150-190, T90
2310, 2510 & 2712
Compact Tractors

Service Manual

9-77981

Reprinted

CASE

THIS SAFETY ALERT SYMBOL INDICATES IMPORTANT SAFETY MESSAGES IN THIS MANUAL. WHEN YOU SEE THIS SYMBOL, CAREFULLY READ THE MESSAGE THAT FOLLOWS AND BE ALERT TO THE POSSIBILITY OF PERSONAL INJURY OR DEATH.

M171B

If Safety Decals on this machine use the words **Danger, Warning or Caution,** which are defined as follows:

- **DANGER:** Indicates an immediate hazardous situation which if not avoided, will result in death or serious injury. The color associated with Danger is RED.
- **WARNING:** Indicates an potentially hazardous situation which if not avoided, will result in serious injury. The color associated with Warning is ORANGE.
- **CAUTION:** Indicates an potentially hazardous situation which if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices. The color associated with Caution is YELLOW.

If Safety Decals on this machine are ISO two panel Pictorial, decals are defined as follows:

- The first panel indicates the nature of the hazard.
- The second panel indicates the appropriate avoidance of the hazard.
- Background color is YELLOW.
- Prohibition symbols such as  and 

if used, are RED.

WARNING

IMPROPER OPERATION OF THIS MACHINE CAN CAUSE INJURY OR DEATH. BEFORE USING THIS MACHINE, MAKE CERTAIN THAT EVERY OPERATOR:

- Is instructed in safe and proper use of the machine.
- Reads and understands the Manual(s) pertaining to the machine.
- Reads and understands ALL Safety Decals on the machine.
- Clears the area of other persons.
- Learns and practices safe use of machine controls in a safe, clear area before operating this machine on a job site.

It is your responsibility to observe pertinent laws and regulations and follow Case Corporation instructions on machine operation and maintenance.

Bur 0-00000
issued November, 1994

case

Service Manual
150-190 & T90 Compact Tractors
2310, 2510 & 2712
Compact Tractors

Rac 9-77981

J I Case
A Tenneco Company

CASE 150, 190 AND T90 COMPACT TRACTOR

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Series

General

SECTION

C

SPECIFICATIONS FOR

K 241 AND K 301

ENGINES

Rac. Form 9-77761

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K241 engine

K241 ENGINE SPECIFICATIONS

Type ---------- Kohler, 1 Cylinder, 4 Stroke Cycle Air Cooled, "L" Head Engine

Bore ---------- 3.250 Inches

Stroke ---------- 2.880 Inches

Piston Displacement ---------- 23.9 Cubic Inches

Compression Ratio ---------- 6 to 1

Max. Comp. at Cranking Speed (Engine at Operating Temperature)---------- 110 to 120 PSI at Sea Level

Crankcase Vacuum(Engine Running)--- 5 to 10 Inches Vacuum at Sea Level

Ignition ---------- 12 Volt Coil, Breaker Point

CYLINDER BORE

Diameter of Cylinder Bore Std. A, B ---------- 3.2505-3.2545 Inches
.010 Oversize A, B + 10 ---------- 3.2605-3.2615 Inches
.020 Oversize A, B + 20 3.2705-3.2715 Inches
.030 Oversize A, B + 30 ---------- 3.2805-3.2815 Inches
Cylinder Bore Must Be Bored or Honed Oversize If Taper or Out of Round Exceeds ---------- .005 Inches

PISTON AND PISTON PIN

Diameter of Std. Piston at Bottom of Skirt ------- 3.2470-3.2480 Inches

Diameter of Std. Piston at Top of Skirt ---------- 3.2425-3.2535 Inches (Measured Just Below Oil Ring)

Diameter of Std. Piston at Top ---------- 3.218-3.220 Inches

Piston Pin ---------- Full Floating Type, Retained In Place With Two Retainer Rings.

Piston Pin Bore in Piston Std. ---------- .8595-.8596 Inches

Piston Pin Diameter Std. ---------- .8591-.8593 Inches
.005 Oversize ---------- .8641-.8643 Inches

Piston Pin Length ---------- 2.738-2.753 Inches

Piston Pin Fit in Piston (Select Fit) ---------- .0000-.0003 Inches

Piston Pin Fit in Connecting Rod ---------- .0003-.0008 Inches

PISTON RINGS

Rings Per Piston ---------- (2 Compression-1 Oil)
1st(Top)Compression-Chrome, Taper Face. Relief Indicates Top Side
Side Clearance ---------- .002-.004 Inches
Width ---------- .093-.094 Inches
2nd Compression-Chrome, Relief Indicates Bottom Side
Side Clearance ---------- .0015-.0035 Inches
Width ---------- .093-.094 Inches
3rd Oil Ring ---------- Cast W/Expander
Side Clearance ---------- .001-.003 Inches
Width ---------- .1860-.1870 Inches
Ring End Gap - When Installed in Bore ---------- .010-.020 Inches
Replacement Ring Width
1st. Comp. ---------- .0925-.0935 Inches
2nd. Comp. ---------- .0665-.0675 Inches
2nd. Comp. Rail ---------- .0235-.0245 Inches
3rd. Oil Rail ---------- .0235-.0245 Inches
3rd Oil Ring ---------- .134-.135 Inches

CONNECTING RODS

Connecting Rod Length from Center of Pin Hole To Center of Bearing Journal ---------- 5.560-5.562 Inches

Piston Pin Hole Diameter in Rod ---------- .8596-.8599 Inches

Inside Diameter of Rod Journal, Std. ---------- 1.5005-1.5010 Inches
Undersize ---------- 1.4905-1.4910 Inches

Connecting Rod to Crank Journal Clearance --------- .0005-.0015 Inches

Connecting Rod to Crank End Play Clearance --------- .007-.016 Inches

CRANKSHAFT AND BEARINGS

Type Main Bearings ---------- Ball Bearings

Crankshaft Rod Journal ---------- 1.4995-1.5000 Inches

Crankshaft Rod Journal Width ---------- 1.079-1.084 Inches

Crankshaft End Play ---------- .003-.020 Inches
Measured at Bearing Plate and Shim to Proper End Play

CAMSHAFT

Camshaft End Play ---------- .005-.010 Inches

Camshaft Pin Diameter ---------- .4980-.4985 Inches

Camshaft Inside Diameter ---------- .4995-.5015 Inches

Camshaft Pin to Camshaft Clearance ---------- .001-.0035 Inches

Camshaft Pin to Breaker Cam Clearance ---------- .001-.0025 Inches

VALVE LIFTERS

Valve Lifter Outside Diameter in Block ---------- .6232-.6237 Inches

Valve Lifter Bore in Block ---------- .6245-.6255 Inches

Valve Lifter to Block Clearance ---------- .0008-.0023 Inches

VALVES

Intake Valve Tappet Clearance (Cold) ---------- .008-.010 Inches

Exhaust Valve Tappet Clearance (Cold) ---------- .017-.020 Inches

Angle of Valve Face - Intake and Exhaust ---------- 44 Degrees

Valve Length - Intake and Exhaust ---------- 4.572-4.582 Inches

Max. Valve Face Runout - Intake ---------- .0015 Inches

Max. Valve Face Runout - Exhaust ---------- .003 Inches

Valve Head Diameter - Intake ---------- 1.370-1.380 Inches

Valve Head Diameter - Exhaust ---------- 1.120-1.130 Inches

Valve Stem Diameter - Intake ---------- .3105-.3110 Inches

Valve Stem Diameter - Exhaust ---------- .3090-.3095 Inches

Intake Valve Stem to Guide Clearance ---------- .001-.0025 Inches

Exhaust Valve Stem to Guide Clearance ---------- .0025-.004 Inches

VALVE SEATS

Seat Angle - Intake and Exhaust ---------- 45 Degrees

Max. Seat Runout - Intake and Exhaust ---------- .002 Inches

Seat Width - Intake ---------- .037-.045 Inches

Seat Width - Exhaust ---------- .031-.062 Inches

Exhaust Seat Insert ---------- Replaceable

Outside Diameter of Exhaust Insert ---------- 1.2535-1.2545 Inches

Exhaust Insert Height ---------- .219-.221 Inches

VALVE GUIDES

Valve Guide Length ---------- 2.125 Inches

Valve Guide Outside Diameter ---------- .6260-.6265 Inches

Valve Guide to Block (Press Fit) ---------- .0005-.002 Inches

Valve Guide Inside Diameter - Before Installing ----- .307-.308 Inches
Ream Valve Guides After Installing to ---------- .312-.313 Inches

VALVE SPRINGS

Spring Free Length ---------- 1.793 Inches

Spring Pressure When Comp. to 1.469 In. (Valve Closed)--27 to 31 Lbs.

Spring Pressure When Comp. to 1.165 In. (Valve Open) --- 54 to 62 lbs.

GOVERNOR

Governor Stub Shaft Outside Diameter ---------- .3735-.3740 Inches

Governor Gear Bore for Stub Shaft ---------- .3745-.3755 Inches

Stub Shaft to Governor Gear Clearance ---------- .0005-.002 Inches

Governor Spring Free Length With 2 Lbs. Pre-Load -------2.62 Inches

Governor Spring Extended to 2.88 Inches ---------- 5.5 to 6.5 Pounds

K301 ENGINE SPECIFICATIONS

Type ---------- Kohler, 1 Cylinder, 4 Stroke Cycle, Air Cooled, "L" Head Engine
Bore ---------- 3.380 Inches

Stroke ---------- 3.250 Inches

Piston Displacement ---------- 29.07 Cubic Inches

Compression Ratio ---------- 6 to 1

Max. Comp. at Cranking Speed
(Engine at Operating Temperature) --------- 110 to 120 PSI at Sea Level

Crankcase Vacuum(Engine Running)--- 5 to 10 Inches Vacuum at Sea Level

Ignition ---------- 12 Volt Coil, Breaker Points

CYLINDER BORE

Diameter of Cylinder Bore Std. A, B ---------- 3.3745-3.3785 Inches
.010 Oversize A, B + 10 ---------- 3.3845-3.3855 Inches
.020 Oversize A, B + 20 ---------- 3.3945-3.3955 Inches
.030 Oversize A, B + 30 ---------- 3.4045-3.4055 Inches
Cylinder Bore Must Be Bored or Honed Oversize If Taper or Out of Round Exceeds ---------- .005 Inches

PISTON AND PISTON PIN

Diameter of Std. Piston at Top ---------- 3.356-3.360 Inches

Diameter of Std. Piston at Top of Skirt
(Measured Just Below Oil Ring) ---------- 3.369-3.370 Inches

Diameter of Std. Piston at Bottom of Skirt --------- 3.371-3.372 Inches

Piston Pin ---------- Full Floating Type Retained In Place With Two Retainer Rings.

Piston Pin Bore In Piston, Std. ---------- .8752-.8754 Inches

Piston Pin Diameter Std. ---------- .8752-.8754 Inches
.005 Oversize ---------- .8802-.8804 Inches

Piston Pin Length ---------- 2.735-2.750 Inches

Piston Pin Fit In Piston ---------- One Thumb Push Fit

Piston Pin Fit In Connecting Rod ---------- .0003-.0008 Inches

PISTON RINGS

Rings Per Piston ---------- (2 Compression-1 Oil)
1st(Top)Compression-Chrome, Tapered Face. Relief Indicates Top Side.
Side Clearance ---------- .002-.004 Inches
Width ---------- .078 Inches
2nd - Compression -------- Chrome, Relief Indicates Bottom Side
Side Clearance ---------- .002-.004 Inches
Width ---------- .078 Inches
3rd - Oil Ring ---------- Cast W/Expander
Side Clearance ---------- .001-.003 Inches
Width ---------- .1870 Inches
Ring End Gap When Installed In Bore ---------- .010-.020 Inches

Replacement Ring Width
1st Comp. ---------- .077-.078 Inches
2nd Comp. ---------- .077-.078 Inches
3rd Oil Rail ---------- .0235-.0245 Inches
3rd Oil Ring ---------- .134-.135 Inches

CONNECTING RODS

Connecting Rod Length From Center of Pin Hole
To Center of Bearing Journal ---------- 5.295-5.297 Inches

Piston Pin Hole Diameter In Rod ---------- .8757-.8760 Inches

Inside Diameter of Rod Journal, Std. ---------- 1.5005-1.5010 Inches
Undersize ---------- 1.4905-1.4910 Inches

Connecting Rod To Crank Journal Clearance ---------- .0005-.0015

Connecting Rod To Crank End Play Clearance --------- .007-.016 Inches

CRANKSHAFT AND BEARINGS

Type Main Bearings ---------- Ball Bearings

Crankshaft Rod Journal ---------- 1.4995-1.5000 Inches

Crankshaft Rod Journal Width ---------- 1.079-1.084 Inches

Crankshaft End Play ---------- .003-.020 Inches
Measured at Bearing Plate and Shim to Proper End Play.

CAMSHAFT

Camshaft End Play ---------- .005-.010 Inches

Camshaft Pin Diameter ---------- .4980-.4985 Inches

Camshaft Inside Diameter ---------- .4995-.5015 Inches

Camshaft Pin to Camshaft Clearance ---------- .001-.0035 Inches

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Valve Lifter Bore In Block ---------- .6245-.6255 Inches

Valve Lifter To Block Clearance ---------- .008-.0023 Inches

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Intake Valve Tappet Clearance (Cold) ---------- .008-.010 Inches

Exhaust Valve Tappet Clearance (Cold) ---------- .017-.020 Inches

Angle of Valve Face - Intake and Exhaust ---------- 44 Degrees

Valve Length - Intake and Exhaust ---------- 4.572-4.582 Inches

Max. Valve Face Runout - Intake ---------- .0015 Inches

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Valve Head Diameter - Intake ---------- 1.370-1.380 Inches

Valve Head Diameter - Exhaust ---------- 1.120-1.130 Inches

Valve Stem Diameter - Intake ---------- .3105-.3110 Inches

Valve Stem Diameter - Exhaust ---------- .3090-.3095 Inches

Intake Valve Stem to Guide Clearance ---------- .001-.0025 Inches

Exhaust Valve Stem to Guide Clearance ---------- .0025-.004 Inches

VALVE SEATS

Seat Angle - Intake and Exhaust ---------- 45 Degrees

Max. Seat Runout Intake and Exhaust ---------- .002 Inches

Seat Width - Intake ---------- .037-.045 Inches

Seat Width - Exhaust ---------- .031-.062 Inches

Exhaust Seat Insert ---------- Replaceable

Outside Diameter of Exhaust Insert ---------- 1.2535-1.2545 Inches

Exhaust Insert Height ---------- .219-.221 Inches

VALVE GUIDES

Valve Guide Length ---------- 2.125 Inches

Valve Guide Outside Diameter ---------- .6260-.6265 Inches

Valve Guide to Block (Press Fit) ---------- .0005-.002 Inches

Valve Guide Inside Diameter - Before Installing ------ .307-.308 Inches
Ream Valve Guides After Installing to ---------- .312-.313 Inches

VALVE SPRINGS

Spring Free Length ---------- 1.793 Inches

Spring Pressure When Comp. to 1.469 In. (Valve Closed) -27 to 31 Lbs.

Spring Pressure When Comp. to 1.165 In. (Valve Open) ---54 to 62 Lbs.

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Governor Gear Bore for Stub Shaft ---------- .3745-.3755 Inches

Stub Shaft to Governor Gear Clearance ---------- .0005-.002 Inches
Governor Spring Free Length with 2 Lb. Pre-Load -------- 2.62 Inches
Governor Spring Extended to 2.88 Inches ---------- 5.5 to 6.5 Inches

GENERAL TORQUE SPECIFICATION TABLE (Revised 5-64)

USE THE FOLLOWING TORQUES WHEN SPECIAL TORQUES ARE NOT GIVEN

NOTE: These values apply to fasteners as received from supplier, dry, or when lubricated with normal engine oil. They do not apply if special graphited or moly-disulphide greases or other extreme pressure lubricants are used. This applies to both UNF and UNC threads.

SAE Grade No.	5		8 *	
Bolt head identification marks as per grade Note: Manufacturing Marks Will Vary				
	Torque Foot Pounds		Torque Foot Pounds	
Bolt Size	Min.	Max.	Min.	Max.
1/4"	9	11	12	15
5/16	15	18	24	28
3/8	35	40	45	50
7/16	54	60	70	80
1/2	80	90	110	125
9/16	110	120	160	180
5/8	150	165	220	240
3/4	260	280	380	420
7/8	360	400	600	660
1"	540	600	900	1000
1-1/8	720	800	1280	1440
1-1/4	1000	1100	1800	2000
1-3/8	1460	1680	2380	2720
1-1/2	1940	2200	3160	3560

* Thick nuts must be used with Grade 8 bolts

GENERAL ENGINE TORQUE SPECIFICATION TABLE

	Torque Inch Pounds		Torque Foot Pounds	
Thread Size	UNC	UNF	UNC	UNF
Bolt Size				
1/4"	70	85		
5/16	150	165		
3/8			22	25
7/16			35	45
1/2			50	70

SPECIAL ENGINE TORQUE SPECIFICATIONS

Cylinder Head Bolts* ---------- Torque to 33 Ft. Lbs., Loosen, Retorque to 35 Ft. Lbs.

Connecting Rod Bolt* ---------- Torque to 25 Ft. Lbs.

Flywheel Nut ---------- Torque to 100 Ft. Lbs.

Spark Plug ---------- Torque to 27 Ft. Lbs.

*Lubricate With Grease Upon Assembly

SECTION

F

ELECTRICAL SYSTEM

THE CHARGING CIRCUIT

●

THE STARTING CIRCUIT

●

IGNITION SYSTEM

Rac. Form 9-77701

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INTRODUCTION

Section F contains the specifications and wiring diagrams necessary to diagnose and make minor adjustments on the electrical components on the garden tractors.

All major adjustments and overhaul of electrical components should be performed by an Authorized Electrical Service Station (Delco-United Motors Service) where specialized equipment and trained personnel are available.

DO NOT ATTEMPT EVEN MINOR ELECTRICAL ADJUSTMENTS WITHOUT THE AID OF PROPER TEST EQUIPMENT

BATTERY SERVICE AND INSPECTION

IMPORTANT Working with storage batteries all exposed metal surfaces are "live". Never lay a metal object on top of a battery as a short circuit may result. Sparks or open flame must be kept away from batteries due to the presence of explosive gas in and around the batteries while they are being charged or in use.

The sulfuric acid or electrolyte present in a battery is very harmful to your eyes, skin and clothing. If contact is made with it, wash it with a weak solution of baking soda and water. This will neutralize the acid.

Visual Inspection

Check the battery terminals and cables for dirty or corroded conditions which will cause high resistance, resulting in undercharged batteries and very poor cranking speed.

The battery tray, holdown terminals and cable ends must be cleaned when contaminated, use baking soda and water. This will help to prevent self discharge of batteries. After cleaning and drying, a thin coating of vaseline, light cup grease or paint will help prevent contamination.

A cracked or leaking battery case will let the electrolyte leak out and cause damage to the equipment, a battery in this condition should be replaced. When just the top sealing compound is leaking the battery can be resealed.

Vent holes in the filler caps should always be kept open to let the battery gases escape. Never remove battery caps except to add water.

The electrolyte level should be checked each week. Never let the level drop to a point where the plates are exposed. Pure or distilled water should only be added when the electrolyte level is low. DO NOT OVERFILL, refer to Figure F-1.

Normal water consumption would be approximately 1 oz. every 25 hours or weekly. If it is greater, either the case is leaking or regulator is overcharging and must be adjusted.

Specific Gravity Check

The most reliable way to determine the concentration of sulfuric acid in the electrolyte is to measure the relative weight or specific gravity of the solution. A hydrometer is used for this, and only enough solution is removed from a battery cell so the float is suspended freely and not touching the top, bottom or sides of the glass tube, Figure F-2. Always hold the hydrometer at eye level and in vertical position when taking a reading. A hydrometer reading is only correct when the temperature of the solution is 80° F.

NOTE Most hydrometers have a calibrated thermometer to correct this.

When it is above or below this reading, it has to be corrected either by adding .004 gravity points for every 10° above 80°F. or subtracting .004 gravity points for every 10° below 80° F., Figure F-3.

When the specific gravity readings between the cells show a variation of .025, the battery should be replaced.

Specific gravity readings will change depending upon climate.

State of Charge	Specific Gravity Range for Climate Zone		
	Frigid	Temperate	Tropical
100%	1.280	1.260	1.225
75%	1.230	1.215	1.180
50%	1.180	1.170	1.135
Discharged	1.080	1.070	1.045

The battery should never be allowed to drop below 75% charge while not in use.

When a battery is to be charged, it may be charged at any rate which does not allow the battery terminal voltage to exceed 15.5 volts (12 volt battery) while charging. The battery temperature should never exceed 110°F. while charging, if it does reduce charging rate.

The charger should be left on until the specific gravity readings stay the same after three checks of an hour apart.

A fast charge method is used only to give the batteries a boost for starting. This type of charge puts out a very high amperage until the battery temperature is up to 110°F., then it shuts off.

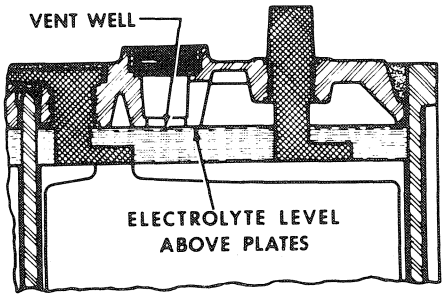


Figure F-1

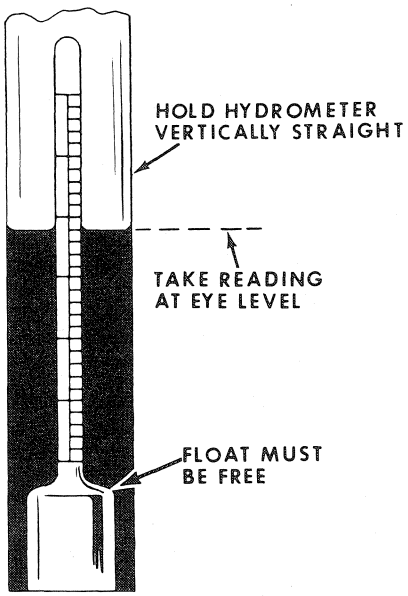


Figure F-2

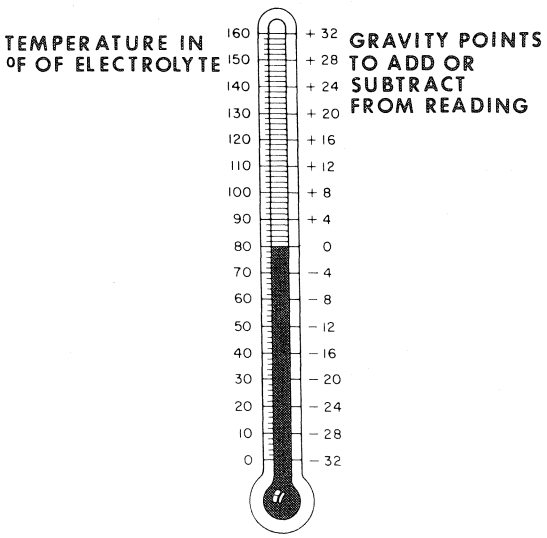


Figure F-3

Individual Battery Cell Check

Place a light load on the battery by cranking engine (do not start engine) for 3 seconds. Turn on headlights, after one minute proceed with check. Using a 4 volt voltmeter check the voltage of each cell, refer to Figure F-4.

If cell voltage varies more than .05 volts replace battery. If cell voltage is below 1.95 volts, charge battery and recheck the cell voltages. If cell voltage is still below 1.95 volts or varies .05 volts replace battery.

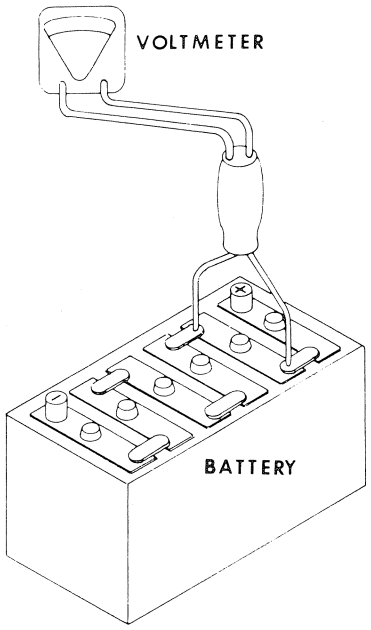


Figure F-4

Battery Cranking Voltage Test

To perform the cranking voltage check;

NOTE On Spark Ignition engines remove the center coil wire to prevent engine from starting

1. Connect a volt meter (12 volt) between the positive and negative terminals of the battery, Figure F-5.

   Crank the engine for 15 seconds and record voltage.

2. Connect voltmeter (12 volt) between the starter generator "A" terminal and ground on starter generator frame, Figure F-5.

   Crank the engine and record voltage. If voltage is not the same or varies more than .5 volt, check the battery cables, clean and tighten connections.

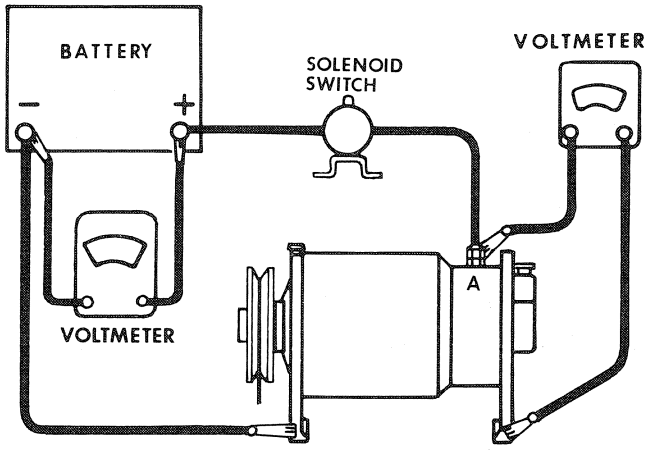


Figure F-5

Battery Bench Load Test

When battery is removed from the tractor, connect a volt meter (12 volt) between the negative and positive post, Figure F-6.

A load equal to 3 times the amp hour rating of the battery should be connected between the positive and negative posts and after 15 seconds, check the volt meter reading.

If it is less than 9.5 volts (12 volt battery) the battery should be replaced.

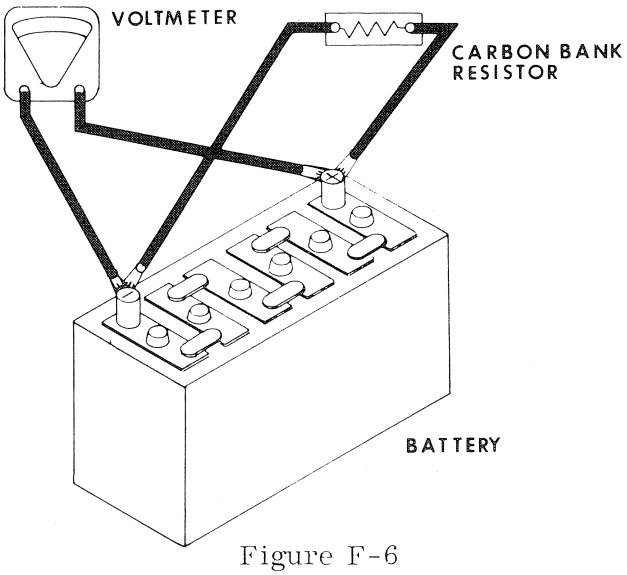


Figure F-6

SOLENOID SWITCH CHECK AND SPECIFICATIONS

Delco-Remy No.	Case No.	Amperage Draw both windings	Voltage Draw both windings
1498	A21481	2.1 - 2.3	8

Specifications given at temperature of 80°F.

Make hook up, Figure F-7 and slowly decrease the load with the variable resistor until the specified voltmeter reading is obtained. The Ammeter at this time should show specified amperage draw of both windings. A noticeable click (closing of the switch contacts) will be heard when this specified voltage and amperage is reached. If solenoid switch does not meet these specifications, it must be replaced with a new switch.

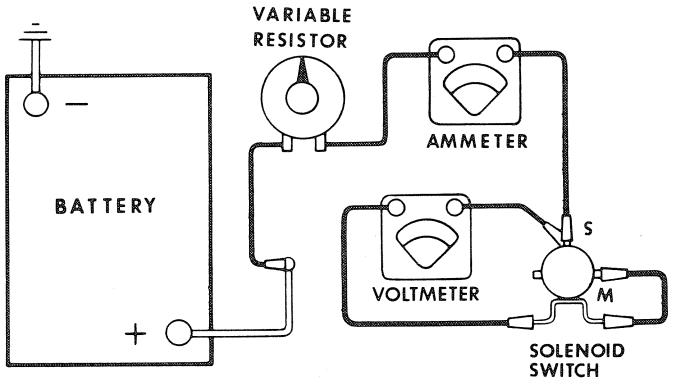


Figure F-7

STARTER-GENERATOR CHECKS AND SPECIFICATIONS

Delco Remy No.	Case No.	Brush Tension	No Load Test				
			Volts	Av. Amps.	Max. Amps.	RPM Min.	Max.
1101970	A70202	24-32	11	12	18	2500	2900

Delco Remy No.	Case No.	Field Current Draw at 80° F.		Cold Output at 80° F.		
		Amps.	Volts	Amps.	Volts	RPM
1101970	A70202	1.52-1.62	12	12	14	4950

STARTER NO LOAD TEST

For the no load test, connect the starter-generator in series with a 12 volt battery, 300 amp. ammeter, a variable resistor connected to the "A" terminal. Ground the "F" terminal, Figure F-8. With the starter running, check the RPM with a tachometer. Check the current draw and voltage draw. They should meet the specifications listed above. If the starter-generator does not meet these specifications, it must be serviced or replaced.

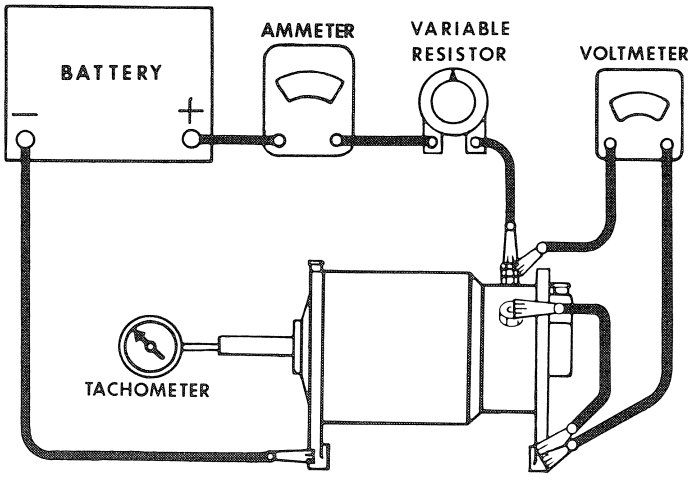


Figure F-8

GENERATOR OUT-PUT CHECK

The output test can be made on the tractor using the engine to drive the unit. When test is made on the bench, some means of driving the unit will be necessary. Be sure the drive belt is adjusted properly. Disconnect all cables and wires to generator. Connect ammeter and variable resistance in series between the "A" terminal and generator frame. Connect voltmeter from the "A" terminal to the frame. Install jumper lead from the "F"terminal to the frame, Figure F-9.

Drive the unit at specified RPM, adjust to specified voltage by varying the resistance. When the ammeter reading is lower than specified amperage, the unit must be serviced or replaced. If amperage output is too high, disconnect the jumper lead from the field "F" terminal. If ammeter reading is still high, unit will have to be serviced.

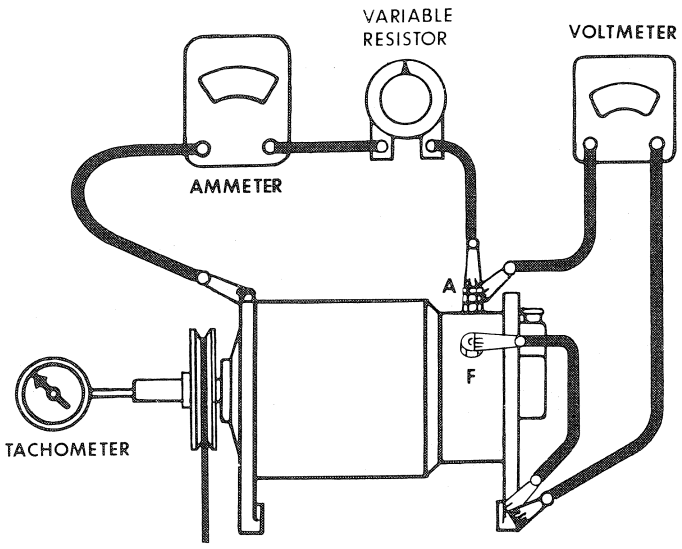


Figure F-9

STARTER-GENERATOR DRIVE BELT ADJUSTMENT

The starter - generator drive belt should be checked for excessive looseness and wear after the first 10 hours of operation and each 25 hours of operation thereafter. The belt tension is correct when the belt can be depressed 1/4" (finger pressure) between the pulleys, Figure F-10.

IMPORTANT

Under no circumstances should a pry bar be used on the starter - generator to obtain belt tension, as damage to the bearings could result.

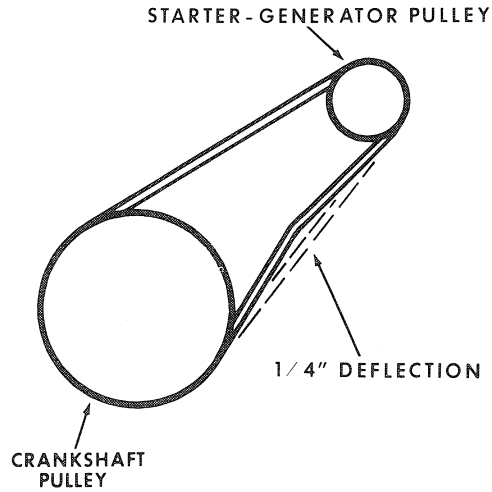


Figure F-10

REGULATOR CHECKS AND SPECIFICATIONS

Delco Remy No.	Case No.	Cutout Relay			Voltage Control			
		Air Gap	Point Opening	Closing Voltage	Voltage Adj.	Air Gap	Voltage Range	Voltage Adj.
1118988	A70221	.020"	.020"	11.8-14.0	12.8	.075"	13.6-14.5	14.0

The regulator can be checked on the tractor. Disconnect and tape the wire to the "B" terminal at the regulator and disconnect the wires to the "L" terminal of the regulator. Connect test equipment, Figure F-11. Start the engine and run at 1000 RPM or run the generator at 2500 RPM for 15 minutes to let regulator warm up to operating temperature. The variable resistance must have an open position and during warm up must be in the open position. Turn variable resistance slowly until all resistance is cut out. Note voltage setting. If test is repeated, always turn variable resistance back to the open position before the voltage is again raised.

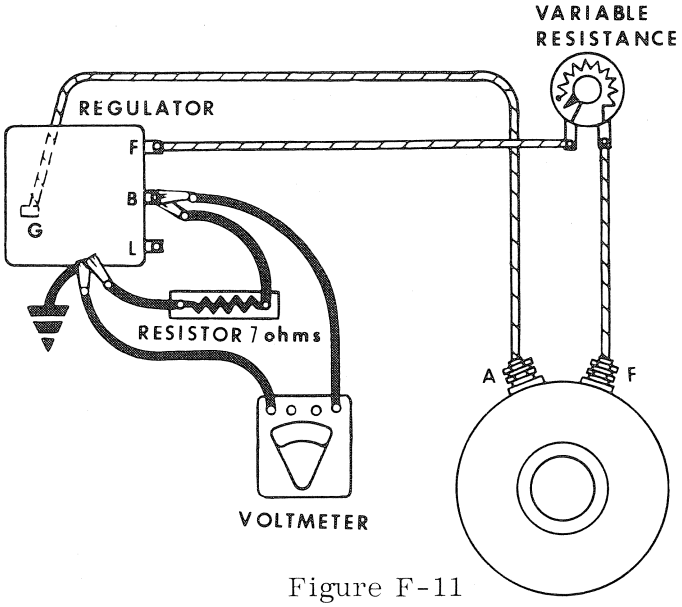


Figure F-11

CUTOUT RELAY CLOSING VOLTAGE CHECK

This check should be made after the voltage regulator check has been made. Disconnect and tape the wire from the "B" terminal. Disconnect the wires from the "L" terminal. Make connections of test equipment, Figure F-12. This is the same hook up as the voltage regulator check except the voltmeter is connected to the "A" terminal of the starter-generator. Turn the variable resistance to cutout all resistance. Run at same speed as regulator check above. Turn the variable resistance slowly to the open position and then back slowly to cutout resistance until the relay closes (sharp drop on the voltage reading). If test is to be repeated always return to the open position before test.

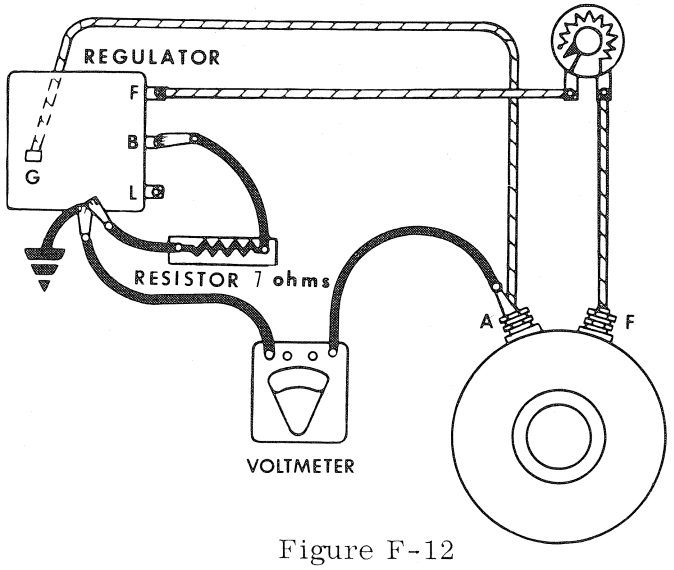


Figure F-12

IGNITION TIMING

Adjusting Breaker Points

Every 100 hours of operation, the breaker point cover should be removed and the points cleaned and reset. Pitted or burned points should be replaced. Regap the points to .020 inch. Loosen the point retaining screw and using a screwdriver in the adjusting slot, increase or decrease the point gap to obtain .020 inch, Figure F-13 . Retighten the point retaining screw.

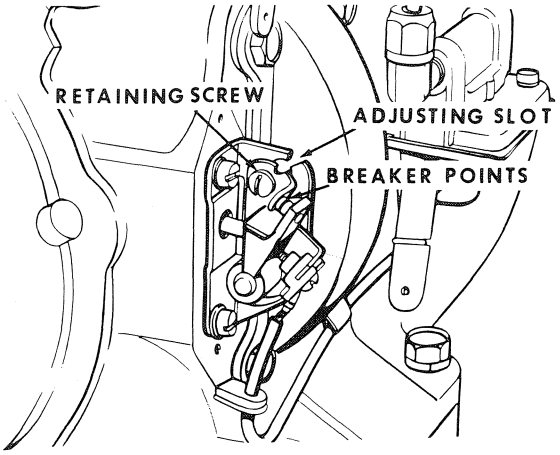


Figure F-13

Running Timing

The timing can be checked by removing the plug from the timing hole located on the left hand side of the bearing plate.

When the running timing is checked with a timing light the SP mark must be centered in the timing hole, Figure F-15. If not, adjust the breaker points as described above.

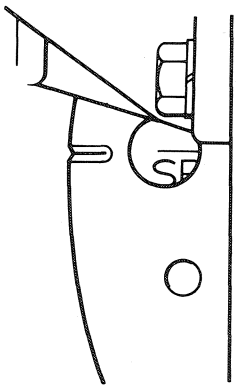


Figure F-15

IGNITION COIL SPECIFICATIONS

Delco Remy No.	Case No.	Resistance, OHMS at 75° F.	
		Primary	Secondary
1115070	KO 231281	3.40-4.20	3000 - 20,000

IGNITION CONDENSER SPECIFICATIONS

Delco Remy No.	Case No.	Capacitance
1942948	KO 230722	.18 to .23 MFD.

Suggest:

If the above button click is invalid.

Please download this document

first, and then click the above link

to download the complete manual.

Thank you so much for reading

CONTACT POINTS

Inspection

After each 100 hours of operation the breaker contact points should be checked for wear and adjustment.

The visual inspection should be a part of the 100 hour check;

COLOR - The normal color for contact points is a light gray. If the surfaces are black, the cause is usually due to the presence of oil, dirt or foreign matter.

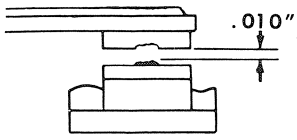
If the contact point surfaces are blue, the cause is usually due to overheating because of:

1. Improper alignment of contact points.

2. Excessive high wattage in the primary circuit of the ignition coil.

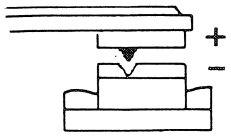
3. Poor condenser.

CONTACT SURFACE WEAR - wear patterns that, can exist and their causes.



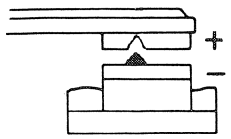
REPLACE CONTACT SET WHEN TRANSFER EXCEEDS .010"

IDEAL CONTACT POINT WEAR PATTERN



TRANSFER OF MATERIALS FROM − POINT TO + POINT

CONTACT POINT WEAR PATTERN SUCH AS THIS INDICATES CONDENSER CAPACITY MAY BE TOO LOW- THIS IS A NORMAL WEAR PATTERN, BUT INDICATES WHY THE CONDENSER SHOULD ALWAYS BE REPLACED AT THE SAME TIME POINTS ARE REPLACED.



TRANSFER OF MATERIALS FROM + POINT TO − POINT

CONTACT POINT WEAR PATTERN SUCH AS THIS INDICATES CONDENSER CAPACITY MAY BE TOO HIGH- USE ONLY GENUINE CASE CONTACT POINTS - CONDENSER REPLACEMENT SETS TO INSURE THE CORRECT CONDENSER CAPACITY AND CONDENSER LEAD WIRE LENGTH.