +./.=), abbreviation signs (e.g. @.£), and functional signs (e.g. ≡ for Line Feed).</p>
Combination	<p>A particular arrangement of code elements.</p>
Double-Current System	<p>A telegraph system in which signals are transmitted by reversing a current that is normally on the line during transmission (BS).</p>
Duplex System	<p>A multiple-way system in which the circuit is arranged for simultaneous operation in opposite directions, over a single circuit (BS).</p>

End-of-Line Indicator	A mechanism attached to the transmitter of a teleprinter, to provide a visual or aural indication when a specific number of keys have been depressed after the Carriage Return key. This device is used as a warning to depress the Carriage Return key in cases where there is no local record or only a tape record at the transmitting end and the receiving machine is a page machine.
Extra	A mis-selected element of a code combination in which a spacing condition has been replaced by a marking condition.
Failure	A mis-selected element of a code combination in which a marking condition has been replaced by a spacing condition.
Figure Shift	One of the shifts into which the characters and functions of the five-unit code are grouped.
Function	A teleprinter operation other than printing or perforating which requires the transmission of a particular code combination (e.g. Line Feed).
Letter Shift	One of the shifts into which the characters and functions of the five-unit code are grouped.
Local Record	A reproduction by the transmitting telegraph instrument of the message transmitted (BS).
Margin	The maximum distortion which, when occurring on any or all of the signals applied to a telegraph receiver, is compatible with correct registration of all the symbols for which the receiver is designed (BS).
Mark	One of the two kinds of elements in the international binary start-stop code, e.g. the first two elements in the combination for 'A' in the code are marks.
Reperforator	An instrument which converts incoming electrical impulses of the five-unit code into equivalent perforations of a paper tape.
Send-Receive Switch	A switch used in simplex systems for changing over from the sending to the receiving condition, and vice versa. On the teleprinter this switch is operated automatically, the tongue moving over to the send contact before the transmission of each character signal. The return to the receive contact may take place either directly after the transmission of the character signal, or be delayed.
Simplex System	A telegraph system in which the circuit is arranged for operation in one direction at one time (BS).
Space	One of the two kinds of elements in the international binary start-stop code, e.g. the last three elements of the combination for 'A' in the code are spaces.
TDMS	Teleprinter Distortion Measuring Set. An apparatus for making distortion and margin tests on the transmitting and receiving mechanisms of the teleprinter.
Telegraph Distortion	In telegraph systems in which the signals at their origin are characterised by modulation at specific instants, the degree of distortion of the modulations when reproduced at the receiver is the ratio of the difference in delay or reproduction of the instants to the duration of the shortest modulation interval applicable to the particular system under consideration (BS).
Telegraph Speed	The rate of transmission, either in characters or words per minute, or in bauds. For the purpose of calculation, a word is accepted as consisting of 5 letters and a space, or 6 characters (BS).