OPERATION

AND

MAINTENANCE MANUAL

WITH

PARTS LIST

MODEL:	R 3-80
SERIAL #:	78187-80476
MANUAL #	MR-380-20

IMPORTANT

READ AND FOLLOW INSTRUCTIONS GIVEN IN SAFETY AND OPERATIONS SECTIONS, AND THOSE SECTIONS RELATED TO YOUR SERVICE AND REPAIR RESPONSIBILITIES.

TAYLOR-DUNN
Commercial and Industrial Vehicles Since 1949

2114 W. Ball Rd., Anaheim, CA 92804 (714)956-4040 (FAX) (714)956-0504
Mailing address: P.O. Box 4240, Anaheim, CA 92803

IMPORTANT INFORMATION

This vehicle conforms to applicable portions of ANSI B56.8 (American National Standard Personnel and Burden Carriers). This manual is designed for use by Vehicle Operators and Service Personnel alike. Throughout the manual, there are various **WARNINGS, CAUTIONS, and NOTICES** which must be carefully read to help reduce the possiblitiy of personal injury. Maintenance personnel must understand that if a service procedure or method is used that is not recommended by Taylor-Dunn, it then becomes the personal responsibility of the person performing the work to first satisfy himself that neither his safety, the safety of others, or the safety of the vehicle will be endangered. ANSI B56.8 applies to only those vehicles with Serial Numbers dated after July 31, 1982.

Definitions of the three terms are as follows:

WARNING - **There is a potential for injury to yourself and others.**

CAUTION - **There is a potential for damage to the vehicle.**

NOTE - **Specific information clarifying or giving the reason for a particular maintenance or service procedure.**

Before operating your Taylor-Dunn vehicle, it is your responsibility to read, understand and follow the safety and operating instructions contained in this manual to help ensure your safety and comfort. If this car is to be used for rental purposes, it is your responsibility to explain to the operator about the various controls and vehicle operating characteristics. Equally important is the operators need to know the basic rules required for safe operation of the vehicle in day to day usage. Sections 5 and 6 of ANSI B56.8 have been inserted in Section 3 page 3 of this manual for your specific operating guidelines.

1. Vehicle is to be operated only by qualified persons and only in designated areas.
2. Vehicle will not be started until all occupants are seated.
3. Occupants must remain seated while vehicle is in motion.
4. Arms, legs and feet must be kept inside while vehicle is in motion.
5. Slow down making a turn.
6. Drive slowly straight up and down inclines.
7. Set parking brake before leaving vehicle.
8. Forward/Reverse lever must be in the correct position for direction of travel desired.

WARNING: FAILURE TO COMPLY WITH ABOVE INSTRUCTIONS COULD RESULT IN INJURY TO THE VEHICLE OCCUPANTS, BYSTANDERS AND TO PROPERTY.

R 3-80

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SERVICE

PARTS LIST

SECTION 1
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MAINTENANCE GUIDE CHECKLIST

This checklist is provided for your convenience as a guide for servicing your vehicle. If followed you will enjoy a good running and trouble free unit. It has been set up for average normal use. More frequent service is recommended for extreme or heavy usage. If desired your Taylor-Dunn dealer will gladly perform these services for you as he has expert service men in the field for this purpose. Do not hesitate to call your service Manager if any questions arise.

WARNING: When performing maintenance on any part of the electrical system, turn key to off position and remove from switch, disconnect main battery leads and place forward/reverse switch in neutral.

MAINTENANCE	EVERY WEEK	EVERY MONTH	EVERY 3 MONTHS	EVERY YEAR
Check and fill batteries. If necessary fill with distilled water only.	X	X	X	X
Check tire pressure (Refer to chart Section 2)	X	X	X	X
Adjust Motor Mount & Chain (Refer to chart Section 10)				
Lubricate all Zerk Fittings			X	X
Lubricate all moving parts without Zerk Fittings. Use all purpose engine oil.			X	X
Wash off batteries with water, (use soda if necessary)			X	X
Check all wire connections. Be sure they are all clean and tight.			X	X
Check deadman seat and foot operated brake systems.		X	X	X
Check hydraulic brake system for leaks also check brake fluid level in master cylinder.			X	X
Check disc brake pad linings for wear. Adjust as necessary.			X	X
Check rear axle differential oil level (refer to lubrication diagram).				X
Check drive axle oil level (refer to lubrication diagram)				X
* Lubricate front wheel bearings (2 Zerk fittings)				X
Drain differential and refill with SAE 30 oil (refer to lubrication diagram)				
Repack front wheel bearings (use wheel bearing grease.)				X
Lubricate steering gear box with 90# grease.				X
* Check and adjust front wheel bearings.			X	X

* ITEMS RELATED TO SAFETY SUGGESTIONS

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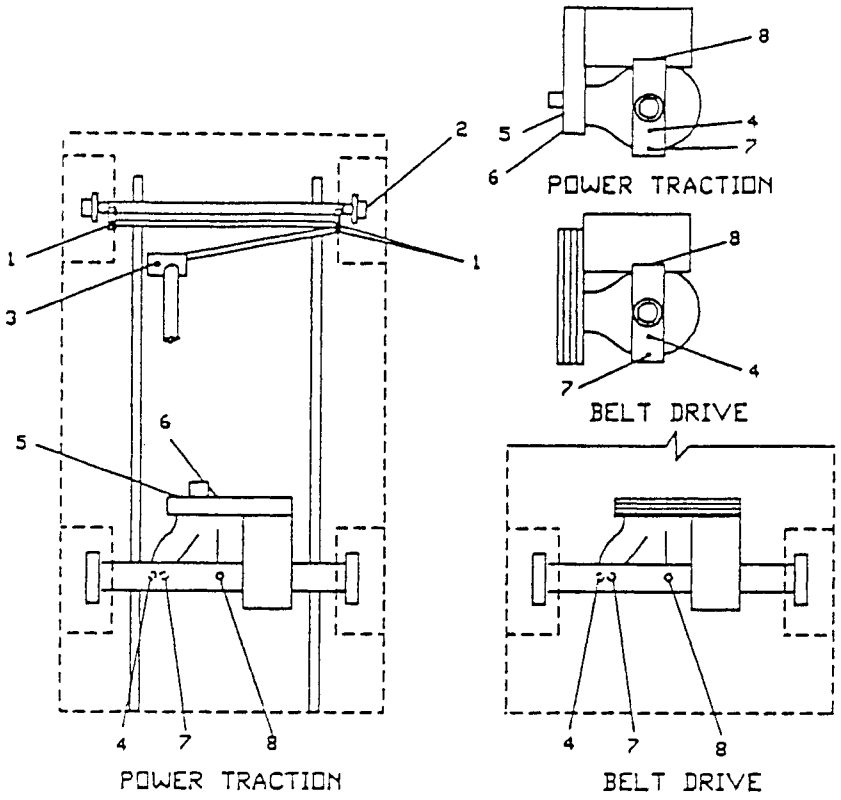
Page 1

LUBRICATION DRAWING R 3-80 AND TIRE CHART

R 3-80 LUBRICATION DIAGRAM



A. PRESSURE GUN GREASE	NO. PLCS	FREQ.
* 1. BALL JOINTS	3	3 MOS.
* 2. FRONT WHL HUB	2	3 MOS.
* 3. STEERING GEAR BOX	1	1 YR
B. POWDERED GRAPHITE		
KEY LOCK	1	1 YR
C. SAE 30 OIL		
AXLE & DIFFERENTIAL		
4. LEVEL CHECK	1	** 3 YR

OIL CHANGE-POWER TRACTION

a. REMOVE DRAIN PLUGS 6 & 7 LEVEL PLUGS 4 & 5, FILL PLUG 8
b. DRAIN OIL, REPLACE 6 & 7
c. ADD OIL BY 8 TO LEVEL OF 4
d. ADD OIL BY 5, 1/2" BELOW 5
e. REPLACE 4, 5 & 8

OIL CHANGE-BELT DRIVE

a. REMOVE DRAIN PLUG 7 LEVEL PLUG 4 FILL PLUG 8
b. DRAIN OIL, REPLACE 7
c. ADD OIL BY 8 TO LEVEL OF 4
d. REPLACE 4 & 8

* ITEMS RELATED TO SAFETY
** CHECK LEVEL WHENEVER LEAKAGE IS EVIDENT

R 3-80 LUBRICATION DWG.

TIRE CARE:

Tire pressure is governed by how you want your vehicle to ride and the terrain to which it is most commonly used upon.

Slightly lower pressure will assist traction of soft terrain without undue wear.

The chart listed below will assist you to determine the correct tire pressure for your needs.

TIRE INFLATION CHART

TIRE SIZE	TYPE	TIRE LOAD RATING EQUIVALENT LOAD RANGE	RATING	MAXIMUM (COLD) INFLATION P.S.I.	5 MPH MAXIMUM LOAD POUNDS	10 MPH	15 MPH
4.80-8/400-8	HIGHWAY TREAD	A	2	35	640	505	470
4.80-8/400-8	HIGHWAY TREAD	B	4	70	960	760	710
4.80-8/400-8	STEELGUARD	C	6	100	1220	960	895
5.70-8/500-8	HIGHWAY TREAD	B	4	60	1240	980	915
5.70-8/500-8	HIGHWAY TREAD	C	6	90	1520	1240	1160
5.70-8/500-8	STEELGUARD	D	8	100	1860	1470	1370
16 X 6.50 X 8	TERRA TIRE	B	4	28		620	
18 X 8.50 X 8	TERRA TIRE	B	4	22		815	
18 X 9.50 X 8	TERRA TIRE	B	4	24		1040	

THE INFLATION AND LOAD RATINGS MOLDED ON HIGHWAY TREAD TIRES, PER FEDERAL STANDARD FMVSS-119, ARE FOR MAXIMUM HIGHWAY SPEED AND DO NOT APPLY TO THIS LOW SPEED VEHICLE.

- TAYLOR-DUNN MANUFACTURING COMPANY -

CAUTION: **Do not over-inflate tires as this will promote increased wear. Under inflation especially on hard surfaces also promotes undue wear and should be avoided.**

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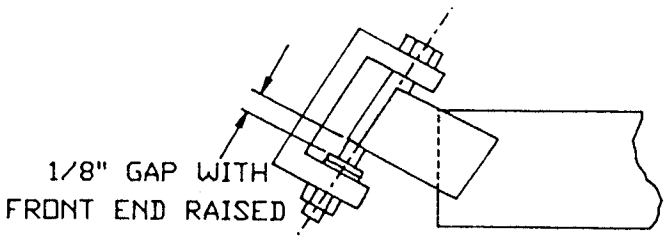
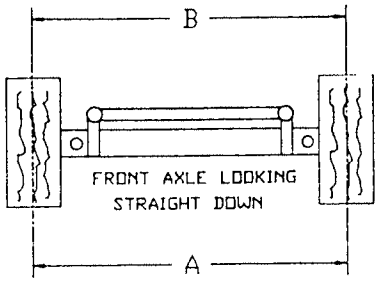
STEERING ADJUSTMENT

1. Raise vehicle front end in the air. Inspect kingpin at each end of the axle for 1/8 inch gap. Adjust the kingpin so 1/8 inch gap exists, if necessary.

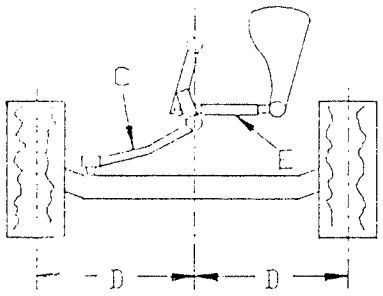


2. Adjust connecting arm on front axle for proper toe-in of Ø to 1/8 inches.



Dimension A = B or A should be 1/8 inch less.

3. Adjust steering sleeve 18-041-1Ø (C) so wheels are straight and ball joint centered on vehicle; dimension D = D.



4. Return vehicle to ground for turning load. Center steering mechanism by turning steering wheel full clockwise. Counting number of full turns, turn steering wheel full counter clockwise. Counting half the number of full turns return steering wheel to center. Install 18-Ø4Ø-11 (E) adjust so steering wheel is stopped by internal gear box stops in both directions of wheel turn.

5. Straighten wheels

6. Loosen steering wheel and center on steering column. Tighten steering wheel. Steering adjustment is complete.

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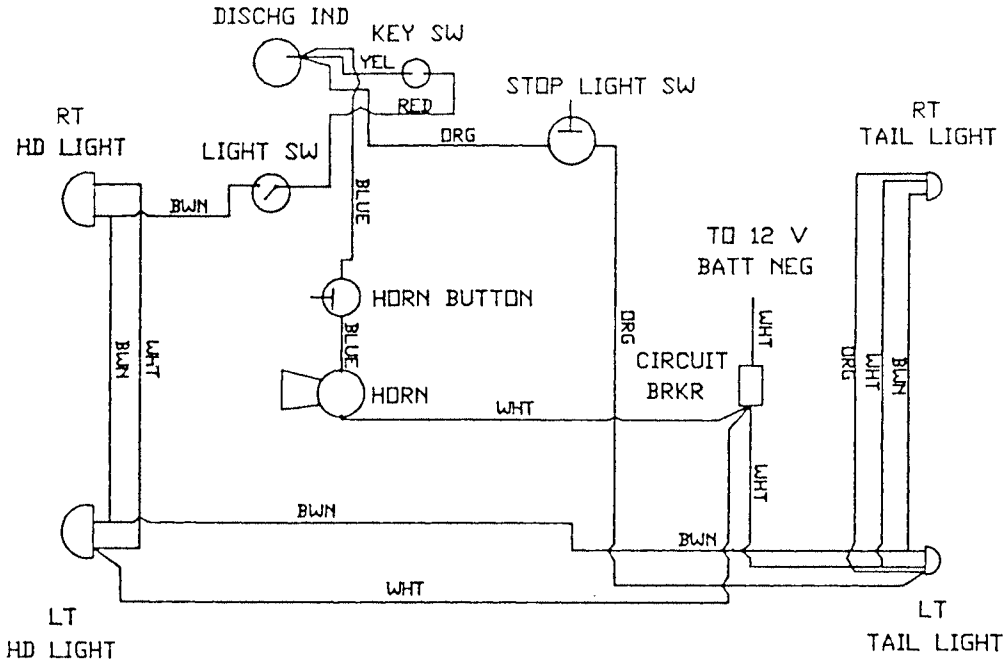
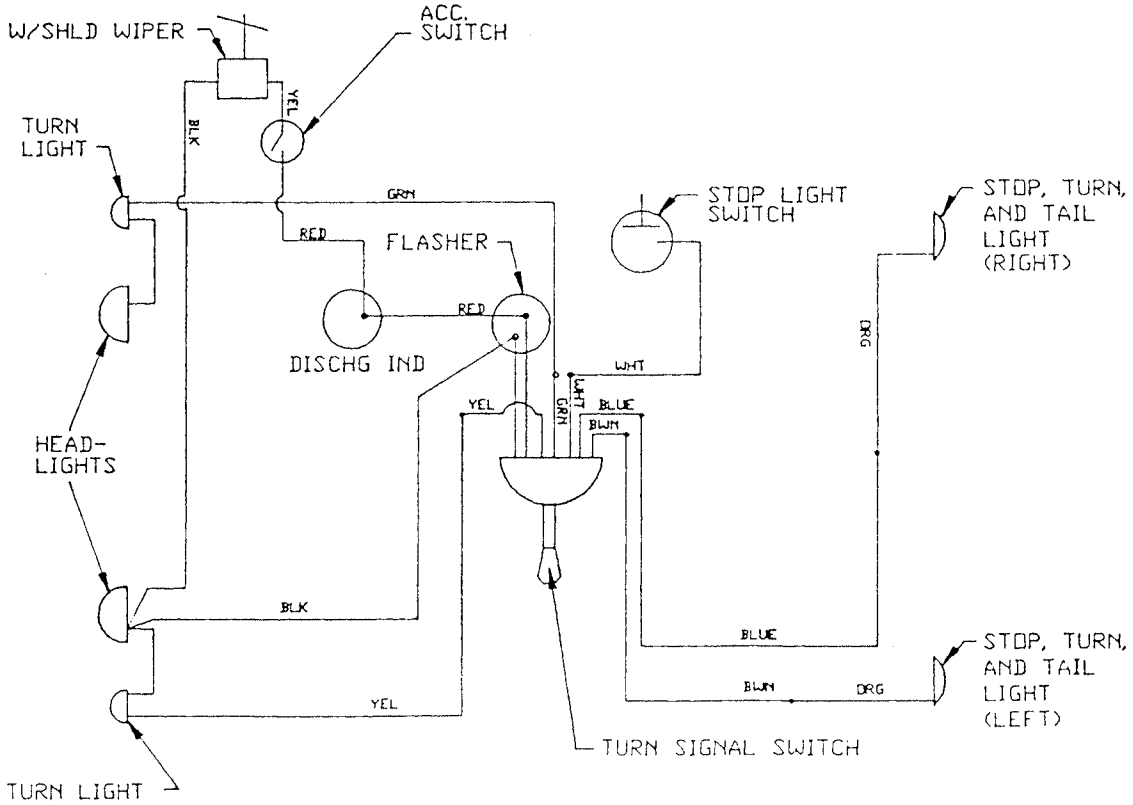
WIRING DIAGRAM R 3-80



R3-80
WIRING DIAGRAM

NOTE: SEE POWER-TRON SECTION FOR POWER CIRCUITRY



TURN SIGNAL AND WIPER MOTOR
WIRING DIAGRAM

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Page 1

TROUBLE SHOOTING PROCEDURES

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
1. STEERING		
a. Pull in one direction	1. Unbalanced front tire pressure	1. Check and adjust pressures
	2. Bent or maladjusted tie rod	2. Repair, replace or adjust tie rod
	3. Bent axle or spindle	3. Repair or replace
b. Hard Steering	1. Low tire pressure	1. Inflate to 50 lbs.
	2. Dry pivot points in steering linkage	2. Lubricate - See Section 2
	3. Bent or maladjusted king pin	3. Repair, replace or adjust king pin
c. Sloppy or Loose	1. Loose wheel bearing	1. Adjust
	2. Loose or worn ball joints	2. Tighten or replace ball joints Sec. 11
	3. Worn king pin bushings or king pins	3. Replace bushings or pins and bushings
	4. Excess backlash in steering gear box	4. Adjust backlash
	5. Worn idler arm bushings	5. Replace arm and bushings
2. DRIVE AXLE		
a. Erratic Operation	1. Faulty power system	1. See Section 13
	2. Badly worn drive sprockets or belts	2. Replace sprockets or belts
b. Lack of Power Slow Operating	1. Faulty power system	1. See Section 13
	2. (belt drive only) Belt slipping or missing	2. Adjust belt tension or replace belts
	3. Parking brake not completely released	3. Release parking brake
	4. Incorrect brake adjustment brake dragging	4. Adjust brake system
	5. Defective or maladjusted wheel bearing	5. Adjust or replace bearing
	6. Bind or drag in primary drive or differential	6. Check and repair primary drive or differential
c. Abnormal Noise in drive train	1. Defective motor bearing	1. Replace motor bearing
	2. Loose motor mount	2. Tighten motor mount
	3. Worn or broken sprockets or pulleys	3. Replace sprockets or pulleys
	4. Worn gears or bearings in differential	4. Check and replace gears or bearings
	5. Defective axle bearing	5. Replace bearing
	6. Worn or bent axle	6. Replace axle
	7. Loose wheel lug nuts	7. Tighten lug nuts
	8. Defective spring eye bushings	8. Replace bushings

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Page 2

2. DRIVE AXLE continued		
d. Oil leaks in wheel bearing area	1. Wheel bearing seal defective	1. Replace seal
	2. Wheel bearing gasket defective	2. Replace gasket
	3. Axle retainer plate not tightened	3. Tighten axle retainter plate
	4. Drive axle filled above proper level	4. Drain oil to proper level
e. Oil leaks in gear case or motor area	1. Defective gear case cover gasket	1. Replace gasket
	2. Motor mount "O" ring defective or missing	2. Install "O" ring seal
	3. Defective motor bearing oil seal	3. Replace oil seal
3. BRAKES		
a. Poor brakes	1. Worn disc brake pads	1. Adjust for lining wear or replace if less than .020 thick
	2. Brake lining wet or oily	2. Clean and dry or replace if oily
	3. Bind in brake linkage	3. Loosen and readjust brake linkage
	4. Incorrect linkage adjustment	4. Adjust linkage
b. No brakes: Pedal reaches the floor board	1. Incorrect linkage adjustment	1. Adjust linkage
	2. Broken linkage	2. Repair or replace broken part
c. Excessive or grabbing brakes	1. Small amount of oil on lining	1. Clean lining
	2. Scored or rough brake disc rotor	2. Replace disc rotor (axle weldment)
	3. Incorrect linkage adjustment	3. Adjust linkage
4. POWER SYSTEM		
a. No power to motor in forward or reverse	1. Batteries discharged or defective	1. Recharge or replace batteries
	2. Forward-reverse switch maladjusted or worn	2. Adjust or repair forward-reverse contacts
	3. Motor brushes not contacting armature	3. Adjust or replace
	4. Loose or broken wire	4. Tighten or replace wire
	5. Motor defective	5. Repair or replace motor
b. Erratic Operation	1. Batteries discharged	1. Recharge batteries
	2. Forward-reverse switch maladjusted or worn	2. Adjust or repair forward -reverse contacts
	3. Loose wire or wires	3. Tighten
	4. Motor brushes worn	4. Replace brushes

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Page 3

4. POWER SYSTEM continued		
c. Vehicle range	1. Batteries not fully charged	1. Recharge batteries Review charging practice
	2. Batteries nearing end of normal life	2. Replace batteries
	3. Charger output not sufficient	3. Adjust transformer taps
	4. Charger defective	4. Repair or replace charger
d. No power in one direction and full power in other direction without depressing accelerator	1. Switching and motor circuit not properly connected	1. Correct power conduit wiring to diagram, Section 3, Page 1
e. Poor performance excessive heat	1. Driving with park brake on	1. Fix or install foot park brake interlock

SECTION 5
Page 1

MAINTENANCE PROCEDURES
BATTERIES

WARNING: Lead acid batteries continuously emit highly explosive gases. Flame or sparks must be kept away from the batteries at all times.

This emission is greatly increased during the charging process. Any area in which charging batteries are confined must be well ventilated, and flame or sparks must be kept out of the charging area and away from ventilator openings. DO NOT disturb battery connections while batteries are being charged.

The lead acid battery (or batteries) will furnish all power required by your vehicle. Two types are generally employed. The electric vehicle type battery pack, commonly used, can be expected to have a life of approximately 2 years, or 350 to 400 cycles. One cycle is the discharging and charging of the battery within proper limits. The heavy duty industrial type of battery has a life of approximately 7-1/2 years, or 1800 cycles, with appropriate use and care.

It cannot be over emphasized how important good maintenance procedures and normal care of your batteries will affect their useful life. It is therefore recommended that a comprehensive maintenance program be established and adhered to throughout the life of your vehicle. A 5 point program is outlined below to assist you in understanding and establishing good battery care.

1. CORRECT CHARGING

   Poor charging practices are responsible for more short battery life than any one other item. The charging equipment must be properly maintained and adjusted to give a charge which the battery will accept with maximum efficiency. Two things are involved in correct charging. These are the charging rate in amperes and the termination of the charge at the correct time. No amount of overcharging will increase the battery capacity or raise the specific gravity above its full charged condition.

   Overcharging will reduce battery life. Undercharging will cause poor vehicle performance, and shorten the life of all electrical components, including the batteries. Refer to Service and Adjustment, Section 6, for proper methods to determine charge condition.

2. DISCHARGING - CAPACITY

   Batteries are commonly rated in ampere hours at the six hour discharge rate to a final voltage of 1.75 per cell. They will deliver additional capacity in an emergency, but should not be required to do so regularly. The best way to avoid discharging is to prepare a rigid schedule for charging batteries which will insure against their being discharged beyond the limits of their capability.

3. WATERING

   Water must be replaced from time to time. The frequency and quantity depends upon the watering space above the plates and the amount of gassing which the battery does on charge. Only approved or distilled water should be added to the battery. Water should be added after hydrometer or voltmeter readings have been taken. The liquid level within the battery raises as the gassing occurs. Thus filling after charging minimizes over-filling. However, the water level should cover the plates prior to charging.

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Page 2

MAINTENANCE PROCEDURES, BATTERIES continued

4. CLEANING

Batteries pick up various kinds of dirt and dust, depending on their surroundings and to the type of service they are subjected. This is usually dry dirt, which can be readily be blown off with low pressure air or brushed off. However, if cells are overfilled and electrolyte collects on the covers, the top of the battery becomes wet and stays wet, since the acid in the electrolyte does not evaporate. This moist surface in combination with certain kinds of dirt becomes electrically conductive and permits stray currents to flow externally over the top of the battery. These currents cause corrosion of cell posts, nuts, connectors and steel trays, which eventually become troublesome and expensive to repair.

When wet dirt accumulates on top of the battery, remove it by washing the battery with a strong solution of baking soda and hot water (1 lb. of soda to 1/2 gallon of water). A convenient brush to use is one having flexible bristles like an old paint brush. Continue the application of the soda solution until all fizzing stops, which indicates that the acid has been neutralized. Then rinse thoroughly with clear water.

Wet covers can be indication of overfilling, leaky seals at posts and covers or of excessive gassing during charge. When observed the cause should be determined and the abusive conditions corrected.

5. RECORDS

A Battery record system is recommended for all vehicles. It is considered essential for large operations, and where minimum battery operating cost is desired. A properly supervised record system can be made to detect and call attention to such operating irregularities as:

a. Overcharging
b. Undercharging
c. Overdischarging
d. Excessive Water Consumption
e. Cleanliness
f. Worn Out Batteries
g. Excessive Current Consumption on Trucks

It is not advisable to allow a battery to stand for a long period of time in a low state of charge. Doing so subjects the battery to excessive plate erosion and in cold climate conditions the electrolyte will freeze at a much higher temperature. For example, a fully charged battery will not freeze at temperatures near 60 degrees below zero. Yet a battery in a very low state of charge may freeze at temperatures around 10 to 15 degrees above zero.

A battery not in use maintains small amounts of chemical action which slowly tends to dissipate the charged condition. It is wise to re-charge a battery not in use every 1 to 2 months. If possible store the battery in a cool place, as the self discharge rate is increased with warmer temperatures.

6. WINTER STORAGE

a. Before storing your vehicles in a sheltered area for the winter season, clean and check the charge level of the batteries according to the information contained in paragraphs 4 and 5 of this section.

CAUTION: Before service personnel service the batteries, disconnect both main battery leads, place the forward/reverse switch in neutral, turn the key OFF and remove from switch. Set the parking brake. Service personnel should wear proper clothing and eye protection.

SECTION 5
Page 3

MAINTENANCE PROCEDURES, BATTERIES continued

6. Winter Storage continued
   b. Although not required, the following information is provided as a good maintenance practice to be followed when and where practical to perform.
      1. Remove the batteries from the vehicles for cleaning.
      2. Clean batteries according to instruction is paragraph 4.
      3. Clean heavy corrosion form each battery post and cable terminal with a wire brush.
      4. Using baking soda and hot water solution, neutralize all battery acid corrosion in battery compartment. If necessary, use a wire brush on severe corrosion areas.
      5. Flush battery compartment area with fresh water and dry compartment area thoroughly.
      6. Paint or apply light film of petroleum jelly to exposed metal surfaces.
      7. After battery compartment has been properly treated reinstall batteries while taking special care to properly connect battery cables.

      DANGER: Improper connection could cause a battery explosion and possible result in personal injury and/or damage to the vehicle.

      8. Check battery charge state according to information contained in paragraph 5 of this section.

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Page 4

BATTERY MAINTENANCE RECORD VEHICLE NO.

Battery No.	Cell No.	Date Water OK or Low	Gravity Before Charge	Gravity After Charge	Date Water OK or Low	Gravity Before Charge	Gravity After Charge	Date Water OK or Low	Gravity Before Charge	Gravity After Charge
1	1									
	2									
	3									
2	1									
	2									
	3									
3	1									
	2									
	3									
4	1									
	2									
	3									
5	1									
	2									
	3									
6	1									
	2									
	3									

1. **CAUTION: Batteries emit explosive gases. During normal operation the concentration of these gases is rarely sufficient to be considered dangerous unless flame or sparks occur in the battery compartment close to the vent holes in the battery caps. It is important that this not be allowed to occur at anytime. <u>During the charging process, emissions are greatly increased.</u> Any area in which charging batteries are confined must be well ventilated, and flame, sparks or lighted cigarettes must be kept out of the charging area and away from ventilator openings associated with the charging area. Battery connections must not be disturbed while batteries are being charged.**
2. Do not fill an uncharged battery. Bring water level up to just cover the plates, and complete filling after battery is fully charged. Use distilled water. Fill only to level indicated on battery.
3. Batteries which require unusually frequent watering may indicate overcharging. Review charging practices and/or adjustment of transformer taps in charger.
4. Gravity should be kept between 1175 (30% charged) and 1260 (100% charged), and gravity readings of all cells should be within 10 point range. When they are not, an equalizing charge should be applied. Refer to information under "Charging Time Chart" in Charger Handbook.
5. Periodically check for loose terminal posts or loose connections to terminal posts, <u>but not while batteries are being charged</u>.
6. Keep tops of batteries clean, and free of moisture, grease, and acid films. Any of these can cause current leakage.
7. Keep weekly (or more frequent) record as shown in sample chart, for a new vehicle or when charging results seem unsatisfactory, until satisfactory charging continues for a four week period, then keep record on a monthly basis.

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Page 1

CHARGER MAINTENANCE, SERVICE AND ADJUSTMENT

TAYLOR-DUNN / LESTER-MATIC BATTERY CHARGER

Line voltage compensation is achieved by flux oscillator circuit applied to battery chargers by Lester in 1962 for high reliability "Minute Man" missile standby applications. Compensates automatically for AC supply voltage variations 105-128 volts. Supply voltage variation ± 10% from 117 volts =± 1% maximum battery voltage variation, decreasing to ± 1/2% at finish rate with constant electrolyte temperature. No taps or rate controls to set.

Automatic taper of charge rate for superior battery life through good equalization of cells and low water use rate.

Silicon diodes with inherent surge protection operated at a conservative percentage of their rating.

Convection cooled design for maximum reliability and minimum maintenance.

LESTRONIC II BATTERY CHARGERS

The all new automatic Lestronic chargers eliminate over and undercharging for new, old or defective batteries, whether hot or cold. Precise charging is achieved by patented Electronic Timer, utilizing state of the art integrated circuits.

Charger turns on automatically by simply connecting D.C. cord to batteries. The ammeter indicates charge rate. The charge rate tapers gradually to a finish rate of 5 to 10 amps. The Electronic Timer monitors the rate of voltage change during the charge period. When this rate levels off, the charger automatically shuts off.

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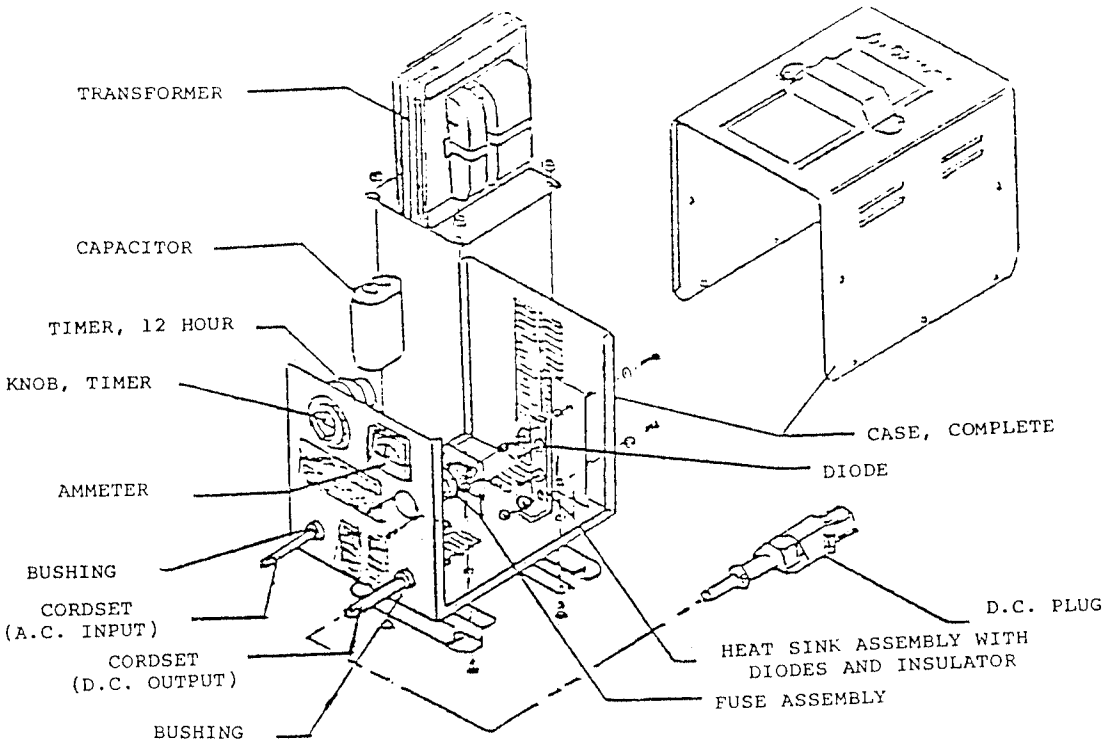
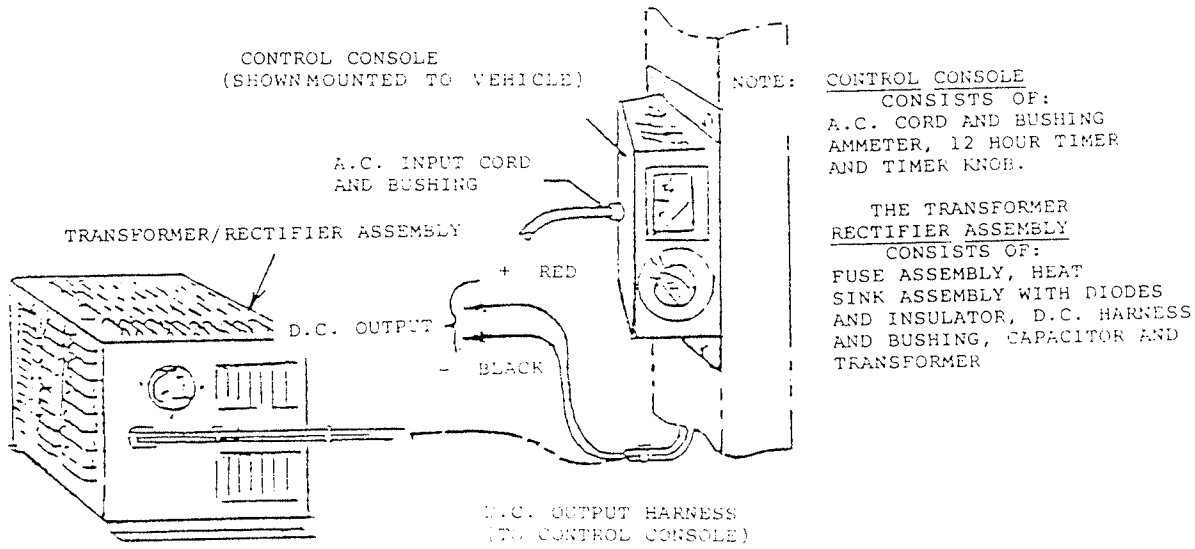
Page 2

CHARGER COMPONENT IDENTIFICATION



PORTABLE LESTER CHARGER
(TYPICAL) FOR COMPONENT IDENTIFICATION
SEE PARTS LIST FOR PORTABLE CHARGERS



BUILT-IN LESTER CHARGER
(TYPICAL) FOR COMPONENT IDENTIFICATION
SEE PARTS LIST FOR BUILT-IN CHARGERS

NOTE: HAS SAME BASIC PARTS
AS PORTABLE

SECTION 6
Page 3

OPERATION OF "LESTER MATIC" BATTERY CHARGERS

INTRODUCTION

The Lester-Matic battery charger is a highly reliable, line compensating unit. When used according to instructions, the Lester-Matic will tend to lengthen battery life with less frequent additions of water.

INITIAL INSTALLATION:

Circuit breaker or fuse protection in the AC line to which the charger is to be plugged should allow at least 15 amps per charger. When it is necessary to use an AC extension cord to the charger, use a three conductor No. 12 AWG cord with ground, and keep as short as possible. Instructions printed on the cover of the charger are for daily reference.

NORMAL OPERATION:

The state of discharge of the batteries will be slightly different every time they are put on charge, but the Lester-Matic varies automatically the initial charge rates, and taper of charge rate over the charge period. Thus momentary initial charge rate will vary from 18-30 amps, dropping quickly to a lower value, and then tapering gradually over the charge period to a finish rate of 1-4 amps (in the green shaded area of the ammeter dial) for the last 1-3 hours. When batteries are slightly discharged, the ammeter needle will be in the green shaded area for 7-8 hours, but the specific gravity will not rise to full charge until the cells have been equalized. The normal charging with the ammeter needle in the green shaded area is important to achieve equalization of all battery cells, every time the batteries are charged. Since the taper of the charging rate (in amps, as indicated by the ammeter needle) is controlled by the rising voltage of the batteries being charged, proper performance of the charger and resulting good battery life is dependent upon the following factors.

1. An Adequate AC line to handle the power required (see "Initial Installation")
2. All cells of the batteries must be good, rising to approximately 2.5 DC volts per cell while still on charge or near the end of a 12-hour charging period. When in doubt, check each cell with a single voltmeter while still on charge. If a low reading is obtained; check the low cells with a temperature corrected hydrometer. NOTE: Hydrometer float must be thoroughly clean to obtain accurate specific readings.
3. All electrical connections of the vehicle must be clean and tight.
4. Batteries should be charged just enough to bring them to full charge because overcharging is harmful. The state of charge can be tested accurately in each cell with a hydrometer or cell tester (voltmeter), but to simplify maintaining a fleet of cars, which normally require charging at least once a day, the following "CHARGING TIME CHARTS" can be used for daily charging. Set timer knob to desired charging time shown in chart. Charger shuts off automatically at end of set period.

CHARGING TIME CHART

GOLF CAR USE	CHARGING TIME
9 Holes or Less	7 Hours
18 Holes or More	12 Hours
COMMERCIAL USE	
Less than 1 Hour	7 Hours
More than 1 Hour	12 Hours

SECTION 6
PAGE 4

OPERATION OF "LESTER-MATIC" BATTERY CHARGERS (continued)

If a golf car is used only occassionally, it is recommended that a refresher charge be given prior to using the car.

Commercial cars, not used in golf course opertion, should be charged after use each day, or as charge becomes low as indicated by hydrometer or voltmeter test.

The necessity of adding water more frequently than two or three weeks, and/or hot battery cases at the end of the charging cycle, indicates the finish rate is too high, due to one or both of the following:

1. One or more bad cells in the batteries.
2. Batteries are starting to age to a point where hours of charge should be reduced gradually to obtain prolonged battery life.

STORAGE:

Charger may be left connected to the batteries and should be turned on for the 12-hour period once a month. In extremely cold conditions it may be necessary to charge more frequently., Check with your battery manufacturer. After each charge cycle the charger should be checked to ensure that it has turned off. Severe overcharging and possible damage to the batteries could result if the charger remains on for prolonged periods of time.

CAUTION:

THIS CHARGER IS FOR USE ONLY ON BATTERY SYSTEMS OF THE TYPE AND CAPACITY SPECIFIED ON THE CHARGER NAMEPLATE. USE OTHERWISE WILL DAMAGE CHARGER AND/OR BATTERIES.

Due to the electrical characteristics of this charger, it is possible to improperly hook up batteries and not blow the fuses when charging. When installing batteries, be sure polarity is correct. With a DC voltmeter, check terminal voltage and polarity at the car receptacle.

CAUTION:

When working near capacitor terminals be sure charger is turned off. With charger "on" transformer capacitor voltage is approximately 640 volts. Use care. Before performing service, disconnect AC and DC leads. Discharge capacitor before servicing.

STEP BY STEP OPERATING PROCEDURES

1. Provide adequate ventilation for both batteries and charger. The convection-cooled Lester-Matic requires an unobstructed flow of cooling air for proper operation.

2. Connect DC plug (portable unit) to vehicle receptacle.

3. Turn timer to "ON" for well discharged batteries or to "7" for lightly discharged batteries. Charger shuts off automatically at end of set period.

4. To determine approximate full charge at start of days use, turn timer knob to "1". Drop of ammeter needle to 1-4 amps in 15 minutes or less indicates full charge.

5. ALWAYS TURN TIMER TO "OFF" BEFORE DISCONNECTING CHARGER FROM BATTERIES.

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PROPER CARE OF MOTIVE POWER BATTERIES

NEW BATTERIES

1. Brand new batteries should be given a 12 hour charge before their first use, because it is difficult to know how long vehicle batteries have been in storage without a charge since new.

2. Limit use of brand new batteries between charges for first 5 cycles. New batteries and older batteries which have been in storage are not capable of their rated output until they have been discharged and charged a number of times.

3. During the first month of new batteries, particularly when night-time temperatures are below 60 F, give them and extra 12 hour charge once a week. The ampere-hours of energy that batteries can deliver and their charge acceptance varies direct battery temperature.

4. All batteries that still taper down into the 1-4 amps area of the ammeter toward end of charge should be given the full 12 hours of charge. All cells in a set of batteries do not react identically to the same discharge and charge current. In a normal 12 hours charge the last 3 to 5 hours at low finish charge rate equalize the cells for better battery life.

5. When batteries age to the point where charge rate no longer tapers into the 1-4 amps area of the ammeter, reduce the hours of charge progressively to 10 hours, 8 hours, and finally down to 6 hours near the end of useful life. As batteries age, their on-charge voltage at end of charge period drops progressively, thereby causing a high finish charge rate in amperes and resultant higher water use rates.

VERIFY BATTERIES ARE CHARGED

1. Turn on the timer first thing in the morning and check to see if charger ammeter needle jumps smartly to 15 amps or more and then tapers into the 1-4 amps area within 15 minutes. This will provide a very simple means of verifying that the batteries were truly charged the night before. It also shows aging batteries whose finish charge rate will not taper into the ammeter 1-4 amps area.

2. Add water carefully to proper level in cells as required after they have been fully charged. Do not fill them so high that they bubble over while charging. New batteries require very little additional water, whereas very old batteries may need additional water two or three times a week. Water (electrolyte) level in battery cells settles when batteries are discharged and rises during charge. The probability of overfilling can be reduced by adding water when batteries are fully charged.

PREVENTIVE MAINTENANCE

1. When night air temperatures fall below 65 degrees F, batteries charged in unheated areas should be placed on charge as soon after use as possible. Under such condition a 4 hour equalize charge once a week in the early afternoon will improve state of charge and battery life.

2. Keep tops of batteries and battery hold-downs clean and dry. Tops of batteries and battery hold-downs must be kept clean at all times to prevent voltage leakage and flow of current between the batteries and the vehicle frame.

PROPER CARE OF MOTIVE POWER BATTERIES (continued)

WARNING

LEAD ACID BATTERIES CONTINUOUSLY EMIT HIGHLY EXPLOSIVE GASES. DURING NORMAL VEHICLE OPERATION THE CONCENTRATION OF THESE GASES IS A POTENTIAL HAZARD TO BE CONSIDERED DANGEROUS WHEN FLAME OR SPARKS OCCUR IN THE BATTERY COMPARTMENT CLOSE TO THE VENT HOLES IN THE BATTERY CAPS. IT IS IMPORTANT THAT THIS NOT BE ALLOWED TO OCCUR AT ANY TIME. LIGHTED CIGARETTES MUST NOT BE BROUGHT CLOSE TO THE BATTERY COMPARTMENT.

DURING THE CHARGING PROCESS, EMISSIONS ARE GREATLY INCREASED.

ANY AREA IN WHICH CHARGING BATTERIES ARE CONFINED MUST BE WELL VENTILATED, AND FLAME, SPARKS, OR LIGHTED CIGARETTES MUST BE KEPT OUT OF THE CHARGING AREA AND AWAY FROM VENTILATOR OPENINGS ASSOCIATED WITH THE CHARGING AREA. BATTERY CONNECTIONS MUST NOT BE DISTURBED WHILE BATTERIES ARE BEING CHARGED.

MALFUNCTIONS SYMPTOMS AND THEIR REMEDIES

1. The Lester-Matic charger is designed with as few parts as possible. Since each component can be tested individually, trouble shooting is a simple task. The following is a list of symptoms with their associated test procedures and remedies.

NO TRANSFER HUM AND AMMETER DOES NOT REGISTER

In the event no hum is detected from the transformer, check the AC cord to be sure it is securely plugged into a live AC outlet. When three-prong to two-prong adapters are used, they tend to work loose giving a poor connection. If the cord connection is secure and still no hum is noticed, a continuity test of the AC circuit is necessary. Turn the timer to "ON" and, with a suitable continuity tester, check circuit across the AC plug prongs (Figure 1). CIRCUIT SHOULD BE COMPLETE. If not complete, individually check the AC cord, timer primary transformer coil, and all connections.

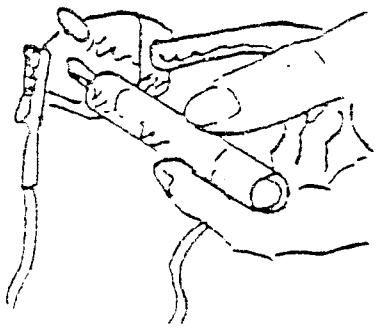

FIGURE 1

TRANSFORMER HUMS BUT NO AMMETER INDICATION

Inspect the DC plug connection to the vehicle receptacle and also check to ensure that the batteries are connected properly to the receptacle. If there is still no ammeter indication, a continuity test of the charger DC circuit must be performed. Turn the time to "OFF" and disconnect the AC and *DC plugs. Perform the following tests, using a low voltage tester, to check the continuity of the DC circuit.

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MALFUNCTION SYMPTOMS AND THEIR REMEDIES (continued)

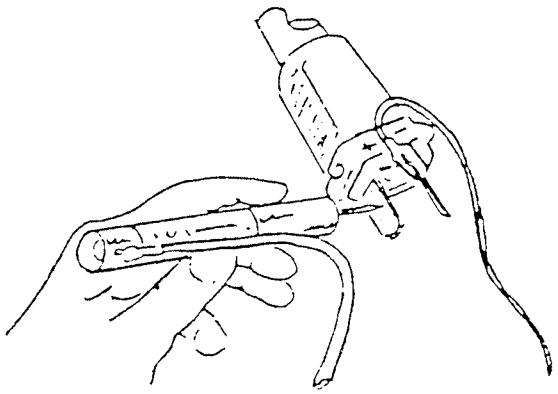
TRANSFORMER HUMS BUT NO AMMETER INDICATION (continued)

* For built-ins, disconnect AC plug and DC leads to battery to isolate charger.

(a) Connect tester clip to negative (-) blade and probe to positive (+) blade (Figure 2). CIRCUIT SHOULD BE COMPLETE. If not complete, first check the DC fuse link.

If one or both fuses have blown, the link will be broken and usually the clear plastic fuse cover will be discolored. Refer to "Fuse Link Blowing" for test procedures. If fuses are good, individually check the fuse connections, DC cord, and diode connections (each may be checked with the continuity test light).

NOTE: On built-in charger the red lead is (+) and black lead is (-) on DC output.



Typical plug. Check same polarity on other plugs.

FIGURE 2
D.C. PLUG CHECK FOR PORTABLE CHARGERS ONLY

(b) If the circuit in Figure 2 is complete, reverse test light leads as shown in Figure 3. CIRCUIT SHOULD NOT BE COMPLETE. If circuit is complete, check DC cord for a "short" between the two wires. More probably, one or both diodes have "shorted". Refer to "Fuse Link Blowing" part (b) for continuity test of diodes.

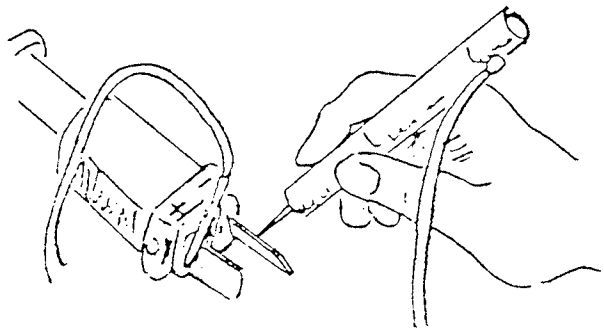


FIGURE 3
D.C. PLUG CHECK FOR PORTABLE CHARGERS ONLY

CAUTION: **Discharge capacitor before proceeding with (c).** Momentarily apply plastic handled metal screw driver across both capacitor terminals.

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Page 8

MALFUNCTION SYMPTOMS AND THEIR REMEDIES (continued)

(c) If (a) Figure 2 and (b) Figure 3 check good, assume the capacitor is shorted. Remove one wire from a capacitor terminal and place continuity tester clip to one terminal and probe to other. If circuit is complete, capacitor is "shorted" and must be replaced.

CHARGER DC FUSE LINK(S) BLOWS

This condition is caused by:

(a) Reverse polarity between charger and batteries, such as incorrect installation of batteries, wiring of DC receptacle or charger plug.

(b) A short circuit failure of one or both diodes. First disconnect one diode. Using a low voltage continuity tester check each diode as shown in Figure 4. Then reverse the tester leads and check each diode again. If the diode conducts current in both directions the diode is shorted and must be replaced. Replace either the entire heat-sink assembly or the defective diode. When replacing a single diode be sure the new diode is pressed squarely into the hole and does not extend beyond the rear surface of the heat-sink plate.

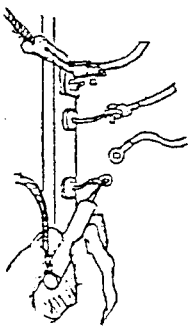

FIGURE 4

(c) If (a) and (b) fail to reveal the malfunction, check wiring of both charger and vehicle against their respective wiring diagrams.

CHARGER OUTPUT IS LOW

The most probable cause is one diode shorting and blowing one fuse. Refer to "Fuse Link Blowing" part (b) to check the diodes. If a diode is shorted both the heat sink and fuse assemblies must be replaced.

CHARGER DOES NOT TURN OFF

In models equipped with timers, this is due to an inoperative timer. In this case replace timer assembly.

AC LINE FUSE OR CIRCUIT BREAKER BLOWS

If this occurs when charger is turned on without being plugged into the vehicle, the AC cord, timer motor coil, or the transformer may be shorted. To check the AC cord, ensure that the timer is "OFF" and connect the continuity tester across the AC plug prongs. If circuit is complete the AC cord is shorted and must be replaced. To check the timer motor coil, disconnect the white timer motor wire and connect continuity tester to the motor coil leads. If the lamp glows, the coil is shorted. To test the transformer, disconnect secondary leads #1 and #4. If the AC fuse or breaker still blows, the transformer is shorted internally and must be replaced.

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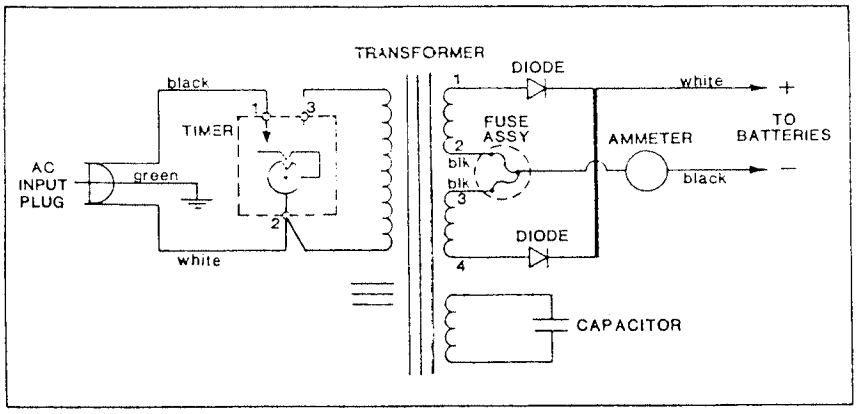
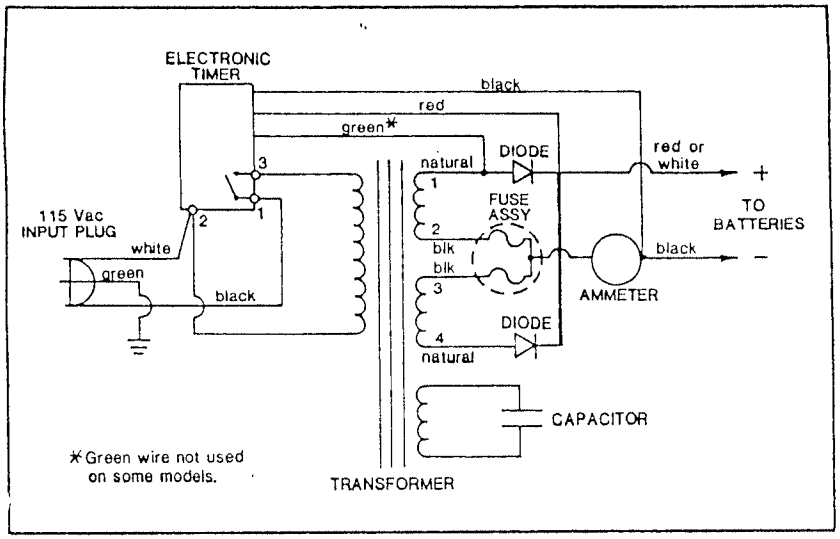
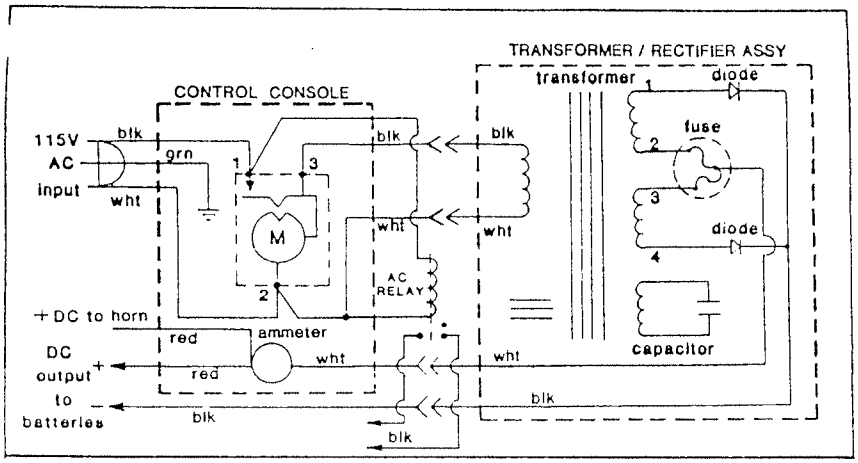
SCHEMATICS, LESTER CHARGERS



TYPICAL PORTABLE CHARGER



TYPICAL PORTABLE ELECTRONIC CHARGER (LESTRONIC II)



SCHEMATIC
TYPICAL, ALL BUILT-IN CHARGERS

SECTION 7
Page 1

MECHANICAL DISC BRAKES

Maintenance and adjustments are covered in your Operators Manual. Mechanical disc brakes are standard.

HYDRAULIC DISC BRAKES

The hydraulic disc brake system consists of three primary sub-systems.
1) The master cylinder with fluid lines (Section 16).
2) The mechanical control linkage, showing park and foot brake interconnections to the caliper assemblies (Section 15).
3) The caliper assembly as it mounts to disc (Section 16).

Each rear wheel is fitted with a hydraulic (calipers) disc brake assembly.

Master cylinder fluid level should be checked monthly. Add fluid as needed to maintain level 3/8 " to 1/2 " from top of fill port. Use only approved hydraulic brake fluid, DOT # 5, silicone.

A visual inspection of the hydraulic system is recommended on a monthly basis to detect any signs of leakage. Repairs should be made immediately if leakage is discovered.

A spongy action on brake pedal or a low engagement point on pedal usually indicates air entrapment.

The loss of brake pedal action may be due to a defective master cylinder. It can usually be detected by signs of fluid leakage at master cylinder or by the action of the brake pedal. When foot pedal pressure is applied you will feel the brakes engage, yet, the pedal will continue to travel downward. A ruptured hydraulic line or a defective wheel cylinder will produce the same action. You can determine the cause by the location of brake fluid leakage.

MASTER CYLINDER REPAIR OR REPLACE

1. Remove cotter pin, clevis pin, and remove push rod. It will slide out of master cylinder socket).
2. Disconnect hydraulic line at cylinder. (There will be 2 lines on on 4 wheel brake system.)
3. Remove 2 holding bolts and lift master cylinder out of chassis.
4. Cylinder should be thoroughly cleaned.
5. Remove boot and locking ring.
   NOTE: Piston parts are under spring pressure, take care that they do not pop out when you remove lock ring.
6. Remove piston and cup assembly.
7. Inspect cylinder wall. If scoring or roughness is present it must be removed with a fine hone.
8. Taking care that all parts are kept clean, install new piston and cup assembly kit. A diagram is furnished with each kit. It is also recommended that parts are coated with a small amount of brake fluid prior to assembly.
9. Replace lock ring and boot.
10. Install cylinder in chassis in reverse order to which it was removed.
11. ADJUST push rod by loosening locknut and shortening or lengthening the rod so that when brake pedal is fully raised the push should be within 1/16" of contacting piston socket. A good way to be certain is to remove clevis pin. While lightly holding rod against socket (DO NOT PUSH HARD ENOUGH TO MOVE PISTON) observe the alignment of clevis and hole. When correct you will have to pull rod approximately 1/16" out of socket of insert clevis pin.
12. Tighten locknut and install cotter pin.

SECTION 7
Page 2

WHEN USING A BLEEDER TANK

1. Fill master cylinder to top with DOT #5 brake fluid or, if available, attach brake bleeder tank to master cylinder.

2. When using bleeder tank, loosen air bleeder valve (located at each wheel cylinder), one at a time. Allow fluid to flow until air pockets and bubbles stop and a clear stream appears.

WHEN BLEEDER TANK IS NOT AVAILABLE

It is necessary to utilize 2 people to bleed brake system when bleeder tank is not available. One person will operate brake pedal and add fluid to master cylinder as needed. The other person will operate bleeder valves. While one person applies brake pedal pressure, loosen bleeder valve. Fluid and air will be forced out on the downward stroke of the pedal. Person operating pedal must hold it down at the end of its stroke while the other person closes bleeder valve. If pedal is raised while bleeder valve is open, air will be drawn back into the system. By coordinating the movements of the 2 people, air will be bled out of each downward stroke of the pedal. It is wise to refill master cylinder after every 3 or 4 strokes to ensure against any air being drawn in because of the reservoir level being too low. Usually 2 to 4 strokes per wheel cylinder is sufficient to remove air from system.

1. Allow vehicle to sit 15 minutes to stabilize. (Air bubbles can be trapped in silicone brake fluid and must be allowed to collect.) Allow fluid to flow until air pockets and bubbles stop and a clear stream appears.

2. Remove brake bleeder tank if used. Fill master cylinder 3/8" to 1/2" of top and replace cover.

REPLACING BRAKE PADS AND ADJUST PARK BRAKE

1. Release hand park brake.

2. Remove wheel.

3. Examine caliper assembly for worn pads. If plates are close to disc and hydraulic pistons are particularly extended, then pad replacement is necessary.

4. Replace pads by retracting plate against pistons to allow for plate replacement. If pistons are difficult to retract, loosen bleeder valve, (allow fluid to escape) push plate and immediately re-tighten bleeder valve to avoid trapping air.

5. Remove one retainer bolt and spacer, remove both stator plates.

6. Replace both stator plates.

7. Re-install stator bolts and spacers. Tighten to 12 foot pounds. Rotate disc to make sure there is running clearance. If not, install clips between bracket (see next page for installation drawing) and housing end.

8. Bleed brakes if required.

9. Adjust the park brake at the park brake arm (see next page for installation drawing). By removing the clevis pin, push brake rod forward as if applying the brakes. Now rotate rod to align holes in park arm then back off one full turn. Re-install clevis pin. Repeat same procedure for the other wheel.

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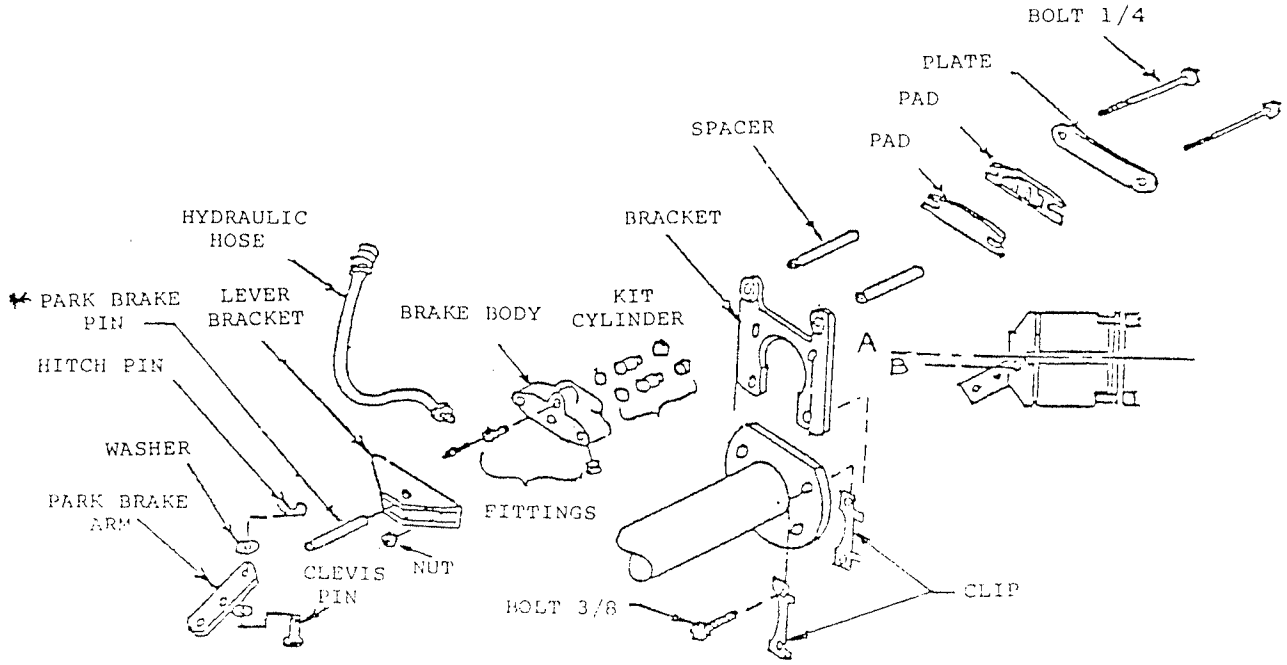
Page 3

REPLACING BRAKE CYLINDER PARTS (CALIPER ASSEMBLY)

CAUTION: BLOCK VEHICLE WHEELS, PLACE FORWARD/REVERSE SWITCH IN NEUTRAL, TURN KEY TO OFF POSITION AND REMOVE FROM SWITCH. SET PARK BRAKE.

1. Remove wheel.
2. Disconnect park brake at park brake lever on caliper assembly.
3. Disconnect brake line/hose at caliper, cap hose.
4. Bend down locking tabs on mounting bracket.
5. Remove mounting bolts.
6. Lift caliper assembly off vehicle.
7. It is only necessary to remove one bolt and spacer.
8. Remove pads.
9. Remove rubber boots.
10. Slide out pistons.
11. Examine caliper housing for wear, pitting, particularly in `O' ring groove. If badly worn, replace housing.
12. Replace individual parts, piston, `O' ring and boot as required.
13. Re-assemble, installing brake stator, spacer and bolt, Tighten bolts to 12 foot pounds.
14. Remount caliper assembly in vehicle with new clips on both sides of housing flange. Tighten clip mount bolts to 30 foot pounds, bend clip tabs up to prevent loosening. Note orientation of caliper center line `A' to park brake lever `B' center line. Be sure friction material is facing the disc.
15. Rotate disc to be sure there is running clearance.
16. Re-connect hydraulic lines and park brake rods.
17. Bleed brake system and adjust hand park brake with clevis. Bleed air from brake system. See Section 7, page 2.

* **NOTE: Apply thin layer of grease to pin before installing. In corrosive environment, pin could lock up if not lubricated ie, near ocean or chemical plants.**



SECTION 8
Page 1

BELT TENSION ADJUSTMENT AND ALIGNMENT - BELT DRIVE VEHICLES

NOTE: New belts will 'seat-in' rapidly, therefore, re-adjust belt tension after only a few hours of running to prevent undue slippage and wear. It may be necessary to repeat the adjustment procedure two or three times within the first week or two of running until the new belts become thoroughly 'seated-in'.

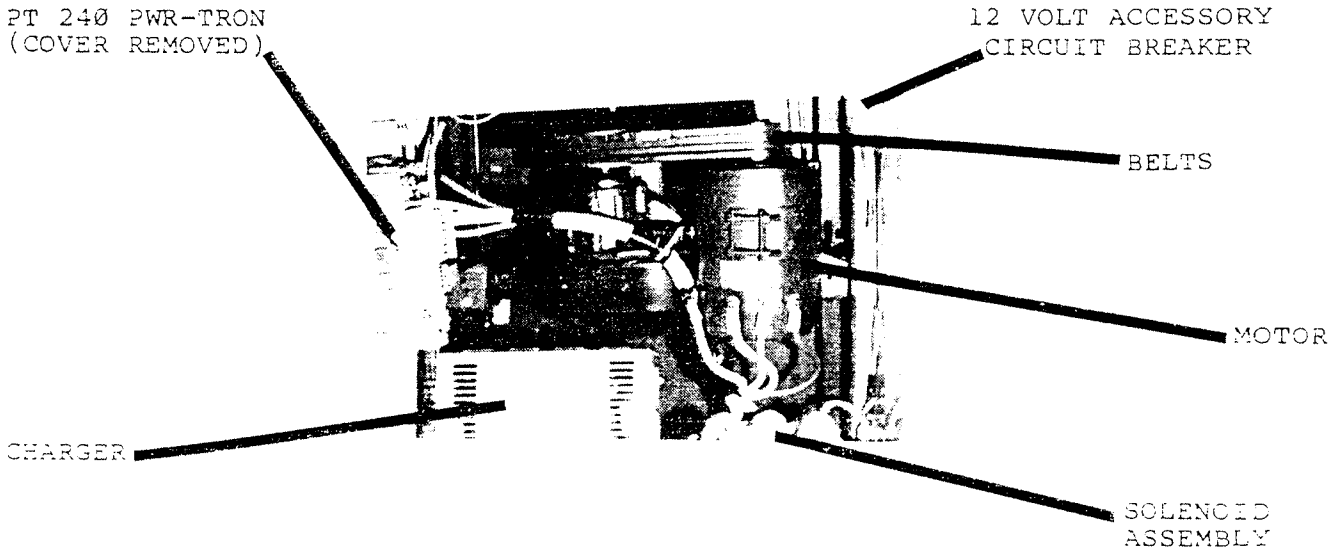
1. CAUTION: Disconnect both main battery leads to prevent accidental engagement of power while servicing unit.
2. Loosen motor mount clamp nuts slightly.
3. Loosen motor adjusting bolt lock nut and turn adjusting bolt in or out as needed to tension belts properly.

NOTE: Belt tension is correct when belts will deflect between 1/4" and 3/8" at the mid point between pulleys. Press each belt firmly at the mid point with your thumb or finger and measure the deflection at the same point.

4. Rotate drive pulley sufficiently so belts will travel at least one full turn and check belt tension again. This will allow belts to seat properly in grooves. Repeat tension adjustment as necessary until satisfactory results are obtained.
5. Tighten lock nut on tension adjustment bolt, holding bolt in position with one wrench while tightening lock nut with second wrench.
6. Check pulley alignment on its mounting bracket to bring pulleys into alignment. If necessary tap motor mount bracket into position with soft hammer.
7. Retighten motor mount clamp nuts securely.

REPLACEMENT OF BELTS - BELT DRIVE VHEICLES

1. **CAUTION: Disconnect both main battery leads to prevent accidental engagement of power while servicing unit.**
2. Loosen motor mount clamp nuts slightly.
3. Loosen motor adjusting bolt lock nut and turn adjusting bolt in until belts can be easily lifted from pulley grooves without prying or forcing. Remove old belts.
4. Install a full set of new belts of equal length. Replacement of only a part of the set will prevent obtaining proper tension of all belts. This will cause unequal division of load among the belts with abnormal wear as a result.
5. Adjust tension and alignment as described above.



REAR COMPARTMENT

SECTION 8
Page 2

MAINTENANCE, SERVICE AND PARTS
POWER TRACTION

ADJUSTMENT OF DRIVE CHAIN TENSION - POWER TRACTION

1. **WARNING: Disconnect both main battery leads to prevent accidental engagement of power while servicing vehicle.**
2. Tighten three motor mounts.
3. Loosen and unscrew each nut exactly one full turn.
   WARNING: This procedure is very important, for if the nuts are too loose or too tight, an error will result in the final adjustment which will seriously reduce the life of the chain.
4. Loosen adjusting set screw lock nut. Using standard socket set screw wrench, turn set screw clockwise until tight. (If a torque wrench is available, tighten to 80 in lbs torque). Without a torque wrench, bear in mind that a standard socket set screw wrench is approximately 4 inches long. An average person will only be able to develop the required torque necessary if he tightens it as far as possible with his hands and does not use any extended handle on the wrench.
5. After developing the required torque, unscrew the adjusting screw exactly 2-1/2 turns. It is also very important to be exact on this adjustment.
6. Tighten locknut. DO NOT allow adjusting screw to move while tightening locknut.
7. Be certain that motor has moved all the way back and adjusting screw is in contact with back plate. If necessary, tap motor lightly to assure this condition.
8. Tighten three motor mount nuts securely.

Perform this adjustment procedure regularly as listed below to assure long and trouble free life from your "Power Traction Drive".

SCHEDULED ADJUSTMENT	AFTER	COMMENTS
1st Adjustment	100 Hours	New unit or after installing new chain
2nd Adjustment	Next 150 Hours	Normal running conditions
3rd Adjustment	Next 250 Hours	Normal running conditions
Thereafter	Every 400 Hours	Normal running conditions

"QUICK" MOTOR REMOVAL PROCEDURE - POWER TRACTION

NOTE: This procedure is a quick method of removing the motor without removing the chain case cover. if removal of the chain case becomes necessary, refer to Sub-Section titled "Disassembly and Reassembly Power Traction Drive Assembly".

1. **WARNING: Disconnect both main battery leads to prevent accidental engagement of power while servicing unit.**
2. Drain oil from gear case by removing drain plug.
3. Identify motor leads from proper connection when reassembling. Remove motor leads.
4. Loosen 3 motor mount nuts and the adjusting set screw lock nut.
5. Back-off adjusting screw sufficiently so as to allow motor mounting adjustment plate to be fully bottomed. This will allow for easy removal of motor.
6. Remove the 3 motor mounting nuts and washers. Carefully ease motor out of opening after removing chain from motor sprocket.

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Page 3

"QUICK" MOTOR INSTALLATION PROCEDURE - POWER TRACTION

1. If installing new motor, clean motor and motor mounting plate surfaces. Install motor mounting plate to motor (take care to position motor on plate properly) with 4 flat-head cap screws previously removed. Tighten screws to 30 ft. lb. torque and stake head in place with center punch.
2. If installing new motor, or if sprocket has been removed to repair motor, assemble spacers, key, sprocket, washer and shaft nut to motor shaft in the same manner as previously removed. Tighten shaft nut to 75 ft. lb. torque.
3. Place "0" ring in motor mounting plate opening.
4. Using a piece of wire (coathanger, etc.), reach through the opening in the chain case backing plate and lift the chain above the opening. Secure the chain in this position by attaching the wire to the top mounting bolt, etc.
5. Remove a motor brush inspection cover so that the armature is plainly visible.
6. Rotate the motor slightly in the direction of the passengers seat so that the motor mounting plate clears the studs attached to the Chain case backing plate.
7. Carefully slip the motor sprocket in the hole and under the drive chain.
8. In this position move the vehicle slightly forward and backwards while observing the correct movement of the motor armature through the brush inspection opening.
9. Now, carefully reposition the motor onto the studs and install washers, lock washers and nuts. DO NOT TIGHTEN NUTS. FINGER TIGHT ONLY.
10. Move the vehicle slightly forward and back and re-check the armature movement to insure chain has not slipped off sprocket. **CAUTION: If chain is not properly positioned on sprocket, severe damage could occur to the Power Traction Component parts.**
11. Adjust chain tension as described in Sub-section titled "Adjustment of Drive Chain Tension".

DISASSEMBLY AND REASSEMBLY OF POWER TRACTION DRIVE ASSEMBLY

1. Perform steps 1, 2 and 3 in Sub-section titled "Quick Motor Removal Prodedure - Power Traction".
2. Remove remaining bolts and nuts from front of chain case cover. Remove chain case cover.
3. Remove the three nuts and washers which fasten motor to motor mounting plate. Disengage chain from motor sprocket. Remove motor, motor mounting plate and sprocket from chain case backing plate.
4. Remove "O" ring from motor mounting plate.
5. Remove chain, pinion sprocket and spacers from pinion shaft.
   NOTE: Spacer location for proper reassembly.
6. If axle or differential maintenance requiring further disassembly is necessary, remove chain case backing plate and gasket by removing the 5 bolts which retain the backing plate to the differential carrier. Refer to Sub-sections which cover axle and differential disassembly and reassembly.
7. To reassemble, install chain case backing plate and gasket to differential carrier with 5 bolts previously removed. Use gasket sealer. Tighten bolts to 50 ft. lbs. torque. Install chain on pinion sprocket.
8. Install "O" ring in motor mounting plate and attach motor and motor mounting plate to chain case backing plate.
9. Engage chain with motor sprocket and secure motor mounting plate to chain backing plate with 3 nuts and washers previously removed.
   NOTE: Chain adjustment procedure is covered in Sub-section titled "Adjustment of Drive Chain Tension - Power Traction".
10. Install chain case cover and gasket to chain case backing plate. Replace gasket if damaged. Tighten gear case cover retaining bolts and nuts.
11. Fill gear case with oil. Refer to lube chart in Section 2.
12. Connect motor leads.
13. Connect battery main leads.

SECTION 8
Page 4

REMOVE AND INSTALL REAR WHEEL BEARING, POWER TRACTION AND BELT DRIVE

1. **WARNING: Disconnect both main battery leads to prevent accidental engagement of power while servicing vehicle.**
2. Remove wheel and tire assembly.
3. Remove 4 bolts attaching disc brake mounting bracket to Drive Axle housing after first bending clip locking tabs out of the way (4 clips, 8 tabs).
4. Remove 2 bolts and nuts attaching the caliper actuating lever to the caliper three hole position lever.
5. Remove caliper assembly from axle.
6. Remove axle from housing.
   CAUTION: If axle is difficult to remove from housing, use an axle puller that is designed for that purpose. Never use a hammer or other metal object to help drive the axle from the housing. Damage to the disc rotor could occur resulting in severe damage to the brake system and/or loss of brakes on one side.
7. Pull bearing retainer ring band bearing from axle shaft.
8. Press new bearing to shoulder on axle shaft. Press new bearing retainer ring into position on axle shaft.
9. Check condition of oil seal and replace if necessary.
10. Carefully install axle into axle housing and differential assembly.
11. Attach brake caliper, assemble to housing. Secure with 4 bolts and 2 double tab clips. Tighten bolts to 35 ft. lb. torque. Now bend locking tabs up against their respective bolts.
    Warning: Failure to bend locking tabs up properly against bolts could eventually result in loss of braking action due to bolts becoming loose.

REMOVE AND INSTALL REAR AXLE DRIVE ASSEMBLY FROM AND TO VEHICLE
- POWER TRACTION AND BELT DRIVE -

1. **WARNING: Disconnect both main battery leads to prevent accidental engagement of power while servicing vehicle**
2. Mark motor leads to insure their proper location when re-assembling.
3. Remove motor leads.
4. Release parking brake (if applied)
   NOTE: Refer to Section 7, Sub-section titled "Brake Adjustment Procedure for when all Brake adjustment screw travel has been Used-Up" before continuing with step 5.
5. Remove clevis pins holding rear brake connecting rods to cross-shaft.
6. Remove lower bolts from shock absorbers.
7. Remove top bolt from torque arm at drive.
8. Remove 2 bolts and nuts which attach axle housing to main leaf spring each side.
9. Remove drive axle assembly from vehicle.
10. Before re-installing drive axle assembly in vehicle, examine rubber bushings in leaf springs and replace if worn or damaged.
11. Install drive axle assembly in reverse order of removal.
12. Re-connect torque arm, shocks, and brake linkage in reverse order of removal.
13. Check and adjust (if necessary) brake system according to procedures in Section 7. For mechanical disc brakes refer to your "Operator's Manual".
14. Connect main battery cables.

DISASSEMBLY OF REAR AXLE AND DIFFERENTIAL ASSEMBLY
- POWER TRACTION AND BELT DRIVE -

1. Remove drive axle assembly from chassis, remove motor and chain drive assembly as described in appropriate Sub-sections.
2. Remove both axles. Refer to Sub-section Remove and Install Rear Wheel Bearings"
3. Remove nuts around differential carrier housing and remove carrier from axle housing.

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Page 5

DISASSEMBLY OF REAR AXLE AND DIFFERENTIAL ASSEMBLY
- POWER TRACTION AND BELT DRIVE - continued

4. Mark one differential bearing cap and bearing support to insure proper assembly. Remove adjusting nut locks, bearing caps, and adjusting nuts. Lift differential out of carrier.
5. Remove ring gear pinion from differential case.
6. Drive out differential pinion shaft retainer and separate the differential pinion shaft and remove gears and thrust washers.
7. Remove ring gear pinion retainer from carrier. Remove O-Ring from retainer.
8. Remove pinion locating shim. Measure shim thickness with micrometer.
9. If the ring gear pinion pilot bearing is to be replaced, drive the pilot end and bearing retainer out at the same time. When installing, drive the bearing in until it bottoms. Install a new retainer with the concave side up.
10. Press the ring gear pinion shaft out of front bearing cone and remove spacer.
11. Remove ring gear pinion bearing cone.
12. Do not remove ring gear pinion bearing cups from retainer unless they are worn or damaged. The ring gear pinion bearing flange and pilot are machined by locating on these cups after they are installed in the bores. If new cups are to be installed, make sure they are seated in the retainer by trying to insert a .0015" feeler gauge between cup and bottom of bore.

REASSEMBLY OF REAR AXLE AND DIFFERENTIAL ASSEMBLY - ALL VEHICLES

1. Differential Case: Place a side gear and thrust washer in the differential case bore. LUBRICATE ALL PARTS LIBERALLY WITH AXLE LUBRICANT DURING ASSEMBLY. With a soft faced hammer, drive pinion shaft into case only far enough to retain a pinion thrust washer and pinion gear. Place the second pinion and thrust washer in position. Drive the pinion shaft into place. Be careful to line up pinion shaft retainer holes. Place second side gear and thrust washer in position and install differential case cover. Install retainer. A pinion or axle shaft spline can be inserted in side gear spline to check for free rotation of differential gears.
2. If the differential bearings have been removed, use a suitable press to install them.
3. Install pinion rear bearing cone on the pinion shaft. Install spacer with shims on the shaft. Place the bearing retainer on the pinion shaft, and install the front bearing cone. Lubricate both bearings with differential oil.
4. Power Traction: Place spacers and sprocket on pinion shaft spline. Install washer and shaft nut and tighten to 100 ft. lb torque.
   Belt Drive: Place spacers and pulley on pinion shaft spline. Install washer and shaft nut and tighten to 100 ft. lb. torque.
   NOTE: The bearing should spin freely without end play. If it is too tight or too loose, adjust by removing or adding spacers.
5. Shim Selection: Manufacturing tolerances in the pinion bore dimensions and in the best operation position of the gears, make an adjustment shim necessary. This shim is placed between the pinion retainer and the carrier. An increase in the thickness of the shim moves the pinion away from the drive gears. Manufacturing objectives are to make axles requiring a .0015" shim and if a new assembly is being built, a .0015" shim should be used for a tentative build-up. Shims are available in .010" to .021" thickness in steps of .001". Pinions and drive gears are marked, when matched, with the same number. Following the numbers on the pinion is a (-) or (+) followed by a number. If the pinion is marked "-1" it indicates that a shim .001" thinner than a standard shim for this carrier is required.

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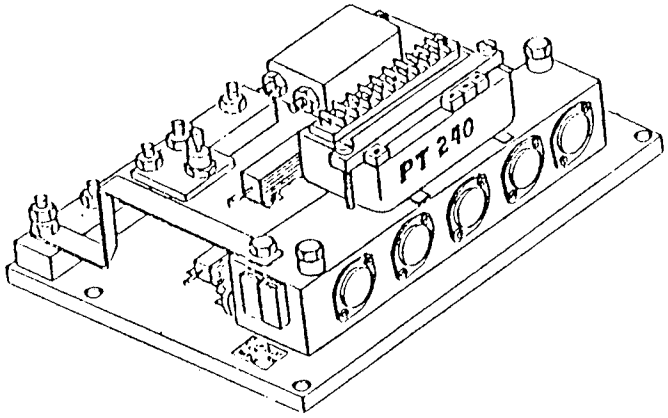
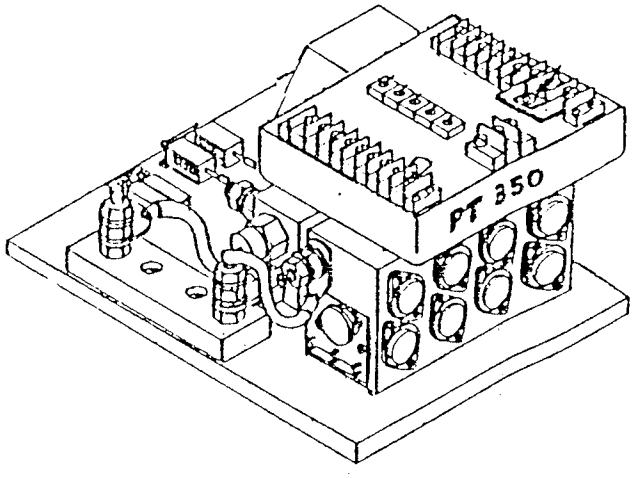
Page 1

PWR-TRON INTRODUCTION R 3-80

The PWR-TRON 240 and 350 is developed and available only from Taylor-Dunn and is warranted for one full year. Modifications to the control unit, drive or power system will void the warranty. The PT 240 is standard.

24 or 36 VOLTS
RECOMMENDED FOR
USE UP TO 6 HP
MOTORS
(INTERMITTENT)





24 OR 36 VOLTS
RECOMMENDED FOR
USE UP TO 10 HP
MOTORS
(INTERMITTENT)

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Page 2

PWR-TRON 240 AND 350

GENERAL

The PWR-TRON unit is readily accessible under the deckboard. The PWR-TRON unit performs two functions; forward-reverse and acceleration via mechanical linkage to the foot pedal. You will notice the PWR-TRON unit is a transistorized supply that regulates the voltage fed from the battery through the accelerator module to provide the necessary signal to the motor. This gives the operator full control of the vehicle at all speeds and braking under all conditions.

FEATURES

Some of the inherent advantages over conventional (resistor type) speed controls are:

1. Increased range; 30% (milage may vary)
2. Positive current limit; increases motor and battery life.
3. No maintenance to PWR-TRON required.
4. Power matched to motor; providing maximum power output during towing or hauling.
5. Thermal protection to prevent over heating and damage to PWR-TRON
6. Unit is protected from incorrect battery hookup.
7. "Low" battery protection through solenoid drop out.
8. "Built-in" motor short protection; prevents run away current temperatures, should a motor short occur.
9. Controlled acceleration for smooth starting; no more jack rabbit starts.
10. Plug braking; while accelerator is fully depressed, reverse direction switch, vehicle will automatically slow down, then accelerate in reversed direction. Note, by letting up on the accelerator then reaccelerating, a smoother control will be achieved.
11. Modular construction provides simplicity in trouble shooting, parts replacement and servicing in the field.
12. Each unit has a thermocouple that shuts off power at 160 degrees F which is the operational limit of the PWR-TRON. The unit automatically resets when it has cooled to approximately 130 degrees F.

* CIRCUITS AND OPERATION

There are two circuits included in the operation of the PWR-TRON, the control circuit and power circuit.

The control circuit (light gauge wire) includes key switch, micro-switch, MS-1, potentiometer; R1, activated by the accelerator arm on back of accelerator module, the PWR-TRON solid state controller, forward reverse switch and solenoid panel.

The power circuit (heavy gauge wire) includes the batteries, forward reverse switch and motor.

The two circuits operate as follows: (refer to Fig.1)

* Circuits of Figures 1, 2 and 3 are the same for PT240 and PT350.

CONTROL CIRCUIT (see Fig. 2)

Forward operation. Turn key switch to "ON" position and forward-reverse switch to forward position, MS-1 is closed providing a current path to the forward solenoid coil and closing forward contact on the forward-reverse switch. As the accelerator is depressed, the potentiometer, R1, will increase the voltage, moving the vehicle in reverse.

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CONTROL CIRCUIT (see Fig. 2) continued

Reverse operation. Turn key switch to "ON" position and forward-reverse switch to reverse position, MS-1 is closed providing a current path to the reverse solenoid coil and closing the reverse contact on the forward-reverse switch. As the accelerator is depressed, the potentiometer, R1, will increase the voltage, moving the vehicle in reverse.

POWER CIRCUIT (see Fig. 3)

Forward operation. When the control circuit is energized and the solenoid contacts are closed current flow is then channeled through the PWR-TRON and then to the power wiring. Motor speed is controlled by voltage output from the PWR-TRON. The PWR-TRON is varied by the potentiometer, R1, in the control circuit.

Reverse operation. The same circuit is used as forward operation except the forward-reverse switch is moved to reverse current flow through the motor.

OPERATING YOUR PWR-TRON 240 AND 350 EQUIPPED VEHICLE

To put your vehicle into operation, turn ignition key to "ON". Select direction you wish to travel by moving forward-reverse switch to desired position. Release parking brake, slowly depress accelerator pedal until vehicle is moving at desired speed.

You will notice your vehicle has a smooth transition from start to high speed operation. This is a built-in characteristic of the PWR-TRON speed control, avoiding "jack-rabbit" starts.

"Plug braking" is an additional feature of the PWR-TRON. It is not necessary to come to a complete stop before reversing the vehicle. It is only necessary to reverse the vehicle while it is in motion and accelerator is fully depressed. The vehicle will automatically slow to an immediate stop and reverse itself to full acceleration. "Plug braking" should be done in an obstruction free area until the operator gets the feel for this maneuver. This maneuver does no damage to the PWR-TRON. It is recommended when starting the vehicle to be sure to always turn ignition key on first then select direction of travel when the forward-reverse switch, before depressing the accelerator pedal.

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PWR-TRON 240 AND 350 PREVENTIVE MAINTENANCE

WARNING: BEFORE WORKING ON THE PWR-TRON UNITS OR ANY PART OF THE VEHICLE SYSTEM, DISCONNECT BOTH THE MAIN POSITIVE AND NEGATIVE BATTERY LEADS. PLACE THE FOR-REVERSE LEVER IN NEUTRAL, TURN OFF AND REMOVE KEY. ALWAYS SET PARKING BRAKE.

No regular maintenance is required.

Be sure ignition key is on before depressing accelerator pedal. DO NOT depress pedal then turn on key. This is unsafe operation.

CAUTION:

Do not steam clean or spray with water

Make sure all wire connection are secure.

There are three modules as part of this system, solenoid panel, accelerator module and PWR-TRON module. These are all easily removable for replacement and service.

Only qualified service personnel should perform any replacement, adjustments or servicing of the PWR-TRON module, solenoid panel or the accelerator module. This will avoid the possibility of voiding your warranty on the PWR-TRON 240 and 350.

When returning vehicle to pre-service configuration make certain batteries are properly connected to avoid damage.

ACCELERATOR MODULES - PT240 AND 350

GENERAL FEATURES

All accelerator modules parts list are identical for all vehicles except for the rotor. This difference is noted on the following drawings and parts lists. The orientation of the accelerator is shown mounted in the "OFF" position for all vehicles. All parts list figures are identified in order of assembly. Whenever a reassembly is necessary a potentiometer check is required before adding pulleys and belts.

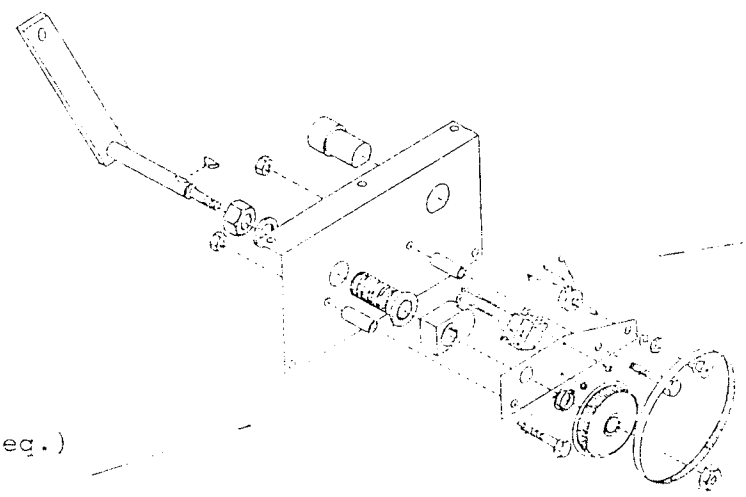
MICRO SWITCH CHECK

Using a VOM, with micro switch in "ON" position. Red wires should read OHMS and OFF position will read infinity.

MICRO SWITCH
WIRE DIAGRAM

SW1	NO	NC	COM
1		blue #7	blue #6
2	red #5		red #5

62-030-44



POT.PIN	WIRE #
A	yellow #1
B	black #2
C	green #3

78-350-55

71-127-00 (2 req.)

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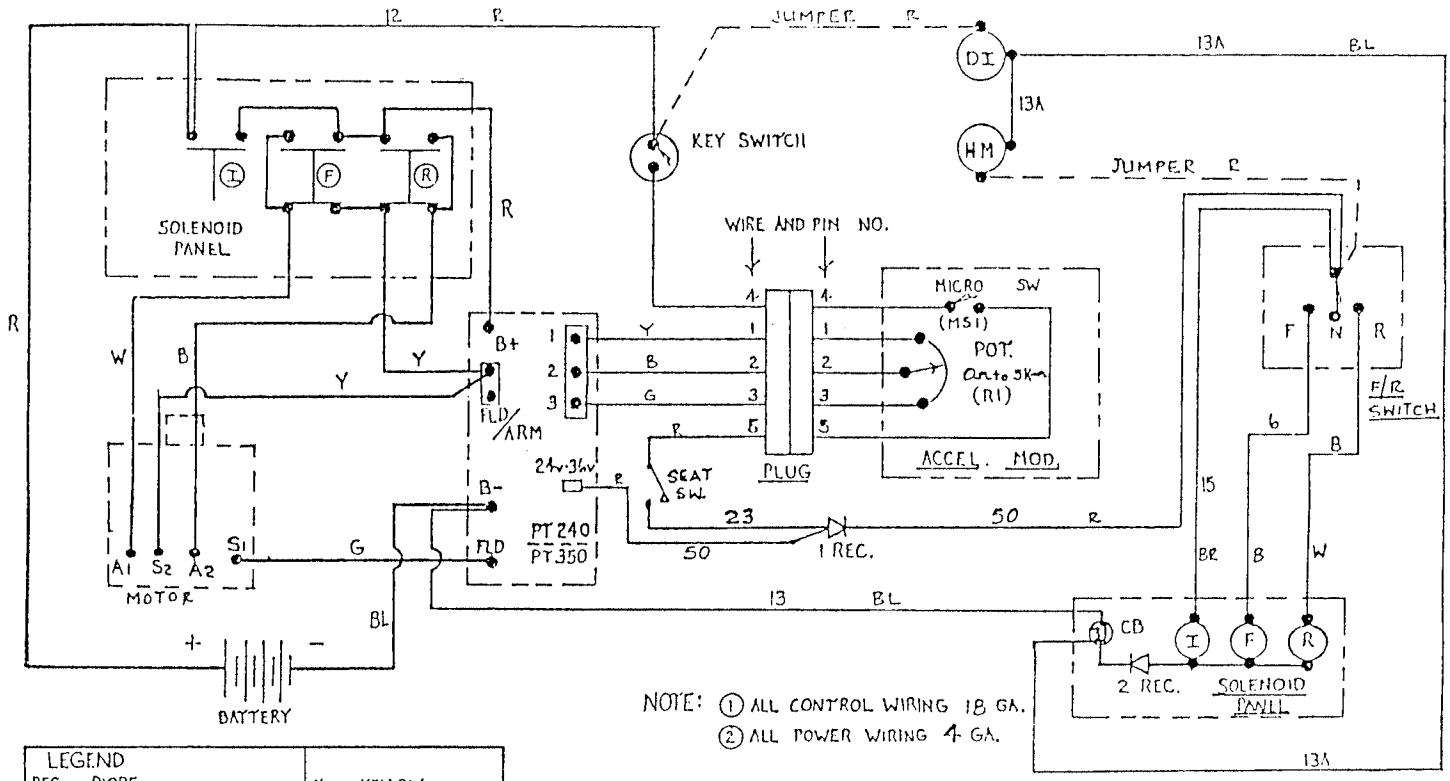
WIRING SCHEMATIC

FIGURE 1



NOTE: ① ALL CONTROL WIRING 18 GA.
② ALL POWER WIRING 4 GA.

LEGEND			
REC	DIODE	Y	YELLOW
HM	HOUR METER	B	BLUE
DI	DISCHARGE INDICATOR	W	WHITE
CB	CIRCUIT BREAKER	G	GREEN
I	ISOLATOR	BL	BLACK
F	FOWARD	R	RED
R	REVERSE	BR	BROWN

PWR-TRON 240/350 COMBINED CIRCUIT DIAGRAM WIRING SCHEMATIC. FIGURE 1

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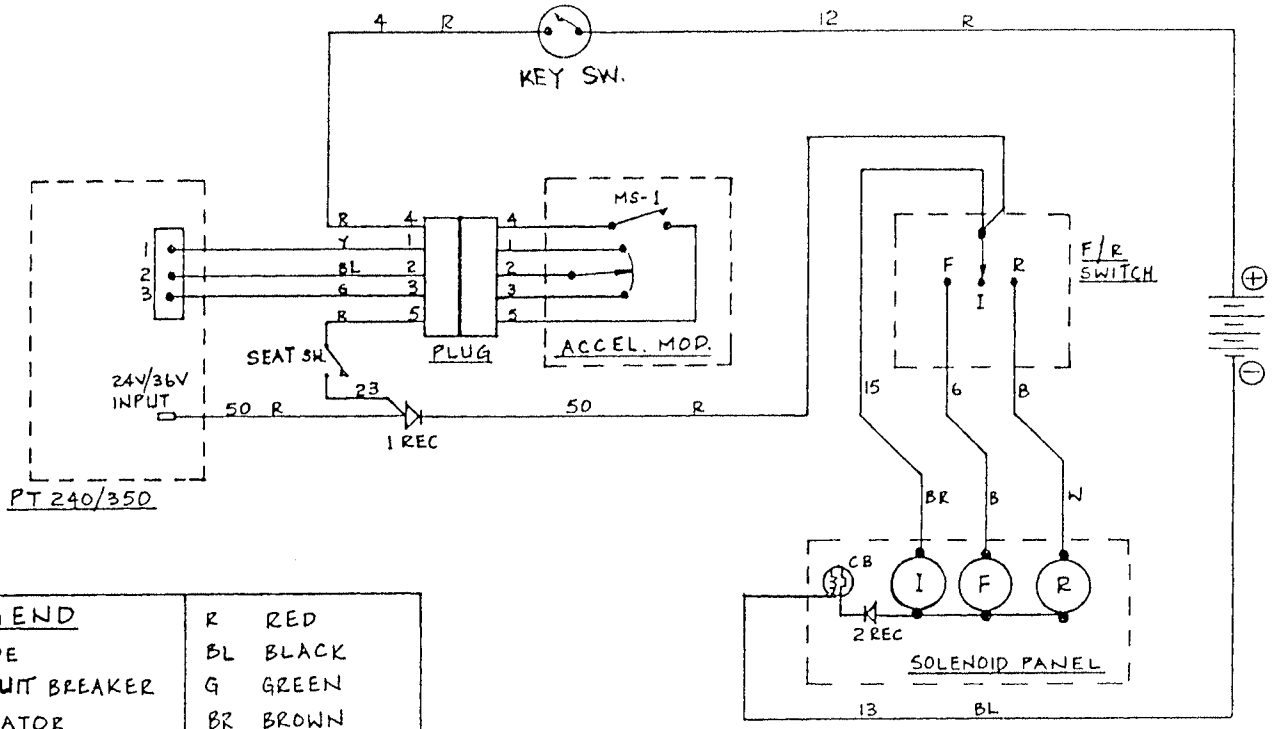
CONTROL SCHEMATIC
FIGURE 2

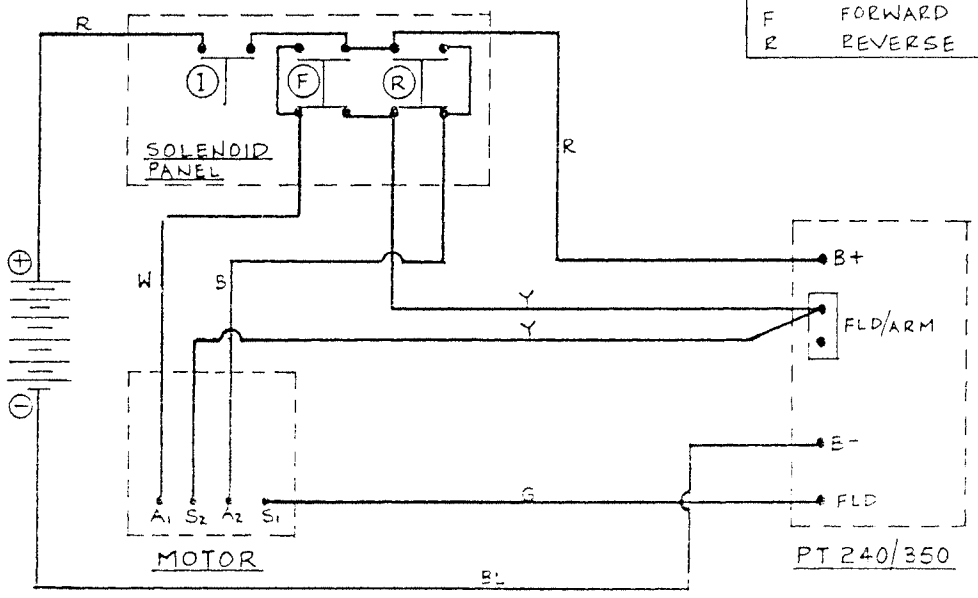


LEGEND			
EC	DIODE	R	RED
B	CIRCUIT BREAKER	BL	BLACK
	ISOLATOR	G	GREEN
:	FORWARD	BR	BROWN
:	REVERSE	Y	YELLOW
		W	WHITE

PWR-TRON 240/350 CONTROL SCHEMATIC

POWER SCHEMATIC
FIGURE 3

LEGEND			
B+	BATTERY POS.	R	RED
B-	BATTERY NEG.	BL	BLACK
FLD	FIELD	B	BLUE
ARM	ARMATURE	Y	YELLOW
I	ISOLATOR	G	GREEN
F	FORWARD	W	WHITE
R	REVERSE		



PWR-TRON 240/350 POWER SCHEMATIC

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CONTINUITY AND POWER CHECK

NOTE: VEHICLE DRIVE WHEELS MUST BE JACKED UP OFF THE FLOOR FOR THE FOLLOWING TEST.

CAUTION: THIS IS A FACTORY CHECKOUT PROCEDURE AND SHOULD ONLY BE MADE BY A QUALIFIED MECHANIC.

After the PWR-TRON system has been installed, a preliminary power check is required, prior to fine tuning of the PWR-TRON. The vehicle should be ready for basic operation at this time.

Lift green lead at S1 (refer to combined circuit diagram) and place a light (24, 36 or 48 volt) in series with S1 and field pole on PWR-TRON. Place forward/reverse switch in forward. Initiate accelerator slowly, light should come up to maximum brilliance at full acceleration. Repeat same step for reverse. If problems are encountered, see "Trouble Shooting" in this section. Also check acceleration rate by quickly depressing accelerator full. Light should come to full brilliance in 3 seconds. (Caution, do not perform plugging with light attached.

When both steps are completed satisfactorily, place vehicle on floor, prepared for operation and fine tuning of the PWR-TRON unit. Proceed to the page on "Trimpot Adjustment".

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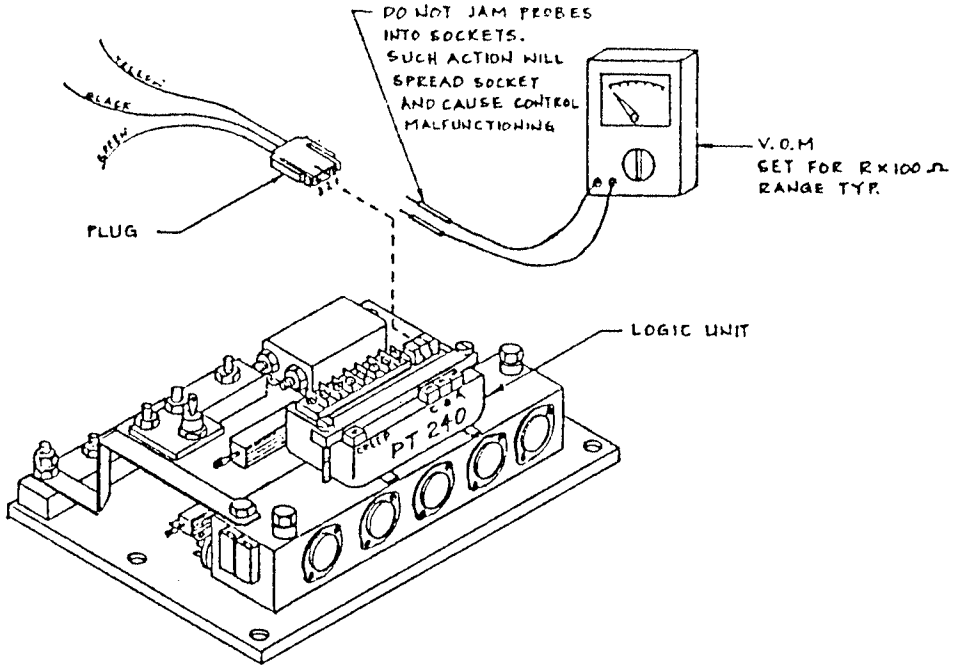

PWR-TRON 240 24/36 VOLTS

POTENTIOMETER CHECK & ACCELERATOR LINKAGE ADJUSTMENT

1. Disconnect plug (with yellow, black and green wires) at PWR-TRON logic.

2. Read 5K OHM on V.O.M. between sockets 1 and 2 (yellow and black wires) with accelerator pedal in off position.

3. With accelerator pedal fully depressed, read Ø - 1ØØ OHM on V.O.M. between sockets 1 and 2 (yellow and black wires). Adjust the accelerator pedal stop and/or accelerator linkage to achieve the above readings. DO NOT rely on stops inside the accelerator module. They are only a safety feature, not designed for constant foot/pedal return pounding.

4. Reconnect plug to PWR-TRON 240 logic unit.

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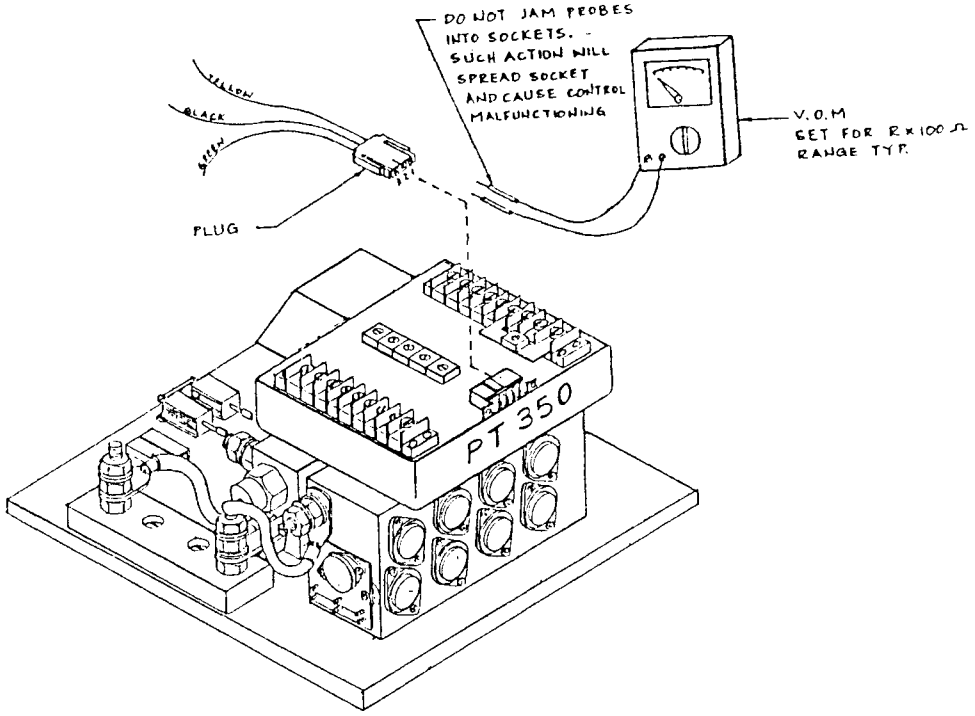

PWR-TRON 350Ø 24/36 VOLTS

POTENTIOMETER CHECK AND ACCELERATOR LINKAGE ADJUSTMENT

1. Disconnect plug (with yellow, black and green wires) at PWR-TRON logic unit.

2. Read 4K to 5K OHM on V.O.M. between sockets 1 and 2 (yellow and black wires) with accelerator pedal in off position.

3. With accelerator pedal fully depressed, read Ø - 3ØØ OHM on V.O.M. between sockets 1 and 2 (yellow and black wires). Adjust the accelerator pedal stop and/or accelerator linkage to achieve the above readings.

* DO NOT rely on return stop inside the accelerator module. It is only a safety feature, not designed for constant foot/pedal return pounding.

4. Reconnect plug to PWR-TRON 350 logic unit.

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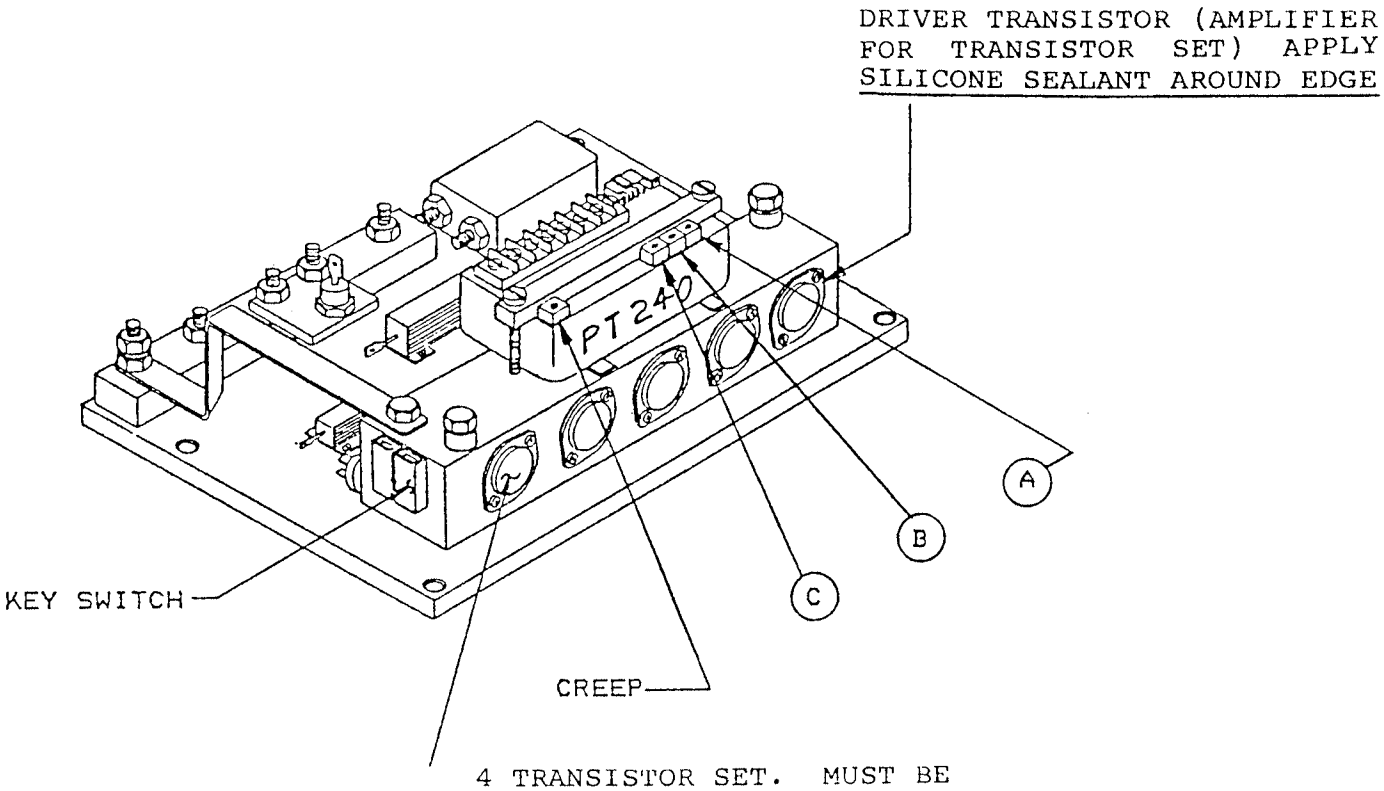

4 TRANSISTOR SET. MUST BE REPLACED AS A MATCHED SET

PWR-TRON 240 TRIMPOT ADJUSTMENTS

A. ACCELERATOR - Turn full direction of arrow

B. Plugging - Turn full opposite direction of arrow to start. Turn up 1/8 in direction of arrow.

C. CURRENT LIMITER - Turn full direction of arrow.

CREEP - Adjust trimpot so motor whines but does not turn when accelerator switch is first closed.

AFTER ALL POTS HAVE BEEN FINAL ADJUSTED, COAT POTS WITH WHITE SILICONE SEALANT.

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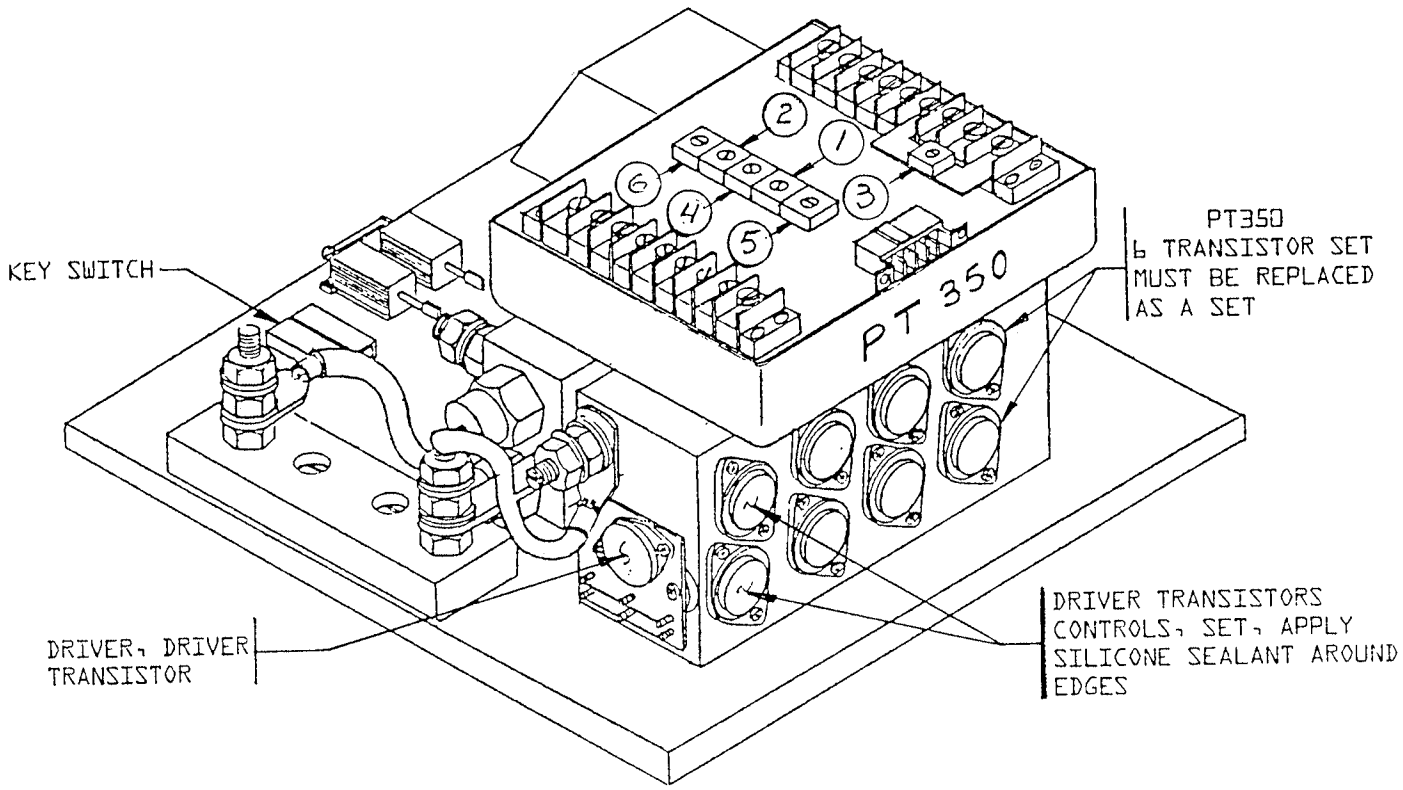

PT 350 TRIMPOT ADJUSTMENTS

Perform all trimpot adjustments in the order shown. All braking is done last.

1. CURRENT LIMITER - Turn full direction of arrow

2. ACCELERATOR - Turn full direction of arrow

3. MAX BRAKE - Turn full opposite direction of arrow

4. BRAKE - Turn full opposite direction of arrow to start. Turn up 1/8 in direction of arrow

5. VOLTS ADJUST - Adjust trimpot so "solenoid clicks" on and motor whines when accelerator switch is first closed.

6. LOW SPEED MAX - Option feature, no adjustment required

AFTER ALL POTS HAVE BEEN ADJUSTED, COAT POTS WITH WHITE SILICONE SEALANT.

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TROUBLE SHOOTING
(USE COMBINED CIRCUIT FOR CORRECTIVE ACTION)

	SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
1.	Vehicle goes forward does not move in reverse or vice versa	Motor to solenoid wired wrong or bad solenoid. Battery voltage too low, wire disconnected at solenoid, coil shorts on on solenoid, causes circuit breaker to trip: Solenoid will not function	(See Combined circuit) B neg from CB may be wired to field on PWR-TRON. Wire to B neg. If required, replace reverse solenoid.
2.	Vehicle goes Rev/Fwd instead of Fwd/Rev Vehicle goes in one direction only also moves in neutral.	Wires reversed at Fwd/Rev switch. Solenoid welded shut in one position.	Route white wire from Fwd switch to motor. A1 and blue wire from reverse switch to motor, A2
3.	Vehicle does not accelerate properly, full on, when checked with light	Solenoid GND connected to field input (green)	(see combined circuit) move to B neg. (same action as item no. 1)
4.	Catastrophic transistor failure during plugging	Motor/bat. lead to pos. (B+) on control omitted or mis-connected	(see combined circuit) * Replace transistor re-wire B+
5.	Vehicle operates then stops. Motor whine present. WARNING: Do not operate. Release accelerator immediately Continued operation could cause logic damage.	Plugging diode failure; 1. Yellow leads not properly connected. 2. Motor leads over 5' long 3. Incorrect diode	Route yellow leads to field terminal on PWR-TRON unit. Check plugging diode. Replace if necessary
6.	Vehicle does not give smooth acceleration when viewed with test light.	Check accelerator module Potentiometer wired incorrectly. (yellow, black green)	Reroute rellow, black, and green wires per combined circuit diagram.
7.	Test light indicates acceleration but turns off at full speed.	Cam reversed on accelerator module	Remove accelerator module. Remove accelerator arm/shaft, reinstall cam. correctly
8.	No output from control	Batteries not connected or improperly connected Key switch input not connected/key-off micro switch not connected (no solenoids on)	First, check key is on. Make certain trim-pot has not been turned too far. (into "overtravel" area)
9.	No apparent output motor whines.	Grade or load is too great. Motor armature or field short.	See item 1. One direction missing, same action as item no. 1.

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TROUBLE SHOOTING (continued)
(USE COMBINED CIRCUIT FOR CORRECTIVE ACTION)

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
10. Vehicle "growls" during acceleration	PWR-TRON B+ to reverse solenoid (red lead) wired wrong.	(See combined circuit) Red lead from B+ tied to outside post. Re-wire red lead to reverse terminal post as on reverse solenoid.
11. Vehicle shudders and shakes	Battery voltage too low	Check batteries re-charge as necessary
12. Vehicle stalls, sits and whines	Bad accelerator pot or due to pulley turning free on pot shaft.	Apply "Super Glue" to pulley. If pot is O.K. and pulley is not loose on shaft, then adjust plugging pot 1/4 turn.

* Transistors must be replaced as matched sets: See respective page for speed controller.

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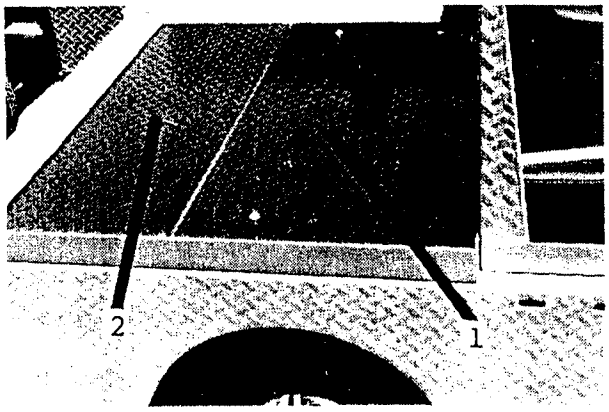

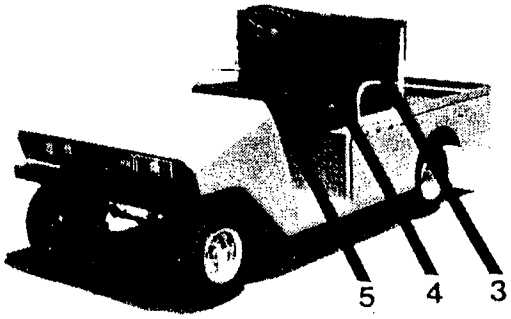

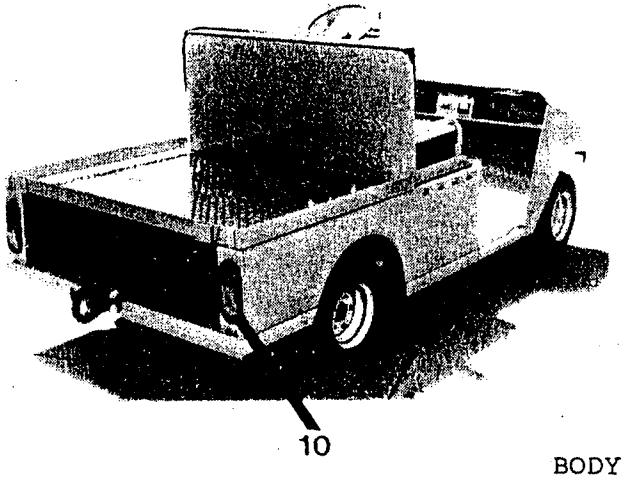

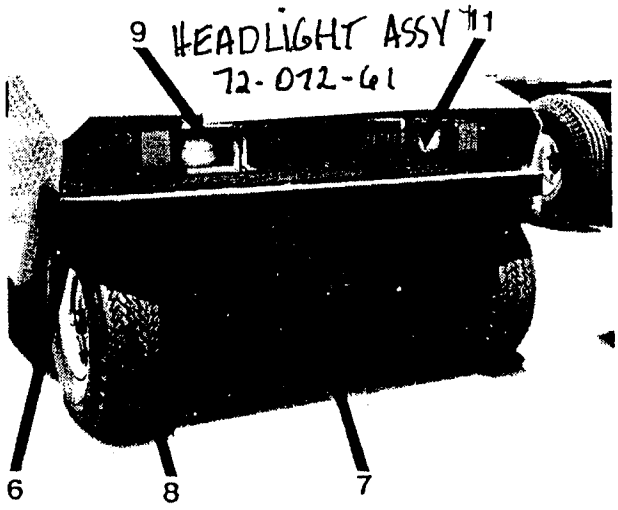

BODY AND TRIM

ITEM	PART NO.	DESCRIPTION	QTY.
1.	00-380-37	Deckboard, Stationary, (Forward)	1
2.	00-380-58	Deckboard, Tool Box Top, (Rear)	1
3.	90-172-00	Cushion, Backrest	1
4.	90-173-00	Cushion, Seat, Driver	1
5.	90-174-00	Cushion, Seat, Passenger	1
6.	01-380-16	Bumper (Optional)	1
7.	00-380-55	Splash Pan (Optional)	1
8.	13-742-00	Tires, 5.70 x 8 Pneumatic Load Range B, Hiway Tread	4
9.	72-072-00	Headlight, 4 Inch, 12 Volt	2
10.	72-025-00	Taillight, Stop, Turn, Red	2
11.	94-050-00	Lens, Light, Front	2
	91-236-00	1/2" LUG NUTS, USE WRENCH SIZE 3/4"	

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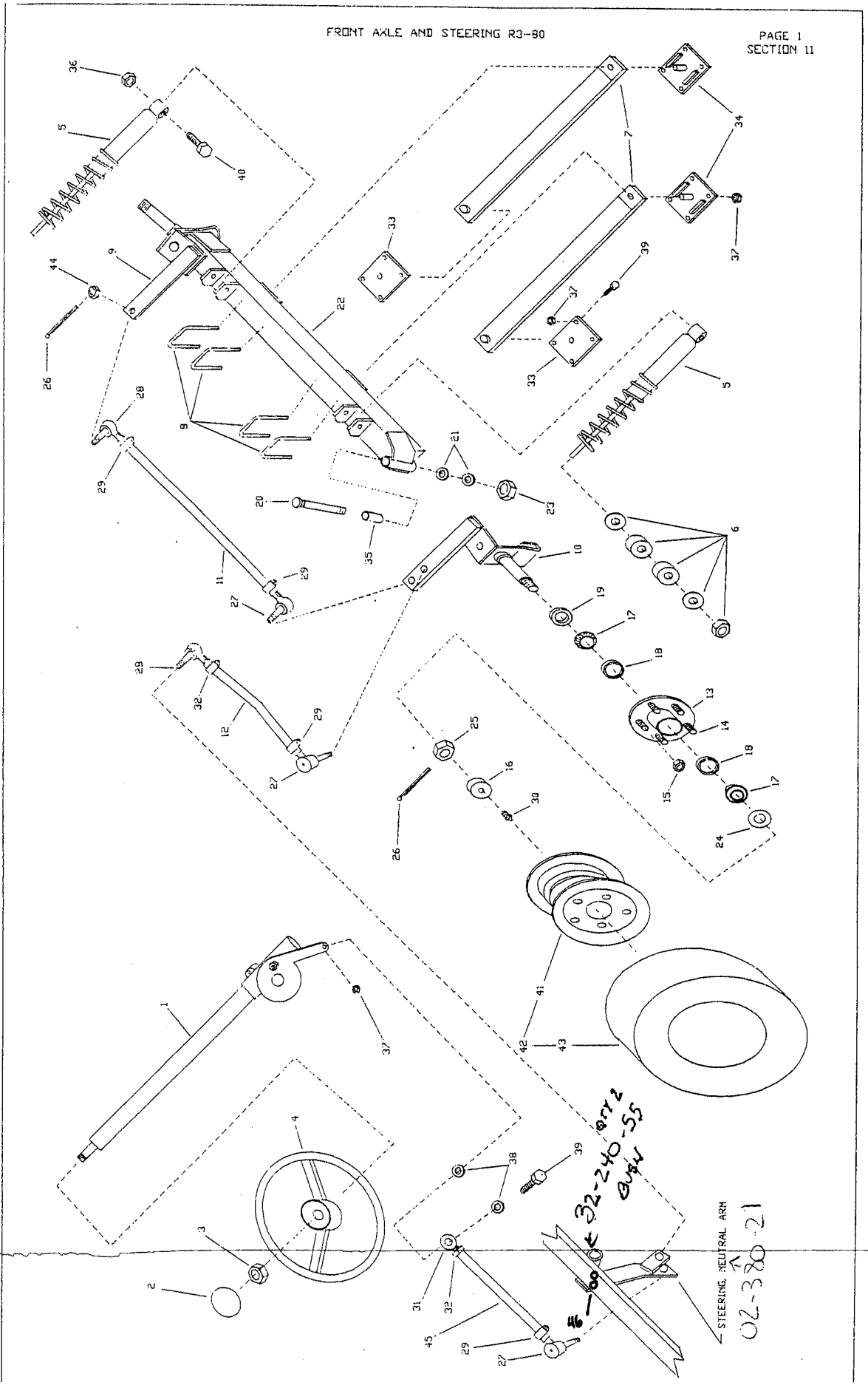

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Page 2

FRONT AXLE AND STEERING R 3-80

I.D. NO.	PART NO.	DESCRIPTION	QTY.
1.	18-312-00	Assy, Steering Gear	1
2.	19-011-10	Cover, Steering Wheel	1
3.	88-199-82	5/8 NF Hex Jam Nut	1
4.	19-011-00	Wheel Steering	1
5.	86-006-00	Shock Absorber	2
6.	86-006-01	Hardware, Shock Mounting	2
7.	85-506-00	Spring, 2 Leaf	2
8.	96-123-15	U-Bolt	4
9.	14-380-98	Spindle, Left	1
10.	14-380-99	Spindle, Right	1
11.	18-041-00	22-1/2" Steering Sleeve	1
12.	18-040-10	13-1/4" Steering Sleeve	1
13	12-124-00	Front Hub	2
14.	96-329-00	Lug Bolt	10
15.	97-236-00	Lug Nut	10
16.	92-104-00	Dust Cap	2
17.	80-017-00	1 Inch ID Tapered Bearing	2
18.	80-103-00	Tapered Bearing Race	2
19.	45-338-00	Oil Seal	2
20.	21-020-00	King Pin	2
21.	97-180-55	Thrust Washer	4
22.	15-380-00	Front Axle	1
23.	88-189-81	5/8 NC Lock Nut	2
24.	88-228-61	3/4 SAE Washer	2
25.	88-239-85	3/4 NF Hex Slotted Nut	2
26.	88-527-11	1/8 x 1 Steel Cotter Pin	6
27.	86-501-98	Ball Joint, Left	2
28.	86-501-99	Ball Joint, Right	1
29.	86-510-00	Assy, Ball Joint Clamp	3
30.	87-074-00	Grease Fitting	5
31.	86-519-00	Rod End, 3/8 NF, Right Hand, Female	1
32.	88-119-80	3/8 NF Hex Head Nut	1
33.	00-380-09	Plate, Spring Mount, Rear	2
34.	00-380-72	Plate, Spring Mount Front	2
35.	32-240-55	Bearing, Teflon, 5/8 ID	4
36.	88-129-81	7/16 NC Lock Nut	2
37.	88-109-81	3/8 NC Hex Lock Nut	17
38.	16-506-00	Spacer	2
39.	88-100-15	3/8 x 1-3/4 Hex Head Screw	9
40.	88-121-19	7/16 x 2-3/4 NC Hex Screw	2
41.	12-012-00	Wheel, 4.80, 5.80 x 8, 5 Hole (with 13-734-00) (with 13-742-00)	0 or 4
	12-042-00	Wheel, 5.70 x 8 5 Hole, Split Rim (with 13-742-10) (with 13-742-11)	0 or 4
	12-020-00	Wheel, 18 x 8.50 x 8, 9.50 x 8, 5 hole	0 or 4

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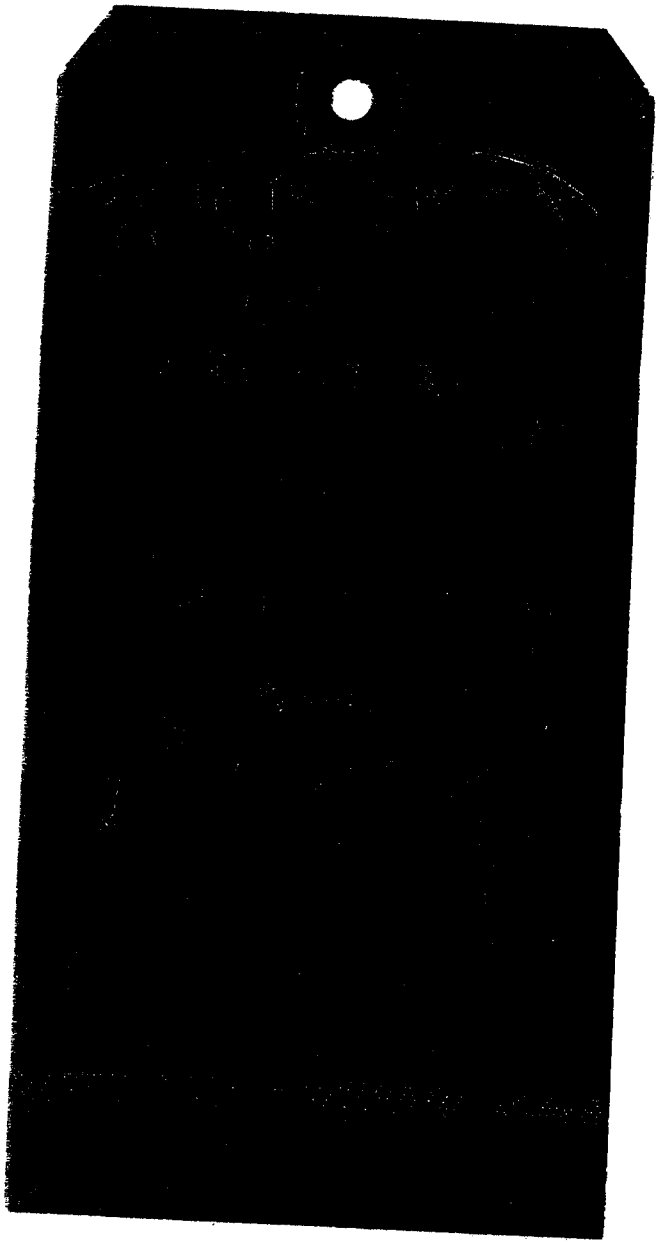
Page 3

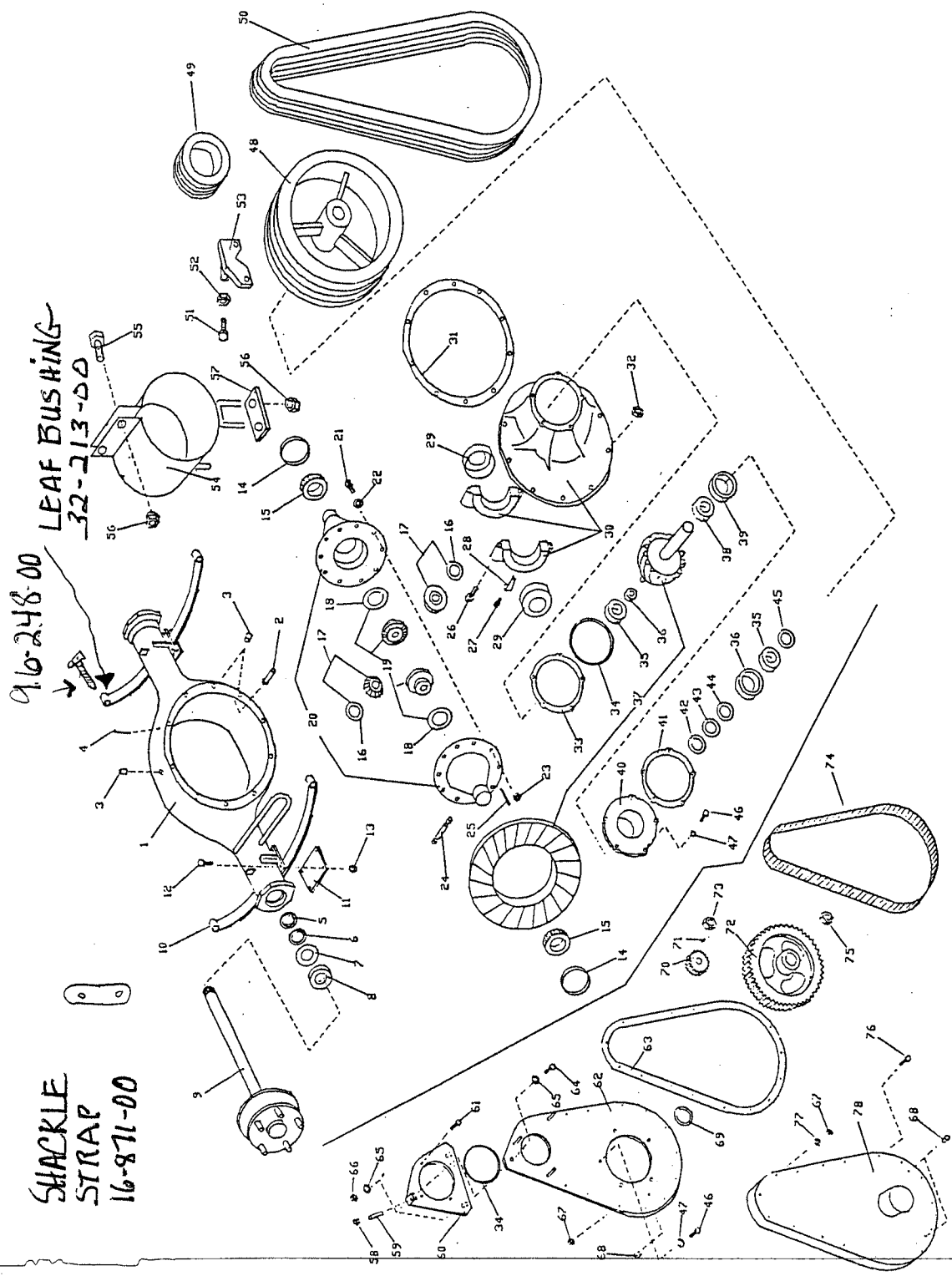
FRONT AXLE AND STEERING R 3-80 continued

I.D No.	PART NO.	DESCRIPTION	QTY.
42.	13-746-10	Assembly, Tire, Wheel 8 x 8.50 x 8	0 or 4
	13-742-00	Assembly, Tire, Wheel, 5.70 x 8	0 or 4
	13-742-10	Assembly, Tire, Split Rim, 5.70 x 8 Foam	0 or 4
	13-742-11	Assembly, Tire, Split Rim, 5.70 x 8	0 or 4
	13-734-00	Assembly, Tire, Wheel, 4.80 x 8	0 or 4
43.	10-081-00	Tire, 5.70 x 8 Load Range B, Highway Tread	0 or 4
	10-075-00	Tire, 4.80 x 8 Load Range B, Highway Tread	0 or 4
	10-093-00	Tire, 18 x 8.50 x 8 Terra Tire	0 or 4
44.	88-159-85	1/2 NF Hex Slotted Nut	3
45.	18-040-11	Assembly, Steering Sleeve	1
46.	32-215-00	Bushings for the steering pivot arm	2



SECTION 12
Page 1

BELT DRIVE AND POWER TRACTION
MECHANICAL DISC BRAKES



SECTION 12
Page 2

BELT DRIVE & POWER TRACTION PARTS LIST
MECHANICAL DISC BRAKES

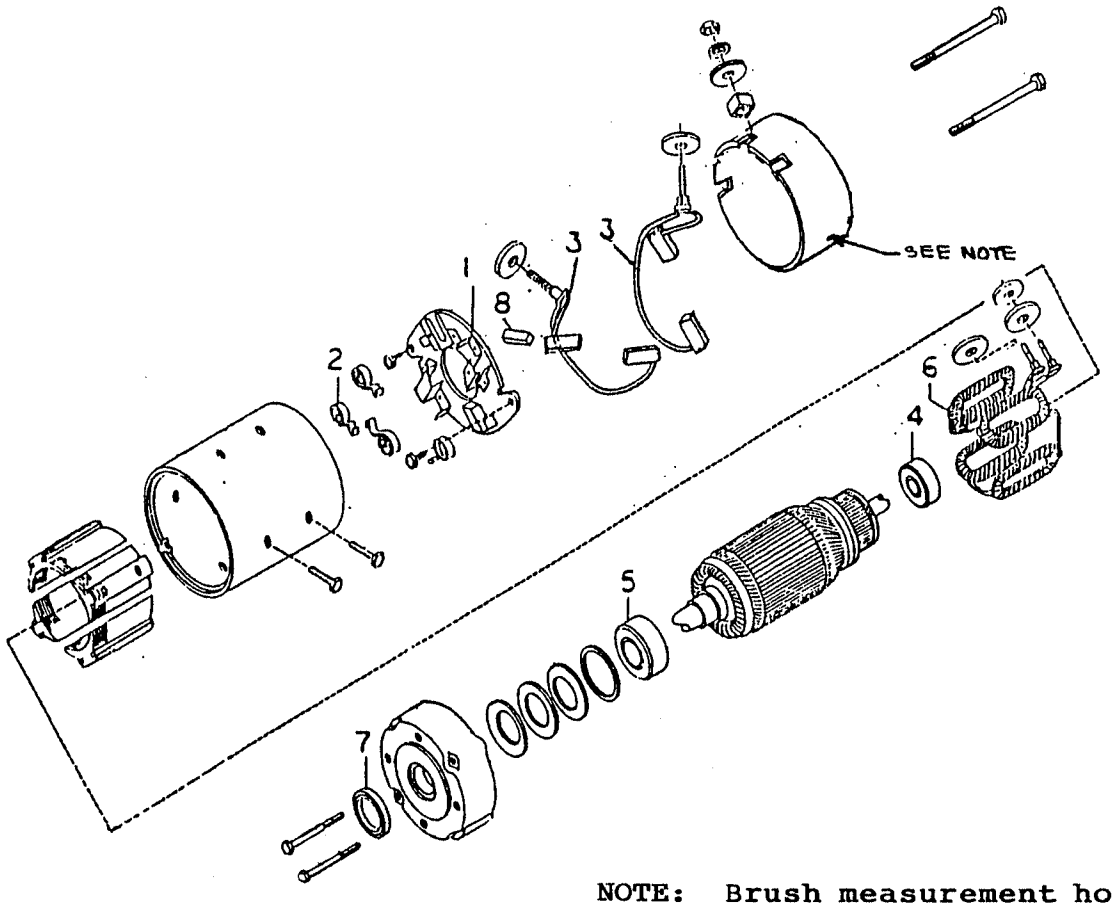
FIG. I.D.	PART NO.	DESCRIPTION	QTY.
1	41-301-40	Weldment, Housing, Diff., BD, F3	1
1a	41-301-41	Weldment, Housing, Diff., F3 PWR-TRON	1
2	96-328-00	Bolt, 3/8 x 5/8 NC, Special Hd, Gr. 5	1
3	41-997-00	Plug, Pipe, 1/8	3
4	88-527-11	1/8 x 1 Cotter Pin	1
5	45-297-00	Seal, Oil, 1.375 x 2.565	0 or 2
	45-298-00	Seal, Oil, 1.375 x 2.088	0 or 2
	45-299-00	Seal, Oil, 1.375 X 2.265	0 or 2
6	32-516-00	Retainer Ring	2
7	45-044-00	Gasket	2
8	80-491-00	Ball Bearing, Axle	2
9	41-151-10	Axle Assembly	2
10	85-507-00	2 Leaf Spring	2
11	16-861-00	Spring, Pad	2
12	88-100-15	3/8 x 1-3/4 NC Hex Hd Screw	8
13	88-109-81	3/8 NC Lock Nut	8
14	80-127-00	Race, Tapered Roller Brg.	2
15	80-511-00	Bearing, Tapered Roller	2
16	41-702-00	Thrust Washer	2
17	41-703-00	Kit, Differential Pinion Gear	1 kit
18	41-704-00	Thrust Washer	2
19	41-705-00	Kit, Differential Side Gear	1 kit
20	41-725-00	Case, Differential Gear	1
21	96-243-00	7/16 x 7/8 NF, Grade 5 Bolt	10
22	97-163-00	Washer, 7/16 ID x 3/4 OD	10
23	88-139-80	7/16 NF Nut	10
24	41-700-00	Shaft, Differential, Pinion	1
25	41-701-00	Tension Pin	1
26	88-140-16	1/2 x 2 NC Hex Bolt	4
27	88-080-09	5/16 x 3/4 NC Hex Bolt	4
28	41-706-00	Nut Lock, Differential Bearing Adjust	2
29	41-707-00	Nut, Differential Bearing Adjust	2
30	41-726-00	Differential Carrier	1
31	45-051-00	Gasket, Differential Carrier	1
32	88-119-80	3/8 NF Hex Nut	10
33	41-720-00	Shim, Dr. Pinion Bearing, .005 Thk.	1 to 3
34	80-703-00	O-Ring	1
35	80-557-00	Bearing, Roller, RR Pinion	1
36	41-721-00	Bearing Retainer	1
37	31-260-00	Set, Gear, 2.75 Ratio	0 or 1
	31-261-00	Set, Gear, 3.00 Ratio	0 or 1
	31-264-00	Set, Gear, 4.63 Ratio	0 or 1
38	80-556-00	Bearing, Tapered Roller	2
39	80-139-00	Race, Tapered Roller Bearing	2
40	41-341-10	Flange, Pinion Bearing	1
41	45-050-00	Gasket, Pinion Flange	2
42	16-422-00	Spacer, .440 Thick	2
43	16-440-00	Spacer, .002 Thick	2 to 6
	16-441-00	Spacer, .005 Thick	2 to 6
44	16-442-00	Spacer, .010 Thick	0 to 2
45	45-301-00	Seal, Oil, Pinion Shaft	1

SECTION 12
Page 3

BELT DRIVE & POWER TRACTION PARTS LIST
MECHANICAL DISC BRAKES continued

FIG. I.D.	PART NO.	DESCRIPTION	QTY.
46	88-101-13	3/8 NC X 1-1/4 Grade 5 Bolt	5
47	88-103-63	3/8 Int. Tooth Lock Washer	5
48	30-121-00	Pulley, Large, Belt Drive	1
49	30-158-00	Pulley, 2.43 OD (Standard)	1
	30-159-00	Pulley, 3.00 OD	1
50	30-621-00	Belt, 3V Section	4
51	96-316-00	Bolt, All Thread, 1/2 x 3 NC	1
52	88-149-80	1/2 NC Hex Head Nut	1
53	41-301-18	Motor Adj. Bracket	1
54	70-434-00	Motor Mount	1
55	88-101-18	3/8 x 2-1/2 NC Hex Bolt, Grade 5	2
56	88-109-87	3/8 Keps Nut	6
57	70-422-00	Strap, Motor Mount	2
58	88-089-80	5/16 NC Hex Head Nut	1
59	88-087-11	5/16 x 1 NC Socket Set Screw	1
60	70-454-00	Plate, Motor Mount	1
61	88-103-09	3/8 x 3/4 NC Socket Flat Screw	4
62	44-353-10	Backing Plate, Chain Case	1
63	45-002-00	Gasket, Chain Case Cover	1
64	88-101-13	3/8 x 1-1/4 NC Hex Bolt Grade 5	1
65	88-108-60	3/8 Washer	4
66	88-409-87	3/8 Keps Nut	3
67	88-089-81	5/16 NC Locknut	12
68	41-989-00	Drain Plug, 1/4 Pipe Thread	3
69	16-418-00	Spacer, .140 Thick	1
70	30-080-00	Sprocket, 15 Tooth, 17/32 Face	1
71	97-100-00	1/8 x 5/8 Woodruff Key	1
72	30-094-00	Sprocket, 81 Tooth, 17/32 Face	1
73	88-239-82	3/4 NF Hex Jam Nut	1
74	30-504-20	Chain, SSG, 13/16 W, 37-1/2 Long	1
75	97-250-00	Nut, Pinion, 3/4-20 Extra Fine	1
76	88-080-19	5/16 x 2-3/4 NC Hex Bolt	9
77	88-088-61	5/16 SAE Washer	3
78	43-201-30	Cover, Chain Case	1
--	71-111-00	BRAKE LIGHT SWITCH WITH LEVER	

SECTION 13
Page 1



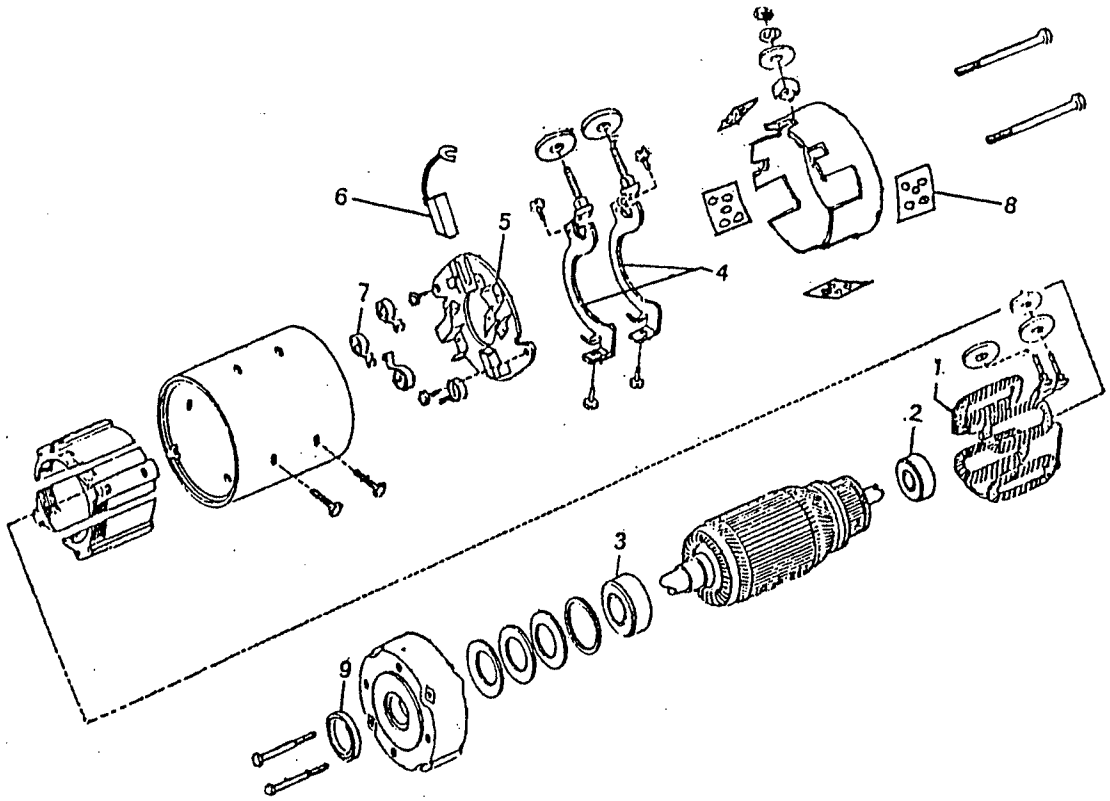
NOTE: **Brush measurement holes (2). With new brushes a 1/16" drill rod can be inserted approximately.780" into the brush measurement holes. Brushes should be replaced when rod can be inserted 1.560" into hole. This leaves approximately 1/8" wear remaining.**

D. C. MOTOR

ITEM	PART NO.	DESCRIPTION	QTY.
	70-049-00	D.C. Motor 6.0 H.P. GE5BC48JB754	1
1.	70-172-00	Brush Holder Assembly (without brushes)	1
2.	85-412-00	Spring, Brush Extension	4
3.	70-104-00	Brush Assembly	2
4.	80-200-00	Ball Bearing, Commutator End	1
5.	80-504-00	Ball Bearing, Pulley End	1
6.	70-205-00	Field Coil Set	1
7.	45-506-00	Oil Seal	1
8.	70-250-00	Gasket, Terminal	4

NOTE: This motor is for use with PWR-TRON PT 240

SECTION 13
Page 2

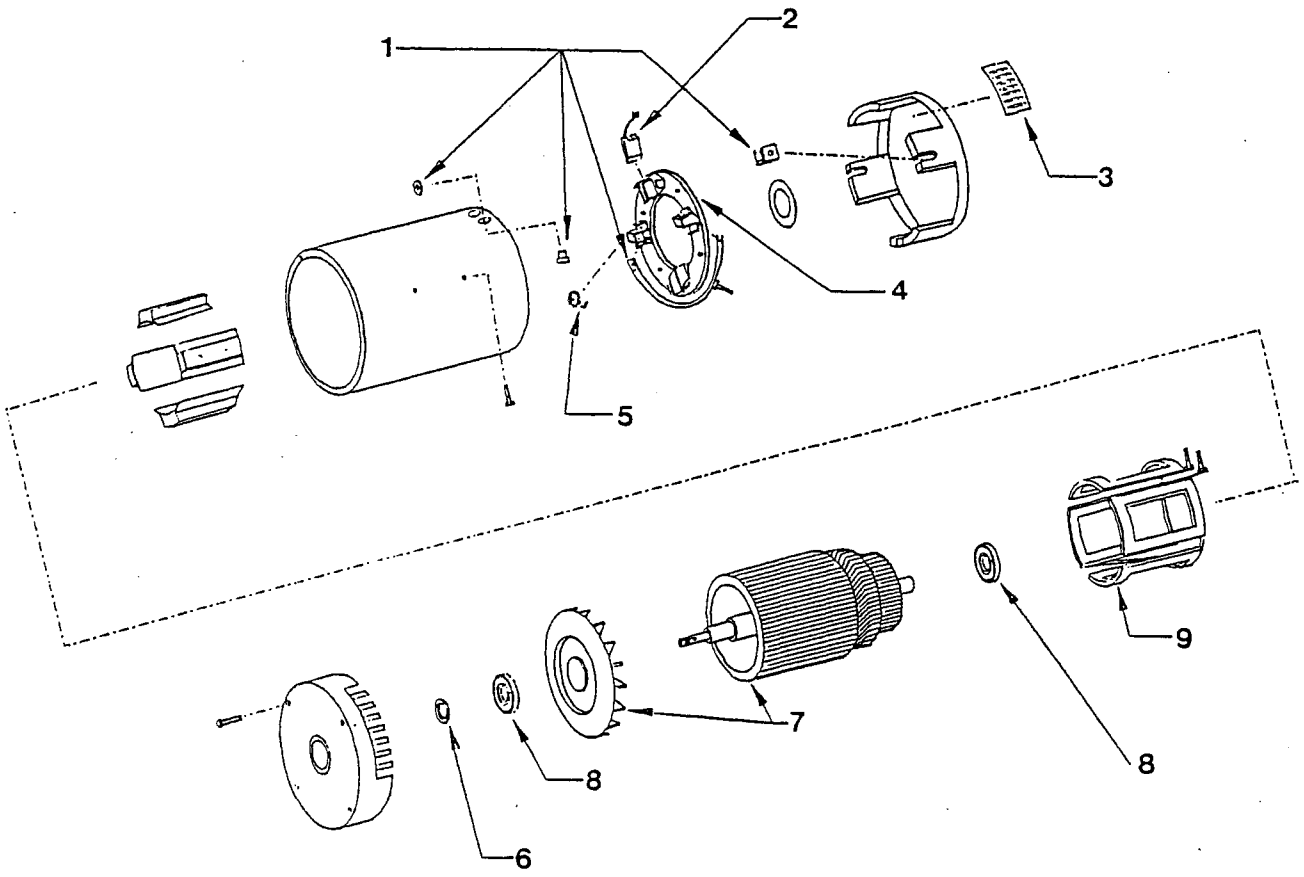


D. C. MOTOR

ITEM	PART NO.	DESCRIPTION	QTY.
	70-054-00	D. C. Motor 10.0 H.P. G.E. 5BC49JB399	1
1.	70-203-10	Field Coil Set	1
2.	80-200-00	Ball Bearing, Commutator End	1
3.	80-504-00	Ball Bearing, Pulley End	1
4.	70-195-10	Armature Terminal to Brush	2
5.	70-188-00	Brush Holder Assembly	1
6.	70-105-00	Motor Brush	4
7.	85-412-00	Brush Extension Spring	4
8.	30-802-00	Brush Extension Cover	4
9.	45-508-00	Oil Seal	1
10.	70-210-62	Motor Terminals Insulator Kit	1

NOTE: This motor is for use with PWR-TRON PT 350

SECTION 13
Page 3

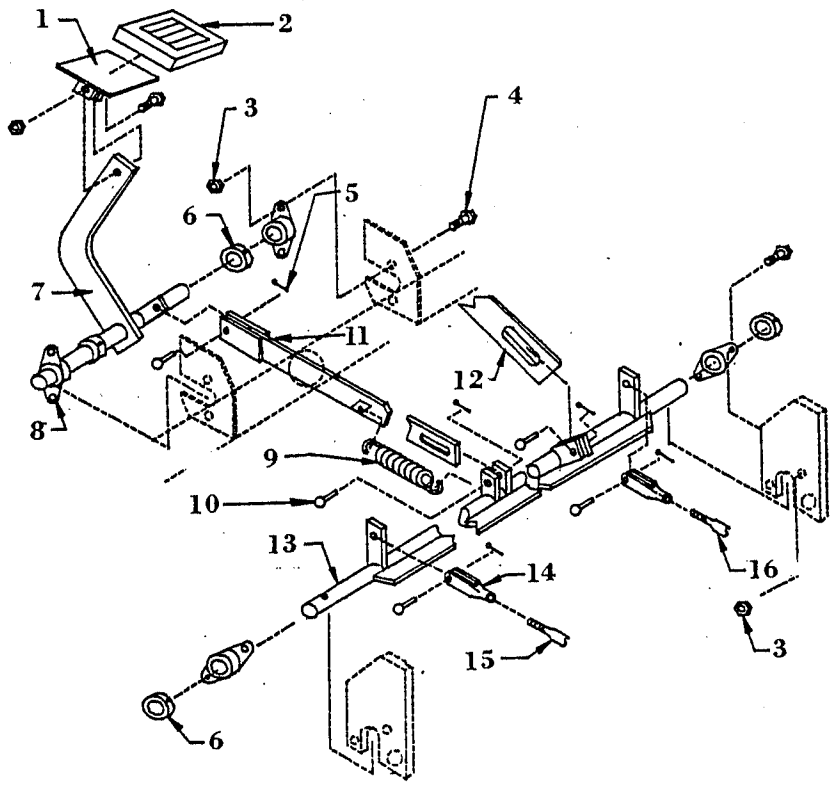


D.C. MOTOR

ITEM NO.	PART NO.	DESCRIPTION	QTY.
	70-Ø54-3Ø	D.C Motor 1Ø HP Prestolite MVB 4Ø01	
1	70-21Ø-65	Kit Term Stud	4
2	70-1Ø5-1Ø	Brush 1Ø HP Prestolite	4
3	3Ø-8Ø2-2Ø	Cover, Brush Inspection	4
4	70-188-1Ø	Assembly, Brush Holder w/o Brushes or Springs	1
5	85-412-1Ø	Spring, Brush 1Ø HP Prestolite	4
6	45-5Ø8-2Ø	Seal, 1Ø HP Prestolite	1
7	70-Ø54-31	Armature, w/Fan, 1Ø HP Prestolite	1
8	8Ø-5Ø4-2Ø	Bearing, Ball, Commutator and Pulley	2
9	70-2Ø3-2Ø	Field Coils (set)	1

NOTE: This motor is for use with PWR-TRON 35Ø

SECTION 14
Page 1

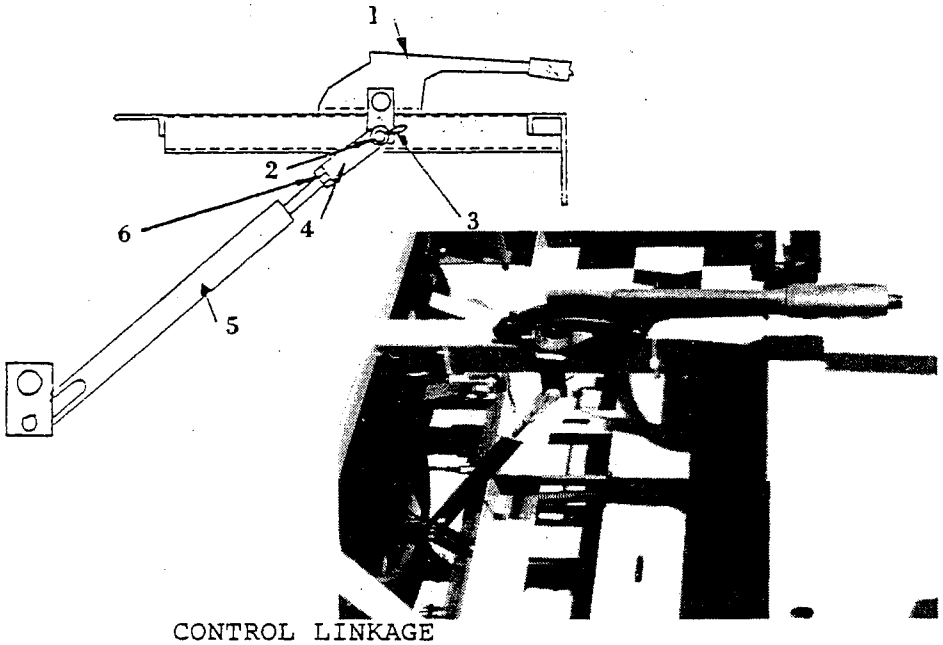


CONTROL LINKAGE

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1.	00-380-66	Weldment, Foot Brake	1
2.	98-200-00	Pad, Rubber Brake Pedal	1
3.	88-109-87	Nut, KEPS 3/8	9
4.	88-100-09	Screw, 3/8 x 3/4 NC Hex Head	9
5.	88-517-09	Pin, Cotter 3/32 x 3/4	5
6.	17-110-00	Collar, 3/4 Shaft	4
7.	00-380-26	Weldment, Service Brake	1
8.	80-410-20	Bearing, 2 Bolt Flange, Brake	4
9.	85-233-00	Spring, Ext., Accelerator	1
10	96-773-00	Pin, Clevis 5/16 x 1	5
11.	00-380-44	Weldment, Brake Rod (Mechanical Disc)	1
	00-380-80	Weldment, Brake Rod (Hydraulic Disc)	1
12.	01-380-62	(See Sec. 14 Pg. 2) Weldment Linkage, Handbrake	1
13.	01-386-23	Weldment, Shaft, Main Brake	1
14.	96-763-00	Clevis, 5/16 Inch	2
15.	00-380-81	Assembly, Link (Brake) Adjust LH	1
16.	00-380-82	Assembly, Link (Brake) Adjust RH	1

00-380-80

SECTION 14
Page 2



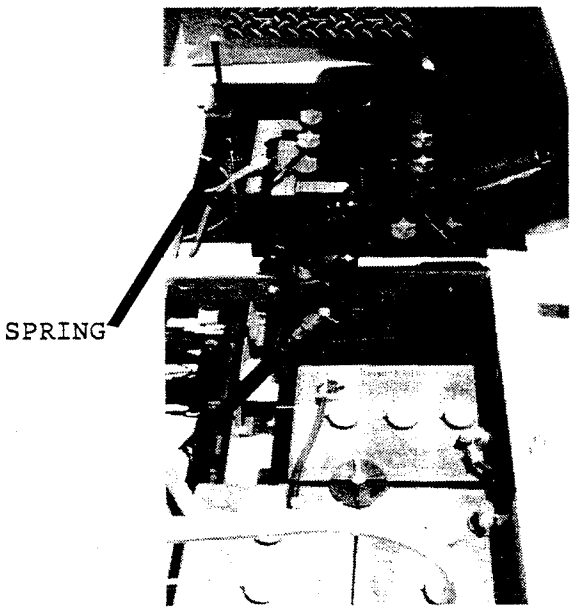
CONTROL LINKAGE

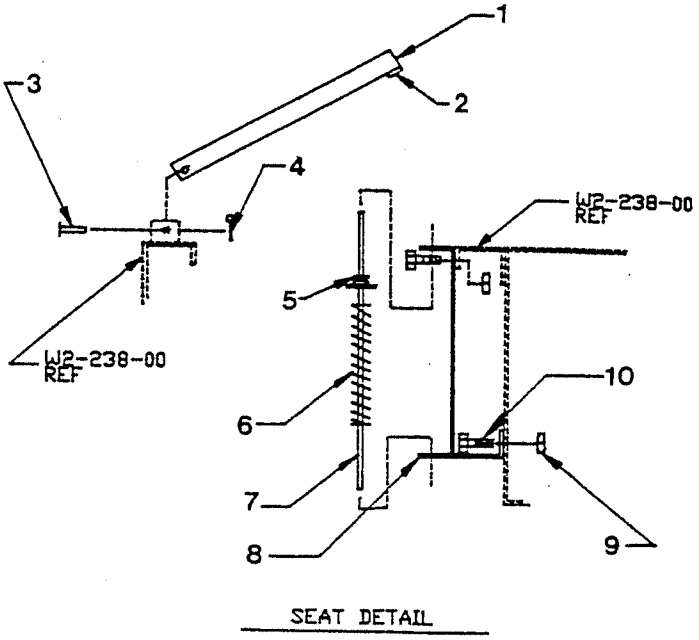
(HAND, PARK BRAKE)

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1.	51-343-ØØ	Hand, Park Brake	1
2.	96-773-ØØ	Pin, Clevis	1
3.	88-517-Ø6	Cotter Pin	1
4.	96-763-ØØ	Clevis	1
5.	Ø1-38Ø-62	Linkage, Handbrake	1
6.	88-Ø99-8Ø	5/16 NF Hex Head Nut	1

See Item 12, Page 1 of SECTION 14 for linkage mounting

SECTION 14
Page 3

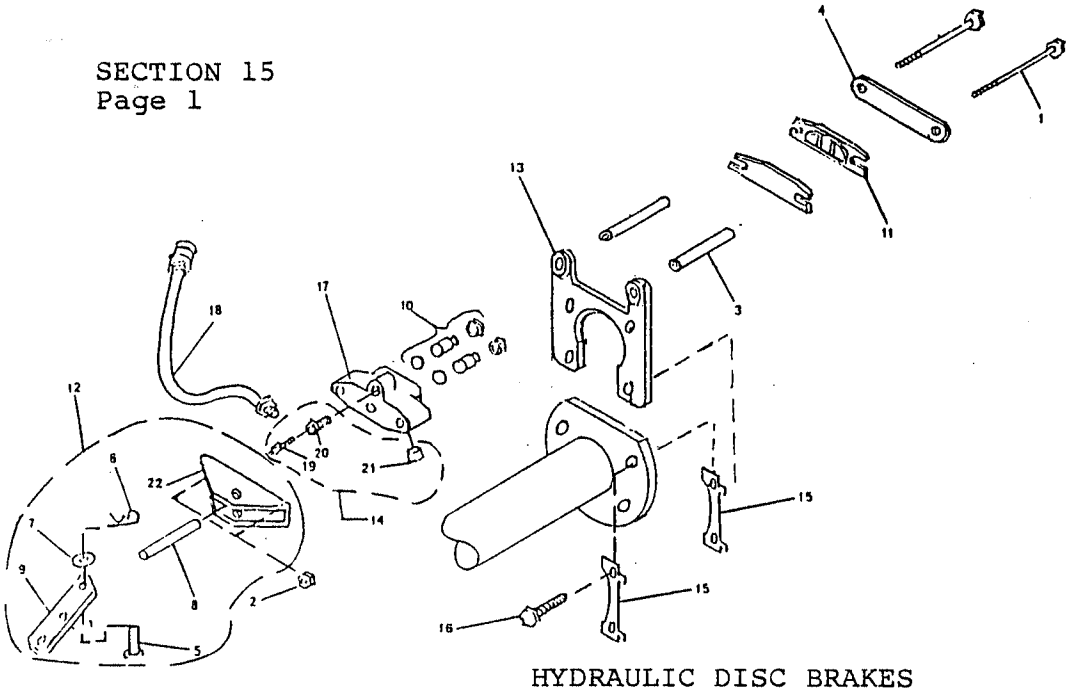




SEAT DETAIL

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	00-380-48	Weldment, Seat Base	1
2	98-451-11	Tape, Seal 1 X 3/8 X 10 Inches Long	1
3	97-773-00	Pin, Clevis 5/16 X 1 Inch Long	2
4	88-517-09	Pin, Cotter 3/32 X 3/4 Inches Long	2
5	98-603-00	Grommet, Rubber, 3//8 Inches ID	1
6	85-123-10	Spring, Deadman Seat, 10 Inches Long	1
7	00-380-41	Assembly, Rod Seat Spring	1
8	00-380-75	Weldment, Mount Seat Spring	1
9	88-069-81	Locknut, 1/4 NC	2
10	88-060-06	Screw, HX Head Cap, 1/4 NC x 1/2	2

SECTION 15
Page 1

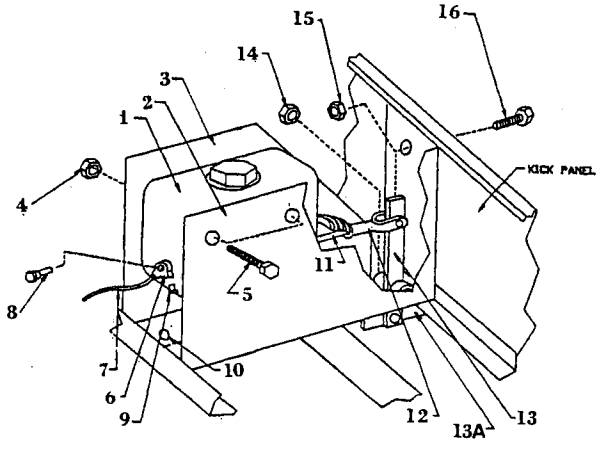


HYDRAULIC DISC BRAKES

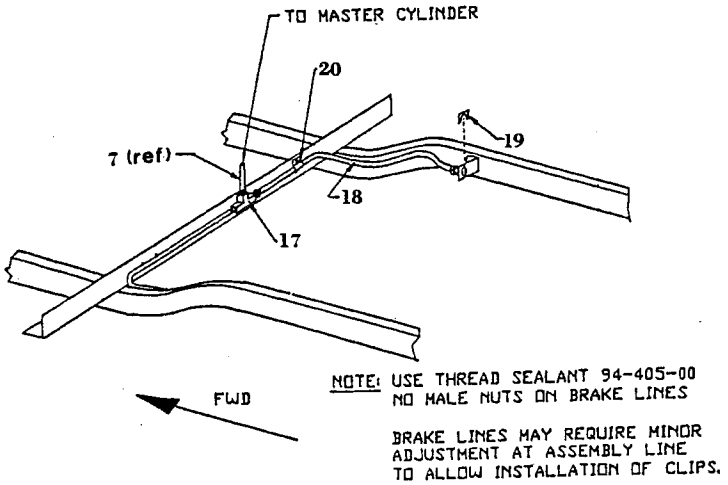
ITEM NO.		PART NO.	DESCRIPTION	QTY. REQ.
1.		88-067-21	1/4 NC Hex Head Bolt, Gr. 8	4
2.		88-069-82	Nut, Hex Lock, 1/4 NC HT Gr. 8	4
3.		41-348-52	Spacer, Mech, Disc. Brake	4
4.		41-350-51	Plate, Secondary, Hydraulic Disc	2
5.		41-350-52	Pin, Clevis, Hydraulic Disc Brake	2
6.		41-348-56	Pin, Hitch, Mechanical Disc Brake	2
7.		88-100-00	Washer, 11/32 ID x .110 Thick	4
8.		41-350-54	Pin, Park Brake	2
9.		41-350-53	Arm, Park Brake	2
10.		41-350-55	Kit, Cylinder Repair	4
11.		41-348-70	Pad, Disc Brake	4
12.		41-350-04	Hardware, Park Brake, Hydraulic Disc	2
13.		41-350-08	Bracket, Hydraulic Disc Body Large Bearing	2
14.		41-350-02	Fittings, Brake, Hydraulic Disc	2
15.		41-350-05	Clip, 2 hole W/Tab, Large Bearing	8
16.		96-328-00	Bolt, 3/8 x 5/8 NC Special Head Gr. 5	8
17.		41-350-18	Body, Hydraulic Disc Brake L.H.	2
		41-350-19	Body, Hydraulic Disc Brake R.H.	
18.		99-580-00	Hydraulic Hose	2
19.	*	99-582-00	Screw, Bleeder	2
20.	*	99-852-01	Adapter, Threaded	2
21.	*	41-886-00	Plug, Hex Socket	2
22.		41-350-12	Bracket, Lever	2

* **NOTE: For Replacement, order Item 14**

SECTION 15
Page 2



MASTER CYLINDER
(UNDER DRIVER'S SEAT)

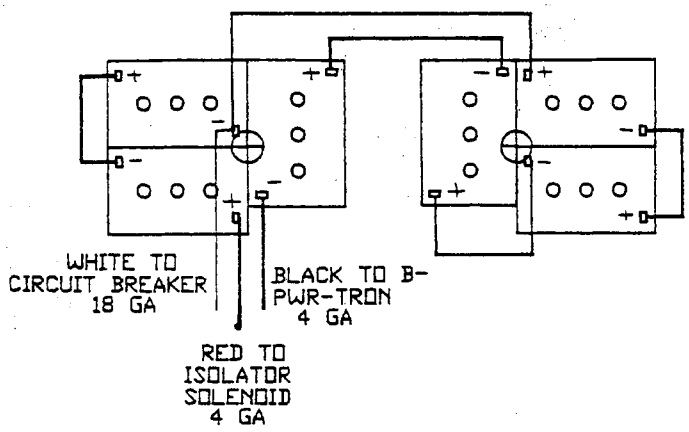


HYDRAULIC BRAKE LINES
(TO REAR DISC BRAKES)

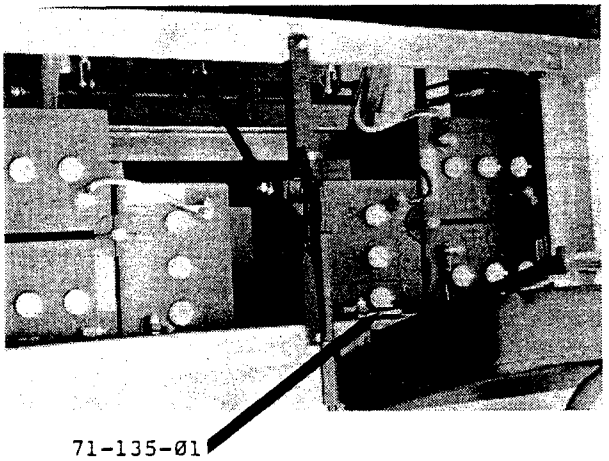
HYDRAULIC DISC BRAKES

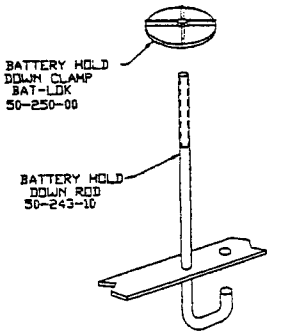
ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ.
1.	99-510-01	Master Cylinder	1
2.	00-380-79	Weldment, Plate, Master Cylinder	1
3.	01-380-76	Plate, Support, Master Cylinder	1
4.	88-089-81	Locknut, 5/16	2
5.	88-080-20	Bolt, 5/16 x 3 Hex Head	2
6.	99-565-00	Y Fitting	1
	99-571-00	Washer, Wagner #FC602	1
7.	99-600-52	Brake Line, Formed, R 3-80	1
8.	99-579-00	Bolt, Wagner #FC673	1
9.	99-598-00	Fitting, 3/16 Tube Seat Plug	1
10.	88-080-09	Screw, 5/16 x 3/4 Hex Head	2
	88-089-81	Locknut, 5/16	2
11.	50-010-00	Rod, Master Cylinder, 5/16 x 4-1/2	1
12.	96-763-00	Clevis, 5/16	1
	96-773-00	Pin, Clevis, 5/16	1
	88-517-09	Pin, Cotter, 3/32 x 3/4	1
13.	00-380-78	Bellcrank With Bushing	1
13A.	00-380-80	Weldment, Brake Rod, Hydraulic	1
14.	88-149-81	Locknut, 1/2	1
15.	88-089-81	Locknut, 5/16	2
16.	88-080-09	Screw, 5/16 x 3/4 Hex Head	2
17.	99-564-00	Union T	1
18.	99-604-58	Brake Line, Formed	2
19.	99-576-00	Clip	2
20.	96-624-00	Wire Clamp	2
with	88-737-08	Rivet, 3/16 x 5/8	2
	94-405-00	Thread Sealant	1

SECTION 16
Page 1



BATTERY WIRING





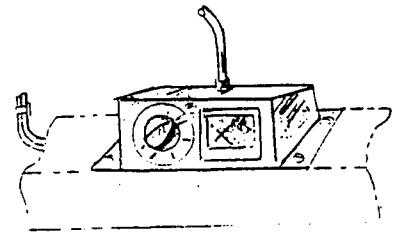
INSTALLATION OF BATTERY HOLD
DOWN ROD AND CLAMP
2 REQ'D

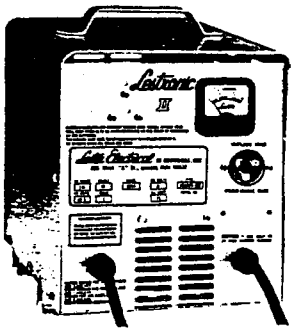
BATTERY COMPARTMENT
SHOWING DEADMAN SEAT
MECHANISM UNDER DRIVER'S SEAT

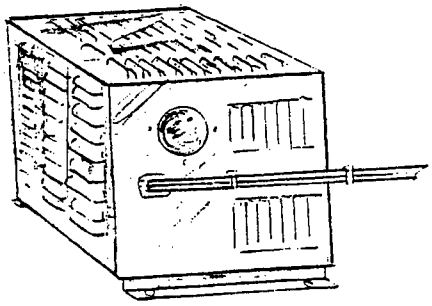
BATTERIES

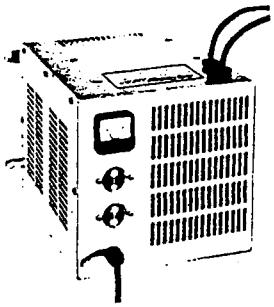
PART NO.	DESCRIPTION	QTY.
50-243-10	Rod, Battery Hold Down	2
50-250-00	BAT LOK, (Battery Hold Down Clamp)	2
75-231-00	Battery Jumper #6 Wire, 10-1/4" Long	3
75-234-00	Battery Jumper #6 Wire, 18-1/4" Long	3
71-135-01	Micro Switch, Type Z, 5/16 x 2-1/2 Blade	1
77-031-00	6 Volt, 190 A. H. Battery (Standard)	6
77-042-00	6 Volt, 217 A. H. Battery	6
74-009-00	Charge Indicator, 36 Volt (Not Shown)	1
77-047-00	6 Volt, 244 A. H. Battery	6
77-048-00	6 Volt, 250 A. H. Battery	6
77-200-00	Hydrometer (Not Shown)	1
77-201-00	Battery Filler (Not Shown)	1

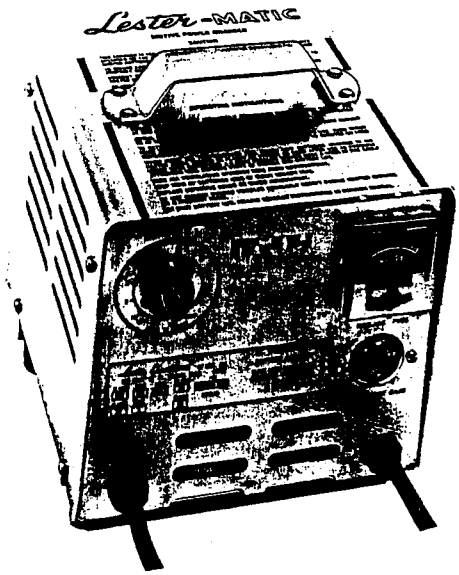
SECTION 16
Page 2











CHARGERS (TYPICAL)

TAYLOR-DUNN PART NO.	PORTABLE 79-304-00	BUILT-IN 79-304-05	PORTABLE 79-305-00	BUILT-IN 79-305-05
LESTER MODEL NO.	36LC25T12 115/60 9611	36LC25-3T12 115/60 7660	PORTABLE LESTRONIC II 36LC25 115/60 7850	LESTRONIC II 36LC25 115/60 9655
TRANSFORMER/RECTIFIER ASSEMBLY, COMPLETE				
TRANSFORMER	79-644-28	79-644-16	79-644-27	79-644-27
CAPACITOR	79-902-00	79-902-00	79-902-00	79-902-00
HEAT SINK ASSEMBLY W/DIODES	79-749-13	79-749-11	79-749-13	79-749-11
DIODE REPLACEMENT	79-745-10	79-745-10	79-745-10	79-745-10
FUSE ASSEMBLY	79-831-00	79-831-00	79-831-00	
CONTROL CONSOLE ASSEMBLY				
BUSHING FOR CORDSETS	79-530-00	79-530-00	79-530-00	79-530-00
HOUSING		79-599-10		
TIMER	79-805-60	79-805-60	ELECTRONIC 79-805-63	ELECTRONIC 79-805-67
KNOB, TIMER	79-806-00	79-806-00		
AMMETER	79-851-10	79-851-10	79-851-10	
CORDSET, A.C.		79-575-10		79-575-10

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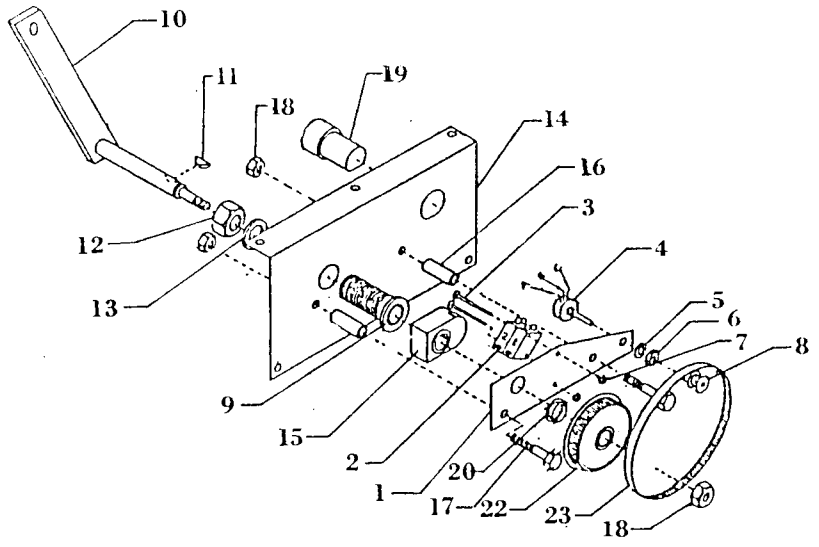

ACCELERATOR MODULE (COVER NOT SHOWN) 62-Ø3Ø-14, MODEL R 3-8Ø

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ.
1.	62-861-55	Plate, Pot. Mtg. Accelerator Module	1
2.	71-127-ØØ	Switch, Micro	2
3.	88-Ø55-11	Screw, 4-4Ø x 1-1/4 Truss Head	2
4.	78-35Ø-55	Potentiometer	1
5.	97-19Ø-ØØ	Washer, Potentiometer	1
6.	97-2Ø2-ØØ	Nut, Potentiometer	1
7.	88-ØØ9-81	Nut, 4-4Ø Lock	2
8.	62-Ø3Ø-61	Sprocket 18T .Ø8ØØ	1
9.	32-22Ø-1Ø	Bushing, 1/2 ID, Brass	1
1Ø.	62-Ø3Ø-44	Rotor, Accelerator Module (R 3-8Ø)	1
11.	97-Ø99-1Ø	Key, Woodruff	1
12.	88-239-8Ø	Nut, 3/4 NF Hex Head	1
13.	16-4Ø5-1Ø	Spacer, 3/4 ID x 1-1/8 OD x 1/8 Thick	1
14.	62-861-5Ø	Plate, Backing, Accelerator Module	1
15.	62-Ø3Ø-5Ø	Cam, Micro Switch 1 Inch Radius	1
16.	16-512-1Ø	Spacer, 1/4 ID x 29/32 Seat Tubing	2
17.	88-Ø6Ø-14	Screw, 1/4 x 1-1/2	2
18.	88-Ø69-81	Nut, 1/4 Lock	2
19.	75-14Ø-ØØ	Harness, Accelerator Module	1
2Ø.	97-18Ø-3Ø	Washer, 1/2 Inch ID x 1/31 Thick	1
21.	88-84Ø-Ø8	Ring, Snap 1/2 Inch External	1
22.	62-Ø3Ø-51	Sprocket, 8ØT .Ø8ØØ	1
23.	62-Ø3Ø-53	Belt, .Ø8ØØ 12 Inch 15ØT	1
24.	88-Ø88-62	Nut, 5/16 NC, Lock	1
	62-Ø3Ø-58	Cover (Not Shown)	1

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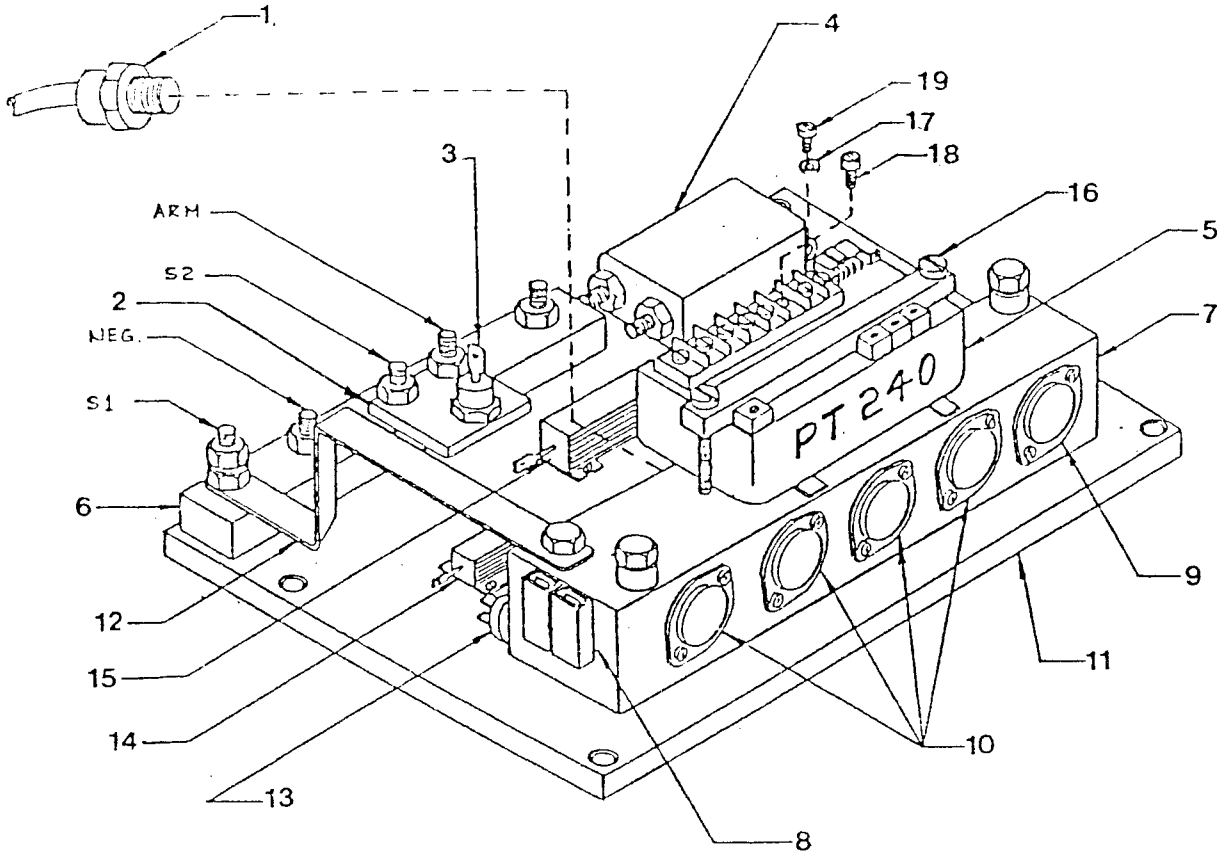

62-Ø24-ØØ
PWR-TRON 24Ø SPEED CONTROLLER AND PARTS LIST

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ.
1.	62-Ø24-21	Diode, Flywheel	1
2.	62-Ø24-22	Heat Sink, Diode, Plugging	1
3.	62-Ø24-23	Diode, Plugging	1
4.	62-Ø24-24	Capacitor	1
5.	62-Ø24-25	Logic Unit	1
6.	62-Ø24-26	Block, Terminal	1
7.	62-Ø24-28	Transistor Block	1
8.	62-Ø24-29	Switch, Key (24 & 36V)	1
9.	62-Ø24-31	Transistor Driver	1
1Ø.	62-Ø24-32	Transistor Power	(set) 4
11.	62-Ø24-33	Base. 24Ø	1
12.	62-Ø24-34	Bar, Buss	1
13.	62-Ø24-35	Switch, Thermal	1
14.	62-Ø24-36	Resistor, 7Ø OHM	1
15.	62-Ø24-37	Resistor, 1/2 OHM	1
16.	62-Ø24-6Ø	Kit, Logic Bar & 2 Screws	2
17.	88-Ø48-61	Washer, #1Ø SAE	7
18.	89-Ø3Ø-Ø8	Screw, 3 MM x 8 MM	1Ø
19.	89-Ø3Ø-12	Screw, 3 MM x 12 MM	7

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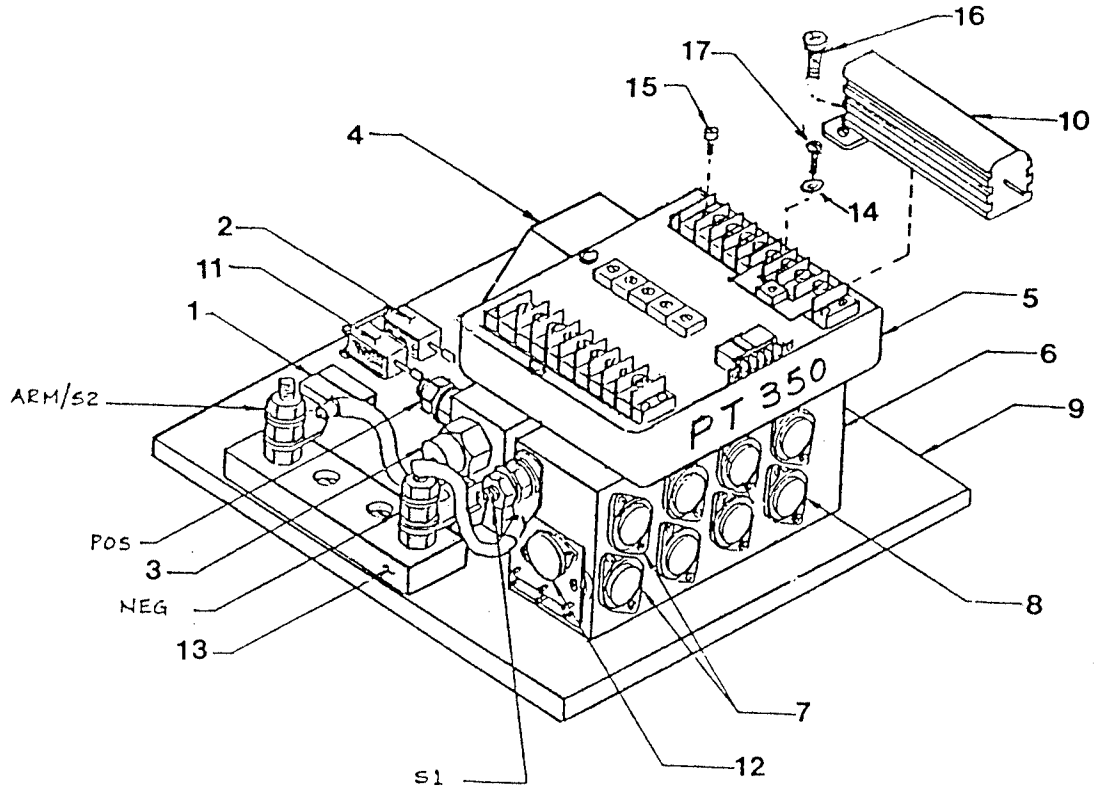
Page 3



62-035-00
PWR-TRON 350 SPEED CONTROLLER AND PARTS LIST

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ.
1.	62-024-29	Key Switch	1
2.	62-024-36	Resistor, 10 W 70 OHM	1
3.	62-035-21	Diode, Flywheel	1
	62-035-21	Diode, Plugging	1
4.	62-035-22	Capacitor	1
5.	62-035-25	Logic Unit	1
6.	62-035-28	Block, Transistor	1
7.	62-035-31	Transistors, Driver	2
8.	62-035-32	Transistors, Power (Set of 6)	1
9.	62-035-33	Base Plate	1
10.	62-035-36	Resistor, 50 W .5 OHM	1
11.	62-035-37	Resistor, 10 W 18 OHM	1
12.	62-035-38	Transistor Assembly, Driver, Driver	1
13.	62-048-23	Block Terminal	1
14.	88-048-61	Washer, #10 SAE	3
15.	89-030-08	Screw, 3 MM x 8 MM	25
16.	89-030-12	Screw, 3 MM x 12 MM	10
17.	89-030-30	Screw, 3 MM x 30 MM	3

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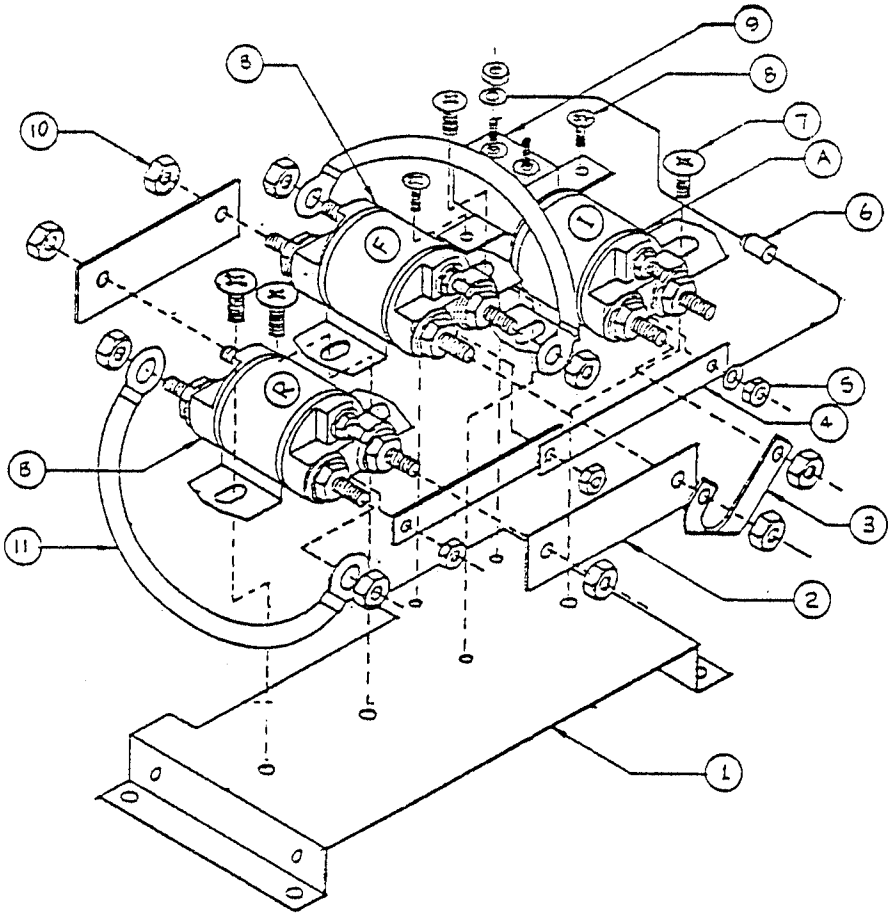

* SOLENOID PANEL ASSEMBLIES

72-560-10, 36V PANEL ASSEMBLY
A) 72-501-36 SOLENOID, SPST 36V
B) 72-501-37 SOLENOID, SPDT 36V

* THE SOLENOID PANEL ASSEMBLY IS TYPICAL FOR PT240 AND PT350 AND ARE INTERCHANGEABLE DEPENDING ON VOLTAGE REQUIREMENTS

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ.
1.	72-506-50	Panel, Solenoid Mounting	1
2.	61-838-51	Bar, Buss 2 x 5/8	2
3.	61-838-20	Buss, Curved	1
4.	61-838-50	Bar, Buss 3 x 3/8	2
5.	88-048-62	Nut	4
6.	75-224-10	Jumper, 5-1/4 Inch, 18 Gauge	1
7.	88-838-06	Screw, #14 x 1/2 Pan Head Sheet Metal	4
8.	88-818-06	Screw, #8 x 1/2 Pan Head Sheet Metal	2
9.	79-840-00	Circuit Breaker, 10 AMP	1
10.	88-089-91	Nut, Hex Jam, 5/16 NC, Thin	9
11.	75-235-20	Jumper, Red, 4-1/4, 4 Gauge	2
	72-506-51	Cover, Solenoid Panel (Not Shown)	1

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R 3-80
SUGGESTED SPARE PARTS LIST
PWR-TRON SPEED CONTROLLER SYSTEM

PART NO.	DESCRIPTION	1-20 QTY. REQ.	21-50 QTY. REQ.	50-UP QTY. REQ.
61-838-20	Buss, Curved	1	1	2
62-024-00	PT-240 Speed Controller	1	1	2
62-024-10	Cover PT240	1	2	4
62-024-21	Flywheel Diode	1	2	4
62-024-23	Plugging Diode	1	2	4
62-024-24	Capacitor	1	1	2
62-024-31	Drive Transistor	1	2	4
62-024-32	Power Transistor	1	2	4
62-024-35	Thermal Switch	1	1	2
62-024-36	Resistor, 70 OHM 10W	1	1	2
62-024-37	Resistor, 1/2 OHM 25W	1	1	2
62-030-14	Accelerator Module (R 3-80)	1	1	2
62-030-44	Rotor, Accelerator Module (R 3-80)	1	1	2
62-030-58	Cover, Accelerator Module	1	2	4
62-035-00	PT350 Speed Controller	1	1	2
62-035-10	Cover, PT350	1	2	4
62-035-21	Flywheel Diode	1	2	4
62-035-21	Plugging Diode	1	2	4
62-035-24	Capacitor	1	1	2
62-035-31	Driver Transistors	1	2	4
62-035-32	Power Transistors	1 (set)	2	4
62-035-38	Driver, Driver Transistor	1	2	4
72-235-20	Jumper, 4-1/4 Inch x 4 Gauge Red	2	2	4
72-501-36	Solenoid, SPST 36V	1	1	2
72-501-37	Solenoid, SPDT 36V	2	2	4
75-224-10	Jumper, 18 Gauge With Diode	1	2	4
75-560-51	Cover, Solenoid Panel	1	2	4
79-840-00	Circuit Breaker	1	1	2

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  SECTION _____ PAGE NO. _____ LINE OR ITEM _____

  _____

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* EXAMPLE: Section 13, Page 5, Item 5.
  PART NO. 41-350-55 KIT, CYLINDEER REPAIIR SHOULD BE PART NO. 41-350-66.

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2114 W. BALL ROAD
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