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International Harvester

**Operator's Manual
Electrall Attachment
400 & W-400
Series**

Operator's Manual

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IH-O-ELECTRALL

Operator's Manual

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INSTALLING INSTRUCTIONS
PARTS LIST

MANUAL PREVIEW

Electral Attachment

(362 825 R91)

for

MCCORMICK

Farmall 400 Series

and

INTERNATIONAL

JENSALES.COM

or Call **800-443-0625**

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180 North Michigan Ave.

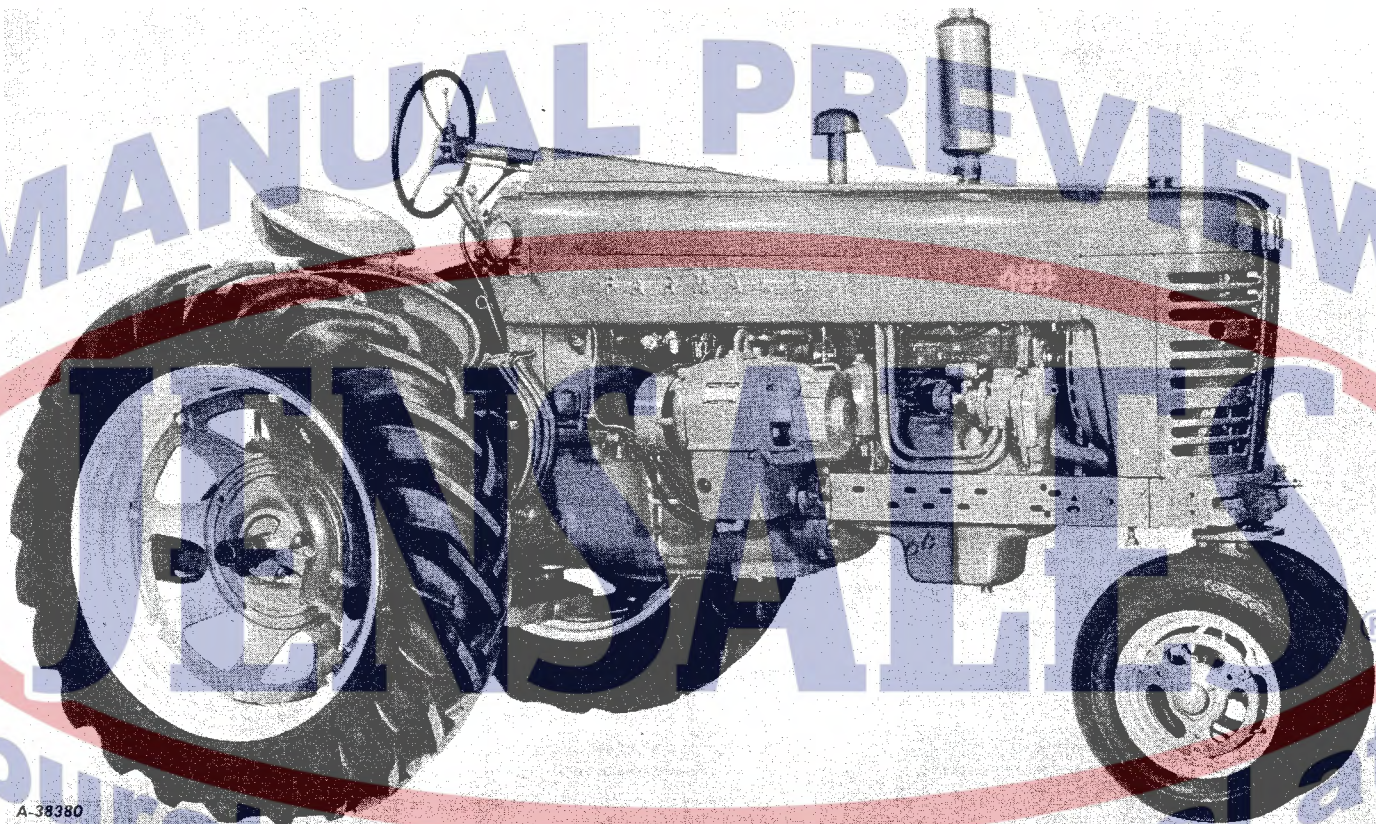
Chicago 1, Illinois, U.S.A.

Ser. No. SM-43

ORDERING NUMBER

362 825 R91 - For Farmall 400 and International W-400 Series Tractors with Torque Amplifier or IPTO Drive Attachment.

DESCRIPTION



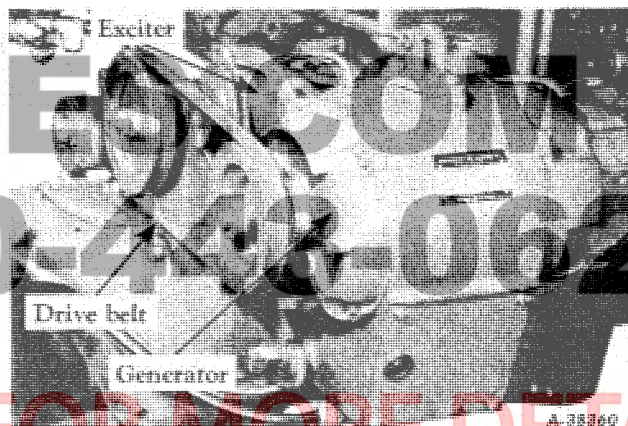
A-38380

Illustr. 1
Electrall Attachment mounted on a Farmall 400 Tractor.



A-38359

Illustr. 2
Electrall Attachment with belt guard assembled.



A-38360

Illustr. 3
Electrall Attachment with belt guard removed showing drive belt and pulleys.

Various points of the circuit are purposely connected to the metal part of the tractor to make a grounded system. If a bare conductor touches a grounded part a short-circuit-to-ground (or accidental ground or ground) is said to have occurred.

An understanding of electrical items will help in getting the greatest use and most successful operation from the electrical system.

Electrall System

All apparatus connected with the electric drive on International Harvester Tractors.

Electrall Generator

The name of the special tractor mounted generator in which the electricity is generated. See *Illust. 3*.

Electrall Motor

The name of the special farm machine motor manufactured for International Harvester by General Electric.

Exciter

The auxiliary DC generator that supplies power for the electromagnets of the generator field. See *Illust. 3*.

Control Panel

The panel or chassis which contains the sockets, control elements, overload relay and fuses. See *Illust. 14*.

Overload Relay

The device that automatically shuts down the generator in case of overload to prevent damage.

Overload Relay Reset Button

This button is pressed to reset the relay after the machine has been shut down. See "A" in *Illust. 2*. The machine can then be started up by the control switch.

Fuses and Fusetrans

These are provided to prevent damage to the machine in the event of a short circuit or severe overload.

INSTRUCTIONS FOR INSTALLING

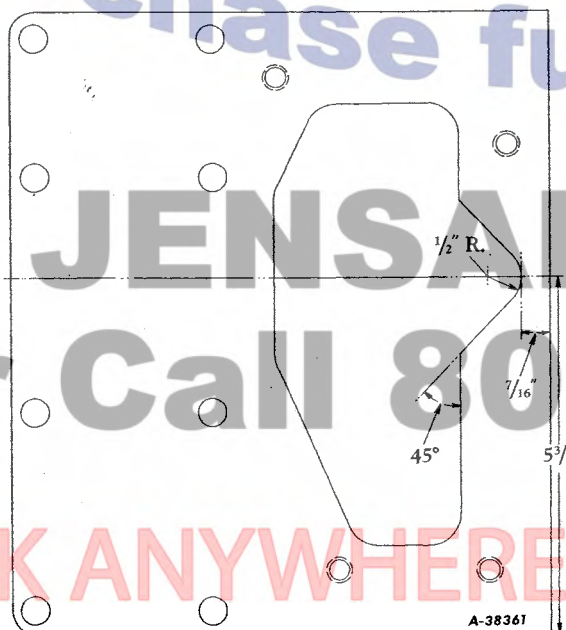
NOTE: The drive unit (*Illus. 7*) is permanently mounted on the tractor at the time of installation. The mounting bracket is mounted on the right side of the tractor by three bolts and can be left on the tractor except when certain implements are used.

1. Remove the tool box from the top of the clutch housing.

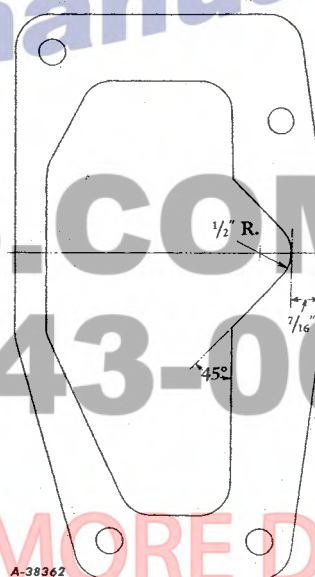
2. Remove the Belt Pulley Attachment, if so equipped.

3. Remove the clutch compartment top cover, cap and gaskets.

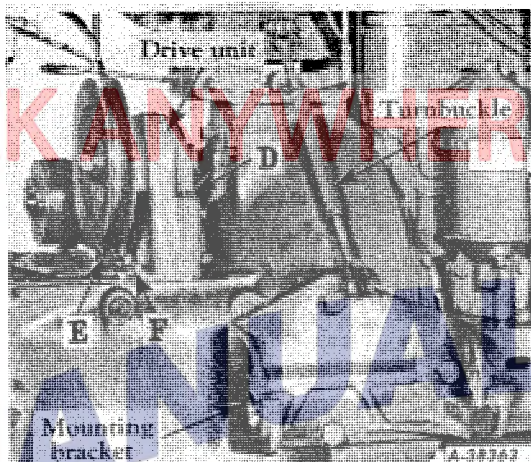
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Illust. 4
Reworking diagram for clutch housing top cover.



Illust. 5
Reworking diagram for clutch housing top cover cap gasket.



Illust. 7

Drive unit, turnbuckle, and generator mounting screw bracket assembled on tractor.

6. Install the drive unit on the clutch housing by lining up the two dowel pins at "A" (Illust. 6) with the corresponding drilled holes on the top of the clutch housing. Insert a 3/8 NC x 7/8-inch cap screw at "B", a 3/8 NC x 1-1/8-inch cap screw and lock washer at "C", and a 3/8 NC x 4-1/2-inch cap screw, plain washer and copper gasket at "D" (Illust. 7). (The plain washer must be next to the bolt head and on top of the copper gasket.) Insert a 3/8 NC x 1-3/8-inch cap screw with the larger clutch housing top cover hold down clip at "E", and insert a 3/8 NC x 1-1/8-inch cap screw with the smaller hold down clip at "F".

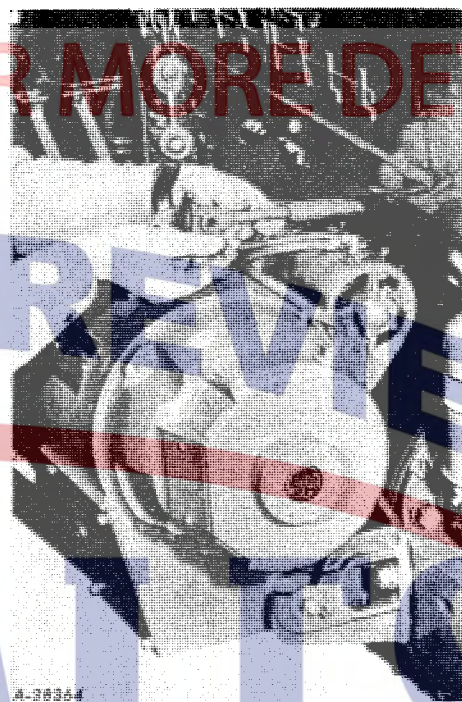
7. If the Belt Pulley Attachment was removed to install the Electrall drive unit, re-install the Belt Pulley Attachment, without the pulley.

8. Attach the turnbuckle assembly to the front fuel tank support. See Illust. 7.

9. Install the generator mounting bracket to the right side of the clutch housing with three 3/4 NC x 2-inch cap screws and lock washers. See Illust. 7.

10. Lift the Electrall generator and exciter assembly with a block and tackle or chain fall with a hook or clevis in the lifting lug. See Illust. 8. Loosen the trunnion nuts and lower the generator into the mounting bracket, with the exciter toward the tractor. While lowering, push the top of the generator toward the tractor so that the safety ledges clear. Keep tension on the lift to prevent accidental dropping of the unit.

11. Slip the drive belt over the drive pulley and the generator pulley. See Illust. 3.



Illust. 8

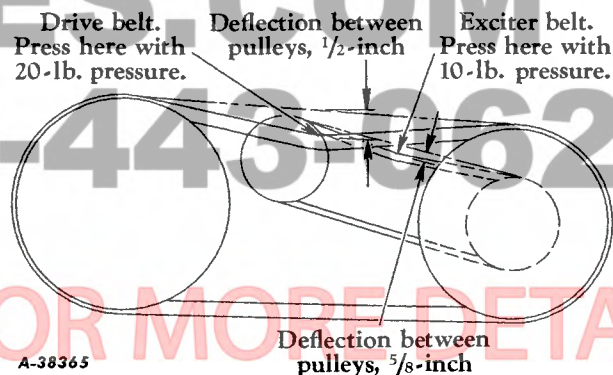
Attaching turnbuckle to lifting lug on generator.

12. Connect the belt tightening turnbuckle to the generator by inserting the pin through the turnbuckle and small hole in the lifting lug (Illust. 8) and secure with the cotter pin. Tighten the belt by adjusting the turnbuckle. Tighten the rear nut and then the forward nut to assure good belt line up. Now remove the lift.

Belt Tension Adjustment

The drive belt must be tightened so that it will not slip under peak load. This belt runs with more than normal belt tension. Check the belt tension by pressing at the center when not in

Continued on next page.



Illust. 9

Correct belt tension.

Connectors and Plugs - Continued

the cable clamp is AN-3057-16. Three phase and single phase power can be obtained from this socket as explained on page 2. This socket should be used for all jobs that take power while the tractor is moving, as this socket has a lock ring to prevent loosening under vibration.

STARTING AND OPERATING THE ELECTRALL

Start the tractor engine in the normal manner and after a suitable warm-up period, move the engine speed control lever to the fully advanced (high idle) position. See that everyone is clear of all moving parts of the tractor and driven machine.

For the first start up, momentarily pull out the control switch just long enough for the motor to begin to rotate; then push the switch in to the off position. See that the motor revolves in the right direction. If the direction of rotation is correct, pull the switch and start up. If the direction of rotation is incorrect, see the section on "Electric Motors".

Single motors on the trailing machine are started and stopped by the control switch on the tractor instrument panel. Other electrical apparatus can be started and stopped by the control switch or by their own individual switches. If this is done, the control switch should be left in the out (on) position, where it acts as a main switch.

Whenever electric power is not being used, be sure the control switch is pushed in (off position).

The Electrall generator is designed to operate at 3,600 r.p.m., which is obtained when the engine speed control lever is in the fully advanced position. The engine should be operated at this speed at all times when electrical power is being used.

OVERLOAD PROTECTION

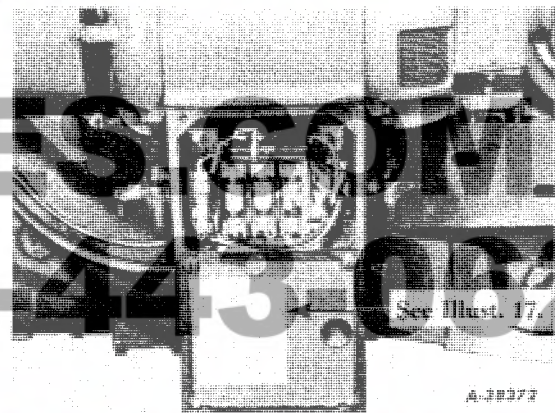
Overload protection in an electrical system serves the same purpose as a shear pin in a mechanical system. If the system is overloaded or a short circuit or ground occurs, one of the three protective devices will open the circuit so that the generator and other apparatus will not be damaged. These devices are supplied to protect the user's investment and prevent large repair bills. They should never be tampered with. If one is suspected of improper operation, see your International Harvester Dealer.

Overloads are apt to occur, particularly on trailing machine operation before experience has been gained in the operation of the

machine. Ordinary overloads (more than 30 amperes for sustained periods) will trip the overload relay. If this occurs when using the three phase or large single phase socket, push in the control switch to the off position and wait three to five minutes (longer on hot days) for the machine to cool down. Keep the engine running for fastest cooling. Correct whatever produced the overload. Push the reset button by pressing on the rubber diaphragm "A" (Illustr. 2) on the control box cover. Then try starting up in the usual manner. If the machine does not produce electricity, wait twice as long and try again. If this fails, replace the Fusetrons and check for the trouble as outlined below.

The small 115/120-volt 15-amp socket is protected by a fuse contained in the holder marked "Fuse" mounted on the bottom of the control panel (Illustr. 14). If this fuse should blow from an overload, it must be replaced with a new SFE-20 automotive fuse, which is available at International Harvester dealers. Keep a supply on hand. If a load blows this fuse repeatedly, first see that the current rating of the device (usually shown on the device nameplate) does not exceed 15 amperes. If it is between 15 and 30 amperes, procure a 30 ampere plug and use the 30 ampere single phase socket.

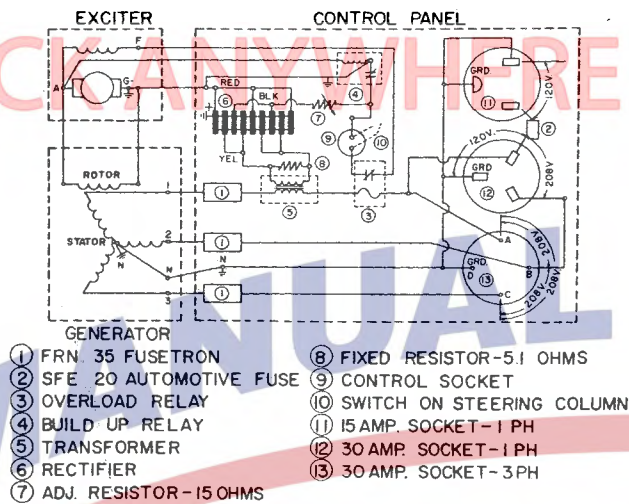
If a short circuit occurs, one or more of the three Buss fusetrons (FRN-35) (Illustr. 16) will probably blow. If this occurs, push in the control switch to the off position and stop the engine. Remove the control box cover and replace all three Fusetrons. Use Buss Fusetrons, size FRN-35 only as standard fuses will limit the output capacity of the generator. These Fusetrons are available at International Harvester dealers. Check later to see if only one or more are bad. Check all wiring carefully, to see if there are any shorts or grounds, particularly in the cable.



Illustr. 16
Control panel cover removed showing Fusetrons and Electrall wiring diagram.

ELECTRALL GENERATOR-MODEL-5ATB256E4

CONNECTION DIAGRAM



OPERATION: (1) READ INSTRUCTION BOOK. (2) RUN TRACTOR AT HIGH IDLE SPEED. (3) BE SURE DRIVE BELT IS TIGHT. (4) CONNECT LOAD. (5) CLOSE CONTROL SWITCH. (6) IF NO VOLTAGE AT 15 AMP SOCKET, FIRST TRY REPLACING SMALL SFE 20 FUSE ON BOTTOM OF CONTROL PANEL. IF THIS FAILS SEE #7. (7) IF NO VOLTAGE AT ANY SOCKET, WAIT SEVERAL MINUTES AND TRY PUSHING RESET BUTTON THROUGH RUBBER COVER. REDUCE LOAD TO PREVENT FURTHER TRIP-OUTS. IF THIS FAILS SEE #8. (8) CHECK WIRING FOR SHORTS OR GROUNDS. REPLACE FUSETRONS. USE ONLY BUSS FRN 35. STANDARD FUSES WILL LIMIT OUTPUT.

GENERAL ELECTRIC

A-38373

Illust. 17
Wiring diagram and instructions on
inside of control panel cover.

LIMITED OUTPUT

If the generator seems to have limited output under heavy loads, but otherwise works satisfactorily, check the drive belt for proper tension. See Illust. 9. Also under these heavy load conditions check the generator speed which should be approximately 3,600 r. p. m., also the engine speed which should be approximately 1,450 r. p. m.

FAILURE TO OPERATE SATISFACTORILY

If the drive apparatus fails to operate, check the tightness of the cable plugs in the sockets, check the cable insulation, and the individual switch, etc. If this fails to correct the trouble, consult your International Harvester dealer.

SPARE PARTS AND SERVICE

See the International Harvester dealer for all spare parts and service. He has special instructions and tools, and also has spare parts on hand or can procure them quickly.

OPERATOR MAINTENANCE

Cables

At frequent intervals inspect all cables for insulation wear, particularly where the cable is attached to the plug. Keep the cables in good condition at all times, and replace them with new ones if necessary.

Plugs and Sockets

Be sure that all plugs are in good condition and fit tightly in the sockets. If the prongs are bent or burned, replace the plug. This will help prevent damage to the sockets. If the sockets become loose or burned and do not make good contact, have them replaced by your International Harvester dealer.

Belts

Keep the proper tension on the drive belt and the exciter belt. See Illust. 9. If they become worn or frayed, replace them with new ones.

IMPORTANT! The generator drive belt is a V-type belt, especially designed to drive the Electrall unit. When a replacement is necessary, see your International Harvester dealer.

Cleanliness

Keep the Electrall generator and exciter clean at all times. Store in a clean, dry place. If dirt, chaff, straw, etc. accumulate inside the generator or exciter, consult your dealer to see if it needs disassembly and cleaning.

Lubrication

Once a month or after every 250 hours of operation, put a few drops of SAE-20 oil in the oil cups at each end of the exciter. Wipe off any oil that may spill on the outside and be careful not to get any oil inside of the exciter.

GENERATOR

Power Supply

The generator has a three-phase four-wire grounded neutral, 60-cycle AC (alternating current) stator winding and delivers three-phase power from the "A", "B", and "C" terminals of the three-phase socket at a nominal 208 volts. 208-volt single-phase power can be drawn from terminals "A" and "B", and 120 volts from terminals "A" and "D". The single-phase sockets are connected in like manner.

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