

**SERVICE AND PARTS MANUAL**

# **WESLEY PACK MULE**

**PC-400 & 500 SERIES**

**SOLID STATE MODEL**

**ISSUED 9/15/88**

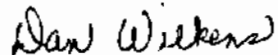
**WESLEY INTERNATIONAL CORPORATION**  
3680 CHESTNUT • P.O. BOX 934  
SCOTSDALE, GEORGIA 30079  
1-800-241-2869

Thank you for choosing Wesley. In this manual we have included information about the safety features, illustrations of parts, periodic maintenance and lubrication schedule, trouble shooting, warranty information, and other subjects.

We urge you to read this manual carefully and follow its recommendations. Please keep it in a permanent place for convenient reference.

Thank you again for choosing a Wesley product. We assure you of our continuing interest in your satisfaction.

Sincerely,



Dan Wilkens, President  
Wesley International Corporation

# **VEHICLE INCOMING INSPECTION AND CHECKLIST**

## **BEFORE DELIVERY TRUCK LEAVES**

Visually inspect the vehicle for any damage that may have occurred in transit. If any damage is found, a notation should be made on the carrier's bill as to the nature of the damage.

## **IMMEDIATELY AFTER DELIVERY**

Check the vehicle for concealed damage and immediately notify the carrier of any such damage.

## **BEFORE OPERATING THE VEHICLE**

1. Check all electrical connections to ensure that none have loosened in transit.
2. Check tires for proper inflation and lug nuts for their security.
3. Check brake carefully for in-transit damage. Incorrect brake pad pressure could cause brake failure.
4. Check all steering controls and front steering gears to ensure that all are operating freely and have not been damaged during shipment.
5. Install batteries in accordance with the wiring diagram for the model you have received. Make certain that all connections are tight and that the motor and all gauges are operational.

**A COPY OF THE ABOVE INFORMATION IS ATTACHED TO THE VEHICLE.**

**THIS COPY MUST BE SIGNED AND RETURNED TO WESLEY WITHIN 7 DAYS.**

This is a copy of the safety instructions affixed to your vehicle. Do not remove the sticker from the vehicle. If your vehicle does not have these instructions firmly affixed, please contact Wesley and they will be sent to you immediately.

## CAUTION AND SAFETY INSTRUCTION

### CHARGER AND BATTERY

Deck must be removed while batteries are charging.

Remember that battery and ignition cables carry high-voltage currents. Be careful not to cause a short circuit.

Never connect or disconnect either the battery or any transistorized component while the ignition key is on.

When connecting the battery cables, pay particular attention to their polarities. Never connect the positive cable to a negative terminal or a negative cable to a positive terminal.

Keep battery securely mounted.

Keep battery top clean and dry.

Keep terminals and connections clean, tight, and coated with petroleum jelly or terminal grease.

Rinse off any spilled electrolyte immediately with solution of water and baking soda.

If vehicle is not being used for an extended time, disconnect cables.

Read instructions from battery manufacturer for your own safety.

### FUSES

Never install a wire - instead of the proper fuse - even for a temporary fix. It may cause extensive damage and possibly a fire.

Do not use a screwdriver or any other metal object to remove fuses, as an electrical short circuit may occur and damage the system.

Do not modify or tamper with any part of the operating or speed control system. All inspections and adjustments must be made by a qualified technician.

### WHEELS

When replacing wheels for any reason, care should be taken to insure that the wheels are equivalent to those removed in diameter, rim width, and off-set.

A wrong size wheel may adversely affect wheel and bearing life, braking and stopping ability, handling characteristics, ground clearance, body-to-tire clearance.

### GENERAL MECHANICAL

Please remove deck cover completely before checking any portion of drive train, batteries, etc. Please chock wheels when appropriate.

Before placing deck cover back in normal position, make sure battery charging plug has been disconnected from receptacle; battery charging wire must be securely tied up; all tools have been removed.

### CAUTION AND SAFETY INSTRUCTIONS:

- Do not drive this vehicle without reading the manual.
- Do not start the vehicle if you did not precheck the brake system.
- Do not drive without seat belt. If you fail to use seat belt - manufacturer assumes no liability.
- Do not mount or dismount vehicle unless Forward & Reverse switch is in neutral position and key is turned off.
- Do not drive the vehicle when the accelerator requires extensive pressure.
- Do not park the vehicle over or near flammable objects.
- Always accelerate slowly - use only power necessary.
- Drive slowly and carefully when turning or cornering.
- Mount vehicle from side opposite hip rest.
- Steering linkage and tightness must be checked every three months or sooner, if necessary, by a qualified auto mechanic.
- Brakes are disc type and should be checked as required by a qualified auto mechanic.
- Do not drive the vehicle close to open dock door without proper consideration for braking or other unusual occurrences.
- Do not leave the key in the "on" position when you park the vehicle.

# MAINTENANCE REQUIREMENTS

Maintenance services and record retention are the owner's responsibility. You must retain evidence that proper maintenance has been performed on your vehicle in accordance with the following maintenance schedule. Failure to do so will void your warranty.

We at Wesley urge you to perform maintenance as we recommend. It is very important to do so.

## DAILY

- Test Brakes
- Check all gauges
- Check alarm
- Check state-of-charge by voltmeter on instrument panel (should read 24 volts) and clean batteries
- Plug in charger when vehicle is not in service; also vehicle should be left on charge overnight when possible

## WEEKLY

- Check each cell of each battery with hydrometer\* and add distilled water if necessary
- Check tire pressure with tires cold. Recommended pressure 60 psi\*\*
- Grease fork pivot fittings and gears with grease gun (automotive grease)

## MONTHLY

- Tighten any loose battery terminals and oil with a brush (automotive oil)
- Wash batteries with baking soda and water (protect charger from direct spray). Dry batteries thoroughly before returning to service
- Tighten bolts and nuts where necessary
- Check brake linkage
- Grease steering chain and sprockets
- Oil all moving parts that do not have fittings with an oiler or brush (automotive oil)

## EVERY THREE TO SIX MONTHS

- Check disc brake and other components for wear and deterioration
- Inspect steering operations, gear housing and linkage
- Inspect seat belt, buckle, and adjuster

## YEARLY

- Check motor brushes for wear. Replace if top of brush is half-way down in holder.
- Check oil level of transaxle and fill if necessary (SAE 90EP)
- Clean, inspect, re-pack, and reseal front axle and fork bearings

\* A **hydrometer** is the device used to determine if a battery is properly charged. It measures the specific gravity of the electrolyte (liquid) in the battery. The electrolyte is heavier (about 1260 in specific gravity) when fully charged, and lighter (about 1100) when fully discharged.

**CAUTION:** Do not expose the battery to flames or electrical sparks. Hydrogen gas generated by battery action is explosive. Do not allow battery fluid to come into contact with skin, eyes, fabric, or painted surfaces. If it contacts eyes or skin, immediately flush with water for 15 minutes and seek medical attention.

**NOTE:** In **freezing weather**, recharge for a while after adding distilled water to make sure that the water mixes properly with the fluid. Otherwise the water may freeze and damage the battery.

\*\* Overinflation or underinflation can reduce tire life, adversely affect vehicle handling and lead to sudden tire failure. This could result in an unexpected loss of vehicle control.

## VEHICLE ENERGY GUIDE

The following information is for your benefit. We, at Wesley, urge you to read this document to insure that you, the end user, will get the best service from your unit with the least amount of trouble.

A voltmeter and ammeter are on your unit so that you have indicators to show you the status of your unit's energy level.

The voltmeter's function is to show you the energy supply of your batteries, it can be looked at as a fuel gauge to see how much energy your batteries have or how much has been depleted. Your voltmeter should read 25 volts when fully charged. **Do Not** operate your unit if the voltmeter is reading **below** 24 volts. NOTE: Your unit will operate below 24 volts but by doing so you could irreparably damage your batteries, dramatically decreasing their operating period and life span. Your unit was designed to operate, under normal conditions, for 8 hours without being recharged. After 8 operating hours please fully recharge your batteries to guarantee proper operation and performance.

The ammeter's function is to tell you how much current your batteries are pulling when they are being charged. The ammeter should be used as a guide to proper usage. When recharging under normal conditions the ammeter should read 25 amperes or less. If it is reading greater than 25 amperes this means that you have operated the unit at a heavier than normal usage level or the unit has gone too long without being fully recharged. The solution in either case is to fully recharge your batteries more often. NOTE: Large currents caused by over-loading or recharging extremely weak batteries can damage one or all of the following: motor, controller, and charger.

If you are unsure as to the status of your batteries then your ammeter can be used by merely plugging it in and beginning the charging cycle. You can then make the following observations.

Immediately after plugging in your unit the ammeter reads the following:

### Ammeter Reading

0 amperes  
5 amperes  
15 amperes  
25 amperes  
30 amperes or above

### Status

Batteries are not charging, check connections and batteries with a hydrometer  
No charge is necessary  
Let vehicle recharge  
A modest recharge is necessary  
Check batteries with a hydrometer, damage may have occurred

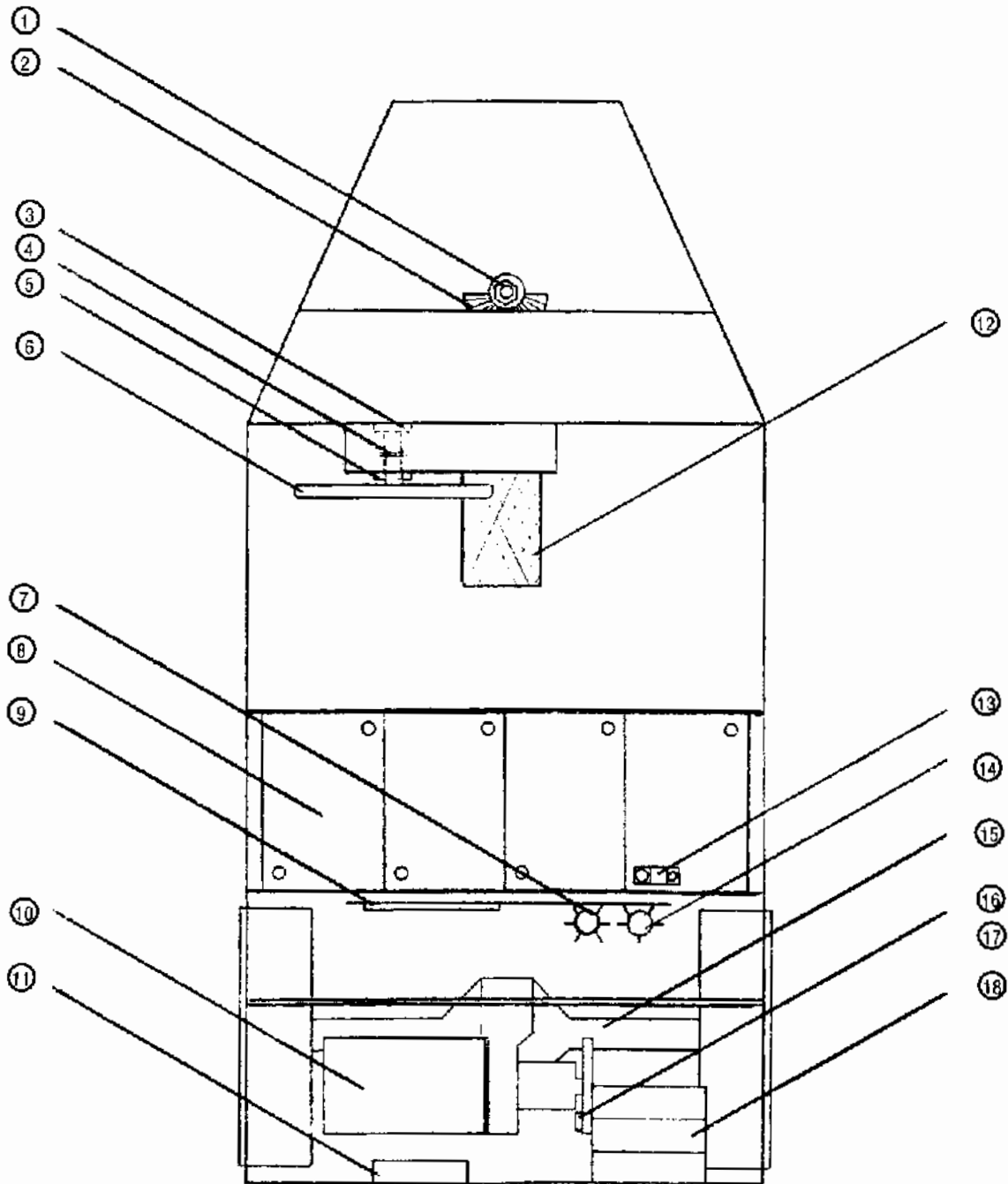
# TROUBLESHOOTING

Before checking or repairing any part of the vehicle, ensure that all safety precautions are taken. Electrical control system adjustments should only be made by qualified personnel, due to the use of special equipment and instruments. If there is ever a question about the sensitivity of an adjustment or difficulty of that adjustment, please feel free to contact Wesley Corp. using our toll-free number 1-800-241-2869.

SYMPTOM	PROBABLE CAUSE	REMEDY
<b>Vehicle Does Not Run</b>	Blows main fuse	Trace the main power line from the fuse and check for a short circuit
	Short circuit	
	Motor	Replace armature
	Shorted armature	
	Bad bearing	
	Overloaded	Lighten load to manufacturer's specification
	Blows little fuse	Trace wires from the fuse and check for a short (any bare wire that touches the chassis or common ground wire)
	Short circuit	
	Bad control circuit	Replace control circuit
	Bad connections	Check all connections to insure that all are tight and clean
Solenoid		
Battery		
Ignition		
Fuse	Inspect or replace	
Malfunction of solenoid		
Faulty batteries	Check with hydrometer* and replace bad batteries	
Malfunction of solid state controller	Consult manufacturer or replace	
Motor failure	Clean or release brushes	
Motor brushes		
Motor armature		
<b>Motor Runs in Wrong Direction</b>	Bad wiring	Check the motor wires for proper polarity
	Reversed motor wires	
<b>Lose Low Or High Speed</b>	Reversed rocker switch wires	Check the forward and reverse rocker switch for proper connections
	Malfunction of speed control linkage	Check control linkage and tension spring for any apparent damage (the motor should not be on when the pedal is completely released)
<b>Rough Braking</b>	Malfunction of solid state control unit or accelerator	Consult manufacturer or replace
	Worn brake pad	Adjust or replace pad by backing off the lock nut, tightening the tension nut and tighten the lock nut back into place (be sure that the brake assembly is clean and the pad is flush with the disk)
	Malfunction of tension spring	Inspect the tension spring to insure proper tension
<b>Charger Does Not Work</b>	Speed control linkage	Check speed control linkage to insure that the motor is not on when the pedal is fully released
	Blows fuse	Inspect circuit and replace fuse
	Batteries are fully charged	Disconnect batteries
<b>Battery Unable To Fully Recharge</b>	Battery damaged	Check batteries with hydrometer*
	Charger failure	Replace charger
<b>Battery Unable To Fully Recharge</b>	Battery fluid level low	Check water level of batteries and fill with distilled water
	Battery worn out	After allowing enough time for the batteries to recharge, check with hydrometer*

\* See Maintenance Requirements

# TOP VIEW

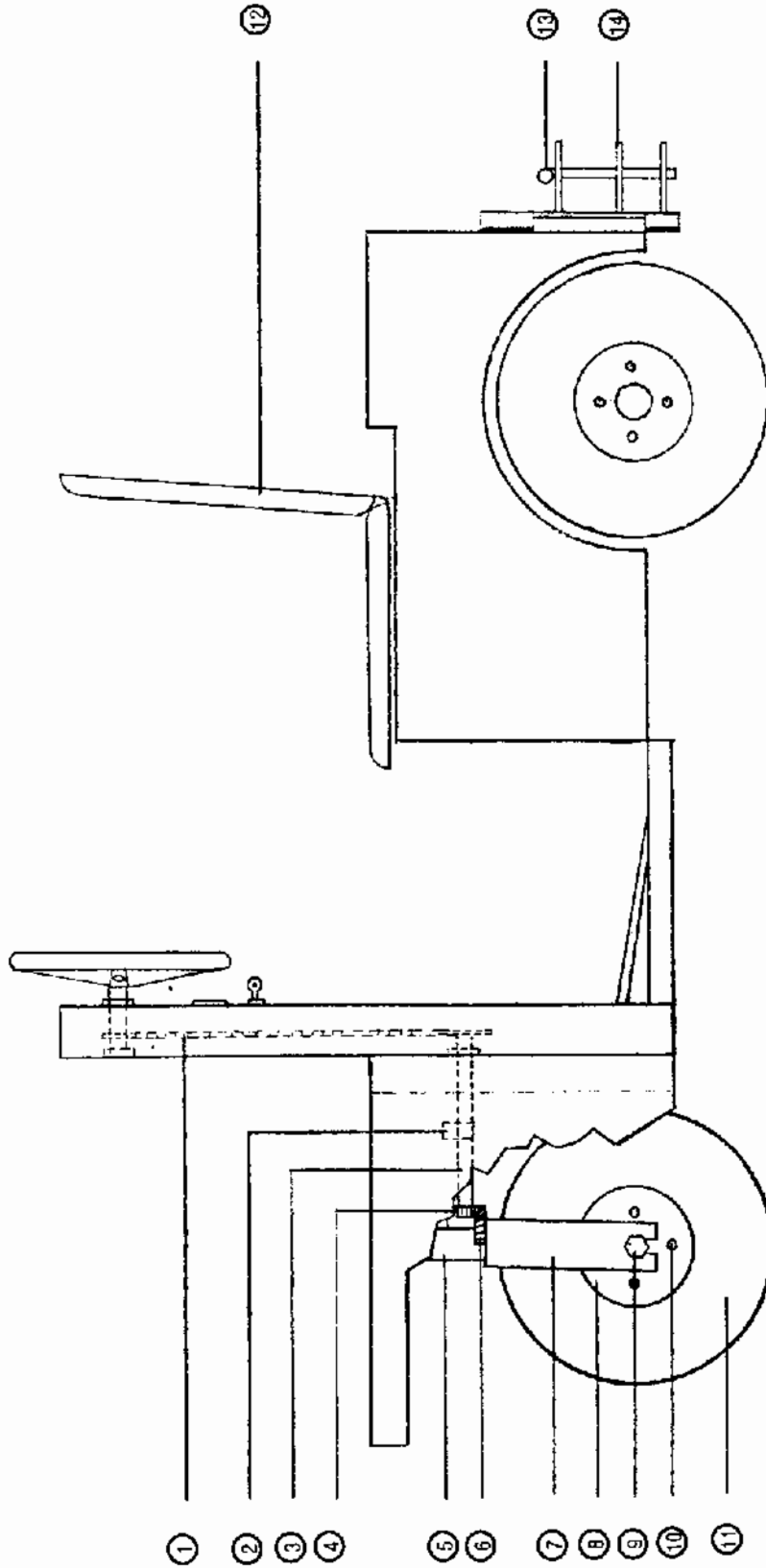


**NOTE:** On some models the electrical components may be located behind the transaxle.

ITEM #	PART #	DESCRIPTION	ITEM #	PART #	DESCRIPTION
1	ED-006	Kingpin	10	EC-001	Motor, 2 H.P.
2	ED-007	Steer Split Gear	11	EE-114	Charger Cord
3	ED-049	Steer Wheel Bearing	12	EF-021	Accelerator Treadle
4	ED-150	Small Steer Sprocket	13	EE-008	Fuse, 130 Amps
5	ED-049	Steer Wheel Bearing	14	EE-016	Solenoid (4 Terminal)
6	ED-061	Steer Wheel	15	EB-001	Transaxle
7	EE-017	Solenoid (3 Terminal)	16	EB-067	Brake Shoe, Fixed
8	EE-025	6 Volt Battery (4)	17	EB-069	Brake Shoe, Floating
9	EE-154	EL-A Dynamic Controller	18	EE-153	Charger



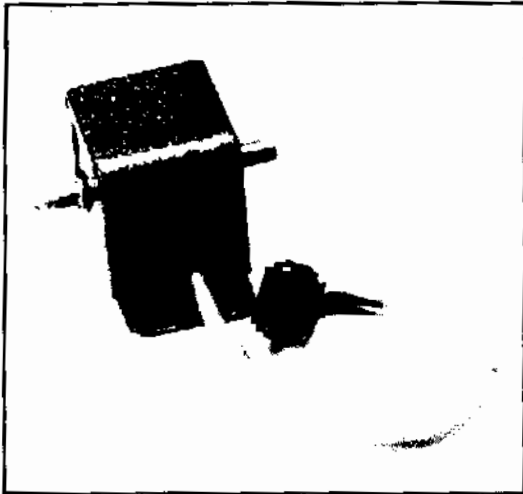
SIDE VIEW



ITEM #	PART #	DESCRIPTION	ITEM #	PART #	DESCRIPTION
1	EC-025	Chain	8	ED-010	Front Wheel Hub
2	ED-043	Steer Pillow Block	9	ED-023	Front Wheel Axle
3	ED-045	Steer Rod	10	ED-011	Front Hub Studs
4	ED-040	Steer Pinion Gear	11	ED-013	Wheel/Tire
5	ED-029	Front Bearing Sleeve	12	EG-101	Bucket Seat
6	ED-007	Steer Split Gear	13	EF-032	Pintle Hitch
7	ED-002	Fork Side	14	EA-044	Hitch Assembly

# ELECTRIC VEHICLE CONTROLS

## DYNAMIC ROTIAC — ROTARY ACCELERATOR RA2

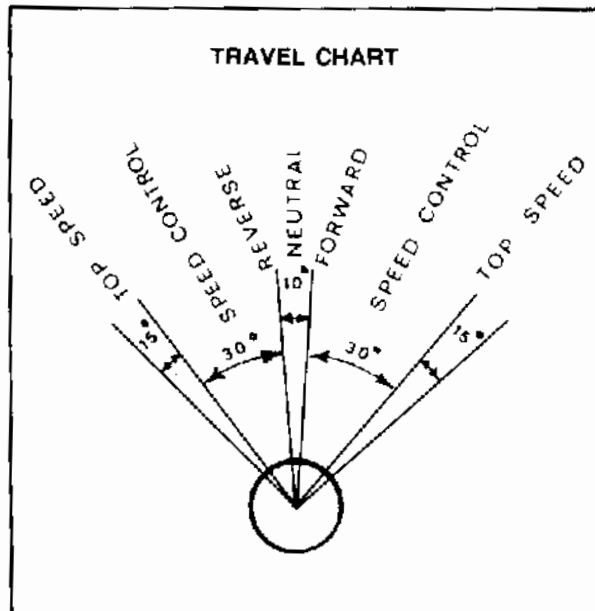
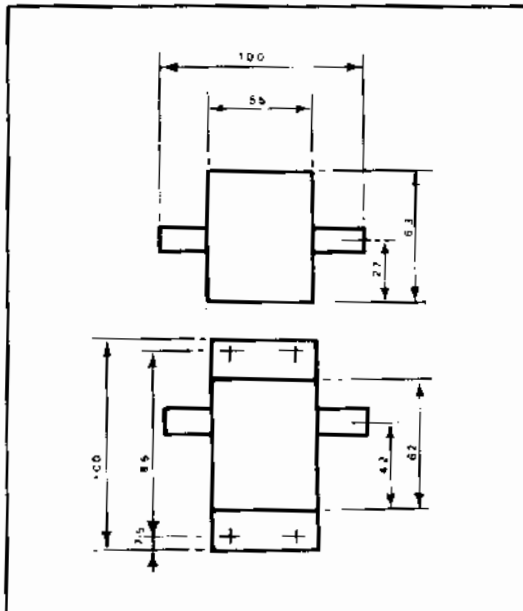


### APPLICATION

Accelerator converts lever position to input signals for use with electric vehicle controls. The design is suitable for either foot or hand operation.

### FEATURES

- Compact:** Can be mounted in confined position and in any orientation.
- Rugged:** Steel construction, long life bearings, roller limit switches.
- Long Life:** Tested to 5 million cycles.  
Solid State circuitry — no potentiometers.  
Dust proof and corrosion protected.
- Specifications:** Limit switch rating 10 AMP.  
Supply voltage 12 to 48 volts.  
All units factory set, no adjustments necessary.
- Connector (Molex Part No. M1360):**  
Supplied on multicore cable 200mm long.
- Shaft Dia** 1/2 inch

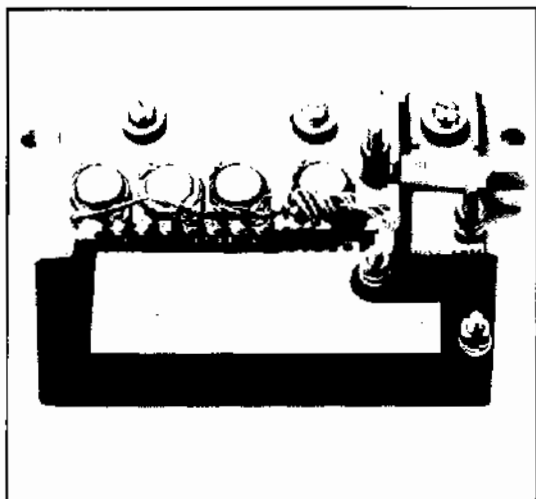


25.4mm = 1 inch

In the continued search for product improvement the company reserves the right to change designs without prior notice.

# ELECTRIC VEHICLE CONTROLS

## DYNAMIC ELF SERIES EL-A & EL-B



### APPLICATION

Infinitely variable speed control and automatic direction and bypass (1A) contactor logic. For use on lift trucks, golfs cars and commuter vehicles.

### FEATURES

Ultra compact design. High power capability. Sealed weatherproof construction. Contactor control functions included in logic. Increased range between charges, increased battery life, reduced maintenance.

### SAFETY

Electronic failsafe.  
Welded contact protection.  
Thermal roll back.  
Pulse by pulse current limiting.  
Thermistor temperature protection.

### BRAKING

Automatic plugging controlled.

### ADJUSTMENTS

Trimpot adjustment for acceleration, braking and current limit.

### RATING BEFORE BYPASS (1A) OPERATION

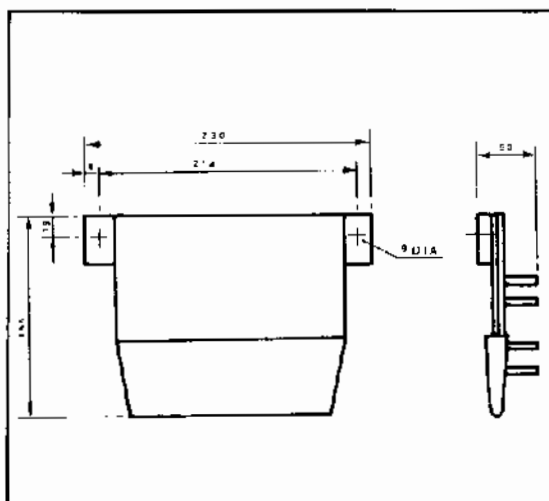
Series EL-A up to 180 AMP  
Series EL-B up to 220 AMP.

### VOLTAGE

24V and 36 Volt.

### INSTALLATION

Slim profile and twin mounting holes means easy installation.

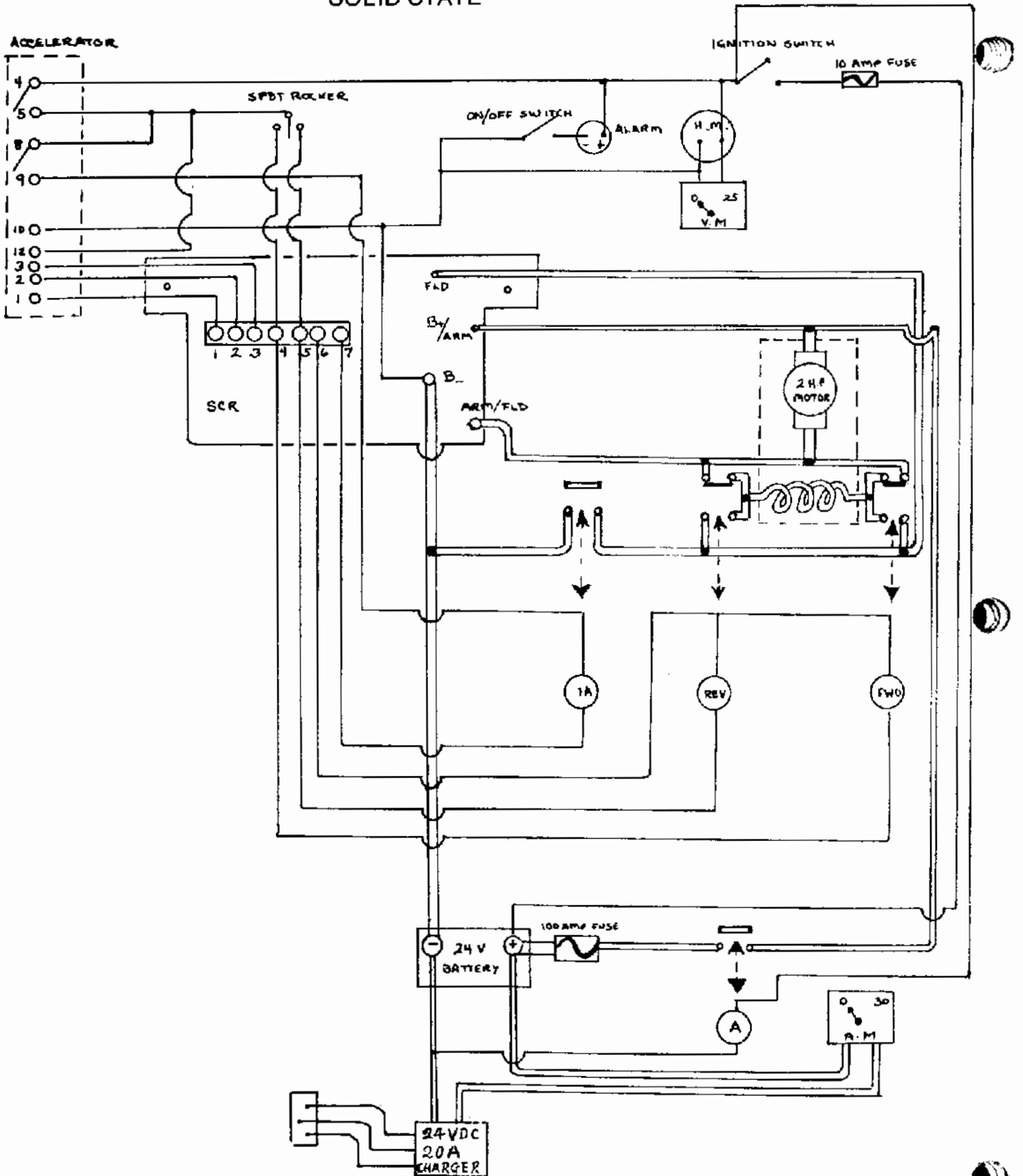


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# SC-750 WIRING DIAGRAM

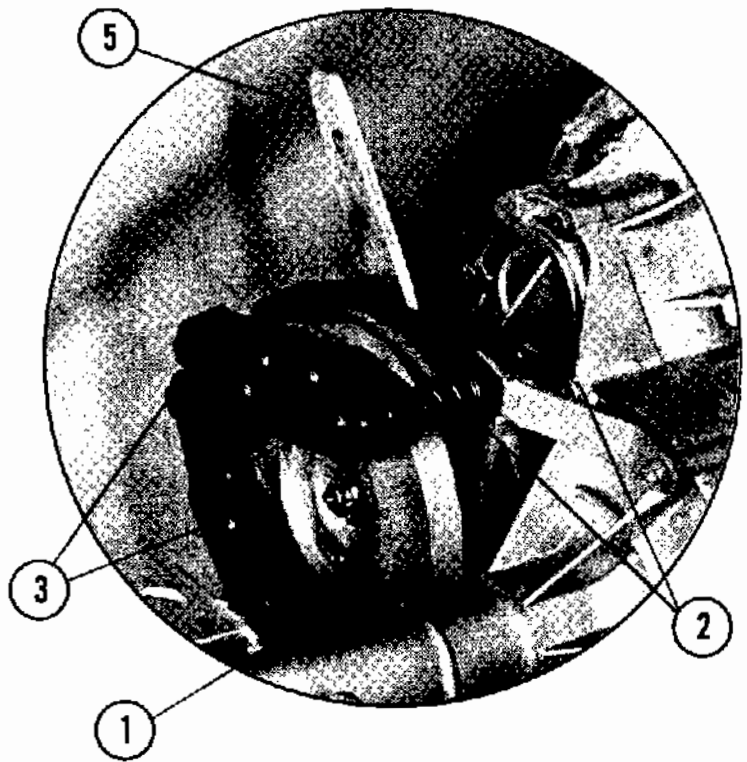
## SOLID STATE



**MODEL 174 - 364X  
FOR  
HEAVY DUTY  
DISC/CALIPER BRAKE**

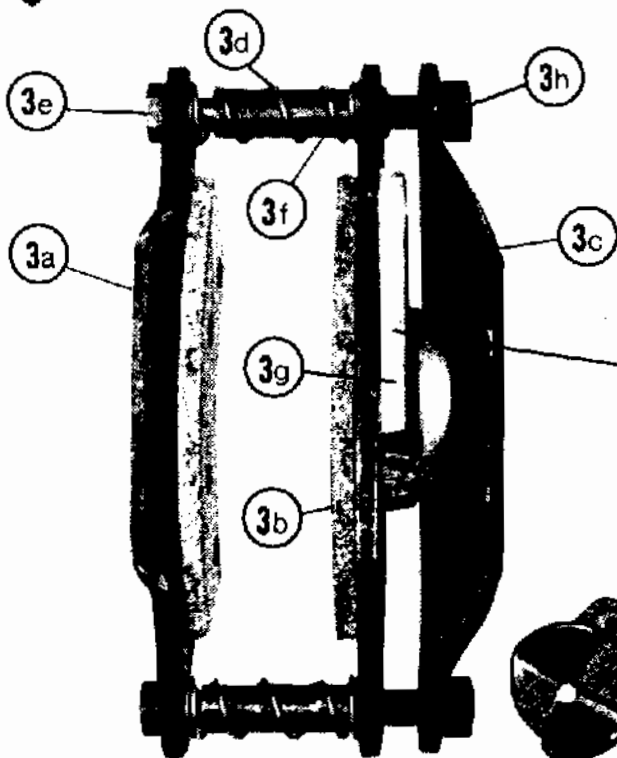
— Parts List —

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	174-400X	Brake Disc
2	174-404X	Backing Plate
2a		Mounting Screw
2b		Lock Washer
3	174-384X	Caliper Assembly
a	P-2773	Fixed Shoe
b	P-2774	Floating Shoe
c	P-2775	V-Plate
d	P-2777	Compression Spring
e	P-2778	Caliper Assembly Bolt
f	P-2779	Bushing
g	P-2781	Washer (See Note 1)
h	P-2782	Nut
4a	174-435	Service Brake Cam (Note 2)
4b	174-393X	Service Brake Cam (Note 2)
	174-421	Auxiliary Brake Cam

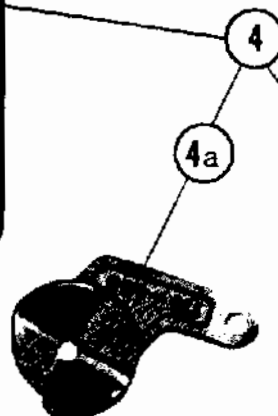


**NOTES:**

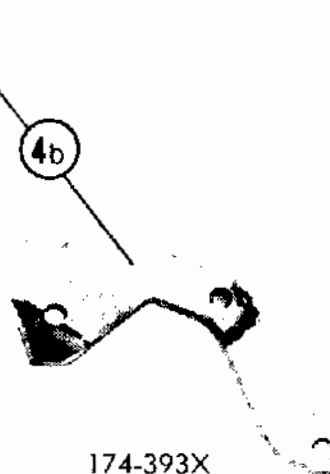
1. Washer not used with Service Cam 174-435.
2. Item 4a Cam used with Transaxles mounted under vehicle with a forward tilt exceeding 30 degrees. Item 4b Cam used with Transaxles mounted vertical to 30 degrees forward tilt.
3. **CAUTION:**  
When installing Brake Disc limit torque on Nut to 12 foot pounds maximum.
4. In place of the standard bolt use two 1/2-28NF X 2 3/4 Hex Hd. Screws for mounting Item (2) Straps to Transaxle Housing.



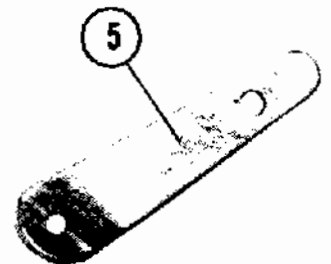
174-384 X CALIPER



174-435



174-393X



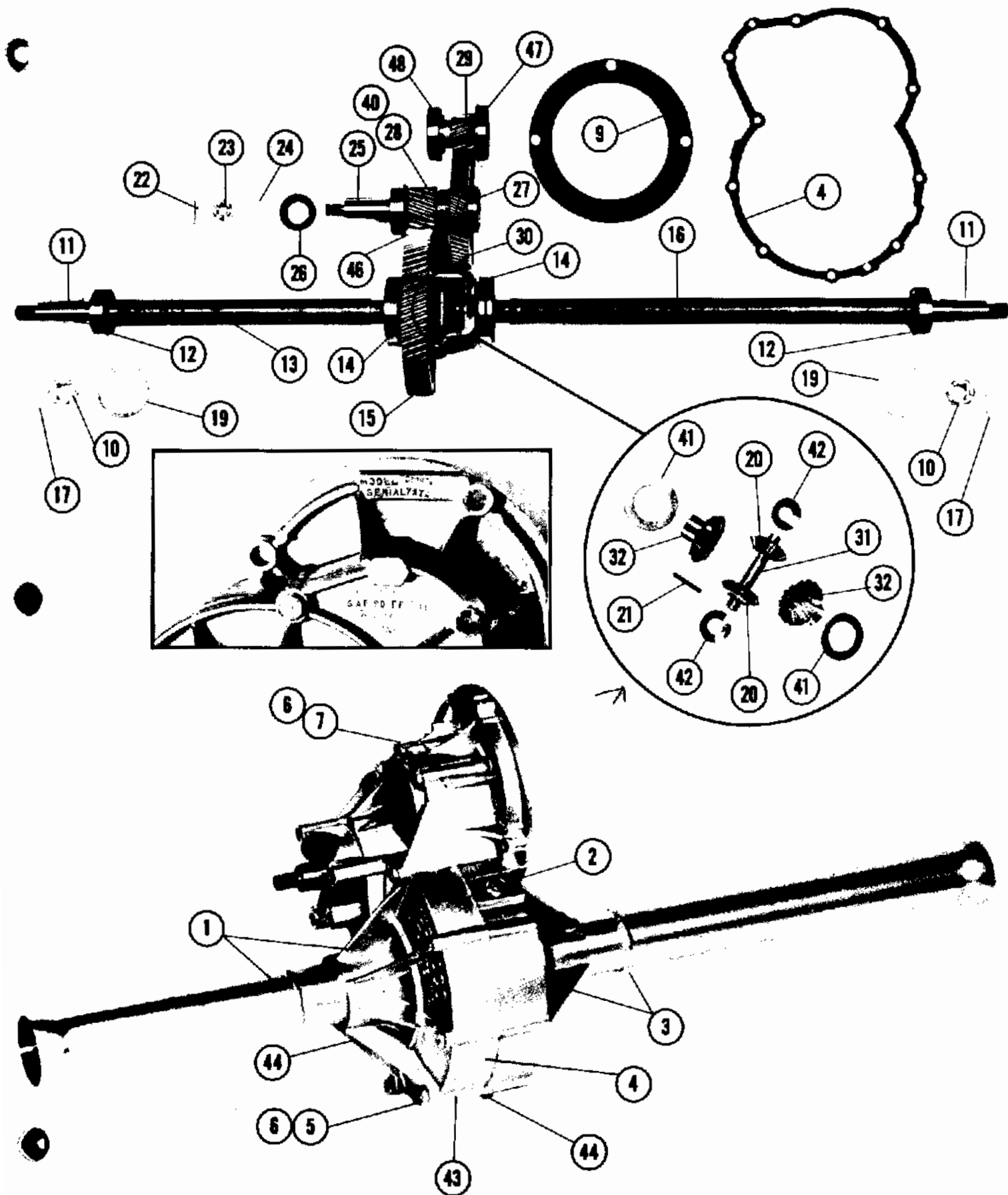
174-421

# MODEL NB4-1 R-001

## TRANSAXLE

### Parts List

ITEM NO.	DESCRIPTION	NUMBER REQUIRED
1	Housing Assembly, L.H.—includes Tubes (Specify complete Model No.)	1
2	Fill Plug	1
3	Housing Assembly, R.H.—includes Tubes (Specify complete Model No.)	1
4A	Housing Gasket (For Model K25)	1
4B	Housing Gasket (For Model L25)	1
5	Hex Hd. Cap Screw	6
6	Lockwasher	10
7	Hex Hd. Cap Screw	4
8	Dowel Pin (not shown)	2
9	Motor Gasket	1
10	Slotted Nut	2
11	Key - Axle Shaft	2
12	Bearing - Axle Shaft	2
13	Axle, L.H. (Specify complete Model Number)	1
14	Bearing - Differential Carrier	2
15	Output Gear & Cage	1
16	Axle, R.H. (Specify complete Model Number)	1
17	Cotter Pin	2
19	Retaining Ring	2
20	Differential Idler Gear	2
21	Roll Pin	1
22	Cotter Pin	1
23	Castle Nut	1
24	Washer	1
25	Key (Use Hardened Alloy Steel only)	1
26	Seal	1
27	Bearing - Intermediate Shaft	1
28	Intermediate Pinion/Shaft	1
29	Motor Pinion (Specify complete Model No. or Ratio)	1
30	Intermediate Gear (Specify complete Model No. or Ratio)	1
31	Differential Pin	1
32	Differential Side Gear	2
40	Key (Not shown, use Hardened Alloy Steel only)	1
41	Thrust Washer	2
42	Spherical Washer	2
43	Drain Plug, Magnetic (Not shown)	1
44	Plug - Check or Drain	2
46	Bearing - Intermediate Shaft	1
47	Bearing - Pinion	1
48	Bearing - Pinion	1



## SPECIFICATIONS

<b>VEHICLE MODEL</b>	PC - 550 SCR	<b>PAYLOAD CAPACITY</b>	
<b>DIMENSIONS</b>		Carry on Back Deck	800 lbs.
Overall Length:	67.5"	Carry on Front Deck	300 lbs.
Overall Width:	31.0"	Tow	2000 lbs.
Overall Height:	45.0"	<b>SPEED</b>	10 MPH
<b>WEIGHT</b>	730 lbs.	<b>CHARGER</b>	
<b>GROUND DRIVE</b>	Direct drive transaxle	Manufacturer	Quick
<b>MOTOR</b>		Model number	OBE 24V/20A
Manufacturer	BALDOR	Input voltage	120 A.C.
Model number	45 - 222W16	Output rating	20 Amps.
Input voltage	24 D.C.	Output voltage	25.5 D.C.
H.P. rating	2	<b>TIRES/WHEELS</b>	
Max. RPM rating	2800 R.P.M.	Tire size	4.80-8"
<b>STEERING</b>		Tire pressure	60 P.S.I.
Max. turning	75 degrees	<b>BODY</b>	
Min. circle	9' - 8"	Frame	14 GA diamond plate facing on surface
Min. aisle	5' - 0"	Color	Burnt Orange
<b>CONTROLS</b>		<b>SAFETY</b>	Seat belt, padded seat, and back up alarm
Power operation	Ignition key	<b>OPTIONAL EQUIPMENT</b>	Lights, spare wheel and tire, others available upon request
Steering operation	Vertical steering wheel		
Forward/reverse	T circuit relay		
Speed control	Linear acceleration		
<b>BRAKES</b>			
Service brake system	Heavy duty drive Shaft disc/caliper		
Parking brake system	Deadman brake on accelerator treadle		

### VEHICLE STOPPING DISTANCE

These figures indicate braking performance that can be met or exceeded without locking the wheels under different conditions of loading and with partial failure of the braking system. The information may not be correct under other conditions.

- A. With fully operational service brake:
- |                    |        |
|--------------------|--------|
| light load .....   | 6 feet |
| maximum load ..... | 9 feet |
- B. With emergency service brakes .....
- 12 feet

**NOTE:** Emergency brake must never be used unless the service brake is inoperable.



# Wesley Pack Mule

## LIMITED WARRANTY

Wesley International Corporation, Inc. will repair or exchange parts for this product free of charge in the event of a defect in materials or workmanship as follows:

**PARTS:** (excluding motor, transaxle, charger, and batteries)

New or rebuilt parts in exchange for defective parts for six (6) months from date of shipment from our plant.

**LABOR:** Purchaser's labor cost or other charges for correcting defects or making additions will not be allowed.

**COMPONENT PARTS:** These are covered by their respective companies' warranties as follows:

Motor	(Baldor)	18 months
Transaxle	(Terrell)	12 months
Charger	(Quick)	60 months
Batteries	(Exide)	6 months

This warranty covers failures due to defects in materials or workmanship which occur during normal use and does not cover damage which occurs in shipment or failures which result from alteration, accident, misuse, abuse, neglect, improper maintenance, or service not authorized by Wesley.

**LIABILITY LIMITATIONS:** Under no circumstances shall Wesley be liable for consequential or incidental damages of any nature (whether based on contract or tort) including, but not limited to, loss of production, delays, or expense. And the liability of Wesley shall not, under any other circumstances, exceed the purchase price of the product furnished.

**SAFETY DEVICES:** Wesley certifies that the product will comply with OSHA standards (in effect at the time of order acceptance by Wesley) that relate solely to the physical characteristics and not to the circumstances of use (including noise) of the products. The products are provided with only those safety devices identified herein. It is the responsibility of the purchaser to furnish other appropriate safety devices in compliance with OSHA standards, or which are desired by purchaser and/or required by other laws.

**RETURNS:** Wesley will not accept products returned for repair or replacement or credit unless the return is authorized by Wesley in writing.