

359P EQUALIZER

1. GENERAL

- 1.01 This appendix supplements Section 332-116-114.
- 1.02 It is issued to list additional uses for the 359P equalizer. The 359P was developed for mixed loaded-nonloaded loops in Unigauge plant. However, its design is suitable for several special-service uses in conventional plant.
- 1.03 The 359P has the same plug connections and isolating pad as the 359A equalizer.
- 1.04 The LF section of the 359P is a resistor-capacitor type like that of the 359A.
- 1.05 Maximum resistance is 3500 ohms, and maximum capacitance 0.8 μF . In addition to the LF loss curves in Section 332-116-114 (Fig. 6, 7, 8, and 9), the following curves from Section 332-116-101 are applicable to the 359P:

Fig. 4 — Curve B (0.25 μF , 2000 ohms)

Fig. 4 — Curve C (0.25 μF , 1000 ohms)

Fig. 5 — Curve A (1500 ohms, 0.25 μF)

- 1.06 The HF section, like that of the 359A, is a resonant "bump" equalizer. The values of resistance are in finer steps, but the maximum resistance is less. The equalizer action, therefore, tends to be stronger. The frequency at which the maximum boost occurs can be placed between 3470 and 9200 Hz by setting CHF between 0.35 and 0.05 μF . A CHF setting of zero may also be used.

2. APPLICATIONS

- 2.01 The 359P will equalize 4-wire private lines, either voice or data, which use mixed loaded-nonloaded cable. This is typically a section of loaded trunk cable plus a nonloaded loop to the customer's premises. The 359P compensates for the severe high-frequency rolloff of the cable. It will generally eliminate the need for a repeater at the office where the cable sections join, although repeaters equipped with 359Ps will be necessary at the ends of the cable.

- 2.02 The 359P may also be applied to unusually long nonloaded cable loops. These may be fine-gauge cable with large amounts of bridged tap or combinations of nonloaded trunk cable with local loops. Used in a V4 repeater at each end, the 359P provides more equalization than the 359B or 359M normally used in this application. Best equalization is available if an 849D network is used in the transmitting amplifier socket of each repeater.

- 2.03 Because the high-frequency boost of the 359P extends above 3000 Hz, it is useful for C4-conditioned data circuits on H88-loaded cable. It is of interest where the cable has a total end section (cable plus bridged tap) of 5000 feet or more, or where the cable is used in conjunction with carrier facilities having rolloff above 3000 Hz. It is usable under similar conditions for carrier telegraph line facilities and schedule C&D program services, whose response requirements extend as high as 3500 Hz.

- 2.04 The 359P also has application, with CHF settings of 0.15 μF or less, to 5-kHz program service. It will equalize sections of B22 loaded cable, or nonloaded cable, when used in conjunction with other V4 repeater units.

- 2.05 The 359P is not a general replacement for the 359A, whose adjustments are simpler. Where facilities and conditioning requirements permit, the 359A remains usable.

3. ADJUSTMENT NOTES

- 3.01 If a circuit is to be installed with H88 trunk cable tied to a nonloaded local channel, or with any H88 cable having a long end section, equalizer settings from Table A will suffice in most cases.
- 3.02 If the equalizer is being used on all-nonloaded cable, an R_{LF} setting of 3500 ohms and a C_{LF} of 0.05 μF will be the most useful, in conjunction with R_{HF} and CHF settings determined by trial.

3.03 General Lineup Procedure:

1. Preset screws as listed in Table B.
2. Measure circuit loss at 3000 Hz*.
3. Set R_{HF} so loss at 1000 Hz equals loss at 3000* Hz.
4. Repeat Steps 2 and 3.
5. Check loss at points between 1000 and 3000* Hz. If the loss in the 1500-2500 Hz range is too high, change to a smaller C_{HF} and repeat Steps 2 through 5.
6. Check loss below 1000 Hz. If more loss is needed, set the LF section to flatten the response.
7. Measure overall response after equalization.

Note:

* 3200 Hz for C4.

TABLE A

END SEC # KILOFEET	C_{HF} μF	R_{HF} OHMS	C_{LF} μF	R_{LF} OHMS
3	0.0	140	ANY	0
6	.05	140	ANY	0
12	.15	35	0.75	3500
18	.20	15	.6	1000
21	.20	10	.45	3000
24	.25	15	.35	3000

Total of all cable beyond the last load point, including office cable, local channel, and bridged tap.

TABLE B

C_{HF}	—	CLOSE 0,2 ONLY
R_{HF}	—	ALL OPEN
HF IN	—	CLOSED
R_{LF}	—	ALL CLOSED
C_{LF}	—	ANY POSITION