The unit uses a built-in battery of 8 “D” cells for a total supply voltage of 12Vdc. A centre-tap on the battery is only used in ADF mode to make the ADF motor bidirectional.

The unit has BFO and (AGC operated) squelch. Both the frequency scale and the compass card can be illuminated.

The sum of the signals from a ferrite rod loop antenna and a whip antenna gives a cardioid antenna diagram. Inverting the whip antenna signal inverts the cardioid. The automatic direction finder uses a 200Hz square-wave oscillator, which inverts the whip signal 200 times a second. The audio signal from the receiver is applied to a synchronous demodulator, which compares the signal strength is the time that the normal (red) cardioid diagram is used with the when the inverted (blue) diagram is used. If the red signal dominated, the loop antenna rotates clockwise. If the blue signal dominated, the antenna loop rotates counter clockwise until there is no difference anymore. This is a stable situation, and an arrow points to the signal source.

Now follow the circuit diagrams, except for the front end: RF amplifier, mixer and oscillator.
IF and Audio board Front end

ADF board

17 14 brown

white

Antennas

15 17

ADF board

Motorcurrent testpoints

Motorcurrent

TAIYO MUSEN TD-238F ADF
Part 1 : Wiring
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Chassis and case

+6V

-6V

Motorcurrent testpoints
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Part 3 : IF and Audio Board
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NOTE
board ground plane (      )
is connected to + 6V !