

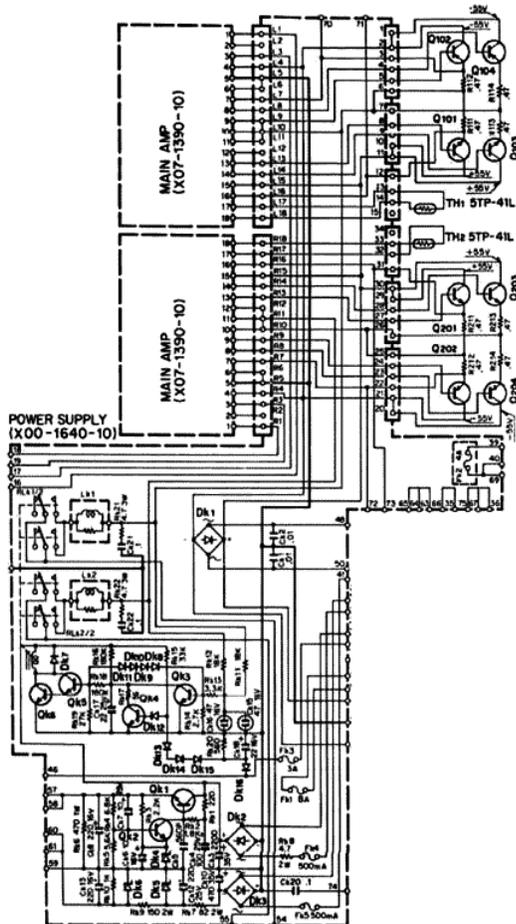
# CIRCUIT DESCRIPTIONS

## FM DOLBY N.R. SWITCH

Connect the Dolby adapter to Dolby-in and -output jacks on the rear panel of KR-9400. For the reception of the Dolby-encoded FM broadcasts, push the FM Dolby N.R. switch to ON. This switch changes FM de-emphasis circuit for FM Dolby broadcasts, and the signal will be reproduced in Dolby mode. For the playback of the Dolby-encoded tape with a tape deck without Dolby circuit, push FM Dolby N.R. switch to OFF and the signal will be reproduced normally. It should be noted that if the short pin plugs in Dolby jacks leave it open, no output reproduces from speakers, and if the FM Dolby N.R. switch is pushed to ON with short pin plugs, the output signal is cut in low frequency and gains.

## MAIN AMPLIFIER

Using a low noise PNP transistor differential amplifier (Qe1, Qe2) in the first stage and emitter follower circuit (Qe3) in the second stage, the main amplifier assures an ideal low output impedance for class A driving stage. Complementary bias current is controlled by Qe5. The final stage following the complementary stage consisting of Qe10 and Qe11, is a parallel push-pull, pure complementary circuit to provide stabilized operation even with large output signals.



## PROTECTION CIRCUIT

### ASO Protection:

The ASO protection circuit composed of Qe6 through Qe9 controls input signal exceeding ASO of the final transistors, thus protecting the transistors against overload due to large inputs or shorting of speaker terminals.

### DC Protection:

The DC protection circuit composed of Qk3, Qk5, and Qk6 is installed in the power supply (X00-1640-10). It is used to prevent DC drift at the speaker terminals on the main amplifier.

When the center voltage drifts to "positive", the base potential of Qk3 is increased. This turns Qk3 to ON, thereby the base potential of Qk5 is decreased which also turns off Qk5, Qk6 and the relay.

Thus the speaker is protected against DC drift.

If the center voltage drifts to "negative", Qk5 is set to OFF directly through Dk8 ~ Dk11, which turns Qk6 and the relay to OFF.

### Muting circuit:

The muting circuit protects the speaker against shock noise from the power switch; the protection relay is activated 2 ~ 3 seconds after the power switch is turned to ON. When the power switch is turned to OFF, no shock noise occurs because Ck17 (22μ 15V) is discharged by Qk4. In normal operation, Qk5 is in ON state with the voltage shunted by Rk16, Rk18 and Rk19. However, at the time the power switch is turned to ON, the base potential of Qk5 is low until Ck17 is charged, and therefore Qk5 and the relay are set to OFF. When the power switch is turned to OFF, the protection relay is immediately deenergized by Qk4 while Ck17 is discharged.

During normal operation, the potential at the anode of Dk12 is -8.2V, summed the rectified voltage of -10V through Dk16 and the voltage drop of +1.8V through Dk13, Dk14, and Dk15, so Qk4 is cut off in reverse bias. When the power switch is turned to OFF, the rectified voltage at Dk16 increases from -10V to 0V. And then +1.8V due to the voltage drop through Dk13 ~ 15 is applied to the anode of Dk12, thus turning Qk4 to ON and thereby Ck17 is discharged which, in turn, set Qk5 and the relay to OFF.

