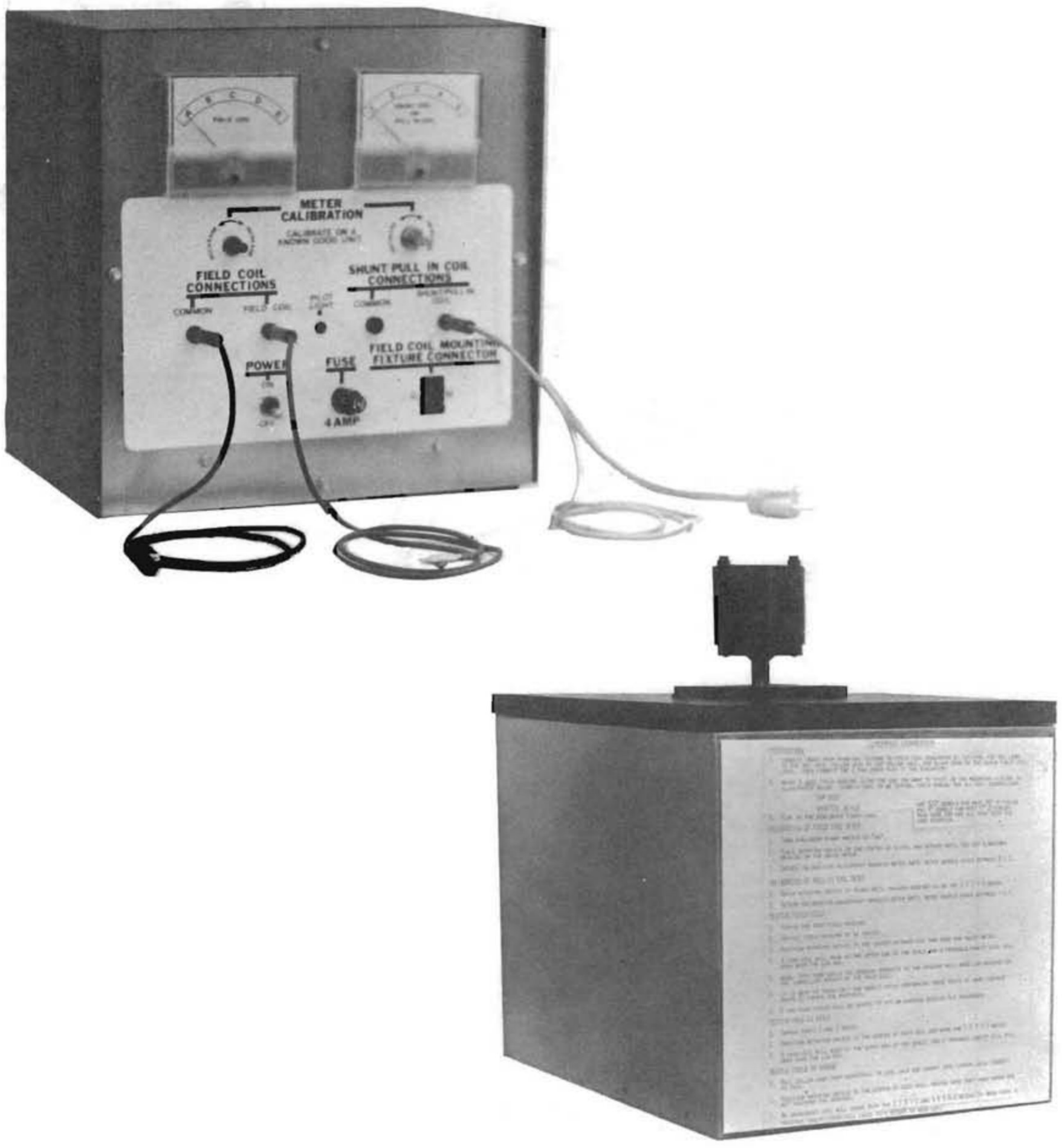
OPERATION MANUAL

OT-0409 new

FIELD COIL TESTER



SALES

INTERNATIONAL
PRODUCTS & MANUFACTURING, INC.
SUBSIDIARY OF WABASH INC.
200 EAST DANIELS ROAD PHONE (312) 359 - 4710
PALATINE, ILLINOIS. 60067

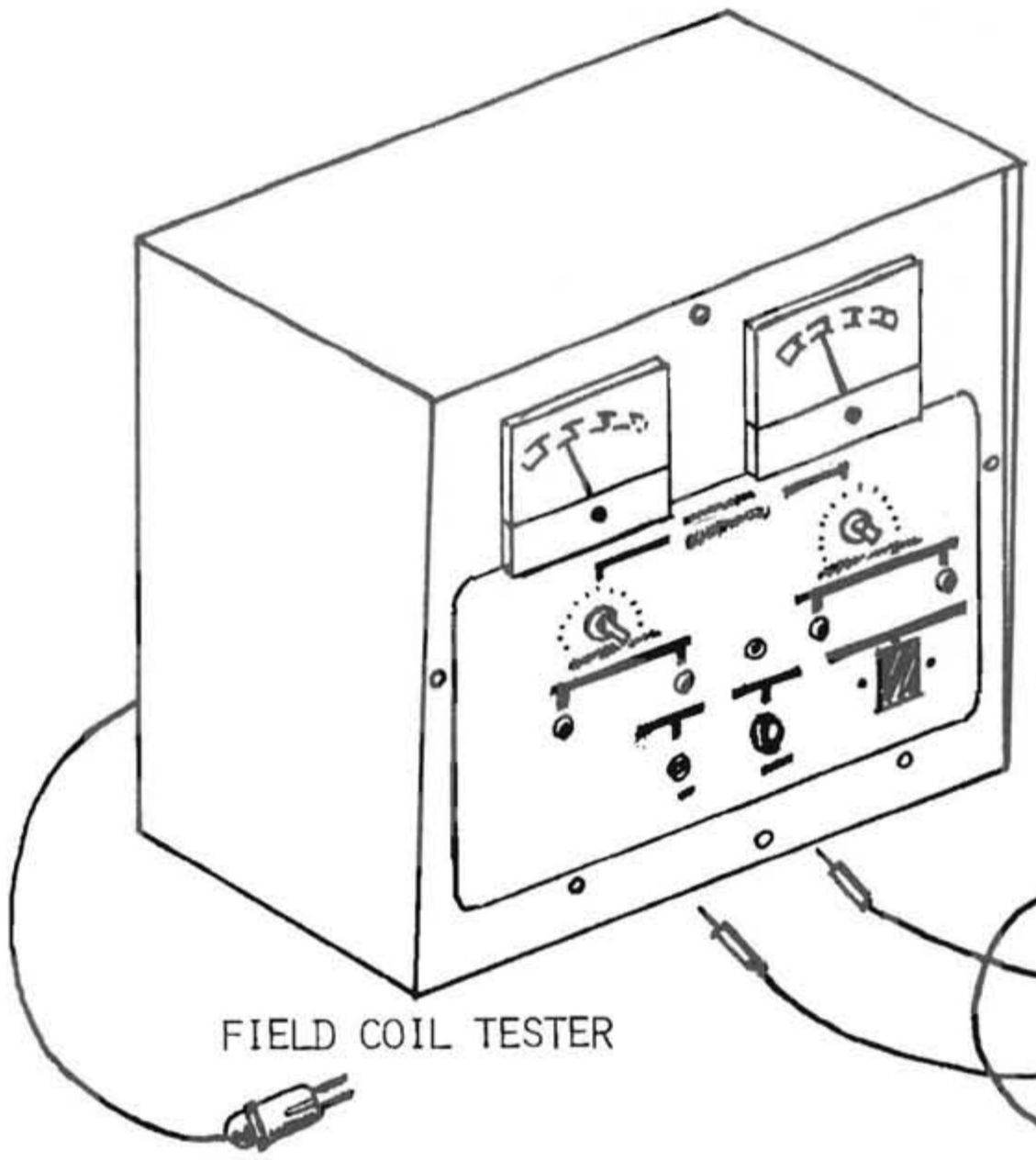
TECHNICAL ASSISTANCE & SERVICE

MANUFACTURED BY:
H. D. RESEARCH CORPORATION
141 West J-5
LANCASTER, Calif. 93534
PHONE (805) 942-5166
out side California
800-235-2153

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CHECK LIST

Please inspect the tester and accessories immediately after receiving them and report any damages incurred during shipment. Your shipment should contain the standard items shown here, plus optional pieces as ordered.



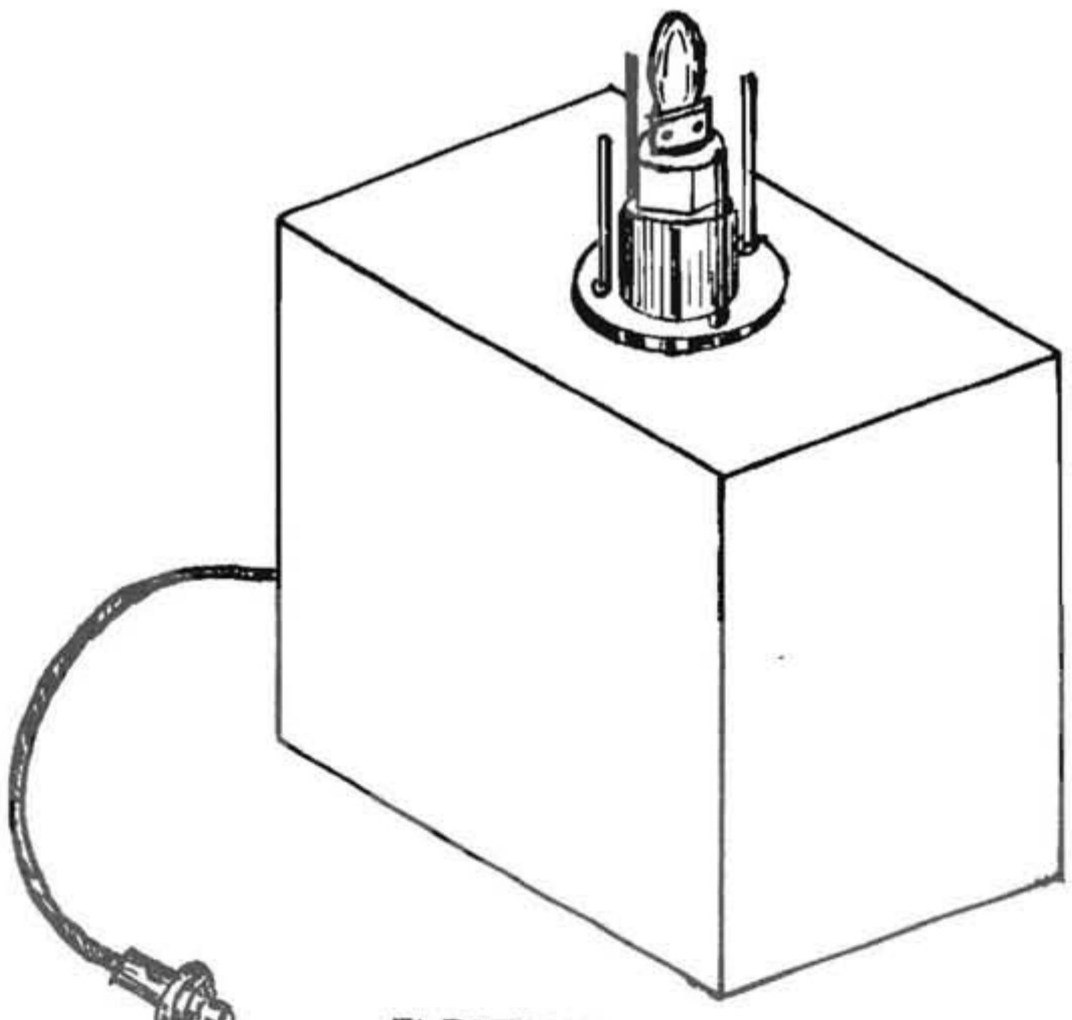
FIELD COIL TESTER



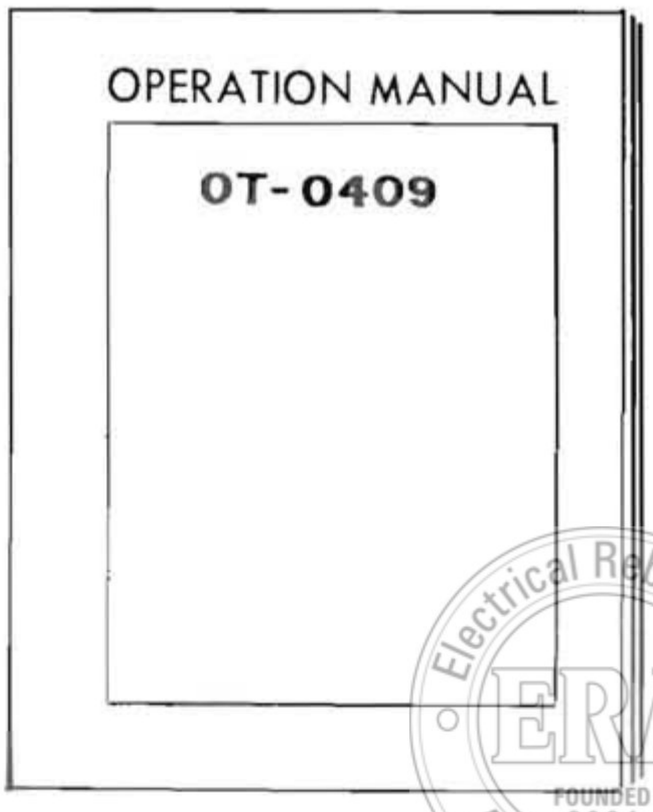
WARRANTY



EXTRA FUSES



ELECTRONIC ENCLOSURE



OPERATION MANUAL

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OPERATION INSTRUCTIONS

GENERAL DESCRIPTION

The OT-0100 Field Coil Tester was designed to find inner coil shorts, shunt shorts, pull in coil shorts and case grounds.

The tester operates by generating a signal in the rotating device and picking up the signal in the field coils and reading this signal on the meters. A good coil will record high and a coil which has a shorted winding will read low.

The rotating device will be moved as many times as there are field coils in a housing. A reading will be taken when the arrow on the rotating device is pointing at the center of a field coil.

The machine was given 2-inputs and 2-meters so that high and low outputs can be read simultaneous. For example: a shunt coild or hold in coil will read high and a regular coil of few heavy turns will read low. The machine works off 110 Volts AC.

HOOK-UP

For connection to AC power, only UL-approved sockets and receptacles should be used, and all relevant safety codes should be observed. Plug line cord into 110 Volts AC, then connect the 6 pin Jones plug from field coil mounting assembly as described in operation section.

Assembly of Rotating Device -

The shaft with the rotating device (which is made of wood) was removed for shipment and to reassemble, it will be necessary to insert the shaft into the support bearings.

Hold the shaft so that the wood is even with the top of the metal plate. This should put the oscillating coil about in the center of the field coil. Then tighten two set screws in each bearing. The device to limit rotation to 350^{o} is installed at the bottom of the shaft so that it will hit the small bolt coming out of the bottom of the bearing mount.

This rotation limiter must be installed so that the cord does not get caught up and break, and so the rotating device can scan all of the field coils.

OPERATION

The test leads are installed red to red, yellow to yellow, black to black. On the face of field coil evaluator hook the 6 pin Jones plug from mounting fixture to face of evaluator. There are 2-sets of dowels to support the field housings (¼ & 5/16). Four dowels of identical size must be used for each application to center the field housing and to prevent breaking the rotating device. Two of the dowels go inside the housing between 2-fields in the opening normally occupied by the assembly bolts, and 2-dowels go outside of the housing.

To set up the meters use one good field housing of the type you are going to be testing. The left meter has a 10turn pot to set the left meter and the right metet has a 1-turn pot.

Dowel installation: Most 4½" diameter fields will fit over the 5/16" dowels with 5/16" dowels outside. Most 4" diameter fields will fit over the ¼" dowels with ¼" dowels outside.

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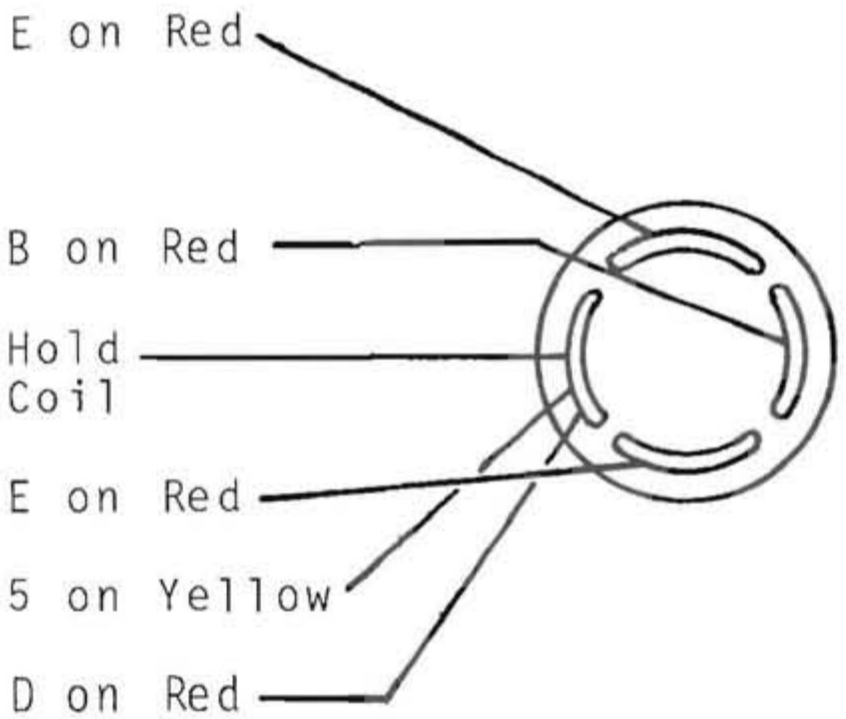
Sample Tests:

GM Starters - GM builds 3-types of fields, each at which will give different characteristics.

The high torque with both input leads together in the red lead clamp and the mid point connected to the black leads, each coil will read the same.

Chrysler - Has 3-heavy duty windings and 1-fine wire winding, and these will read similar to Ford fields such as the 3-heavy duty coils will read on the left meter and shunt field will read on the right meter. A straight series coil will be tested the same as a series Delco.

Ford - With their hold in winding and the opening within this pole shoe will have peculiar readings as follows:



The winding opposite the opening reads low because of the cancelling effect of the hold coil.

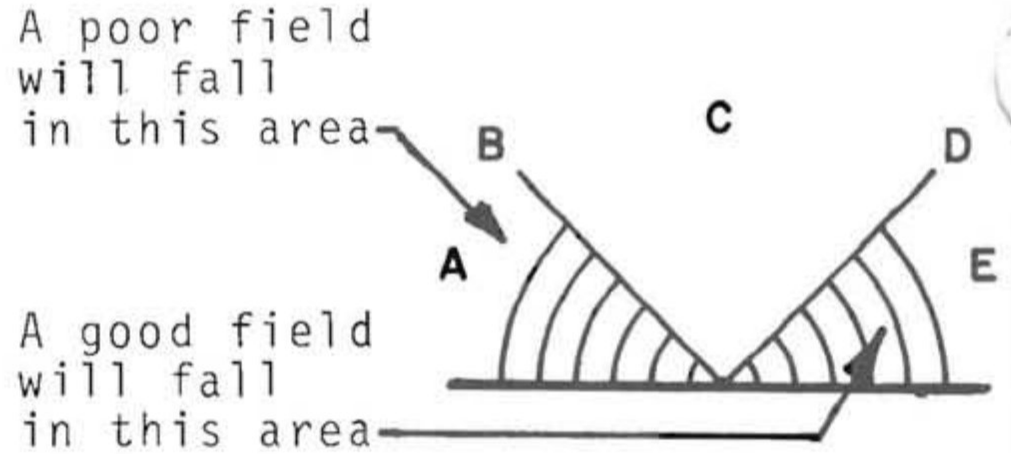
First Test - to test a field - Ford type - pull in type (65 on).

Attach red lead to input post, attach yellow lead to pull in coil lead which has been lifted from ground and one black lead to mid point of field winding (where brushes attach).

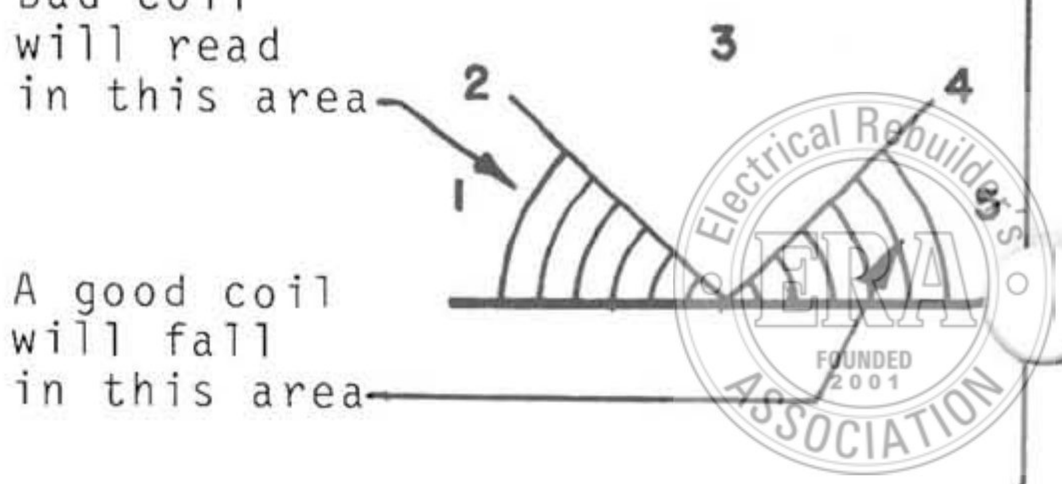
(It is best to touch only the handle while doing these tests as hand contact seems to change the readings.) The rotating device will be stopped with the arrow pointing at the center of each coil and a reading taken. The left meter will read the heavy coils and the right meter will read the hold in or shunt coil.

A few good fields will need to be read to get an average reading for reference.

For example: the left meter has a set pot under the meter. This pot will be used to set the meter to point D or E on a good field, then a bad field will read less than point B (near A) such as:



For pull in coil turn the right pot to set the right meter to read 4 or 5, on a good coil, then a bad pull in coil will read 1 and good ones will read 4 or 5.



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Field to ground - A field to ground test can be accomplished by moving the yellow lead from hold in coil lead to frame ground (must be performed with hands off of housing) an ungrounded field will deflect to the right and a grounded field will cause both meters to deflect to the left. Rotating device should be pointed toward coil during these tests.

CHECK OUT

Install a known good field coil on machine. Follow standard operational procedures in operation manual. If readings do not correspond to known value, check for proper connections on front panel or loose connections. If this does not solve problem refer to trouble shooting guide.

We have installed and tested the following field housings on the machine:

GM - Low torque 1 - long
Med torque 1 thick 1 thin tong
High torque 2 thick tongs

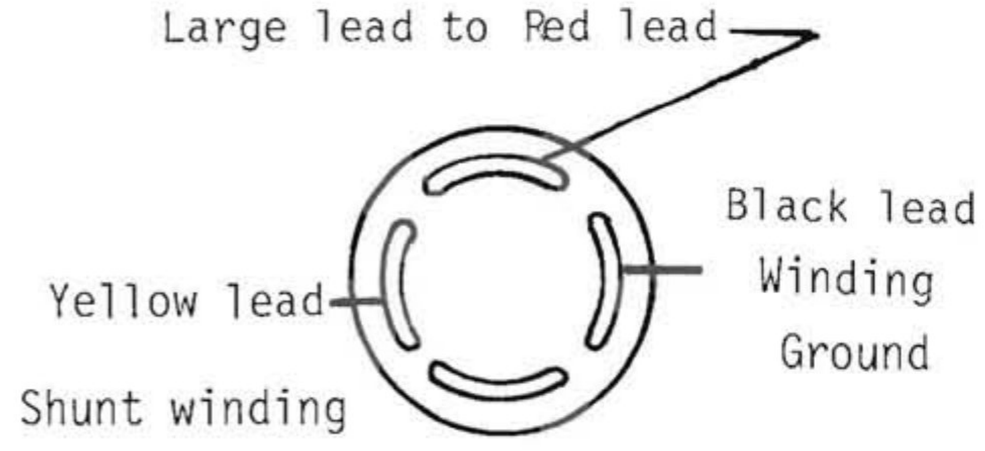
Ford - 4½" housing
4" housing

Chrysler - 4½" housing
3 field windings
1 shunt winding

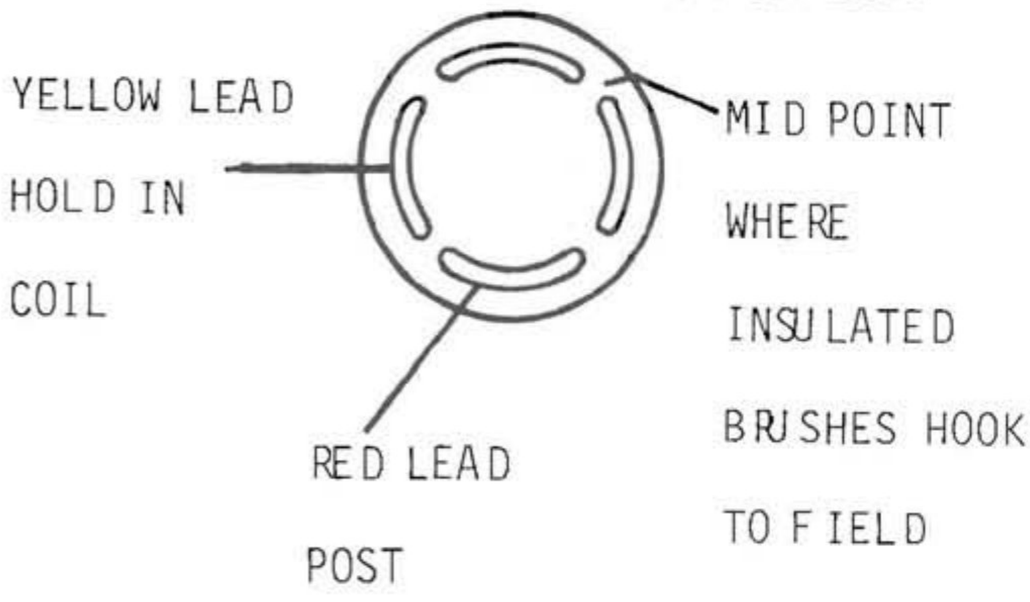
Ford - to test Ford hold in coil, ground end will have to be disconnected from case to attach the yellow lead.

SAMPLE HOOK-UP

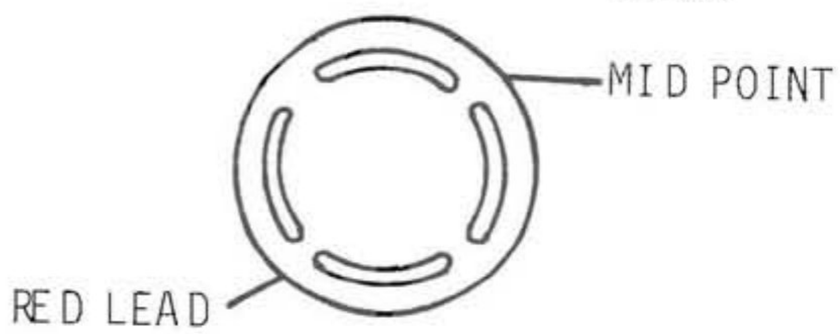
Chrysler



FORD



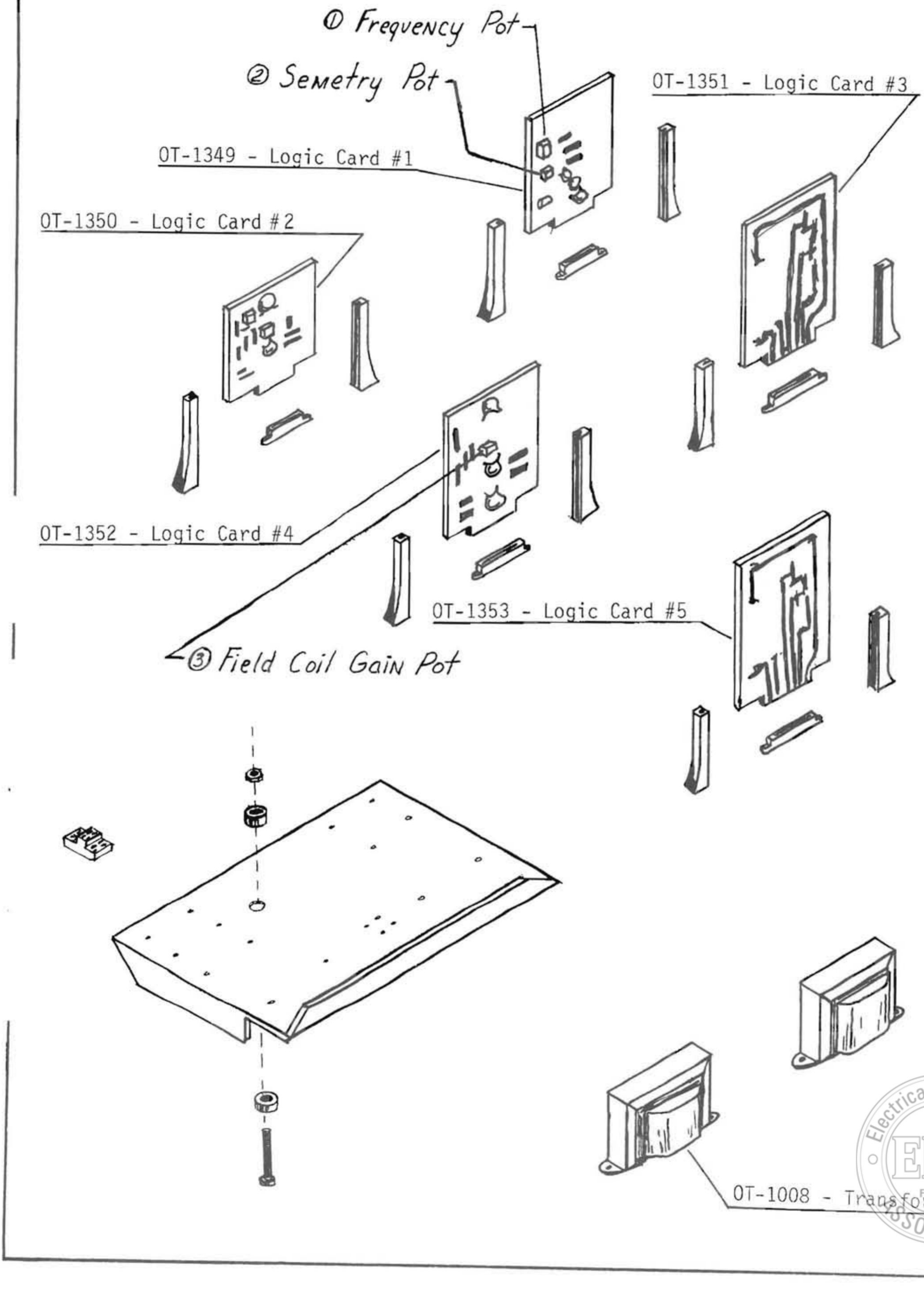
GM HIGH TORQUE



2 LARGE TONGS TOGETHER

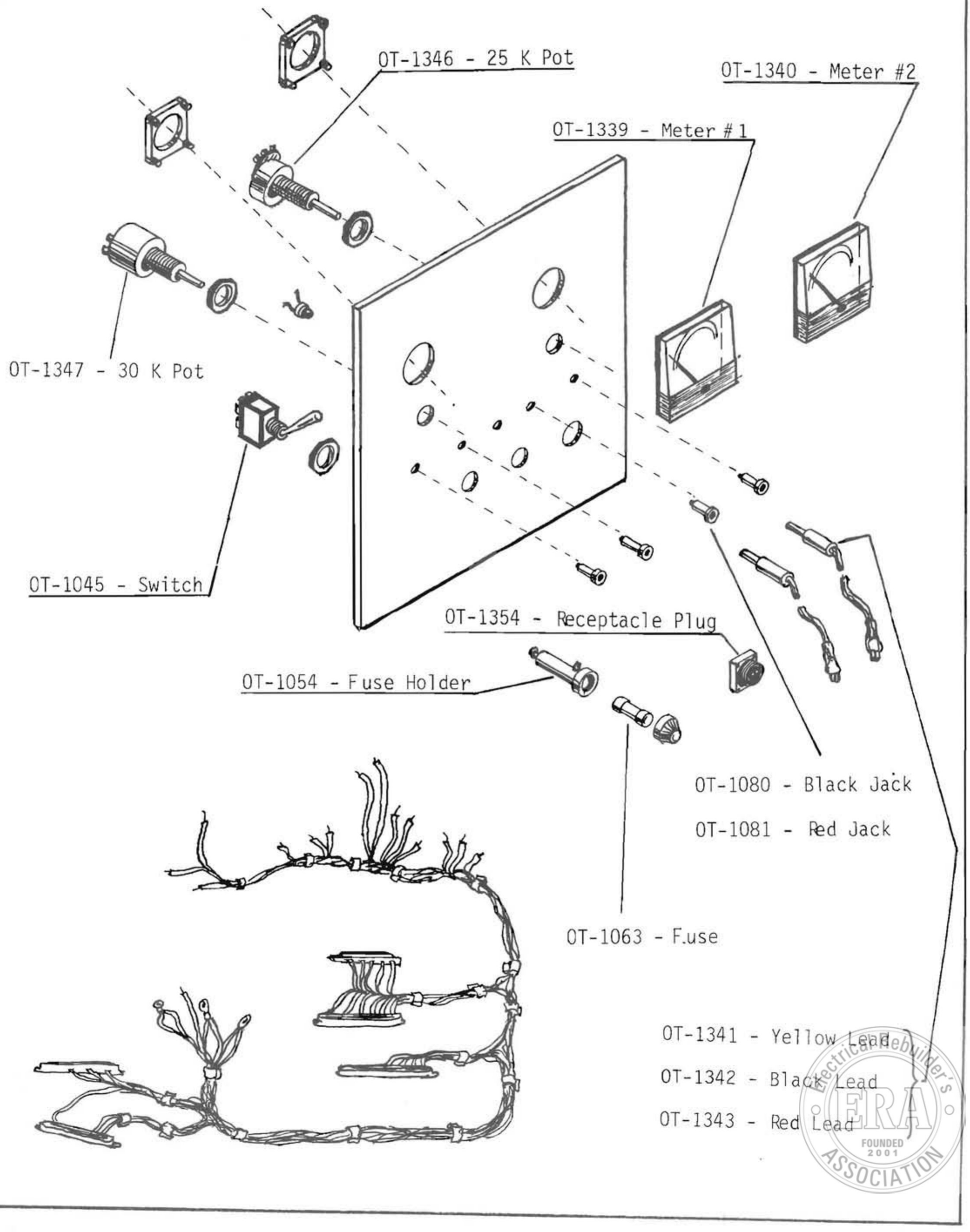
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EXPLODED VIEW



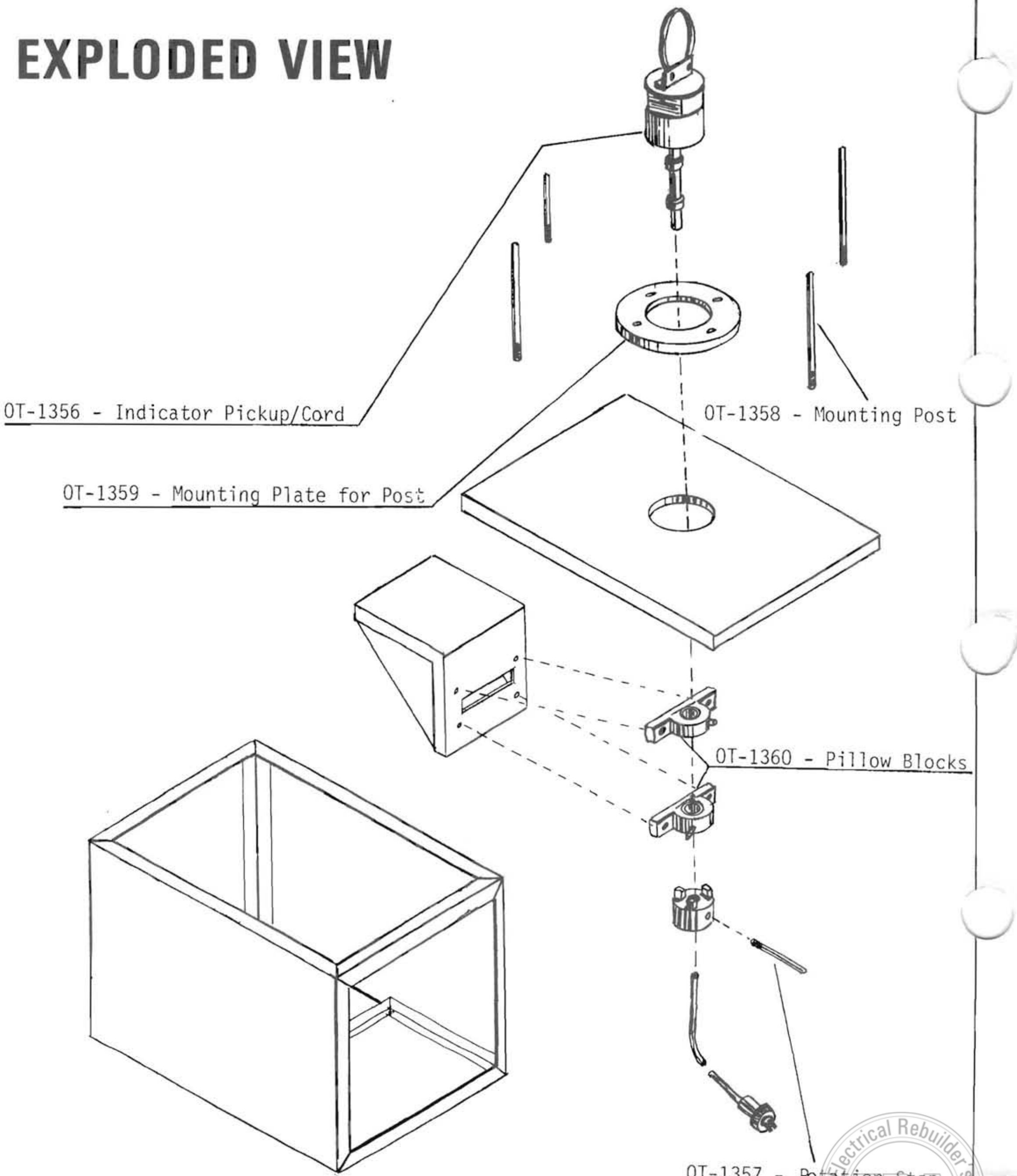
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EXPLODED VIEW



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EXPLODED VIEW



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TROUBLESHOOTING GUIDE

TROUBLE SHOOTING & ADJUSTMENT

TEST POINTS	TEST READING	IF READING NOT CORRECT THEN REPLACE
A shunt coil out of med. torque Delco starter against the flat side of rotating device, attach volt meter across shunt, observe reading	1 to 2 V AC	Fuse transformer Power supply Logic circuit Rotating device

If the above test checks OK
oscillator section works

If after the above test were performed and machine does not perform to standards the problem is in the power supply or 2-channel amplifier or driver amplifier card, due to the frequency and wave forms generated by these units they must be replaced in a complete set.

Other possible causes	Bad connection at PC connector
	Bad Transformer Bad meters Bad gain control pots

MAINTENANCE

There are two pillow blocks envolved in the rotating inductor assembly. They should be greased every 6-months, while this being done all bolts should be checked for tightness in the field coil mountingassembly.

Due to the complexity of the evaluator assembly, it is suggested that an authorized service person adjust and maintain this unit.

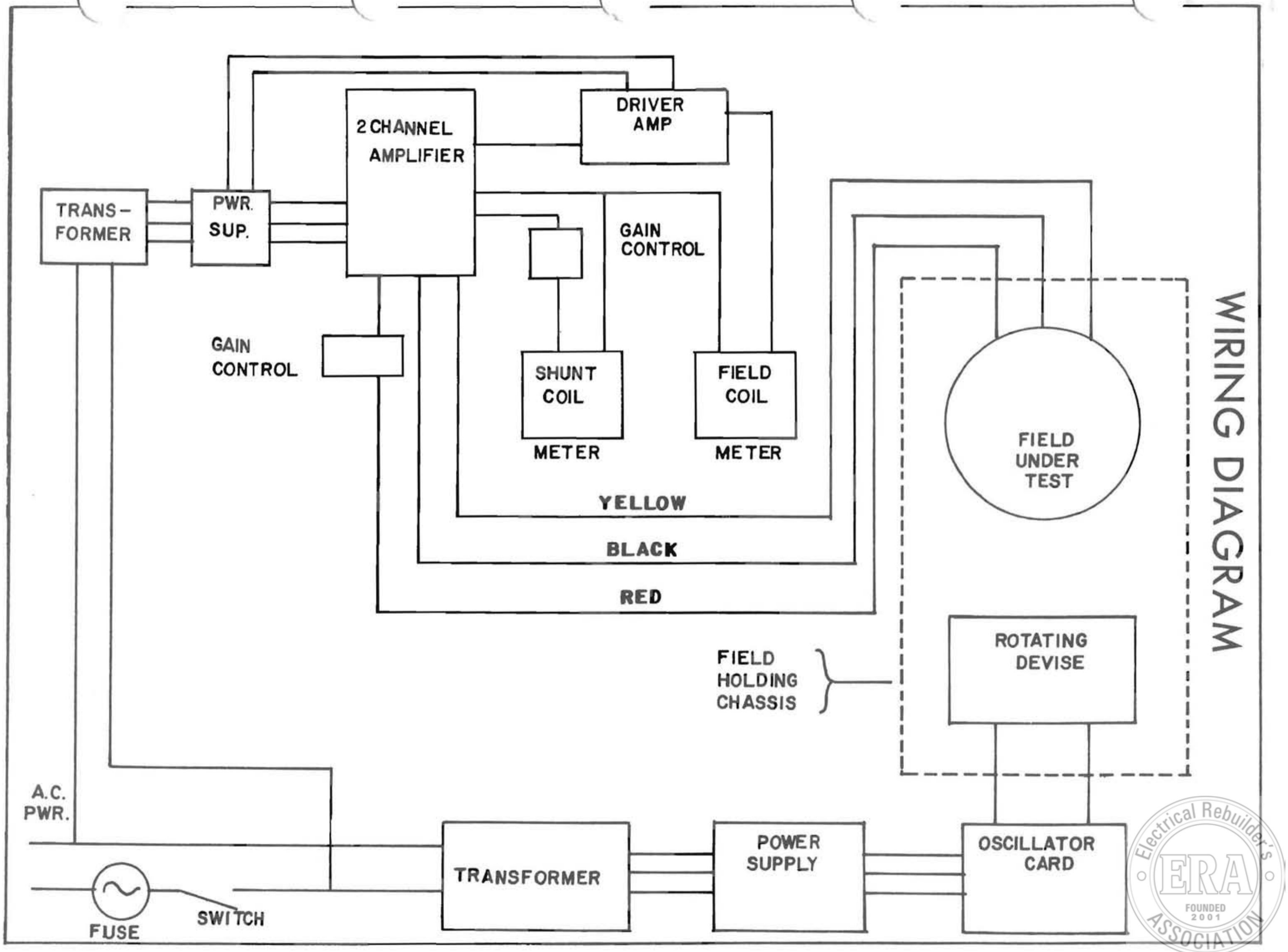
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PARTS LISTING

PARTS LIST	Quantity	DESCRIPTION
OT-1007	1	Power Cord
OT-1008	2	Transformer
OT-1045	1	Switch
OT-1054	1	Fuse Holder
OT-1063	1	Fuse
OT-1080	2	Black Jack
OT-1081	2	Red Jack
OT-1338	1	Evaluator Assembly
OT-1339	1	Meter #1
OT-1340	1	Meter #2
OT-1341	1	Yellow Lead
OT-1342	1	Black Lead
OT-1343	1	Red Lead
OT-1344	1	Diode
OT-1345	1	Resistor
OT-1346	1	25 K Pot
OT-1347	1	30 K Pot
OT-1348	1	Ground Post Assembly
OT-1349	1	Logic Card #1
OT-1350	1	Logic Card #2
OT-1351	1	Logic Card #3
OT-1352	1	Logic Card #4
OT-1353	1	Logic Card #5
OT-1354	1	Receptacle Plug
OT-1355	1	Field Mounting Fixture
OT-1356	1	Indicator Pickup/Cord
OT-1357	1	Rotation Stop
OT-1358	1	Mounting Post
OT-1359	1	Mounting Plate for Post
OT-1360	2	Pillow Blocks

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WIRING DIAGRAM



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