APPLICATION NOTE No. 66
September 29, 1936
Reprinted June, 1937

APPLICATION NOTE
ON
EQUAL PLATE AND SCREEN VOLTAGE OPERATION OF THE 6L6

Equal plate- and screen-voltage operation of a power output tet-
rode or pentode is desirable because (1) the plate current of the output
tube can be used to obtain proper excitation of the field coil of a loud-
speaker and (2) inverse-feedback circuits can be employed to reduce dis-
tortion and the effects of variable speaker impedance. Inverse-feedback
circuits reduce the plate impedance of a tube; therefore, adequate filter-
ing is required in both plate- and screen-supply leads. To reduce the fil-
tering required, it is economical to obtain the plate and the screen vol-
tage from the same point on the power-supply unit.

The attached curves show the operating conditions at the grid-cur-
rent point for Class A1 operation of the type 6L6 tube when $E_p = E_{c2}$; one
set of curves is for single-tube operation and the other, for push-pull
operation. These curves were calculated from ideal vacuum-tube equations
and are useful for determining approximate operating conditions throughout
a practical range of B-supply voltages. However, the effects of plate,
screen, and grid-bias regulation introduce some uncertainty into the re-
sults as determined from the curves. Final adjustment of operating condi-
tions should, therefore, be made on the basis of measured data.

The plate and screen dissipation of the 6L6 should not exceed 24
watts; that of the screen, itself, should not exceed 3.5 watts. Screen
dissipation increases with power output because of rectification in the
screen circuit; plate dissipation decreases with increasing power output.
Hence, the maximum screen dissipation value should not be exceeded with
full signal applied and the maximum plate and screen dissipation value
should not be exceeded when no signal is applied.