CABLE PRESSURIZATION RESPONSIBILITIES AND STANDARDS

CABLE PRESSURE SYSTEMS

1. GENERAL

1.01 This section covers the recommended cable pressurization responsibilities and standards.

1.02 This section is reissued to remove corporate policy information.

1.03 The material in this section is intended to provide a means of measuring the adequacy and effectiveness of present design standards and automatic monitoring status.

2. CABLE PRESSURIZATION RESPONSIBILITIES AND STANDARDS

A. Organizational Responsibilities

2.01 The following organizational responsibilities for cable pressurization indicate the level of commitment necessary for the successful implementation of cable pressurization as an upkeep system.

(a) The ***Outside Plant Engineering Force*** is responsible for the complete design of the cable pressure network and the automatic monitoring system. The engineering group is also responsible for issuing and maintaining the cable pressure records as required by Section 928-100-519, Preparation of Work Prints, and Section 928-100-130, Outside Plant Location Records. Engineering responsibility involves new construction as well as continuing support for existing pressure systems.

(b) The ***Construction Force*** is responsible for building the cable pressure network as designed by the engineering group. All pressure objectives should be exceeded or met prior to turning pressurized cables over to the maintenance forces. See Section 637-450-011 for construction and maintenance acceptance procedures.

(c) The ***Cable Maintenance Force*** is responsible for maintaining the cable pressure network to exceed or meet the minimum cable pressure objectives. To achieve these objectives, sufficient manpower and budget hours must be allocated for routine maintenance.

2.02 The responsibility for the successful implementation of cable pressurization is shared by the engineering, construction, and maintenance forces. Quality reviews should be conducted on a scheduled basis to ensure compliance by all responsible organizations for cable pressure standards, guidelines, and objectives.

B. Automatic Monitoring

2.03 Automatic monitoring of the pressure network is considered to be an essential part of an effective system. Automatic monitoring is essential in providing timely and sufficient information to the upkeep forces to maintain the pressure network at or above the minimum objective levels. See 637-600-000 Series of the Bell System Practices for the automatic monitoring system available.

2.04 Once automatic monitoring has been implemented, it is imperative that the upkeep forces react in a timely manner to the information provided. Company tracking of results and an aggressive operational review program must be implemented to measure the effectiveness of this effort.

C. Unicable Design Standards

2.05 The disadvantages of having interlaced pressure systems have become obvious with the implementation of air pipe systems. It is no longer necessary, from a protection standpoint, to build interlaced systems; plus, from a leak locating standpoint, it is a definite disadvantage.

2.06 All new pressure systems should be designed and constructed by unicable standards. Under these design guidelines, cable sheaths are pneumatically separated to build single sheath pressure systems.

2.07 Rearrangement work within existing pressure systems should also be designed by unicable standards. Rebuilding or rearranging of pressure systems should include plugging of the necessary stubs to eliminate cable interlacing and create a unicable system. This should be a specific part of any long range pressurization plan.

D. Air Pressurization Analysis Program (AIRPAP)

2.08 The AIRPAP is a computer program developed to assist the engineer in the design of cable pressure systems. This program provides a computerized method to study an exchange cable network to determine the optimum location of air sources and monitoring devices required to adequately pressurize the cable network.

2.09 The AIRPAP is to be utilized by the engineer in the design of new exchange cable pressure systems and in the redesign of existing systems.

2.10 The AIRPAP program will provide the following key design information:

(a) Required auxiliary air source locations

(b) Calculated installation costs and the miles of underground and aerial pipe required for the pipe network

(c) Calculated air usage for the cable network

(d) Location of potential low-pressure areas

(e) Calculated miles of underground and aerial pressurized cable

(f) Location of pressure plugs as indicated from the input data

(g) Proper locations for the installation of sensors that will ensure pressure monitoring coverage of cable extremities.

2.11 Design information is provided in the AIRPAP program that will allow the minimum pressure standards shown in Table A to be achieved if using an average air-loss rate consistent with plant environment.

TABLE A

STANDARDS FOR AIR PRESSURIZATION SYSTEMS

ENVIRONMENT	CABLE TYPE	MINIMUM PRESSURE (PSI)	MAX. AVG LEAK RATE LEVEL (SCFD/MI)	NOTIFICATION INTERVAL	
				TRANSDUCER (HRS)	CONTACTOR (HRS)
Underground	Exchange	5	20*	24	24
	Toll and Trunk	5	5	3	2
Buried	Exchange	3	5*	24	24
	Toll and Trunk	3	2	3	2
Aerial	Exhange	2	8*	24	24
	Toll and Trunk	2	5	3	2

* The leak rate is provided in AIRPAP, a computer program used to design an exchange pressure system. The output from AIRPAP should be used to determine the maximum allowable average leak rate.