

American Telephone and Telegraph Company

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Telegraph Station and PBX Long Lines Department
Installation and Maintenance Dist. Class. 400-600AC

TELETYPEWRITER STATION MAINTENANCE

MAINTENANCE SPARE TELETYPEWRITER EQUIPMENT

1. GENERAL

1.00 This issue supersedes Issue A.

1.01 This section describes the plan under which the Long Lines Department provides spare teletypewriter equipment for use in the maintenance of its teletypewriter stations and includes information that may be used as a guide in determining the amount and location of such equipment. It is reissued to change title references to Plant Operating Engineer and Teletypewriter Shop.

1.02 The equipment so provided will be referred to in this section as "maintenance spare" equipment.

1.03 The plan provides for spare teletypewriter units at selected locations for temporary use in restoring service primarily at stations not protected with installed spare machines in the event of certain trouble conditions described in Part 2. In some instances circumstances may warrant use of the spare units at stations with installed spare equipment, but it is expected that such cases will be infrequent. The spare units associated with 81 type switching centers are not discussed in the plan as they are engineered as part of the installation and are considered as installed spares.

1.04 It is not economical to provide maintenance spare units as discussed in this section in sufficient quantity or to employ them in a manner such as to provide continuity of service at one set unprotected stations comparable to that obtained

through the use of installed spares furnished in accordance with established tariffs. In addition, it is neither intended nor implied that provision of maintenance spare apparatus shall reduce the need for adequately trained maintenance personnel. Rather, it is the aim to reduce, insofar as it is practicable and economical, the possibility of abnormally long and unreasonable interruptions caused by the procurement of parts or certain troubles which experience has shown cannot be prevented despite high grade maintenance.

1.05 The plan applies to customer owned unprotected stations for which the Long Lines has the maintenance responsibility under Plan 4, as well as to Long Lines unprotected stations.

2. USE OF EQUIPMENT

2.01 Maintenance spare units are provided for temporary use in connection with trouble clearing work under the following conditions:

- (a) When the trouble is of such a nature as to require the removal of the defective unit to a Telephone Company Central Office or a Teletypewriter Shop for repairs.

Typical examples of such instances are:

- (1) Parts replacements or repairs that require extensive dismantling, and testing or use of tools not available in the field, such as broken frame or type bar castings, and burned out motors.
- (2) Recurring troubles of an occasional nature that cannot be located without considerable examination, testing and observation. Such cases would include troubles evidenced by infrequent errors or function failures.
- (3) When a trouble cannot be located after a reasonable length of time or after failure of attempted corrective measures.

(b) When the unit is repaired on the customer's premises, but the trouble is such that it takes an abnormally long time to clear.

Typical examples of such instances are:

- (1) Required parts not on hand and a spare unit can be obtained and used to restore service sometime prior to the receipt of the replacing parts.
- (2) When a unit would normally be returned to the central office or shop as covered in (a) above, but due to the lack of such facilities within a reasonable distance, the repairs are made on the customer's premises.

2.02 When a maintenance spare unit is used to replace a unit in trouble, the regular unit shall be repaired and returned to its normal service location as promptly as is practicable in order that the maintenance spare unit will be available if needed at other stations.

2.03 Units held as maintenance spares should not be used to replace installed units in connection with planned reconditioning work. Equipment required for this purpose should be obtained from other available teletypewriter supplies.

*2.04 It is not intended that maintenance spare units be used to permit routine maintenance work to be performed without interruption to the service or to clear trouble on a unit replacement basis. Should it appear necessary to depart from this practice the matter should be referred to the Plant Operating Engineer via normal channels.

3. QUANTITY AND LOCATION

*3.01 Maintenance spares will normally be provided on the basis of protecting a number of stations in an area. The units may be held at Long Lines or Associated Company Central Offices in towns having maintenance centers or in Teletypewriter Shops. Units should not be stored at customer's stations and if other space is not available refer the case via normal channels to the Plant Operating Engineer.

3.02 The quantity of equipment and its location should be determined by an analysis of station locations, types and speeds of the service equipment, hours of service, availability of transportation and the maintenance conditions, including the capability of the maintenance personnel. The time required for a unit to reach the station in trouble from the storage point will vary, depending on the means of transportation. The storage locations should be selected so that, in general, this time does not exceed 8 hours.

3.03 Utility of the spare units can be increased, with a consequent reduction in the number required, by methods similar to the following:

1. Where type arrangements differ by several characters, it is practical to provide typing units with extra type bars having the desired pallets. The extra type bars should be aligned, and fitted to the spare units in advance.
2. Remote Motor Control units may be used for replacement of units not so equipped by the removal of the motor stop function lever. Likewise, units equipped with tabulators may be used as replacements for units not so equipped.
3. Where both 60 and 75 speed services are to be protected with the same unit, it should meet the requirements for 75 speed.
4. If any of the service machines are equipped with radio induction filters, the maintenance units should also be equipped with filters.

3.04 The diagram and equipment list attached to this section have been prepared to illustrate what are considered to be reasonable quantities and locations for maintenance spare units in a typical maintenance area. It is not practical to determine requirements on a percentage basis, because the number and types of machines, installed spares, characteristics of services, etc., all have to be taken into account as a guide, and good judgment used in working out the maintenance spare

requirements. The distances and quantities shown in the examples are, therefore, significant only when considered along with the other influencing factors.

3.05 A review of established spares should be made periodically and not less frequent than annually, to determine if the requirements for the various items still exist or if changes are indicated.

4. MAINTENANCE OF STOCKS

4.01 Maintenance spare units shall be maintained in good condition at all times by means of periodic inspections and tests. Since the units will receive little use the interval between tests and inspections shall be the maximum consistent with meeting the needs for adequate lubrication.

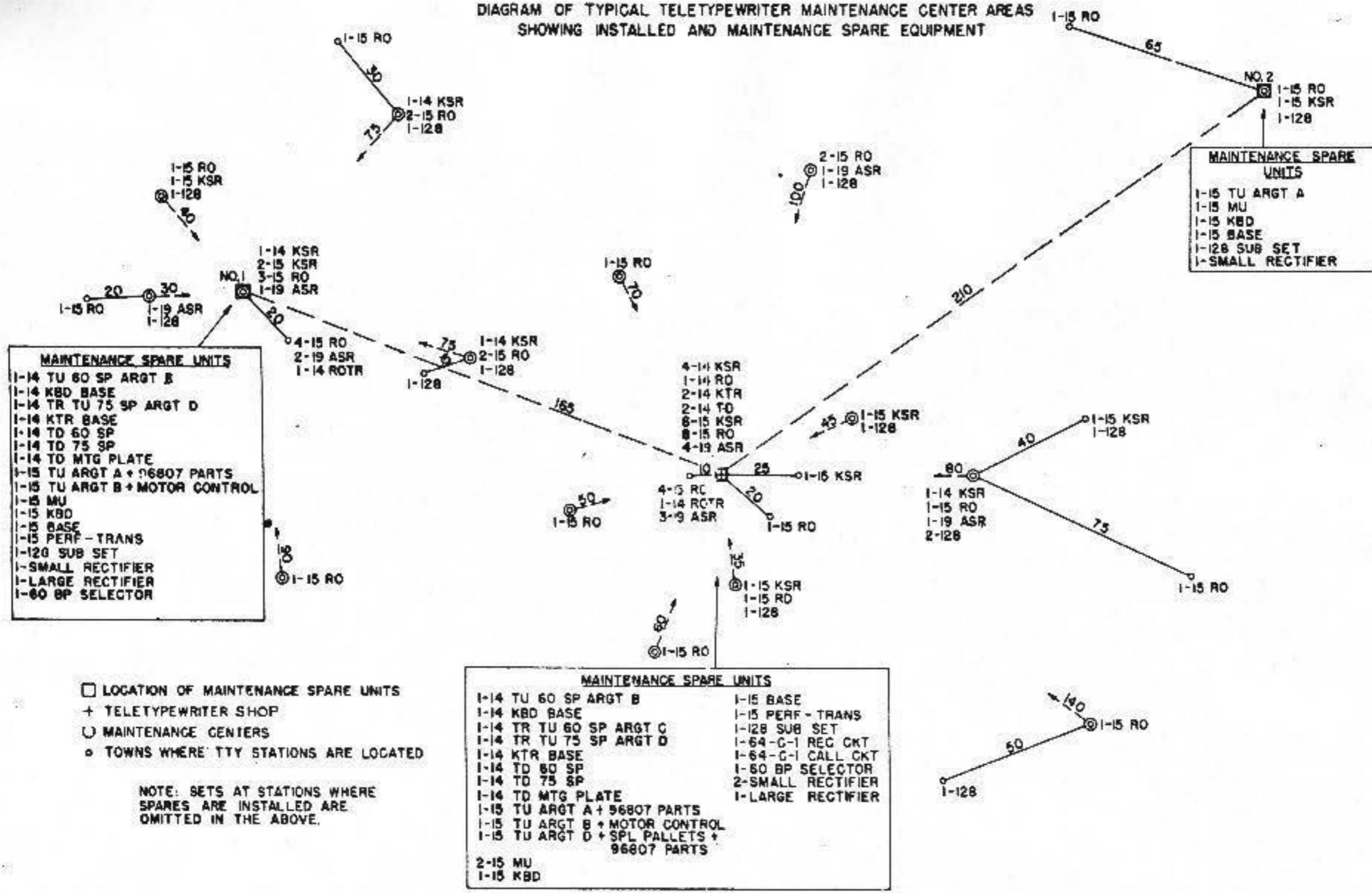
4.02 Provision should be made for testing the maintenance spare teletypewriter units. For example, tests of a typing unit will require a base, motor unit and, in some cases, a source of D. C. power.

4.03 Units shall be adequately protected in storage against dust or damage. They should preferably be kept in sealed containers, although enclosed lockers or cabinets are also satisfactory.

4.04 In no case should parts be removed from spare units for use in maintenance work.

4.05 Units held in maintenance spare stocks should not be used to start new services.

DIAGRAM OF TYPICAL TELETYPEWRITER MAINTENANCE CENTER AREAS
SHOWING INSTALLED AND MAINTENANCE SPARE EQUIPMENT



TYPICAL TELETYPEWRITER MAINTENANCE CENTER AREAS

Analysis of Installed and Maintenance Spare Equipment
Illustrated in Diagram

<u>Teletypewriter Apparatus</u>		T.U. Features (See Below)	<u>Area Served By TTY Servicing Shop Maintenance</u>			<u>Area Served By No. 1 Maintenance Center Maintenance</u>			<u>Area Served By No. 2 Maintenance Center Maintenance</u>		
<u>Type of Rate</u>	<u>Component Units</u>		<u>In Service</u>	<u>Spare Units</u>	<u>See Note</u>	<u>In Service</u>	<u>Spare Units</u>	<u>See Note</u>	<u>In Service</u>	<u>Spare Units</u>	<u>See Note</u>
14 KSR 60 Sp.			5			3					
14 RO "			1								
	14 T.U. 60 Sp.	3	6	1		3	1				
	14 Kbd Base		5	1		3	1				
	14 RO Base		1	0	1						
14 KTR 60 Sp.			1			1					
14 ROTR 75 Sp.			1								
	14 T.R. T.U. 60 Sp.	5	2	1		1					
	14 T.R. T.U. 75 Sp.	6	1	1		1	1				
	14 KTR Base		2	1		0	1	2			
	14 ROTR Base		1	0	1	1	0	1			
14 T-D 60 Sp.			2								
15 KSR 60 Sp.			10			3			1		
15 RO "			20			14			2		
15 RO 75 Sp.			2			1					
19 ASR 60 Sp.			2			1					
19 ASR 75 Sp.			4			3					
	14 T-D 60 Sp.		7	1		1	1				
	14 T-D 75 Sp.		4	1		3	1				
	14 T-D Mtg. Plate		11	1	2	4	1	2			
	15 T.U.	1	21	0		9	0		2		1
	15 "	2	4	1	3	2	1	3			
	15 "	3	4	0							
	15 "	4	2	1	3	3	1	3			
	15 "	5	2	0		1	0		1		0
	15 "	6	2	0		6	0				
	15 "	7	2	1	3	1	0				
	15 M.U.		41	2		22	1		3		1
	15 Kbd		10	1		3	1		1		1
	15 Base		41	1		22	1		3		1
	15 Perf. Trans.		9	1		4	1				
12 ⁰ Sub Set	Same		7	1		5	1		1		1
64-C-1 Rec. Ckt.	Rec. Ckt.		4	1		1	0				
60 BP Sel.	60 BP Sel.		4	1		1	1				
64-C-1 Call Ckt.	Same		1	1							
Small Rectifier			37	2		24	1		3		1
Large Rectifier			9	1		4	1				

Typing Unit Features

- 1 - Arrangement A
- 2 - " A with 96807 Parts
- 3 - " B
- 4 - " B with Motor Control
- 5 - " C

- 6 - Arrangement D
- 7 - " D with special pallets and 96807 Parts

Notes: -

1. Keyboard base may be used as maintenance spare.
2. Desirable for testing maintenance spare units.
3. Added protection is secured if all maintenance spare units are provided with extra fitted type bars of the arrangements used in the Area. Thus, in the above examples a unit with 96807 parts may be used to protect any of the units listed except those with motor control, and a unit with motor control may be used as protection for any other units except those with 96807 parts.
4. All stations have regulated AC supply.
5. All maintenance spare bases, keyboards and transmitter-distributors are equipped with filters.
6. All maintenance spare 15 type apparatus meets 75 speed requirements.