

OPERATION AND MAINTENANCE MANUAL WITH PARTS LIST

MODEL:	R 3-74
SERIAL NO. :	35708 - 59049
YEAR:	1975 - 1980
MANUAL NO. :	MR-374-94

- IMPORTANT -

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



TAYLOR-DUNN

Commercial and Industrial Vehicles Since 1949

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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 possibility 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.

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INSPECTION, SAFETY, AND INTRODUCTION
ARRIVAL INSPECTION CHECK LIST

Visual Inspection should be made to determine that the truck has remained in good condition during transit. If any damage is found, the details should be noted on the delivery receipt immediately. After delivery the truck should be most carefully checked for HIDDEN DAMAGE. Any concealed damage not noted on the delivery receipt should be reported, in writing, to the delivering carrier within 48 hours.

The following checklist has been prepared to aid you during arrival and inspection of your vehicle.

- A. Open all packages and examine any accessories which may be shipped detached from vehicle.
- B. Examine wiring for visible evidence of damage. Check all connections to insure that none have loosened during transit.
- C. Check all battery connections and electrolyte level in each cell.
- D. Inspect battery charger in accordance with manufacturers installation instructions.
- E. Check tires for damage and proper inflation. Check wheel lugs to insure their being tight.
- F. If vehicle is equipped with hydraulic brakes, check hydraulic lines for evidence of damage.
- G. Check brake fluid level in master cylinder.
- H. Examine entire vehicle for damage such as dents or cracks.
- I. Check operation of controls to see that they are working freely.

Upon completion of the Visual Inspection and review of the safety recommendations on Page 2 of SECTION A, an operational test should be made. Refer to operating instructions in SECTION B.

SAFETY

The safe and satisfactory use of any vehicle is a responsibility shared by many persons. As the manufacturer, we feel that it is our responsibility to emphasize vehicle characteristics and make safety recommendations regarding those characteristics. That is the primary purpose of this portion of the manual.

Persons who operate this vehicle need to be aware of, and to observe, the safe driving rules established in their locality, and need also to be aware of the vehicle operating characteristics and safety recommendations of the manufacturer, to assist them in exercising the judgment necessary to prevent injury to themselves or to others.

Persons who service and maintain the vehicle need to be aware of how their activities relate to safe vehicle operation, and of potential hazards involved in the service and maintenance processes, to assist them in applying sensible judgment to those processes.

STEERING This vehicle has a very small minimum turning radius and high ratio steering gear. These are essential for maneuverability at slow speeds.

These characteristics, so desirable at slow speeds, require that great care be exercised at high speeds to avoid turning so sharply that one or more wheels lose contact with the ground, or that the vehicle is caused to overturn. Be especially careful while traveling on an incline. Avoid sharp turns, even at slow speeds.

SPEED This vehicle is designed to attain its maximum safe operating speed on level ground. That speed can easily be exceeded when traveling down-hill. If this is allowed to occur, vehicle stability and braking performance become unpredictable. Do not exceed, under any conditions, the maximum speed the vehicle can obtain on level ground.

CONTROLS Bring the vehicle to a complete standstill before operating the forward/reverse switch to change direction of travel. Operation of this control while the vehicle is in motion can result in complete loss of power and brakes.

Do not use the accelerator to hold the vehicle at a standstill on an incline. This can cause complete power loss. Use only the brakes to hold the vehicle at rest while on a hill.

BRAKES The brake system relies on contact of rear tires with the ground for effectiveness. As tire to ground contact is reduced, braking effect is reduced. While driving, the operator must consider terrain, speed, and steering maneuvers to prevent tires from losing contact with the ground, with consequent reduction of braking action.

MAINTENANCE Many operating characteristics relate to maintenance in ways which are not readily obvious. For example, should the accelerator linkage bushing not be adequately lubricated, it is possible that depressing the brake pedal may cause the accelerator linkage to operate. Those maintenance characteristics most closely related to vehicle operating safety are indicated on SECTION E, PAGE 1, AND SECTION D, PAGE 1 AND PAGE 2.

Also to be considered is the safety of personnel who perform service and maintenance duties. Two characteristics need special emphasis.

1. This electric vehicle does not "idle" noisily, is never "out of gear", and is set into motion whenever the battery to motor circuit is closed, intentionally or otherwise. Whenever practical, disconnect battery leads to avoid unintentional starting of the motor during servicing or maintenance.

2. Batteries emit gasses which can be explosive, especially while they are being charged. Personnel who are involved with servicing vehicles, or maintaining vehicles, need to be made familiar with this hazard. A detailed explanation is contained on Pages 1 and 3 of SECTION J8.

INSPECTION, SAFETY, AND INTRODUCTION

INTRODUCTION

The Model R pickup is designed to be driven on smooth surfaces in and around industrial plants, institutions, motels, mobile home parks and resorts. It is not designed to be driven on the public highways. It is not designed to go in excess of 14 m.p.h. on level surfaces or downhill. Speeds in excess of this may result in difficulty in steering. It is not designed to be towed in excess of 14 m.p.h.

MODEL NO.

The following Model Numbers are covered by this manual ---
R 2362, and R 2363, starting with Serial No. 26001.

SERIAL NO.

The Serial No. of your unit is stamped into the top of the left main frame tubing member, just below the deck board. The Model Number and Serial Number are on a name plate riveted to the kick panel below the passenger seat. In ordering parts of referring to your unit, please use these numbers. Replacement parts can be purchased directly
from distributors located
across the United States.

OPERATING INSTRUCTIONS

The controls on your Taylor-Dunn vehicle have been designed and located for convenience of operation and efficient performance. Before driving your vehicle for the first time, familiarize yourself with each of the controls. Read the following instructions and with power OFF, operate each control.

STEERING

The steering system is of the automotive type. Turn the steering wheel to the right (or clockwise) for a right turn and left (or counterclockwise) for a left turn.

KEY LOCK

Your vehicle is equipped with a keyed lock located on the corner of the Forward-Reverse switch. It is designed to lock the switch in the neutral position only. The key will remove from the lock in the locked position (Neutral) only.

BRAKE (HAND)

The hand parking brake is located in the center of the floor board. To engage hand brake, grasp top lever and pull towards rear all the way till hand lever stops. To release brake, push hand lever all the way forward.

BRAKE (FOOT)

The brake pedal is designed and located for right foot operation. It is the pedal located to the left of the accelerator pedal. It functions the same as the brake pedal in your automobile. Depressing the pedal applies the braking action. The greater the effort applied to the pedal with your foot, the greater the braking action to your vehicle. Removing your foot from the pedal allows immediate release of the braking action.

FORWARD-REVERSE SWITCH

The Forward-Reverse switch is located to the right of, and below, the drivers seat, and can be operated only when the key is in the unlocked position. To place the handle in the Forward position, move it downward. To place the handle in the Reverse position, move it upward.

CAUTION: The forward-reverse switch serves the same purpose as the transmission in your automobile. Treat it with the same respect and care. DO NOT SHIFT from forward to reverse or vice-versa while the vehicle is in motion. Shifting while in motion, especially near top speed, causes great strain to your entire vehicle and will eventually cause severe damage.

Accelerator Pedal

The accelerator pedal is located to the right of the brake pedal. It is designed for right foot operation similar to your automobile. Depressing the pedal turns the power on to the motor. It also controls the amount of power delivered to the motor in 5 steps. When driving your vehicle you will be able to feel the 5 steps of power, with full power when accelerator is fully depressed and minimum power when only partially depressed. You will have the same control of power in both directions of travel. Your forward-reverse switch determines the direction of travel and your accelerator pedal controls the speed.

Horn Button

The horn button is located in the center of the steering wheel. Depressing the button sounds horn. Releasing button will immediately silence horn.

Light Switch

The switch for operating headlights and taillights is located on the switch panel to the left of the steering column. The On-Off positions are labeled.

Battery Charger

Refer to Section J-8 for proper instructions to operate your battery charger.

Special Accessories

Refer to the appropriate section of this manual for separate operating instructions pertaining to any special feature of accessory your vehicle may have.

OPERATING YOUR VEHICLE

CAUTION: Before operating vehicle, apply service brake, as necessary, to preclude movement of vehicle.

To put your vehicle into operation, release park brake by pushing hand lever all the way forward. Unlock forward/reverse switch by turning keyed lock counter-clockwise. Select direction you wish to travel by moving red handle of forward-reverse switch into position. Slowly depress accelerator pedal until vehicle is moving at the desired speed. Steer vehicle as required utilizing the foot brake and accelerator to control your speed. For greatest efficiency it is recommended that you travel at the fastest speed that you can safely maintain. You will find that your vehicle will consume almost as much current at low speed as it does at higher speeds. Therefore, without taking any unnecessary risk traveling at the higher speed will deliver more miles per battery charge than continual use in the lower speed range.

CAUTION: DO NOT "hold" vehicle at a standstill on a hill or incline using your accelerator only. Continued "stalled" condition, as described, will damage motor and electrical controls. Use either service or park brake to hold vehicle on a hill safely.

When you leave your vehicle, it is best to always place the forward/reverse switch in neutral position. Set park brake to prevent vehicle from rolling free, and lock and remove key.

Drive safely and enjoy your Taylor-Dunn vehicle.

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.

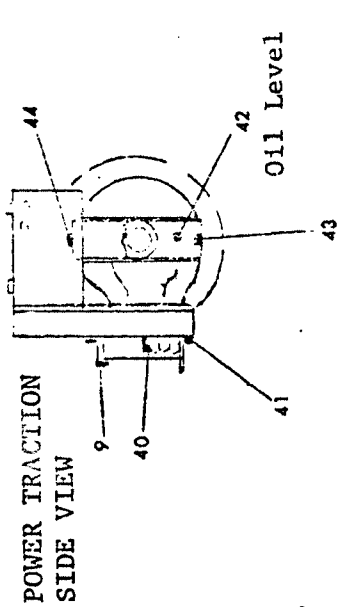
MAINTENANCE SERVICE	REFER SECTION	EVERY WEEK	EVERY MONTH	EVERY 3 MONTHS	EVERY YEAR
Check & record Sp. gravity & water level of each cell. Fill, as necessary, using distilled water (See Chart in Section J8)	J8	X	X	X	X
* Examine battery terminal connections. Clean and tighten as necessary, but not while batteries are being charged.	J8	X	X	X	X
* Clean off all dirt and grease on and between power bars. Lubricate. (See Chart, Section E)	J6 & E	X	X	X	X
* Check Speed Control rotor adjustment	J6		X	X	X
* Check tire pressure	J1	X	X	X	X
Adjust motor mount & chain (See Chart, Section J2)	J2		X	X	X
* Lubricate steering linkage with grease (zerk fittings)	E		X	X	X
* Lubricate brake & accelerator linkage with grease	E		X	X	X
* Lubricate linkage pivot points and suspension points with all purpose engine oil.	E		X	X	X
Wash off batteries with water, (Use soda if necessary).	J8		X	X	X
Check all wire connections. Be sure they are all clean and tight, but not while batteries are being charged.			X	X	X

* Items related to safety recommendations.

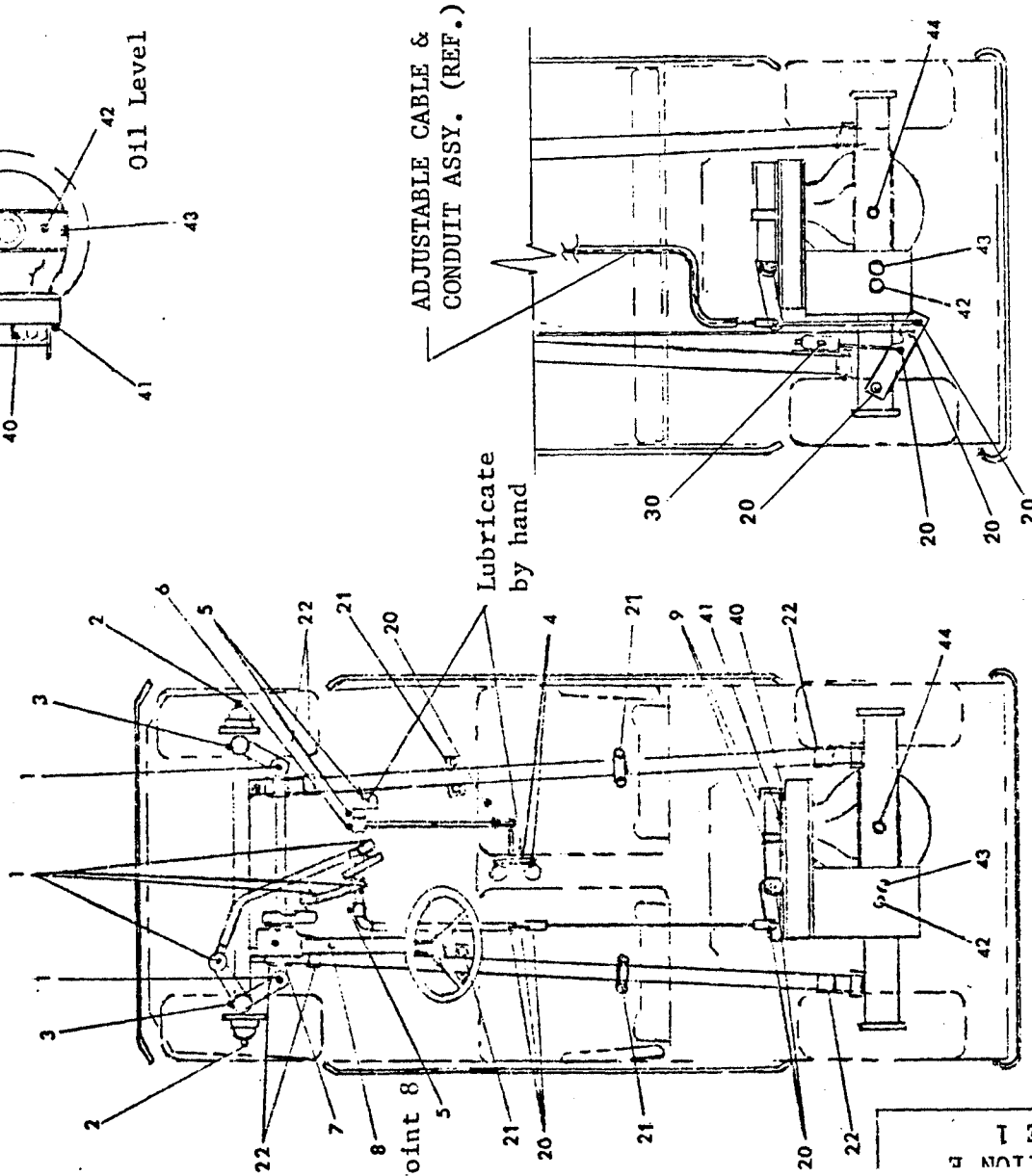
MAINTENANCE GUIDE CHECKLIST

Maintenance Service	Refer Section	Every Week	Every Month	Every 3 Months	Every Year
* Check and adjust hand and foot operated brake system	J2		X	X	X
Check drive axle oil level. (Refer to lubrication diagram).	J2&E		X	X	X
* Lubricate front wheel bearings (2 zerck fittings)	E			X	X
* Clean surface between power bars of the speed control switch	J6&E			X	X
Check motor brushes. Blow out carbon dust. (Replace if necessary).	J2			X	X
* Check brake lining for wear.	J2			X	X
Drain differential and refill with SAE 20 oil (refer to lubrication diagram)	J2&E				X
Repack front wheel bearings. (Use wheel bearing grease).	J1&E				X
Lubricate steering gear box with grease.	E				X
* Check and adjust front wheel bearings	J1			X	X

* Items related to safety recommendations



POWER TRACTION
SIDE VIEW



HYDRAULIC BRAKE
COMPONENTS (OPTION)

A. PRESSURE GUN GREASE		NO. OF PLACES	FREQUENCY
*	1. Ball Joints	6	1 Month
*	2. Front Wheel Hub	2	3 Months
*	3. Front Wheel Spindle	2	1 Month
*	4. Master Control Switch	2	1 Week
*	5. Brake Linkage	3	1 Month
*	6. Accelerator Linkage	1	1 Month
	7. Steering Worm - Fill to Grease Level Hole	8	1 Year
*	9. Brake Alignment Bracket	2	1 Month

B. ALL PURPOSE ENGINE OIL			
*	20. Linkage Pivot Points	6	1 Month
	21. Spring U Bolts	4	1 Month
C. GRAPHITE BASE GREASE			
	22. Spring tip pads	6	1 Month
D. SAE 20 OIL-Axle & Differential			
	42. Level Check	1	1 Month

Change Oil - Power Traction 1 Year
 a. Remove Drain Plugs 41 & 43, Level Plugs 40 and 42, Fill Plug 44.
 b. Drain Oil, Replace 41 & 43.
 c. Add Oil by 44 to level of 42
 d. Add oil by 40 to 1/2" below 40
 e. Replace 40, 42, 44

E. BRAKE FLUID - SAE 70 R1			
	*30. Master Cylinder (Opt.)	1	1

SECTION E
PAGE 1

* Items related to safety recommendations

REVISION

LENGTH QUAN. REVISED DATE

LUBRICATION DIAGRAM MODEL - R 2362

1 E

FIGURE
SECTION

DATE 10-11-73
 DRAWN BY REA
 FILE NONE
 DL. FRAC. DEC. 1

TAYLOR DUNN MFG. CO.
 2114 West Ball Rd.
 Anaheim, Calif.



TROUBLE SHOOTING PROCEDURES

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
1. STEERING (SECTIONS E & J1)		
a. Pull in one direction	1. Unbalanced front tire pressure	1. Check and adjust inflation 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 proper pressure
	2. Dry pivot points in steering linkage	2. Lubricate - See Section E
	3. Bent or maladjusted king pin	3. Repair, Replace, or adjust king pin
c. Sloppy or Loose	1. Loose wheel bearing	2. Tighten or replace ball joints - Section J1
	2. Loose or worn ball joints	
	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. BRAKES (SECTION J2)		
a. Poor Brakes: Pedal Pressure Normal or excessive	1. Worn brake lining	1. Adjust for lining wear or replace if less than 1/16 thick
	2. Brake Shoe misaligned	2. Align brake shoe
	3. Brake lining wet of oily	3. Clean or dry lining
	4. Bind in brake linkage	4. Loosen, adjust, or lubricate brake linkage
	5. Incorrect linkage adjustment	5. Adjust linkage
	6. Accelerator pedal bushing dry, sticking to brake shaft.	6. Lubricate accelerator pedal bushing.
b. No Brakes: Pedal reaches floor board	1. Incorrect linkage adjustment.	1. Adjust linkage
	2. Incorrect shoe adjustment	2. Adjust shoe
	3. Broken linkage	3. Repair or replace broken part
	4. Broken brake band	4. Replace brake band
	5. Broken axle	5. Replace broken axle
c. Excessive or grabbing brake	1. Small amount of oil on lining	1. Clean lining
	2. Incorrect shoe adjustment	2. Adjust shoe
	3. Brake cable attached to wrong place on brake idler arm.	3. Change cable attachment to correct location on brake idler arm.
	4. Scored or rough brake drum.	4. Refinish or replace brake drum

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
3. DRIVE AXLE (SECTION J2)		
a. Erratic operation	1. Faulty Power System. 2. Badly worn drive sprockets	1. See "Power System" 2. Replace sprockets
b. Lack of Power:	1. Faulty Power System 2. Hand Parking Brake not completely released 3. Incorrect brake adjustment, brake dragging 4. Defective or maladjusted wheel bearing. 5. Bind or drag in primary drive or differential.	1. See "Power System" 2. Release Parking Brake 3. Adjust brake system 4. Adjust or replace wheel bearing. 5. Check and repair primary drive or differential.
c. Abnormal Noise in drive train	1. Defective motor bearing 2. Loose motor mount 3. Worn or broken sprockets 4. Worn gears or bearings in differential. 5. Defective Axle Bearing 6. Worn or bent axle 7. Loose Wheel lug nuts 8. Defective spring eye bushings	1. Replace motor bearing 2. Tighten motor mount 3. Replace sprockets 4. Check and replace gears or bearings. 5. Replace Bearing. 6. Replace Axle 7. Tighten lug nuts. 8. Replace bushings
d. Oil Leaks in wheel bearing area	1. Wheel bearing seal defective. 2. Wheel bearing gasket defective 3. Axle retainer plate not tightened 4. Drive axle filled above proper oil level	1. Replace seal 2. Replace gasket 3. Tighten axle retainer plate 4. Drain oil to proper level
e. Oil leaks in pinion shaft and brake drum area	1. Pinion shaft seal defective 2. Brake drum hub scored or worn in seal area 3. Gear case cover not aligned with pinion shaft. 4. Pinion shaft bearing adjusted to loosely 5. Drive axle filled above proper oil level 6. Oil return orifice in gear case back plate blocked	1. Replace seal 2. Refinish drum hub or replace drum. 3. Reposition cover to align with shaft. 4. Readjust bearing to proper tension 5. Drain oil to proper level 6. Clear block in back plate
f. Oil Leaks in gear case or motor area	1. Defective gear case cover gasket. 2. Motor mount 'O' ring seal defective or missing 3. Defective motor bearing oil seal.	1. Replace gasket 2. Install 'O' ring seal 3. Replace oil seal

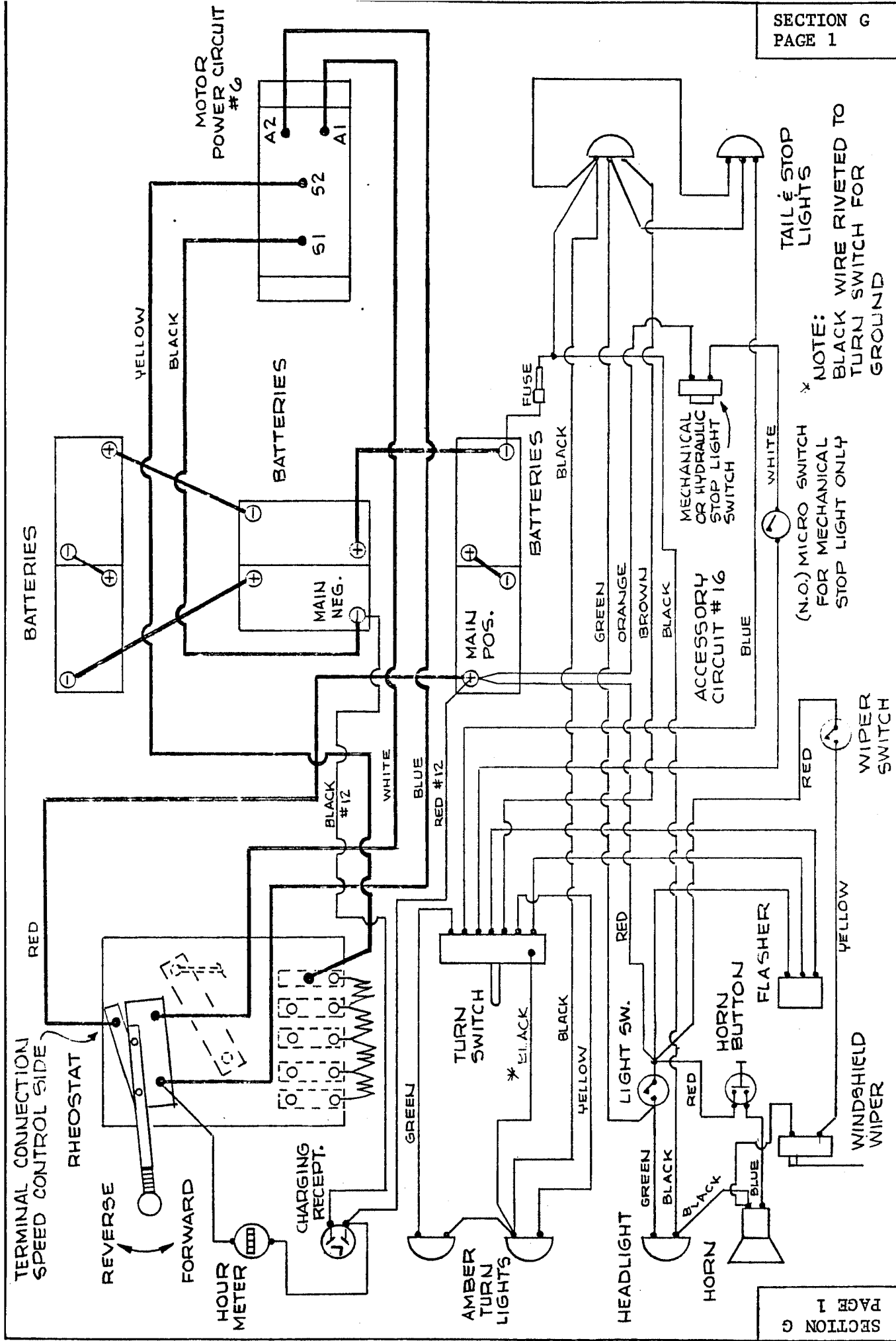
SYMPTOM

PROBABLE CAUSE

CORRECTIVE ACTION

4. POWER SYSTEM (SECTIONS J6, J8, G)

- | | | |
|---|--|---|
| a. No Power to motor in forward or reverse | 1. Batteries discharged or defective
2. Speed control switch maladjusted or worn
3. Forward-Reverse Switch maladjusted or worn.
4. Motor brushes not contacting armature
5. Loose or broken wire
6. Motor defective | 1. Recharge or replace batteries
2. Adjust or repair switch contacts
3. Adjust or repair Forward-Reverse contacts.
4. Adjust or replace brushes
5. Tighten or replace wire.
6. Repair or replace motor |
| b. Erratic Operation | 1. Batteries discharged
2. Speed Control Switch maladjusted or worn
3. Forward-Reverse switch maladjusted or worn
4. Loose wire or wires
5. Motor brushes worn | 1. Recharge batteries
2. Adjust or repair switch contacts
3. Adjust or repair Forward-Reverse contacts
4. Tighten
5. Replace brushes |
| c. Vehicle range below normal | 1. Batteries not fully charged
2. Batteries nearing end of normal life
3. Charger output not sufficient
4. Charger defective | 1. Recharge batteries. Review charging practices
2. Replace batteries
3. Adjust transformer taps
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 circuit wiring to diagram in Section G |



SECTION G
PAGE 1

NO.	DESCRIPTION	LENGTH	QUAN.	REVISED DATE	REVISION
TOL. FRAC. ±	DEC. †				
SCALE	NONE				
DRAWN BY	E. D. B.				
DATE	3-31-75				

FIGURE - 2
SECTION - G

WIRING DIAGRAM - MOD. R
1973 & UP WITH E.M. SWITCH

TAYLOR DUNN MFG. CO.
2114 West Ball Rd.
Anaheim, Calif.

PARTS ORDERING PROCEDURE

Parts may be purchased from your local authorized Taylor-Dunn Dealer

When ordering parts, be sure to specify the complete model No. and serial No. of the unit. Also specify the full Taylor-Dunn part number, description of part, and quantity of parts required. You will find a complete listing of part numbers and descriptions in the following pages of this manual. When ordering parts for the DRIVE MOTOR, IT'S NECESSARY TO INCLUDE COMPLETE NAME PLATE DATA WITH THE ORDER. Be sure to give complete shipping and billing address on all orders. Example:

1. - Part No. 86-501-98 Ball Joint (Left Hand Thread)
- 1 Set of 4 - Part No. 70-124-00 Motor Brushes for Baldor Motor,
3½ H.P., 36 Volt, Specification No. 28-1408-11704

Above parts for Model 1248B Truck, Serial No. 15039.

Parts ordered under warranty must be placed with your authorized Taylor-Dunn Dealer

Be sure to include original invoice number, date of shipment of vehicle, and vehicle serial No.

NOTE: On Contracts with National Federal Government Agencies, Defense General Supply Agency, and United States Post Office Department, orders for all warranty parts must be placed directly with the Taylor-Dunn factory in Anaheim, California.

TAYLOR-DUNN MANUFACTURING COMPANY
2114 West Ball Road
Anaheim, California 92804
Phone: (714) 956-4040
Telex: 65-5393

SUGGESTED SPARE PARTS LIST

FIG. I.D. NO.	T-D PART NO.	DESCRIPTION	QUANTITY FOR 1-20 VEHICLE
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REFER TO FIGURE 4 - FRONT AXLE, WHEELS, AND STEERING

4-68	45-338-00	Oil Seal for 1" Bearing	1
4-74	13-746-00	Tire and Demountable Wheel, 850 x 8, 4 Ply Tubeless Power Rib, with Five 1/2" Holes on 4 1/2" Bolt Circle	1
4-77A	13-734-00	Tire and Demountable Wheel, 400 x 8, 4 Ply, Tubeless Super Rib, Five 1/2" Holes on 4 1/2" Bolt Circle	1
4-77B	13-738-00	Tire, Tube, and Demountable Wheel, 400 x 8, 6 Ply Steelguard Tire with Five 1/2" Holes on 4 1/2" Bolt Circle	1
4-77C	13-742-00	Tire and Demountable Wheel, 500 x 8, 4 Ply, Tubeless Super Rib, Five 1/2" Holes on 4 1/2" Bolt Circle	1
4-80A	11-030-00	Tube, 400 x 8, (Optional)	1
4-80B	11-040-00	Tube, 500 x 8, (Optional)	1
4-80C	11-041-00	Tube, 850 x 8 or 950 x 8, (Optional)	1

REFER TO FIGURE 5 - POWER TRACTION REAR AXLE, MOTOR, AND BRAKES

5-3	41-997-00	Drain and Level Plug (1/8" Pipe)	2
5-6	96-331-00	Bolt - 1/2" N.F. (Spec.) Rear Hub	5
5-16	97-236-00	Nut 1/2" N.F. (Lug)	5
5-57	41-989-00	Plug (Filler Level and Drain) 1/4" N.P.T.	2
5-61	85-270-00	Extension Spring 1 1/2" O.D. x 4-3/8" Free Length	1
5-63	45-331-00	Oil Seal - Gear Case to Pinion	1
5-66	41-661-00	Full Brake Band for 6" Drum	1
5-86	45-506-00	Oil Seal (G.E. and Taylor-Dunn Motor)	1

MOTOR COMPONENTS NOT ILLUSTRATED

For G.E. Motors

70-101-00	Brushes	4
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For Taylor-Dunn Motors

70-102-00	Brushes	4
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REFER TO FIGURE 7 - MECHANICAL CONTROL LINKAGE

7-5	85-250-00	Spring, Extension, 1-1/16 O.D. x 3-7/8 Long (Accelerator Return)	1
7-8	96-771-00	Clevis Pin, 3/8 x 3/4 Face to Hole	1
7-9	96-772-00	Clevis Pin, 3/8 x 1 Face to Hole (Hyd. Brakes Only)	1

SUGGESTED SPARE PARTS LIST (Cont'd)

FIG. I.D. NO.	T-D PART NO.	DESCRIPTION	QUANTITY FOR 1-20 VEHICLE
REFER TO FIGURE 9 - MASTER CONTROL SWITCH			
9-2	61-831-10	Power Bar With Countersunk Hole	1
9-3	61-831-12	Power Bar With Notch	1
9-4	61-831-13	Power Bar	3
9-5	61-831-14	Power Bar	1
9-6	61-831-15	Speed Contact Bar	1
9-7	61-840-00	Forward Reverse Power Bar	1
9-12	71-030-58	Contact Button	2
9-13	61-849-50	Contact Button	2
9-15	61-835-17	Neutral Button	1
9-18	78-212-53	Resistor Coil #5 Wire - 6 Turns	1
9-19	78-212-52	Resistor Coil #6 Wire - 9 Turns	2
9-20	78-212-51	Resistor Coil #9 Wire - 10 Turns	1
9-23	97-170-00	Washer, Insulated	2
9-24	32-212-50	Plastic Bushing, 1/4 I.D. x 1/4 Long	2
9-25	96-300-09	Bronze Bolt	1
9-46	32-204-50	Bronze Bushing	1
9-52	95-907-00	Plastic Knob	1
PARTS NOT ILLUSTRATED			
	41-532-50	Tool for Centering Pinion Shaft Seal to Brake Drum Hub (Power Traction Only.)	1
	76-002-00	Charging Plug, 30 Amp, 3 Prong	1
	76-012-00	Charging Receptacle, 3 Prong, 30 Amp	1
	77-200-00	Hydrometer (To Check Battery Charge)	1
	77-201-00	Battery Filler	1
	79-819-00	Fuse, 30 Amp, Screw Type	5
	75-231-00	Battery Jumper, #6 Wire, 8" Long	5

MAINTENANCE PROCEDURES
REFER TO FIGURE 4
FRONT AXLE, STEERING AND TIRES

Axle

Your front axle and wheel assembly consists of an axle mounted on 2 leaf springs with automotive spindles, steering worm, and steering linkage. It has been designed for rugged dependable service with little maintenance requirements, other than lubrication and an occasional check of all nuts and bolts for tightness. Your wheels revolve on Timken Roller Bearings and the spindles are mounted with heavy kingpins.

Zerk type grease fittings have been provided to insure proper amounts of lubricant reaching wear points.

It is recommended that you follow the maintenance guide and lubrication diagrams for normal maintenance of the assembly. They are located in Sections D and E of this manual.

The maintenance guide is set up for average use. If the vehicle is subject to long hours of running and heavy work loads the frequency of lubrication and service should be increased accordingly.

Refer to the service and adjustment Section J1 of this manual for guidance when performing major repairs and adjustments.

Steering and Suspension

The steering worm gear box and steering linkage are similar to that used on autos. They require very little attention.

Refer to maintenance guide and lubrication diagrams (Sections D & E) for normal care.

If service and adjustments are required, refer to appropriate section of this manual.

When performing underbody front end maintenance, check spring shackle bolts and U-bolts, and tighten if necessary. This will assure good steering control and minimum wear.

Tire Care

Tire pressure is governed by how you want your vehicle to ride and the terrain upon which it is most commonly used. Slightly lower pressure will assist traction on soft terrain without undue wear.

The chart listed below will assist you to determine the correct tire pressure for your need. The higher range of pressure is recommended for heavy loads:

400 x 8	4 Ply Tires	65 lbs.
400 x 8	6 Ply Steelguard Tires	100 lbs.
500 x 8	4 Ply Tires	50 lbs.
850 x 8	4 Ply Tires	8 to 20 lbs.

Caution: Do not over inflate tires. This will promote increased wear. Under inflated tires on hard surfaces also promotes undue wear and should be avoided. Over-inflation can be detected by observing the tread wear over a period of use, and will show up as greater reduction of tread depth in the center portion of the tread when compared with the tread depth nearer the edge.

SERVICE AND ADJUSTMENT
REFER TO FIGURE 4
FRONT AXLE, STEERING AND TIRES

Remove and Install Wheel Hub: Adjust Bearings

1. Remove wheel cover
2. Remove dust cap
3. Remove cotter pin and unscrew spindle nut.
4. Remove outer washer and bearing.
5. Remove wheel, tire, and hub assembly.
6. Before re-assembly, thoroughly clean the bearings, spindle, and hub assembly. Inspect bearings for wear or damage. Examine inner seal. Replace damaged or worn parts.
7. Generously pack bearings with wheel bearing grease.
8. Reassemble in reverse order. Adjust wheel bearings before installing cotter pin.
9. Adjust wheel bearings by tightening spindle nut until bearing drag barely occurs, then back off spindle nut approximately 1/4 turn. Wheel should turn freely without noticeable bearing end play.
10. Install cotter pin, dust cap and wheel cover.
11. Wheel hub has one zerk fitting for periodic lubrication of bearings without disassembling hub. Refer to Lube Chart in Section E.

Remove and Install King Pin Bushings

1. Remove wheel and hub from spindle. See preceding subsection.
2. Remove ball joints from steering arms. Remove cotter pin and nut, rap stud sharply with soft hammer, or soft block and regular hammer, to loosen tapered stud from steering arm.
3. Remove 7/8 lock nut which retains spindle and steering arm assembly to kingpin.
4. Remove spindle and steering arm assembly from king pin.
5. Press bushings from spindle and steering arm assembly.
6. Thoroughly clean bushing housing and king pin before installing new bushings.
7. Press bushings into sleeve. It may be necessary to ream the bushings after they are installed in the sleeve, because of slight distortion which may occur during the process of pressing them into place. If proper press and reamer are not available, most automotive supply houses and repair shops have capacity to perform this service.
8. Reassemble in reverse order. Tighten ball joint clamps securely. Lubricate bushings and king pin through grease fitting. Adjust wheel bearings as described in preceding subsection. Align front end as described in subsection titled "Align Front End: Adjust Toe In".

Align Front End: Adjust Toe In

1. Caster and camber are set at the factory, and do not require adjustment. To adjust toe-in, raise front end of vehicle off the ground.
2. With a pencil, make a mark around center of tread of tire by holding pencil point against tire while turning wheel. Mark both front tires.
3. Lower vehicle to ground. Loosen tie-rod sleeve clamps at each end of tie-rod, so that adjusting sleeve can be turned.
4. With wheels in straight forward direction, measure the distance between pencil lines at the front of the tires, and at the rear of the tires.
5. Adjust the tie-rod sleeve until the distance from mark to mark across the front of the tires is the same as the distance from mark to mark across the rear of the tires.
6. Tighten the adjusting sleeve clamp nuts securely, taking care to avoid changing the position of the adjusting sleeve.

Replace Ball Joint:

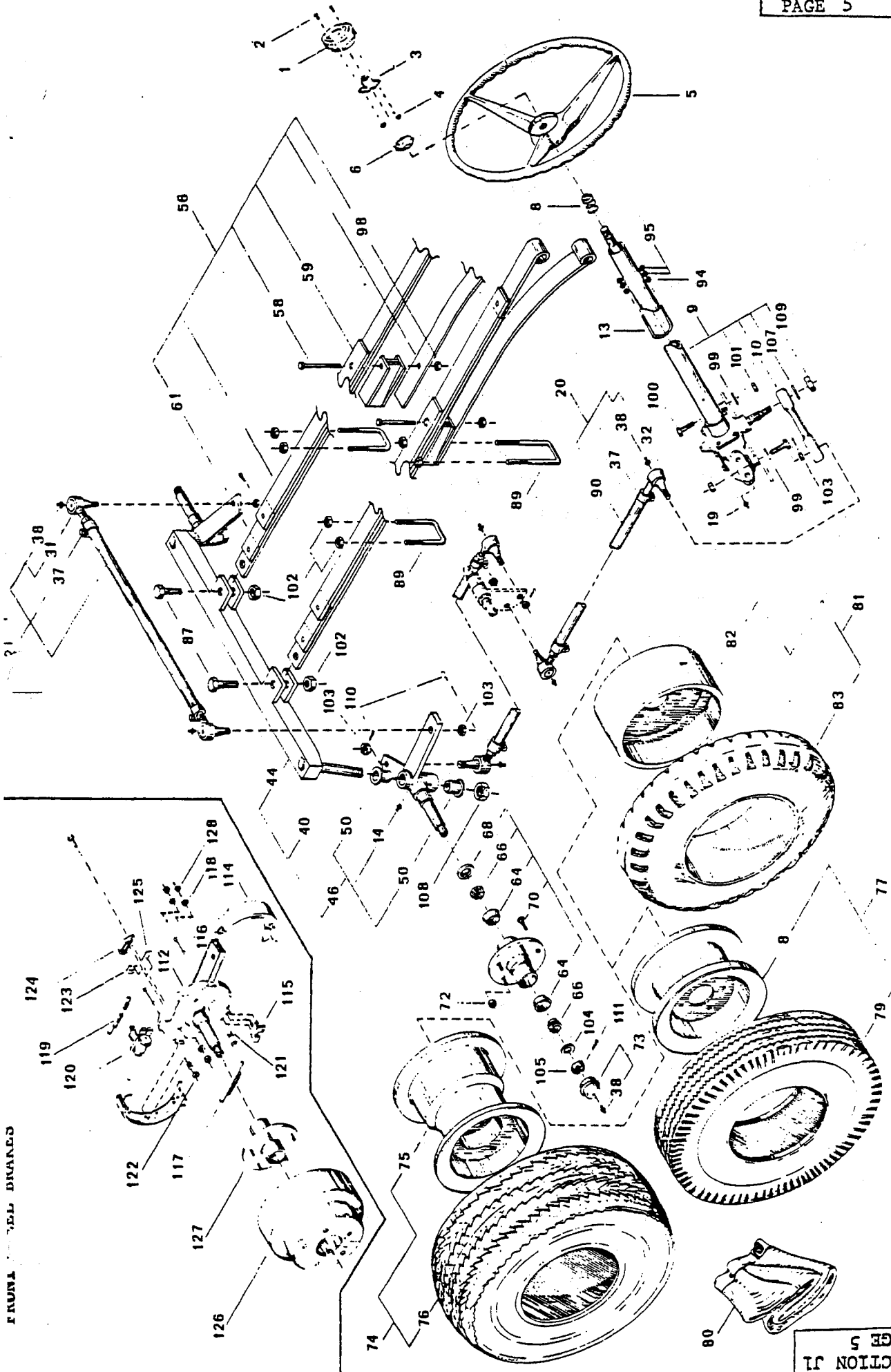
1. Remove cotter pin and nut.
2. Loosen sleeve clamp.
3. Rap ball joint stud sharply with soft hammer or soft block and regular hammer to loosen tapered stud from steering arm.
4. Either measure position of ball joint or count number of threads exposed from sleeve. Remove ball joint by unscrewing from sleeve. Note that one end will be left hand thread and the opposite ball joint will be right hand thread.
5. Install new ball joint and position same as the one removed.
6. Install tapered stud in steering arm or gear lever arm.
7. Replace nut, tighten securely and replace cotter pin.
8. If ball joint replaced is part of the tie rod, check toe-in, and adjust, if necessary, as described in sub-section titled "Align Front End."
9. If ball joint replaced is part of the linkage from gear lever arm to steering arm, check relative positions of steering wheel and road wheels. Steering wheel spoke should be in the six o'clock position when the road wheels are in the straight forward position. Adjust by rotating the adjusting sleeve until the desired relationship is obtained.
10. Tighten both sleeve clamps securely.
11. Lubricate ball joint through zerk fitting. Refer to Lube Chart in Section E.

Remove and Replace Steering Worm Assembly

1. Remove two screws which retain score card pad, and remove score card pad. Pry cap from steering wheel hub, exposing locknut.
2. Remove steering wheel lock nut, and, with suitable puller, remove steering wheel from shaft.
3. Disconnect ball joint and sleeve assembly from steering gear lever arm. Remove cotter pin and nut, rap ball joint stud sharply with soft hammer, or soft block and regular hammer, to loosen tapered stud.
4. Remove steering column clamp.
5. Remove two bolts which retain steering worm housing to frame, and remove steering worm gear and steering column assembly from bottom of vehicle.
6. Should it be necessary to remove the gear lever arm from the shaft, note the position of the gear lever arm with respect to the indicating mark on the end of the shaft for proper positioning at assembly.
7. Install in reverse order. When assembling steering wheel to shaft, first position the front wheels in a straight forward direction, then install steering wheel with one of the spokes as close to the six o'clock position as the splines will allow. Final adjustment can be made by lengthening or shortening the ball joint and adjusting sleeve assembly. Tighten steering wheel lock nut, and tighten adjusting sleeve clamps if they were loosened in order to make adjustment.
8. Check steering to determine if wheels will turn an equal amount in either direction. If this is not the case, it will be necessary to re-position the gear lever arm on the steering worm output shaft. This may in turn require re-positioning the steering wheel to obtain the desired six o'clock spoke condition.
9. Lubricate steering worm through the zerk fitting located on the steering worm housing. Refer to the Lube Chart in Section E.

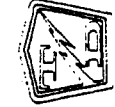
DISASSEMBLE AND REASSEMBLE STEERING WORM

1. Remove four bolts from cover, and slide steering arm shaft assembly and cover from housing.
2. Mark position of steering column jacket tube clamp for proper reassembly.
3. Loosen steering column jacket tube clamp, and slide jacket tube off of housing and steering column shaft.
4. Remove four bolts from housing worm bearing cap, and remove steering column worm and shaft assembly.
5. Clean all parts and flush out housing with suitable degreasing solvent. Lightly oil all parts for reassembly.
- NOTE: If installing new steering column shaft and worm assembly, worm bearings, or worm cups, it will be necessary to check the worm bearing preload.
6. To check worm bearing preload, install the steering column worm and shaft assembly, bearings, bearing cups, bearing cap and original shims.
7. Tighten four bolts to 18 - 22 ft. lbs. torque.
8. Shaft and worm must not have any bearing looseness or "play" and should not rotate with less than $1\frac{1}{4}$ inch lbs. torque nor require more than $4\frac{1}{2}$ inch lbs. of torque.
9. Add or take away shims as needed to produce the desired bearing preload.
10. Inspect steering arm shaft seal and cover gasket. Replace if worn or damaged.
11. Install steering arm shaft and cover assembly. Tighten four cover bolts to 18 - 22 ft. lbs. torque. NOTE: With steering arm shaft positioned at the center of its travel, there must be no backlash with mating worm and roller. Total preload for assembled unit must be no less than 5-3/4" lbs. torque measured at steering worm shaft nor more than $11\frac{1}{2}$ " lbs.
12. Adjust total preload to proper limits by loosening locknut on backlash adjusting screw located in cover, and turning adjusting screw clockwise to increase preload and counterclockwise to decrease preload. Retighten lock nut securely.
13. Replace steering column jacket tube and clamp in original position.



NO.	DESCRIPTION	LENGTH/QUAN.		REVISED DATE		REVISION	
		TOL.	FRAC.	+	DEC.	+	DEC.
	SCALE	NONE					
	DRAWN BY	E.D.B.					
	DATE	8-23-73					

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FRONT AXLE, WHEELS AND
STEERING - MOD. 2362 R

FIGURE 4
SECTION J1

FIGURE NO. 4
FRONT AXLE, WHEELS, AND STEERING

FIG. I.D. NO.	T-D PART NO.	DESCRIPTION	QUANTITY
4-1	19-004-00	Steering Wheel Cap	1
4-1	19-004-10	Steering Wheel Cap with Horn Button Hole	1
4-2	88-025-08	#8-32 x 5/8 Truss Head Machine Screw	2
4-3	71-501-00	Horn Button	1
4-4	88-029-86	#8-32 Flexlock Nut	2
4-5	19-003-00	Steering Wheel Deluxe - Splined Hub	1
4-6	88-259-82	13/16 N.F. Hex Head Jam Nut	1
4-8	85-122-00	Spring - Compression 1-1/8" O.D. x 1" Long	1
4-9	18-307-14	Steering Gear - this part number no longer valid - see BUL-98-09-011	
4-9	18-307-42	Kit Containing 1 Ea. of 18-307-58 thru 18-307-63	1 Kit
4-9	18-307-51	Steering Column Shaft and Worm Assembly (Requires 18-307-42)	1
4-9	18-307-52	Steering Column Jacket Tube Assembly	1
4-9	18-307-53	Worm Bearing Assembly (Requires 18-307-42)	2
4-9	18-307-54	Jacket Bearing Assembly	1
4-9	18-307-55	Jacket Bearing Spacer	1
4-9	18-307-56	Worm Bearing Cup - Outer (Requires 18-307-42)	1
4-9	18-307-57	Worm Adjustment Bearing Cup - Inner (Requires 18-307-42)	1
4-9	18-307-42	Gasket, seal, and shim kit for steering worm	1
4-9			
4-9			
4-9			
4-9			
4-9			
4-9	88-268-62	Lockwasher - Steering Shaft - 7/8	1
4-10	18-107-00	Steering Lever	1
4-13	96-009-00	U-Bolt, 5/16 N.F. Thread	1
4-14	87-071-00	Grease Fitting - 3/16 Drive Type	2
4-19	87-073-00	Grease Fitting, 45°, 3/16 Drive	1
4-20	18-029-10	Steering Adjustment Sleeve Assembly, with Ball Joints and Clamps - 13" Long	1
4-21	18-047-10	Steering Adjustment Sleeve Assembly with Ball Joints and Clamps - 18" Long	1

FIG. I.D. NO.	T-D PART NO.	DESCRIPTION	QUANTITY
4-22	18-045-11	Steering Adjustment Sleeve Assembly with Ball Joints and Clamps - 15-3/4" Long with 35° Bend	1
4-31	86-501-98	Ball Joint - 1/2" - Left Hand Thread	3
4-32	86-501-99	Ball Joint - 1/2" - Right Hand Thread	3
4-37	86-510-00	Ball Joint Clamp	7
4-38	87-074-00	Grease Fitting - 1/4-28 NF - Straight	8
4-39	16-801-00	Towing Spacer - 1/4 x 1-1/4 Long	1
4-40	15-066-10	Front Axle Assembly, Complete with King Pins, Spindles, Hubs, Tie Rod and Drums	1
4-44	15-066-00	Front Axle with King Pins; Less Spindles, Hubs, and Tie Rod	1
4-46	14-157-98	Wheel Spindle Assembly, Left Side	1
4-46	14-157-99	Wheel Spindle Assembly, Right Side	1
4-47	14-159-98	Wheel Spindle Assembly, Left with Hydraulic Brake Assembly	1
4-47	14-159-99	Wheel Spindle Assembly, Right with Hydraulic Brake Assembly	1
4-50	32-200-00	Bushing - Bronze, Oil Impregnated, with Flange 7/8" I.D. x 1" O.D.	4
4-54	96-117-00	U-Bolt, 1/2 N.C., 1-7/8 I.D. x 4-1/4 Long	2
4-56	85-504-10	Leaf Spring Assembly, 61-7/8 Center of Eye to Hole, with Torque Leaf and Spacer	2
4-58	96-098-00	Spring Center Bolt - 3/8 N.F. x 3-3/4	2
4-59	85-504-52	Spacer - Leaf Spring	2
4-61	85-504-54	Spring Tip Pad	6
4-62	12-124-00	Wheel Hub - 2-3/4" Long, Five 1/2" Studs on 4-1/2" Bolt Circle with Two 1" Bearing Races, One Bearing, One Oil Seal	2
4-64	80-103-00	Tapered Bearing Race for 1" Bearing	4
4-66	80-017-00	Tapered Roller Bearing - ;" I.D.	4
4-68	45-338-00	Oil Seal for 1" Bearing	2
4-70	96-329-00	Lug Bolt - 1/2" NF	10
4-72	97-236-00	Lug Nut - 1/2" NF	10
4-73	92-104-00	Dust Cap with Grease Fitting	2
4-74	13-746-00	Tire and Demountable Wheel, 850 x 8, 4 Ply, Tubeless Power Rib, with Five 1/2" Holes on 4 1/2" Bolt Circle	2

FIG. I.D. NO.	T-D PART NO.	DESCRIPTION	QUANTITY
4-75	12-020-00	Wheel, Demountable, for 850 x 8 tire, Drop Center with Five $\frac{1}{2}$ " Holes on $4\frac{1}{2}$ " Bolt Circle	2
4-76	10-093-00	Tire, 850 x 8, 4 Ply, Terra Power Rib, Tubeless	2
4-77A	13-734-00	Tire and Demountable Wheel, 400 x 8, 4 Ply, Tubeless Super Rib, Five $\frac{1}{2}$ " Holes on $4\frac{1}{2}$ " Bolt Circle	2
4-77B	13-738-00	Tire, Tube, and Demountable Wheel, 400 x 8, 6 Ply, Steelguard Tire with Five $\frac{1}{2}$ " Holes on $4\frac{1}{2}$ " Bolt Circle	2
4-77C	13-742-00	Tire and Demountable Wheel, 500 x 8, 4 Ply, Tubeless Super Rib, Five $\frac{1}{2}$ " Holes on $4\frac{1}{2}$ " Bolt Circle	2
4-78	12-012-00	Wheel for 400 x 8 and 500 x 8 Tubeless Tire, Demountable, Drop Center, Five $\frac{1}{2}$ " Holes on $4\frac{1}{2}$ " Bolt Circle	2
4-79A	10-075-00	Tire, 400 x 8, 4 Ply, Super Rib, Tubeless	2
4-79B	10-078-00	Tire, 400 x 8, 6 Ply, Steelguard, Tube Type	2
4-79C	10-081-00	Tire, 500 x 8, 4 Ply, Super Rib, Tubeless	2
4-80A	11-030-00	Tube, 400 x 8, (Optional)	2
4-80B	11-040-00	Tube, 500 x 8, (Optional)	2
4-80C	11-041-00	Tube, 850 x 8 or 950 x 8 (Optional)	2
4-81	13-954-10	Tire and Demountable Cast Iron Wheel with 16-1/4 x 4 x 11-1/4 Solid Xtra Cushion Tire, Five $\frac{1}{2}$ " Holes on $4\frac{1}{2}$ " Bolt Circle	2
4-82	12-054-00	Wheel for 16-1/4 x 4 x 11-1/4 Solid Tire	2
4-83	10-261-00	Tire, Solid Xtra Cushion, 16-1/4 x 4 x 11-1/4	2
4-87	96-316-00	Bolt, 1/2 NC x 3, All Thread	2
4-88	18-047-00	Steering Adjustment Sleeve, 18" Long	1
4-89	96-118-00	U-Bolt - 1/2 NC x 1-7/8 I.D. x 6 1/4 Long	2
4-90	18-029-00	Steering Adjustment Sleeve, 13" Long	2
4-91	18-045-12	Steering Adjustment Sleeve, 15-3/4" Long with 35° Bend	1
4-92	88-737-08	Pop Rivet - 3/16 D x 5/8 Long	1
4-93	88-026-10	Screw, 8-32 x 7/8 Flat Head Slotted Machine	2
4-94	88-088-62	Lock Washer, 5/16	2
4-95	88-099-80	Hex Head Nut, 5/16 NF	4
4-96	88-080-18	Screw, 5/16 x 2-1/2 NC Hex Head Cap	1
4-97	88-089-81	Nut, 5/16 Hex Lock	1
4-98	88-119-80	Nut, 3/8 NF Hex Head	2
4-99	88-128-60	Washer, 7/16	3
4-100	88-130-14	Screw, 7/15 x 1-1/2 NF Hex Head Cap	2
4-101	88-139-81	Nut, 7/16 NF Hex Lock	2
4-102	88-149-81	Nut, 1/2 NC Lock	10

FIG. I.D. NO.	T-D PART NO.	DESCRIPTION	QUANTITY
4-103	88-159-85	Nut, 1/2 - 20 NF Slotted Hex	6
4-104	88-228-60	Washer, 3/4	2
4-105	88-239-85	Nut, 3/4 NF Slotted Hex	2
4-106	88-259-82	Nut, 13/16 NF Hex Jam	1
4-107	88-268-62	Lock Washer, 7/8	1
4-108	88-279-81	Nut, 7/8 NF Lock	2
4-109	88-279-82	Nut, 7/8 NF Hex Head Jam	1
4-110	88-527-11	Cotter Pin, 1/8 x 1	6
4-111	88-527-14	Cotter Pin, 1/8 x 1-1/2	2
4-112	14-159-98	Front Spindle with Hydraulic Brake Assembly - Left	1
4-112	14-159-99	Front Spindle with Hydraulic Brake Assembly - Right	1
4-114	41-601-00	Brake Shoe and Lining Set (2 Lined Brake Shoes)	2 Sets
4-115	42-051-00	Brake Adjustment Unit with 2 Studs	2
4-116	41-698-00	Brake Shoe Anchor Pin	4
4-117	85-206-00	Extension Spring - 3/8 O.D. x 3-3/8 Long (Black)	2
4-118	88-068-62	Lock Washer, 1/4	4
4-119	85-205-00	Extension Spring - 5/16 O.D. x 4 1/4 Long (Red)	2
4-120	99-501-00	Wheel Cylinder	2
4-121	85-050-00	Compression Spring, 9/16 O.D. x 1/2 Long (Green)	4
4-122	41-699-00	Cup, Brake Shoe Anchor	4
4-123	42-049-00	Retainer Clip - Wheel Cylinder (Curved - Inner)	2
4-124	42-052-00	Wheel Cylinder Rubber Cover	2
4-125	42-048-00	Retainer Clip - Wheel Cylinder (Flat - Outer)	2
4-126	41-512-01	Drum	2
4-127	12-158-00	Wheel Hub (Used Only With Front Wheel Brakes)	2
4-128	88-079-80	1/4 NF Hex Nut	4

MAINTENANCE PROCEDURES

REFER TO FIGURE 5 - "POWER TRACTION" REAR AXLE, MOTOR, AND BRAKES

Drive Axle

Your drive assembly is a highly efficient unit. Great care was taken in its design to promote long life with a minimum of maintenance. It employs an automotive type differential unit which operates within an enclosed housing. The gears, bearings, etc., are lubricated from within by oil which when maintained at its proper level insures complete coverage of all moving parts. This oil level should be checked on a regular basis as outlined in the Maintenance Guide (Section D) and Lubrication Diagrams (Section E) of this manual. If the oil level is allowed to drop below normal limits serious damage to the differential and drive unit will result.

Motor

The electric motor will provide many hours of trouble free service. It is provided with sealed ball bearings which are pre-lubricated for their lifetime.

Periodically, the motor brushes should be inspected and cleaned. The carbon dust and dirt should be blown out of motor. When brushes are worn down to 1/2" long or less they should be replaced. Approximately 3000 hours operating life may be expected from a new set of brushes.

Inspect commutator for roughness or undue wear as arcing and shortened brush life will result from this condition.

Check wiring terminals for cleanliness and tightness. A loose connection will cause burning of the respective terminal and can induce motor failure.

Refer to Maintenance Guide (Section D) and Service and Adjustment (Section J2) for further recommendations on motor care.

Brakes

The mechanical brake assembly located on the differential pinion shaft will require a periodic inspection for lining wear and consequently periodic adjustment. Refer to Service and Adjustment Section J2 of this manual for proper procedures.

A few drops of oil on the clevis pin and pivot pins of the mechanical linkage is recommended on a monthly basis. Great care must be taken that no oil is allowed to contact the brake band or drum as it will seriously impair the braking ability. If the braking surfaces become oily or contaminated for any reason it will be necessary to remove the brake band and clean all parts thoroughly. Refer to the appropriate section of this manual for the correct procedure to follow. If your vehicle is equipped with hydraulic brakes refer to Section J3 for their care and adjustment.

Suspension

A periodic tightening of all bolts and nuts, especially the spring mounting "U" bolts, should be made. The normal life of the shock absorber unit is approximately two years.

Primary Drive

A procedure and schedule for maintaining proper chain tension are provided in Section J2. Failure to adhere to the adjustment schedule will seriously reduce chain life.

SERVICE AND ADJUSTMENTS

REFER TO FIGURE 5 - POWER TRACTION REAR AXLE, MOTOR, AND BRAKES

FIGURE 7 - MECHANICAL CONTROL LINKAGE

NOTE: For vehicles with Hydraulic Brakes or Deadman Brake, refer to Section J3 or J4.

Minor Brake Adjustment for Normal Lining Wear

1. With brake pedal and handbrake fully released, observe position of brake lever arm connected to brake band. It must be 1/16 in. to 1/4 in from gear case.

If brake lever arm is not in the correct position, the cable which connects the brake lever arm to the foot pedal and handbrake lever must be adjusted. This requires that a complete brake adjustment, as described in the following sub-section be performed.

If brake lever arm is in the correct position, it will not be necessary to adjust the cable.

2. Adjust brake band anchor bolt, tightening it until brake pressure adequate to stop vehicle is achieved with foot pedal halfway to the floor.
3. An additional centering adjustment is necessary. Loosen centering screw lock nuts, center band around drum. Bring band as close to drum as possible without causing brake drag. Lock centering screws. Note: If band is too far from drum, brakes will grab in the forward direction.
4. Check operation of handbrake. If handbrake has insufficient holding power, or if excessive effort is required to operate the handbrake lever, refer to handbrake adjustment procedures described in the following section.

Complete Brake Adjustment

1. With footbrake and handbrake fully released, loosen lock nut on foot brake cable clevis. Adjust cable length to position brake lever arm as described in preceding Section. Tighten lock nut.
NOTE: Any other cables or rods attached to brake lever arm must be in a slack condition during this adjustment. It may be necessart to disconnect them to assure that the brake lever arm position described is governed by the foot pedal cable adjustment.
2. Perform band adjustment as described in Steps 2 and 3 in preceding sub-section.
3. Adjust handbrake after footbrake adjustment is satisfactory. Remove plastic handgrip from lever to expose adjusting knob. Operate handbrake. If excess effort is required to operate hand lever, turn knob counter-clockwise. If handbrake has insufficient holding power, turn knob clockwise. When satisfactory adjustment is obtained, replace hand grip.
4. If vehicle is equipped with other braking systems or features, refer to Sections J3 and J4 of this manual.

Removal of Brake Assembly and Drum

1. Disconnect one battery lead to prevent accidental engagement of power while servicing unit.
2. Disconnect cables (or rods) from brake lever arm, noting their positions for proper reassembly. Remove lever arm return spring.
3. Remove four bolts holding brake mounting assembly, and slide assembly from drum.
4. Band and drum may now be cleaned and inspected to determine if replacement or repair are necessary. The brake band lining is bonded to the band for long, dependable service. When it has worn to approximately 1/16 inch thickness, a new band should be installed.
5. If the brake drum is scored, it should be removed and turned. It is recommended that a severely scored or damaged drum be discarded and a new drum installed. To remove drum, remove pinion shaft nut and washer. Slide drum from pinion shaft.
6. Before reassembling drum to pinion shaft, inspect pinion shaft seal. If worn or damaged, install a new seal. It is recommended that the new seal be pre-soaked in light oil for several hours before installation. It is also recommended that a small amount of oil resistant sealer be applied to the opening in the gear case cover.
7. Reassemble drum, washer, and nut on pinion shaft, and tighten shaft nut to 100 ft. lb. torque.
8. Install balance of brake assembly parts in reverse order of disassembly.
9. Connect battery lead.
10. Adjust brake band and cables as described in sub-section titled "Complete Brake Adjustment".

Adjustment of Drive Chain Tension - Power Traction

1. Disconnect one battery lead to prevent accidental engagement of power while servicing vehicle.
2. Tighten three motor mount nuts.
3. Loosen and unscrew each nut exactly one full turn.

Note: 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 inch lbs. torque.) Without a torque wrench bear in mind that a standard socket set screw wrench is approximately 4" 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 2½ 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	Hours Running	Comments
1st Adjustment	0	New Unit or After Installing New Chain
2nd Adjustment	100 Hrs.	Normal Running Condition
3rd Adjustment	Next 150 Hrs.	Normal Running Condition
4th Adjustment	Next 250 Hrs.	Normal Running Condition
Thereafter	Every 400 Hrs.	Normal Running Condition

Remove Motor - Power Traction

1. Disconnect one battery lead to prevent accidental engagement of power while servicing unit.
2. Drain oil from gear case by removing drain plug.
3. Identify motor leads for proper connection when reassembling. Remove motor leads.
4. Remove brake lever arm return spring.
5. Operate brake lever arm to lock pinion shaft while loosening pinion shaft nut.

Remove Motor - Power Traction (Cont'd)

6. Remove brake band centering brackets, brake band anchor bracket, and brake band from gear case cover, with brake cables still attached. Place brackets, band, and cables on floor under chassis.
7. Remove pinion shaft nut and washer, and slide brake drum from pinion shaft.
8. Remove remaining bolts and nuts from front of gear case cover. Remove gear case cover.
9. Remove the three nuts and washers which fasten motor to backplate. Disengage chain from motor sprocket. Remove motor, motor mounting plate, and sprocket assembly. Remove 'O' ring.
10. For information on maintenance of motor, refer to Subsections titled "Motor Maintenance" and "Motor Disassembly and Reassembly".
11. If a new motor is to be installed in place of the old motor, remove motor mounting plate from old motor. Also remove shaft nut, washer, sprocket, key, and spacers. Note location of motor terminals relative to mounting plate to assure proper positioning of mounting plate when assembling it to new motor.

Install Motor - Power Traction

1. If installing new motor, clean motor surface and install motor mounting plate to motor with four flat-head cap screws. Tighten screws to 30 ft. lb. torque, and stake head in place with center punch.
2. If installing new motor, or if motor sprocket has been removed in order to repair motor, assemble spacers, key, sprocket, washer, and shaft nut to motor shaft. Tighten shaft nut to 75 ft. lb. torque.
3. Place "O" ring in motor mounting plate opening, and attach motor and mounting plate assembly to back plate with three nuts and washers. Engage chain with sprocket and tighten nuts.
NOTE: Chain tension adjustment is covered in a later step.
4. If seal in gear case cover is worn or damaged, install a new seal. It is recommended that the new seal be pre-soaked in light oil for several hours before installation. When pressing new seal into cover, use a small amount of oil resistant sealer on seal opening in cover.
5. Install gear case cover to backplate and pinion shaft. Assemble, but do not tighten, retaining bolts and nuts.
6. Place centering tool 41-532-50, (for centering pinion shaft seal to brake drum hub) on pinion shaft and into seal retainer.

NOTE: If centering tool is not available, slide brake drum onto pinion shaft and into seal. Install pinion shaft washer and nut and tighten to 100 ft. lb. Position gear case cover so that seal pressure is uniform around hub of brake drum. Tighten gear case cover retaining bolts and nuts. Omit Steps 7 through 10.

7. Install pinion shaft washer and nut, and tighten to 100 ft. lb. torque.
8. Tighten gear case cover retaining bolts and nuts.
9. Remove pinion shaft nut and washer, and remove centering tool.
10. Install brake drum, washer, and pinion shaft nut. Tighten nut to 100 ft. lb. torque.
11. Install brake band, brake band anchor bracket, and brake band centering brackets to gear case cover, and tighten retaining bolts.

Install Motor - Power Traction (Cont'd)

12. Install brake lever arm return spring.
13. Adjust chain tension as described in subsection titled "Adjustment of Drive-Chain Tension - Power Traction".
14. Center brake band as described in subsection titled "Minor Brake Adjustment to Compensate for Normal Wear - All Vehicles".
15. Fill gear case with oil. Refer to lub chart in Section "E".
16. Connect motor leads
17. Connect battery lead.

Motor Maintenance - General - All Vehicles

Maintenance of electric motors should be referred to personnel with appropriate experience and equipment. Procedures covering maintenance of brushes, bearings, and commutator are covered in the following sections. Should it be necessary to order replacement parts, include complete motor name plate data with order.

Motor Maintenance - Brush Inspection and Replacement - All Vehicles

1. Remove cover, exposing brush assemblies. Lift brush from holder for inspection.
2. If brushes are worn, remove, install new brushes. Use fine sandpaper to "seat in" new brushes to commutator. To determine when to replace worn brushes, proceed as follows:
 - a. For motors equipped with brushes having end pigtails and side hooks, replace brush when hook is within 1/16" from bottom of hook slot.
 - b. For motors equipped with brushes having side pigtails only, replace brush when pigtail is within 1/16" from bottom of pigtail slot.

NOTE: When one brush is replaced in motor, it is considered good maintenance practice to replace all brushes.

3. Check operation of each brush to assure that brush slides freely and does not bind in holder.
4. Replace Cover.

Motor Disassembly and Reassembly - All Vehicles

1. Determine motor from vehicle as described in appropriate subsection.
2. Determine if witness marks on end bell and stator housing are present. if not, mark end bell and housing to assure proper relation of brushes and commutator when reassembling
3. Remove cover, exposing brush assemblies. Lift brushes from brush holders
4. Remove bolts holding end bells and remove end bell and rotor. (Pull from shaft extension end). Take care not to damage coils or armature wires when handling motor parts.
5. Press or pull old bearings off by using bearing press or bearing puller. Do not damage shaft while removing bearings.
6. Install new bearings onto shaft by gentle pressure or tapping with proper tool on inner race only. Bearing will be damaged if pressed or driven by outer race or seals.
7. On "Power Traction" model, replace motor seal in shaft extension end bell housing.
8. If the commutator is worn or "burned" it should be turned, the mica undercut, and the commutator polished.
9. Oil bearing housing lightly to aid in re-assembly.
10. Re-assemble motor taking care that all parts are kept clean.
11. Install brushes and seat in with fine sand paper.
12. Check operation of each brush to assure that brush slides freely in holder.
13. Replace Cover.

Disassemble and Reassemble Primary Drive - Power Traction

1. Perform Steps 1 through 9 in Subsection titled "Remove Motor - Power Traction".
2. Remove chain, pinion sprocket, and spacers from pinion shaft. Note spacer locations for proper reassembly.
3. If axle or differential maintenance requiring further disassembly is required, remove back plate and gasket by removing the five bolts which retain back plate to differential carrier. Refer to subsection which covers axle and differential disassembly and reassembly.
4. To reassemble, install back plate and gasket to differential carrier with five bolts. Use gasket sealer. Tighten bolts to 50 ft. lb. torque.
5. Perform Steps 3 through 15 in Subsection titled "Install Motor - Power Traction".

Remove and Install Rear Wheel Bearings - All Vehicles

1. Disconnect one battery lead to prevent accidental engagement of power while servicing vehicle.
2. Remove wheel and tire assembly.
3. On vehicles with hydraulic brakes, remove brake drum and brake shoe return spring. To ease removal of drum, increase clearance between drum and shoes by turning adjusting studs. Refer to adjustment diagram and instructions in Section J3.
4. Remove four bolts which attach axle retainer plate and spacer (or brake backing plate on vehicles with hydraulic brakes.) Pull axle from housing.
5. Remove bearing gasket. Pull bearing retainer ring and bearing from axle shaft. Leave axle retainer plate and spacer on axle shaft.
6. Press new bearing to shoulder on axle shaft. Press new bearing retainer ring into position on axle shaft.
7. Install new gasket over bearing retainer ring.
8. Install axle into axle housing and differential assembly.
9. Install axle retainer plate and spacer (or brake backing plate on vehicles with hydraulic brakes) to axle housing with four bolts. Tighten locknuts.
10. On vehicles with hydraulic brakes, install brake shoe return spring and brake drum. Adjust brakes as described in Section J3.
11. Install wheel and tire assembly.
12. Reconnect battery lead.

Remove Rear Axle and Drive Assembly from Chassis - All Vehicles

1. Disconnect one battery lead to prevent accidental engagement of power while servicing unit.
2. Clearly mark motor leads to insure their proper location when re-assembling.
3. Remove motor leads.
4. Pull clevis pins and disconnect brake cables or rods from brake arm.
5. Remove lower bolt from shock absorber. (Only vehicles equipped with shock absorbers).
6. Disconnect hydraulic brake line at hose end. (Only vehicles equipped with hydraulic brakes.)
7. Remove 4 bolts and nuts which attach axle housing to main leaf spring.
8. Remove axle and drive assembly from chassis.
9. Before re-installing axle and drive assembly, examine rubber bushings in leaf springs and replace if worn or damaged.
10. Install axle and drive assembly in reverse order of removal.

Remove Rear Axle and Drive Assembly from Chassis - All Vehicles (Cont'd.)

11. Make brake adjustments as previously outlined in subsection titled "Adjustment of Brake (Complete)".
12. On models equipped with hydraulic brakes, it will be necessary to bleed the air from brake system. Follow procedure outlined in Hydraulic Brake Section J3 of this manual.

Disassembly of Rear Axle and Differential Assembly - All Vehicles

1. Remove rear axle and drive assembly from chassis, and remove primary drive and brake components, as described in appropriate subsections.
2. On vehicles with hydraulic brakes, remove brake drum and brake shoe return spring. To ease removal of drum, increase clearance between drum and shoes by turning adjusting studs. Refer to adjustment diagram and instructions in Section J3.
3. Remove four bolts on each end holding axle retainer (and brake backing plate on hydraulic brake models) and pull both axles.
4. Remove nuts around differential carrier housing and remove carrier from axle housing. (Note position of clip for proper reassembly of brake spring.)
5. 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.
6. Remove drive gear from differential case.
7. Drive out differential pinion shaft retainer and separate the differential pinion shaft and remove gears and thrust washers.
8. Remove drive pinion retainer from carrier. Remove O-Ring from retainer.
9. Remove pinion locating shim. Measure shim thickness with micrometer.
10. If the drive 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.
11. Press the pinion shaft out of front bearing cone and remove spacer.
12. Remove pinion bearing cone.
13. Do not remove pinion bearing cups from retainer unless they are worn or damaged. The 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 guage 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. Insert two 7/16" x 2" bolts through differential flange and thread them three or four turns into the drive gear as a guide in aligning the drive gear bolt holes. Press or tap the drive gear into position. Install and tighten the drive gear bolts evenly and alternately across the gear to 60-65 lb. ft. torque.

Reassembly of Rear Axle and Differential Assembly - All Vehicles (Cont'd)

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, sprocket, and brake drum on pinion shaft spline. Assemble washer and shaft nut, and tighten to 100 ft. lb. torque.

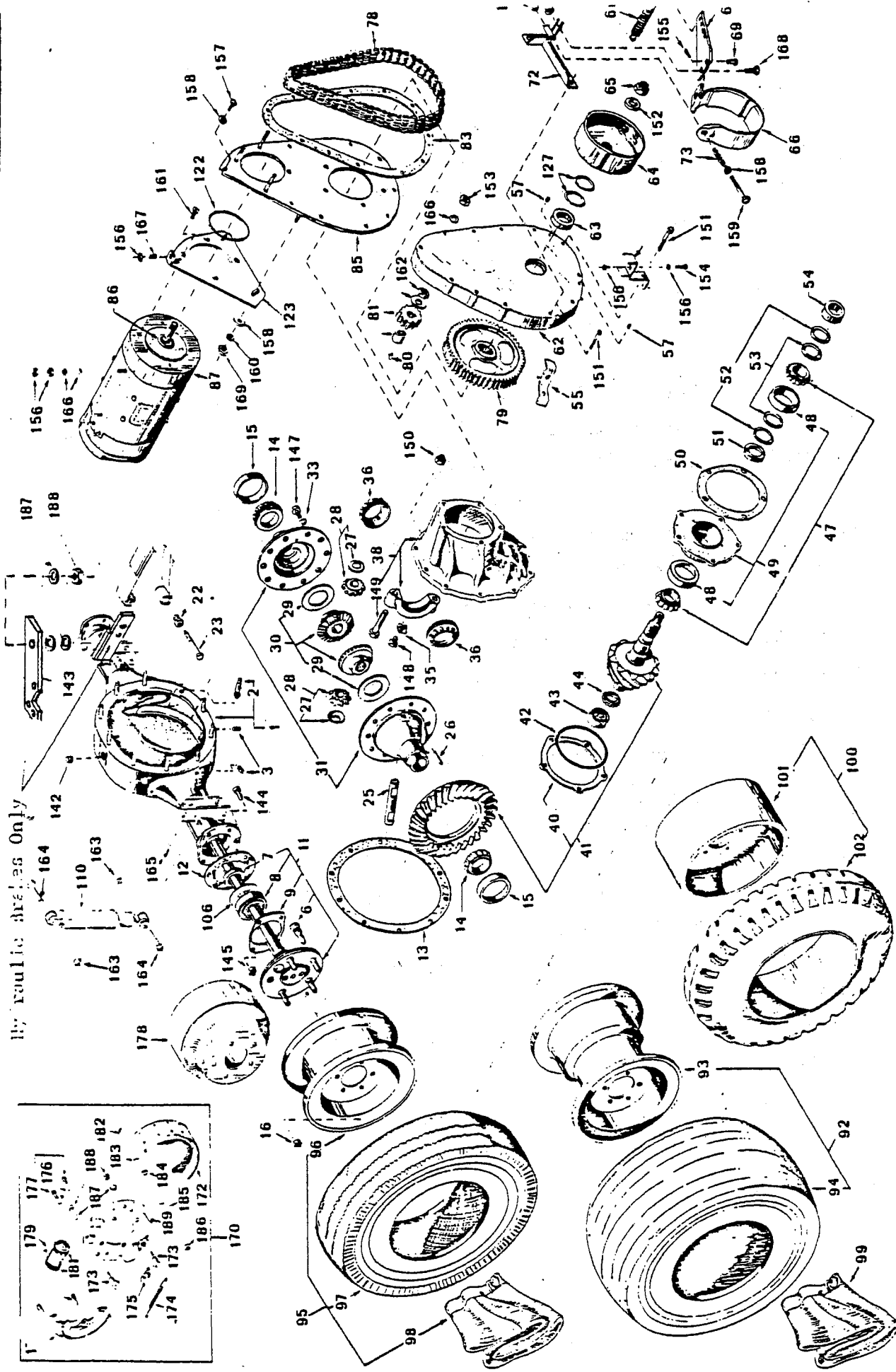
Note: The bearing should spin freely without end play. If it is too tight or too loose, adjust by removing or adding spacers. Refer to Figure 5, I.D. Nos. 52 and 53.

5. Shim Selection: Manufacturing tolerances in the pinion bore dimensions and in the best operating position of the gears make an adjustment shim necessary. This shim is placed between the pinion retainer and the carrier, Figure 5. An increase in the thickness of the shim moves the pinion away from the drive gear. 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" thicknesses in steps of .001". Pinions and drive gears are marked, when matched, with the same number. Following the number on the pinion is a minus (-) 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. A minus number means the pinion should be moved closer to the drive gear and a thinner shim is required. A plus number means the pinion should be moved farther from the drive gear and a thicker shim is required. A pinion marked zero (0) is a standard pinion. To select a shim, measure the original shim with a micrometer. Note the dimensional mark on the original pinion. Compare the mark on the original pinion with the mark on the new pinion to determine how the original shim should be modified. For example, if the original shim is .015" and the original pinion is marked "-1", the new pinion requires a +1 shim. Therefore, the new pinion requires a .002" thicker shim, and a .017" shim should be used. If the new pinion is marked the same as the old pinion, no shim change is required.
6. After the proper selection of shims, insert "0" ring seal and pinion retainer assembly into differential carrier. Tighten 5 retainer bolts to 50 lb. torque.
Note: Four or five of the retainer bolts will have to be removed later for installation of primary drive and brake components.
7. Install differential case, bearing cups, adjusting nuts, and bearing caps being sure that each cap is located in the same position from which it was removed (Use marks as guide).
8. ADJUST bearing nuts so that differential case will be free to revolve. It is very important that there will be no bearing play or looseness, as this will inevitable lead to gear noise and wear. Gear backlash must be set at the same time to a tolerance of .005" to .009". Note: It will be necessary to release some of the cap bolt tension in order to allow the bearing to move while making the adjustments. If the caps

Reassembly of Rear Axle and Differential Assembly - All Vehicles (Cont'd)

are too loose an error will result when trying to set backlash and bearing clearance. Therefore double check your setting after the cap bolts have been tightened. If necessary make corrections in your settings until the specified tolerances are maintained after the cap bolts have been tightened.

9. Install nut locks.
10. Install differential carrier assembly in axle housing using new gasket and gasket sealer.
11. Install axles, brake assemblies (on models with hydraulic brakes), bearing retainers, and gaskets. Note: Axles are equipped with special sealed bearings. Should there be evidence of seal leakage, it is recommended that the bearing be replaced. It is also recommended that gasket located between bearing and bearing seat in axle housing be replaced at the same time. Refer to Figure 5.
12. Remove pinion shaft nut, washer, spacers, brake drums. and sprocket. Remove five bolts from pinion bearing retainer. Install primary drive components as described in sub-section titled "Disassemble and Reassembly Primary Drive - Power Traction".
13. Fill housing with oil to level described in Section E, Figure 1 (Power Traction).



NO. DESCRIPTION LENGTH QUAN. REVISED DATE REVISION

FIGURE 5
SECTION J2
POWER TRACTION REAR
AXLE MOTOR, & BRAKES

TOL. FRAC. DEC. +
SCALE NONE
DRAWN BY E.D.B.

TAYLOR DUNN MFG
4 West Ball 1

FIGURE NO. 5
POWER TRACTION REAR AXLE, MOTOR, AND BRAKES

FIG. I.D. NO.	T-D PART NO.	DESCRIPTION	QTY. REQ.
5-1	41-293-00	Housing Rear Axle with Bolts	1
5-2	96-330-00	Bolt - Differential Carrier to Housing	10
5-3	41-997-00	Drain and Level Plug (1/8" Pipe)	2
5-6	96-331-00	Bolt - 1/2" N.F. (Spec.) Rear Hub	10
5-7	32-509-00	Retainer Ring Rear Axle Bearing	2
5-8	80-505-00	Rear Axle Ball Bearing	2
5-9	32-511-00	Retainer Plate Rear Axle	2
5-11	41-160-11	Axle Assembly with Axle, Retainer Ring, Retainer Plate, and Bearing (22-3/8" Long)w/Gasket	1
5-11	51-161-11	Axle Assembly with Axle, Retainer Ring, Retainer Plate and Bearing (13-3/8" Long) w/Gasket	1
5-12	32-512-00	Retainer Spacer (Used Only Without Hydraluic Brakes)	2
5-13	45-042-00	Gasket (Housing to Differential Carrier)	1
5-14A	80-511-00	Tapered Roller Bearing Timken LM 501349 ID, 1.628. Use 80-127-00 Bearing Race	2
5-14B	80-512-00	Tapered Roller Bearing Timken LM 603049 ID, 1.784. Use 80-128-00 Bearing Race	2
5-14C	80-513-00	Tapered Roller Bearing Timken LM 102949 ID, 1.784 Use with 80-129-00 Bearing Race	2
5-15A	80-127-00	Tapered Bearing Race Timken LM 501310, OD 2.891, Use with 80-511-00 Bearing	2
5-15B	80-128-00	Tapered Bearing Race Timken LM 603011, OD 3.0625, Use with 80-512-00 Bearing	2
5-15C	80-129-00	Tapered Bearing Race Timken LM 102910, OD 2.891, Use with 80-513-00 Bearing	2
5-16	97-236-00	Nut 1/2" N.F. (Lug)	10
5-22	98-601-00	Rubber Grommet 1/2" ID for Leaf Spring Eye	8
5-23	96-240-00	Hex Head Cap Screws 1/2" x 4" N.C. (Pointed)	4
5-25	41-700-00	Differential Pinion Shaft	1
5-26	41-701-00	Pin	1
5-27	41-702-00	Thrust Washer - Differential Pinion Shaft	2
5-28	41-703-00	Differential Shaft Pinion Kit (Two Differential Gears and Two Thrust Washers)	1 Kit
5-29	41-704-00	Thrust Washer - Differential Side Gear	2
5-30	41-705-00	Differential Side Gear Kit (Two Differential Side Gears and Two Thrust Washers)	1 Kit
5-31A	41-712-00	Differential Gear Case Assembly (Small Carrier Bearings 1.628" ID)	1
5-31B	41-713-00	Differential Gear Case Assembly (Large Carrier Bearings 1.784" ID)	1

FIG. I.D. NO.	T-D PART NO.	DESCRIPTION	QTY. REQ.
5-36A	41-707-00	Nut, Diff. Brg. Adjustment, 2-15/16" OD, Oblong Locking Holes. Use with Timken LM 501349 Bearing	2
5-36B	41-707-50	Nut, Diff. Brg. Adjustment, 2-15/16" OD, Round Locking Holes. Use with Timken LM 102949 Bearing	2
5-36C	41-708-00	Nut, Diff. Brg. Adjustment, 3-1/8" OD, Oblong Locking Holes. Use with Timken LM 603049 Bearing	2
5-36D	41-708-50	Nut, Diff. Brg. Adjustment, 3-1/8" OD, Round Locking Holes. Use with Timken LM 603049 Bearing	2
5-38	41-709-00	Differential Carrier Assembly (For Small Carrier Bearing 1.628" ID)	1
5-38B	41-710-00	Differential Carrier Assembly (For Large Carrier Bearing 1.784" ID)	1
5-40	41-711-00	Shim - Drive Pinion Bearing	1 to 3
5-41	31-234-00	Ring and Pinion Gear Set 3.00 Ratio	1
5-41	31-235-00	Ring and Pinion Gear Set 2.75 Ratio	1
5-41	31-236-00	Ring and Pinion Gear Set 3.10 Ratio	1
5-41	31-237-00	Ring and Pinion Gear Set 3.25 Ratio	1
5-41	31-238-00	Ring and Pinion Gear Set 3.50 Ratio	1
5-41	31-239-00	Ring and Pinion Gear Set 5.43 Ratio	1
5-42	80-702-00	"O" Ring - Drive Pinion Bearing Retainer	1
5-43	80-555-00	Ball Bearing - Rear, Pinion Pilot	1
5-44	41-714-00	Driving Pinion Pilot Bearing Retainer	1
5-47	80-554-00	Tapered Roller Bearing - Pinion Shaft	2
5-48	80-125-00	Tapered Bearing Race - Pinion Shaft	2
5-49	44-340-90	Pinion Bearing Case Assembly & Bearing Races	1
5-50	45-021-00	Gasket Gear Case to Pinion Bearing Assembly	1
5-51	16-415-00	Spacer Pinion Shaft (.440" Thick)	1
5-52	16-410-00	Spacer Pinion Shaft (.020" Thick)	2 to 6
5-52	16-419-00	Spacer Pinion Shaft (.002" Thick)	2 to 6
5-53	16-411-00	Spacer Pinion Shaft (.005" Thick)	2 to 6
5-54	16-415-00	Spacer Pinion Shaft	0 to 1
5-54	16-417-00	Spacer Pinion Shaft (.340" Thick)	1
5-55	41-371-00	Brake Alignment Bracket	2
5-57	41-989-00	Plug (Filler and Drain) 1/4" N.P.T.	2
5-61	85-270-00	Extension Spring 1-1/4" OD x 4-3/8" Free Length	1
5-62	43-201-00	Gear Case Cover	1
5-63	45-331-00	Oil Seal - Gear Case to Pinion	1
5-64	41-532-00	Brake Drum (Splined)	1
5-64	97-250-00	Nut - Pinion 3/4" - 20 Extra Fine Thread	1
5-66	41-661-61	Kit, Full Brake Band, Anchor Bolt & Lock Nut	1
5-67	50-657-00	Brake Lever Arm	1
5-69	96-771-00	Clevis Pin 3/8" x 3/4" Fact to Hole	1

FIG. I.D. NO.	T-D PART NO.	DESCRIPTION	QTY. REQ.
5-72	41-368-00	Brake Mounting Bracket	1
5-73	85-060-00	Compression Spring 5/8" OD x 2-1/2" Long	1
5-78A	30-508-00	Chain - 48 Links (For 81 Tooth Sprocket)	1
5-78B	30-506-00	Chain - 36 Links (For 42 Tooth Sprocket)	1
5-78C	30-507-00	Chain - 41 Links (For 59 Tooth Sprocket)	1
5-79A	30-093-00	Sprocket - 81 Tooth with Splined Hub	1
5-79B	30-091-00	Sprocket - 42 Tooth with Splined Hub	1
5-79C	30-092-00	Sprocket - 59 Tooth with Splined Hub	1
5-80	97-100-00	Woodruff Key 3/16"	1
5-81	30-080-00	Sprocket - 15 Tooth x 3/4" Bore	1
5-83	45-002-00	Gasket - Gear Case Cover	1
5-85	44-352-51	Gear Case Back Plate (Side Motor Mount) Adjust.	1
5-86	45-506-00	Oil Seal (G.E. and Taylor-Dunn Motor)	1
5-87A	70-049-00	Motor, 1.5/2 H.P. - 24/36 Volt, 1800/2800 R.P.M.	1
5-87B	70-054-00	Motor, 2.25/3.5 H.P. - 24/36 Volt 1800/2800 RPM	1
5-92	13-746-00	Tire and Demountable Wheel, 850 x 8, 4 Ply, Tubeless Power Rib, with Five 1/2" holes on 4-1/2" bolt circle	2
5-93	12-020-00	Wheel, Demountable, for 850 x 8 Tire, Drop Center with Five 1/2" holes on 4-1/2" bolt circle	2
5-94	10-093-00	Tire, 850 x 8, 4 Ply, Terra Power Rib Tubeless	2
5-95A	13-734-00	Tire and Demountable Wheel, 400 x 8, 4 Ply, Tubeless Super Rib, five 1/2" holes on 4-1/2" bolt circle	2
5-95B	13-738-00	Tire, Tube, and Demountable Wheel, 400 x 8, 6 Ply, Steelguard Tire with Five 1/2" holes on 4-1/2" bolt circle	2
5-95C	13-742-00	Tire and Demountable Wheel, 500 x 8, 4 Ply, Tubeless Super Rib, Five 1/2" holes on 4-1/2" bolt circle	2
5-96	12-012-00	Wheel for 400 x 8 and 500 x 8 Tubeless tire Demountable, Drop Center, Five 1/2" holes on 4-1/2" bolt circle	2
5-97A	10-075-00	Tire, 400 x 8, 4 Ply, Super Rib, Tubeless	2
5-97B	10-078-00	Tire, 400 x 8, 6 Ply, Steel Guard, Tube Type	2
5-97C	10-081-00	Tire, 500 x 8, 4 Ply, Super Rib, Tubeless	2
5-98A	11-030-00	Tube, 400 x 8, (Optional)	2
5-98B	11-040-00	Tube, 500 x 8, (Optional)	2
5-99	11-041-00	Tube, 850 x 8 or 950 x 8 (Optional)	2
5-100	13-954-10	Tire and Demountable cast iron wheel with 16-1/4" x 4 x 11-1/4 Solid Xtra Cushion Tire, Five 1/2" holes on 4-1/2" bolt circle	2
5-101	12-054-00	Wheel for 16-1/4 x 4 x 11-1/4 Solid Tire	2

FIG. I.D. NO.	T-D PART NO.	DESCRIPTION	QTY. REQ.
5-102	10-261-00	Tire, Solid Xtra Cushion, 16-1/4 x 4 x 11-1/4	2
5-106	45-044-00	Gasket, Rear Axle Bearing	2
5-110	86-602-00	Shock Absorber	2
5-122	80-703-00	"O" Ring Motor Mount Seal	1
5-123	70-454-00	Motor Mount Plate	1
5-127	16-400-00	Spacer 1-1/4" ID x .125" Thick	0-1 or 2
5-142A	41-997-00	1/8 Pipe Plug	0 or 1
5-142B	41-988-00	3/8 Pipe Plug with Recessed Top	1 or 0
5-143	50-431-00	Master Cyl. Operator Lever (Used with Hyd Brakes)	1
5-144	88-100-11	Hex Head Cap Screw 3/8" x 1" NC	8
5-145	88-109-81	Lock Nut 3/8" NC (Hex)	10
5-146	88-149-81	Lock Nut 1/2" NC (Hex)	4
5-147	96-243-00	Hex Head Cap Screw 7/16" x 7/8" NF, Heat Treat	10
5-148	88-080-09	Hex Head Cap Screw 5/16" x 3/8" NC	2
5-149	88-140-16	Hex Head Cap Screw 1/2" x 2" NC	4
5-150	88-119-80	Nut - 3/8" NF (Hex)	14
5-151	88-080-20	Hex Head Cap Screw 5/16" x 3" NC	9
5-152	88-228-61	Washer 3/4" SAE	1
5-153	88-089-81	Lock Nut 5/16" NC (Hex)	12
5-154	88-080-11	Hex Head Cap Screw 5/16" x 1" NC	2
5-155	88-517-11	Cotter Pin 3/32" x 1"	1
5-156	88-089-80	Nut - 5/16" NC (Hex)	12
5-157	88-100-13	Hex Head Cap Screw 3/8" x 1-1/4" NC	6
5-158	88-108-60	Washer 3/8" Flat Cut	4
5-159	96-245-00	Bolt, PT Brake Anchor & Adjust	1
5-160	88-108-621	Lockwasher 3/8"	3
5-161	88-103-09	Flat Head Socket Cap Screw 3/8" x 3/4" NC	4
5-162	88-239-82	Jam Nut - 3/4" NF (Hex)	1
5-163	88-129-81	Lock Nut - 7/16 Hex	4
5-164	88-120-17	Hex Head Cap Screw 7/16 NC x 2-1/4	4
5-165	88-527-11	Cotter Pin 1/8" x 1" (Axle Vent)	1
5-166	88-088-61	Washer 5/16" SAE	11
5-167	88-087-11	Socket Set Screw 5/16 NC x 1"	1
5-168	88-100-15	Hex Head Cap Screw, 3/8 NC x 1-3/4	1
5-169	88-109-80	Nut 3/8" NC (Hex)	3
5-170A	41-346-98	Brake Back-up Plate Assembly with Shoes 7" Hyd Left	1
5-170B	41-346-99	Brake Back-up Plate Assembly with Shoes 7" Hyd. right	1
5-172	41-640-00	Brake Shoes 7" Internal Expanding (set for 1 wheel)	2 Sets
5-173	42-003-00	Brake Adj. Cam (7" Hyd. Brake)	4
5-174	85-208-00	Spring, Extension, 1/2" x 4-1/2" Free Length Org.	2

FIG. I.D. NO.	T-D PART NO.	DESCRIPTION	QTY. REQ.
5-175	85-411-00	Spring, Torsion, 1-1/4 Dia. (Blue	2
5-176	88-068-62	Washer - 1/4" Lock	4
5-177	88-060-06	Hex Head Cap Screw 1/4" x 1/2" NC	4
5-178	41-514-00	Brake Drum (7")	2
5-179A	99-506-98	Wheel Cylinder (7" Brake - Left)	1
5-179B	99-506-99	Wheel Cylinder (7" Brake - Right)	1
5-181	99-506-61	Wheel Cylinder Repair Kit (7" Brake)	2
5-182	41-695-00	Pin, Brake Shoe Anchor	4
5-183	41-697-00	Washer (Rubber) 7/16" OD x 1/8" ID x 3/32 Thick	4
5-184	88-068-61	Washer, 1/4 SAE	4
5-185	85-050-00	Spring, Compression, 1/2 OD x 1" Length(Fuschia)	4
5-186	41-696-00	Cup, Brake Shoe Anchor	4
5-187	88-148-60	1/2 Flat Washer	0 or 5
5-188	88-149-81	1/2 NC Locknut	0 or 3

MOTOR MAINTENANCE, SERVICE AND ADJUSTMENT
ELECTRIC MOTORS
REFER TO FIGURE 5H

Detailed service procedures covering maintenance of bearing brushes and commutator are covered in this section. DO NOT PERFORM THIS PROCEDURE WHILE BATTERIES ARE BEING CHARGED.

Maintenance of electric motors should be referred to personnel with experience and equipment. Should it be necessary for you to order replacement parts for your motor, IT IS NECESSARY TO INCLUDE COMPLETE NAMEPLATE DATA WITH ORDER.

MOTOR MAINTENANCE - BRUSH INSPECTION AND REPLACEMENT

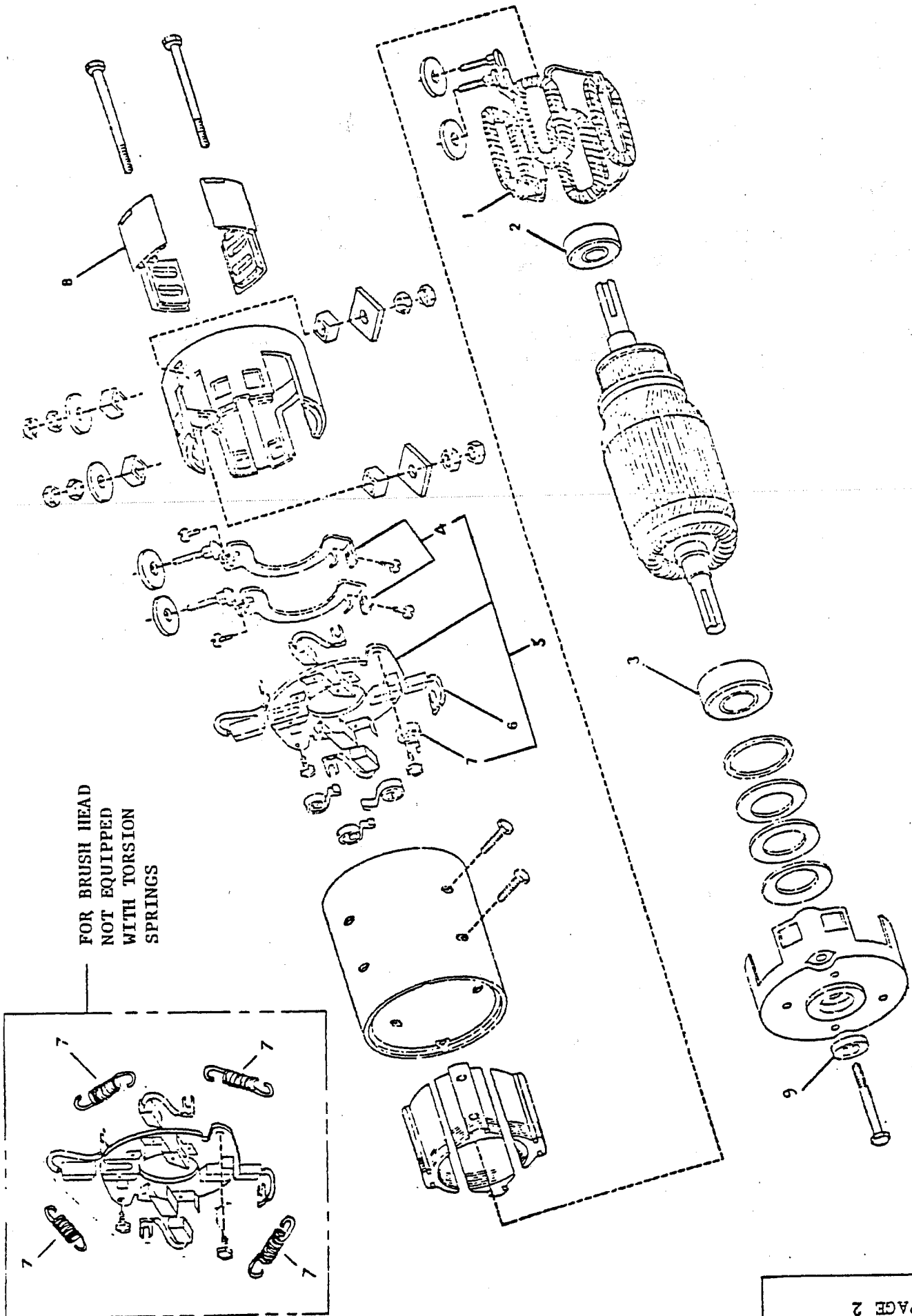
1. Remove cover, exposing brush assemblies. Lift brush from holder for inspection.
2. If brushes are worn, remove, install new brushes. Use fine sandpaper to "seat in" new brushes to commutator. To determine when to replace worn brushes, proceed as follows:
 - a. For motors equipped with brushes having end pigtails and side hooks, replace brush when hook is within 1/16" from bottom of hook slot.
 - b. For motors equipped with brushes having side pigtails only, replace brush when pigtail is within 1/16" from bottom of pigtail slot.

NOTE: When one brush is replaced in a motor, it is considered good maintenance practice to replace all brushes.

3. Check operation of each brush to assure that brush slides freely and does not bind in holder.
4. Replace Cover.

MOTOR DISASSEMBLY AND REASSEMBLY

1. Remove motor from vehicle as described in section J2.
2. Determine if witness marks on end bell and stator housing are present. If not, mark end bell and housing to assure proper relation of brushes and commutator when reassembling.
3. Remove cover, exposing brush assemblies. Lift brushes from brush holder.
4. Remove bolts holding end bells and remove end bell and rotor. (Pull from shaft extension end). Take care not to damage any coils or armature wires when handling motor parts.
5. Press or pull old bearings off by using bearing press or bearing puller. Do not damage shaft while removing bearings.
6. Install new bearings onto shaft by gentle pressure or tapping with proper tool on inner race only. Bearing will be damaged if pressed or driven by outer race or seals.
7. If the commutator is worn or "burned" it should be turned, the mica undercut and the commutator polished.
8. Oil bearing housing lightly to aid in reassembly.
9. Reassemble motor taking care that all parts are kept clean.
10. Install brushes and "seat in" with fine sandpaper.
11. Check operation of each brush to assure that brush slides freely in holder.
12. Replace cover.
13. Reassemble to vehicle as described in preceding subsection.



LENGTH | QUAN. | REVISED DATE | REVISION

MOTOP PARTS - G. E. MOTORS

FIGURE 5M

O. DESCRIPTION

XL. FRAC. + DEC. +

A/E NONE

ELECTRIC MOTORS
REFER TO FIGURE 5M

For D.C. Motor replacement parts, IT IS NECESSARY TO INCLUDE COMPLETE MOTOR NAME PLATE DATA WITH THE ORDER

FIG. I.D. NO.	T-D PART NO.	DESCRIPTION	QTY.
Replacement parts for G.E. Motor 5BC48JB503, 5BC48JB531, 5BC48JB550 and 5BC48JB582			
5M-1	70-201-00	Field Coil Set (not used on G.E. Motor 5BC48JB582)	1
5M-1	70-202-00	Field Coil Set (for G.E. Motor 5BC48JB582)	1
5M-2	80-200-00	Ball Bearing - Commutator End	1
5M-3	80-504-00	Ball Bearing - Shaft End	1
5M-4	70-195-00	Set of two armature terminal & brush pair connectors, <u>not used</u> on motor 5BC48JB550 with suffix letter "C". Two required per motor. (included in 70-188-00)	2
5M-4	70-196-00	Armature terminal & brush pair connector, <u>used only</u> with motor 5BC48JB550 with suffix letter "C". Two required per motor. (included in 70-184-00)	2
5M-5	70-184-00	Brush holder, without brushes, including brush springs, armature terminal & brush pair connectors. <u>Used only</u> on motor 5BC48JB550 with suffix letter "C".	1
5M-5	70-188-00	Brush holder, without brushes, including brush springs, armature terminal & brush pair connectors. <u>Not used</u> on motor 5BC48JB550 with suffix letter "C".	1
5M-6	70-101-00	Motor Brush	4
5M-7	85-412-00	Brush Spring, Torsion	4
5M-8	30-801-00	Brush Inspection Cover	4
5M-9	45-506-00	Oil Seal	1
Replacement Parts for G.E. Motors 5BC48JB251 & 5BC48JB265			
5M-2	80-200-00	Ball Bearing, Commutator End	1
5M-3	80-504-00	Ball Bearing, Shaft End	1
5M-5	70-185-00	Brush Holder Assy	1
5M-6	70-100-00	Motor Brush	4
5M-7	85-401-00	Brush Spring, Extension	4
5M-9	45-506-00	Oil Seal	1

FIG. I.D. NO.	T-D PART NO.	DESCRIPTION	QTY
Replacement Parts for G.E. Motor 5BC48JB67B & 5BC48JB114			
5M-2	80-205-00	Ball Bearing, Commutator End	1
5M-3	80-204-00	Ball Bearing, Shaft End	1
5M-6	70-100-00	Motor Brush Assy	4
5M7	80-401-00	Brush Spring, Extension	4
Replacement Parts for Taylor-Dunn Motor 388P381G & Baldor 45-39W03			
5M-2	80-200-00	Ball Bearing, Commutator End	1
5M-3	80-504-00	Ball Bearing, Shaft End	1
5M-5	70-187-00	Brush Head Assy, Complete with Brushes	1
5M-6	70-101-00	Motor Brush	4
5M-8	30-803-00	Brush Inspection Cover	4
5M-9	45-506-00	Oil Seal	1
Replacement Parts for G.E. Motor 5BCG56EA17			
5M-2	80-201-00	Ball Bearing, Commutator End	1
5M-3	80-504-00	Ball Bearing, Shaft End	1
5M-5	70-189-00	Brush Holder Assy	1
5M-6	70-101-00	Motor Brush Assy	4
5M-7	85-412-00	Brush Torsion Spring	4
Replacement Parts for G.E. Motor 5BC49JB122			
5M-2	80-200-00	Ball Bearing, Commutator End	1
5M-3	80-504-00	Ball Bearing, Pulley End	1
5M-4	70-185-00	Brush Holder	1
5M-6	70-100-00	Motor Brush	4
5M-7	85-401-00	Brush Extension Spring	4
5M-9	45-506-00	Oil Seal	1
Replacement Parts for G.E. Motor 5BC49JB305			
5M-1	70-203-00	Field Coil Set	1
5M-2	80-200-00	Ball Bearing, Commutator End	1
5M-3	80-504-00	Ball Bearing, Pulley End	1
5M-4	70-195-00	Armature Terminal to Brush	2
5M-5	70-188-00	Brush Holder Assy.	1
5M-6	70-101-00	Motor Brush	4
5M-7	85-412-00	Brush Extension Spring	4
5M-8	30-802-00	Brush Inspection Cover	4
5M-9	45-506-00	Oil Seal	1

FIG. I.D. NO.	T-D PART NO.	DESCRIPTION	QTY.
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Replacement Parts for Taylor-Dunn Motor 388P381A

5M-2	80-204-00	Ball Bearing, Commutator End	1
5M-3	80-205-00	Ball Bearing, Shaft End	1
5M-5	*70-187-00	Brush Head Assy. Complete with Brushes *Not supplied as original equipment on <u>A</u> series motor but must be used as replacement part.	1
5M-6	*70-102-00	Motor Brush with Wire Hook *Replacement part for original <u>A</u> series motor <u>NOT</u> converted to new brush head assy. 70-187-00.	4
5M-6	70-101-00	Motor Brush for A series motor converted to new brush head 70-187-00.	4
5M-7	*85-413-00	Brush Torsion Spring *Replacement part for original <u>A</u> series motor <u>Not</u> converted to new brush head assy. 70-187-00.	4
5M-9	45-506-00	Oil Seal	1
5M-8	30-802-00	Brush Inspection Cover	1

Replacement Parts for G.E. Motor 5BT1326A96

5M-2	80-504-00	Ball Bearing, Commutator End.	1
5M-3	80-206-00	Ball Bearing, Shaft End	1
5M-5	70-170-00	Brush Holder Assembly	1
5M-6	70-112-00	Dual Motor Brush, One Terminal	4
5M-7	85-398-00	Brush Spring	8

Replacement Parts for G.E. Motor 5BT1326B96

5M-2	80-504-00	Ball Bearing Commutator End	1
5M-3	80-206-00	Ball Bearing, Shaft End	1
5M-5	70-171-00	Brush Holder Assembly	1
5M-6	70-112-00	Dual Motor Brush, One Terminal	4
5M-7	85-398-00	Brush Spring	8

MAINTENANCE PROCEDURES

REFER TO FIGURE 6 AND 7

HYDRAULIC BRAKE SYSTEM

Your hydraulic brake system consists of an automotive master cylinder operated by the brake foot pedal and control linkage.

Each rear wheel is fitted with a Bendix 7" brake assembly and rugged brake drum. On 4 wheel brake models the front wheels are similarly equipped.

Refer to Maintenance Guide Section D and Lubrication Diagram Section E for proper lubrication and frequency of inspection.

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.

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 or the need of shoe adjustment. Refer to Service and Adjustment Section J3 of this manual for proper procedures to follow.

SERVICE AND ADJUSTMENT
REFER TO FIGURE 6 AND 7
HYDRAULIC BRAKE SYSTEM

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 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 rod 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 to insert clevis pin.
12. Tighten locknut and install cotter pin.

BLEED AIR FROM BRAKE SYSTEM

Note: Anytime that any part of the hydraulic system is disconnected or replaced, it is necessary to bleed air from system.

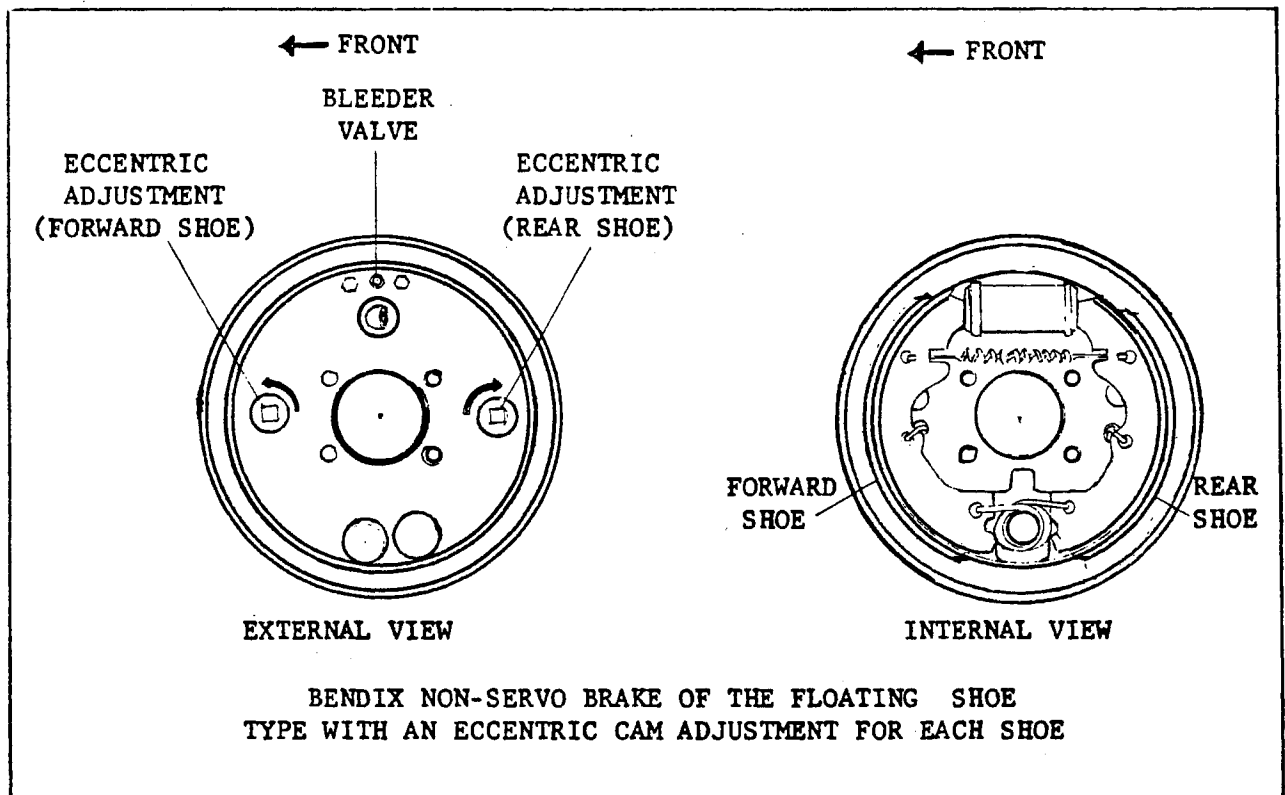
If fluid level is allowed to fall too low in master cylinder reservoir, air will be pumped into system. Consequently the system will have to be bled to remove air. To bleed air from system, follow procedure outlined next.

1. For best results brake shoes should be properly adjusted prior to bleeding system. (Refer to Adjustment Section J3 of this manual)
2. Fill master cylinder to top with approved brake fluid or, if available, attach brake bleeder tank to master cylinder.
3. 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.
- 3 Alt. 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 on each downward stroke of the pedal. It is wise to refill master cylinder after every 3 or 4 strokes to insure 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.
4. Remove brake bleeder tank if used. Fill master cylinder 3/8" to 1/2" of top and replace cover.

REPLACING WHEEL CYLINDERS OR BRAKE SHOES

1. Remove wheel lugs, wheel and brake drum.
2. Unhook springs and remove brake shoes. (Refer to diagram) Brake shoes should be replaced when lining is worn to rivet heads.
3. To remove wheel cylinder, disconnect hydraulic line.
4. Remove 2 wheel cylinder bolts from backing plate and remove wheel cylinder.
5. If installing replacement kit, clean wheel cylinder thoroughly.
6. Remove dust caps and piston parts.
7. Examine cylinder walls. If scored or rough, remove with fine hone.
8. Install new kit assembly.
9. Replace wheel cylinder and brake shoes in reverse order to which they were removed.
10. Replace brake drum. (If brake drum is badly scored, replace with new one)
11. Replace wheel.
12. ADJUST BRAKE SHOES and bleed hydraulic system.
 - A. Loosen both locknuts on eccentric adjusting studs. (Refer to diagram)

- B. Turn forward shoe adjustment stud away from wheel cylinder (as indicated by arrows in diagram) until heavy drag is felt while revolving wheel. (Wheel must be raised clear of floor.)
- C. Then back off by turning adjustment stud in opposite direction slightly until wheel is just free of drag.
- D. Repeat procedure on rear brake shoe.
- E. Tighten locknuts, being careful to hold stud with wrench so as not to disturb adjustment.
- F. Depress brake pedal several times and check to be sure wheel still revolves free of drag and desired pedal travel is obtained.
- G. If wheel drags, repeat adjustments as previously outlined, until satisfactory results are obtained.
- H. If wheel (or wheels) are free of drag, but pedal has too much travel, check adjustments as previously outlined. If necessary, bleed hydraulic system.



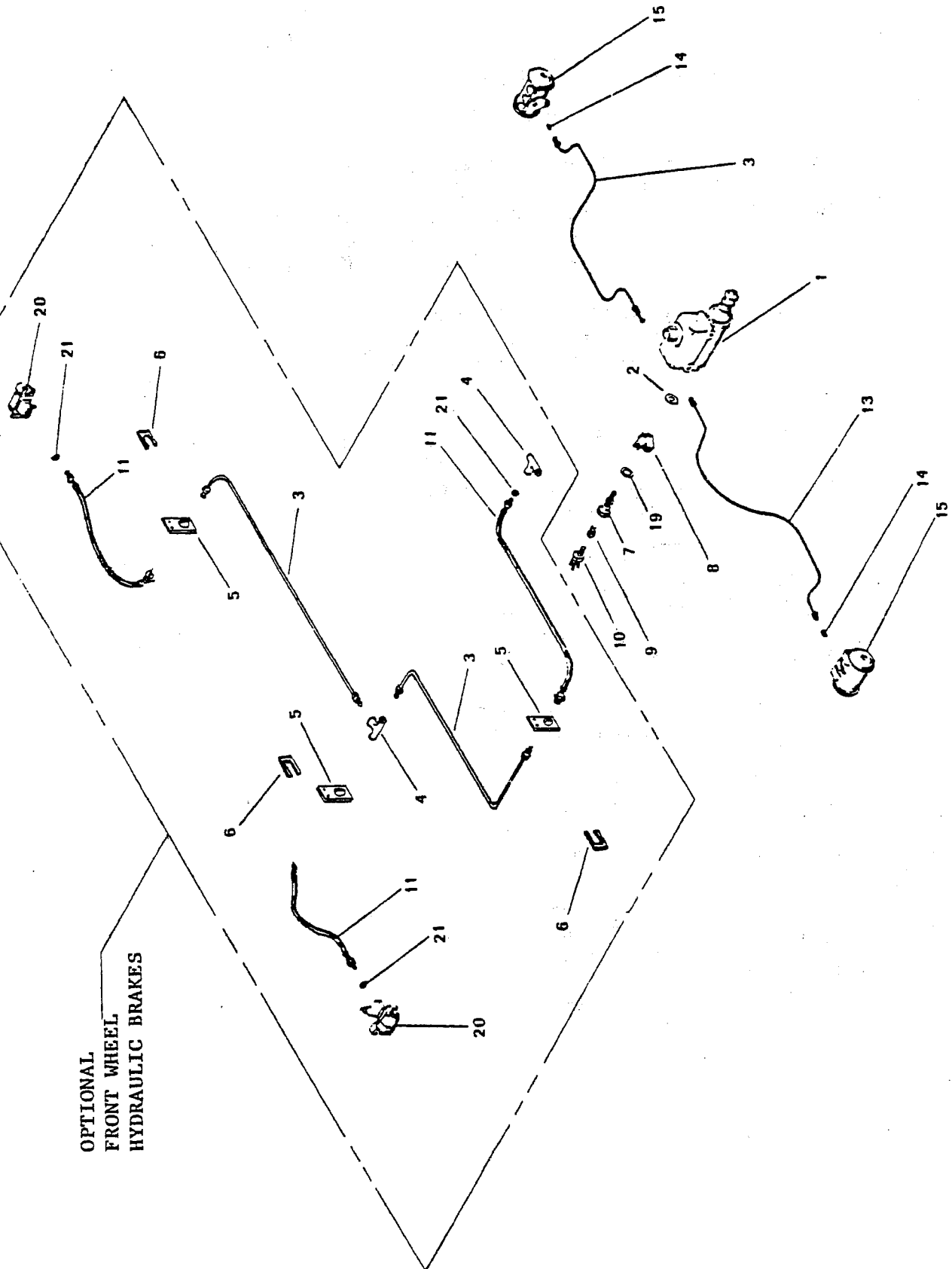
Adjustment of Brake Mechanical Linkage

Refer to Figure 7, Section J4

The mechanical linkage portion of the braking system is adjusted at the factory, and will not normally require any further adjustments unless one of the components is replaced.

1. Adjust brake shoes and bleed the hydraulic system as described in the preceding subsection.
2. Adjust Hand-Brake Cable length. With hand lever in OFF position, and the mechanical brake lever resting against the gear case cover, there should be a slight amount of slack in the cable.
3. Adjust the hand brake lever stroke, by turning the adjusting knob under the plastic handgrip, so that there is $\frac{3}{4}$ inch to 1 inch clearance between the gear case cover and the mechanical brake lever, measured at the outer edge of the bolt clearance notch of the lever, when the hand brake is fully applied.
4. Check and adjust, if necessary, the mechanical brake band, so that the brake band is clear of the drum with the hand brake released, and locks the drum when the hand brake is applied.
5. Adjust the slip joint which connects the mechanical brake lever to the hydraulic brake lever, so that the distance from the center of the rod clevis eye to the tube clevis eye is $11\frac{1}{2}$ to $11\frac{5}{8}$ inches with the rod bottomed in the tube.
6. Place a $\frac{1}{4}$ inch spacer between the mechanical brake lever and the gear case cover.
7. Lightly push the hydraulic brake lever forward so that the slip joint rod is bottomed in the tube, and adjust the master cylinder push rod length to be $\frac{1}{32}$ inch to $\frac{1}{16}$ inch clear of the master cylinder piston cup.
8. Remove the $\frac{1}{4}$ inch spacer, and, with the foot pedal all the way up, adjust the brake pedal cable length so that there is $\frac{3}{16}$ to $\frac{1}{4}$ inch clearance between the mechanical brake lever and gear case cover, measured at the notch.
9. Check the adjustment by depressing the pedal to apply the brakes. The clearance between the mechanical brake lever and gear case cover should be less than $\frac{3}{4}$ inch. If it exceeds $\frac{3}{4}$ inch, repeat the adjustment procedure until the proper clearance is obtained.

OPTIONAL
FRONT WHEEL
HYDRAULIC BRAKES



LENGTH QUANTITY REVISED DATE REVISION

DESCRIPTION

FRAC. † DEC. †
E NONE

FIGURE 6

HYDRAULIC BRAKE SYSTEM
(2 AND 4 WHEEL)

FIGURE NO. 6
2 & 4 WHEEL HYDRAULIC BRAKE SYSTEMS

FIG. I.D. NO.	T-D PART NO.	DESCRIPTION	QUANTITY
6-1	99-510-00	Master Cylinder	1
6-1	99-510-61	Repair Kit - (Master Cylinder)	1
6-2	99-571-00	Washer (Copper Small Hole)	1
6-3	99-606-52	Steel Brake Line, Formed (3/16" x 40")	1 or 3
6-4	99-559-00	Tee Fitting 3/16 Tube x 3/8-24 Inv. x 3/16 Tube	0 or 2
6-5	99-585-00	Bracket for Mounting Hydraulic Hose	0 or 3
6-6	99-576-00	Clip (Hose)	0 or 3
6-7	99-578-00	Bolt for Stop Light	1
6-8	99-565-00	Y-Fitting/with Hole for Bolt	1
6-9	41-997-00	Plug	1
6-10	71-110-00	Switch, Brake Light, Hydraulic Operated	1
6-11	99-580-00	Hose (4 Wheel Hydraulic Brake Only)	3
6-13	99-604-52	Formed Steel Brake Line 3/16" x 20"	1
6-14	99-574-00	Spacer Adapter for 99-506-10 Wheel Cylinder	2
6-15	99-506-98	Wheel Cylinder (7" Brake Left Rear)	1
6-15	99-506-99	Wheel Cylinder (7" Brake Right Rear)	1
6-15	99-506-61	Repair Kit (Wheel Cylinder)	1
6-19	99-572-00	Washer (Copper Large Hole)	1
6-20	99-501-00	Wheel Cylinder (Front Wheel)	2
6-21	99-570-00	Washer (Hose) Copper	0 or 3

MAINTENANCE PROCEDURES

REFER TO FIGURE 7

MECHANICAL CONTROL LINKAGE

The mechanical control linkage operates the various controls and mechanisms located throughout your vehicle.

The accelerator system consists of the operating pedal and pivot shaft assembly, the connecting rods and adjusters and the return spring. All wear points should be lubricated monthly for normal service. Refer to Maintenance Guide Section D and Lubrication Diagram Section E for proper application of lubricants.

The handbrake system consists of the hand operating lever, pivot shaft, connecting rod, and adjuster and the mechanical brake operating cable.

The footbrake system consists of the foot pedal, pivot shaft, brake operating cable, the return spring, and the master cylinder and push rod assembly on vehicles equipped with hydraulic brakes.

The automatic deadman brake system consists of the pivoted seat assembly, the operating cable or rods, the brake apply spring, adjustable tension device, and its connecting linkage.

All wear points should be lubricated monthly. Refer to Maintenance Guide Section D and Lubrication Diagram Section E for proper application of lubricants.

For service and adjustments refer to the following sections:

Section J2 - For hand brake and mechanical brake or "Deadman" brake service and adjustments.

Section J3 - For Master Cylinder and push rod adjustments and service.

Section J6 - For accelerator service and adjustments.

MECHANICAL CONTROL
LINKAGE - MOD. R

FIGURE 7
SECTION J4

NO.	DESCRIPTION
TOL. FRAC.†	DEC.†
SCALE	NONE
DRAWN BY	D.E.

LENGTH | QUAN. | REVISED DATE | REVISION

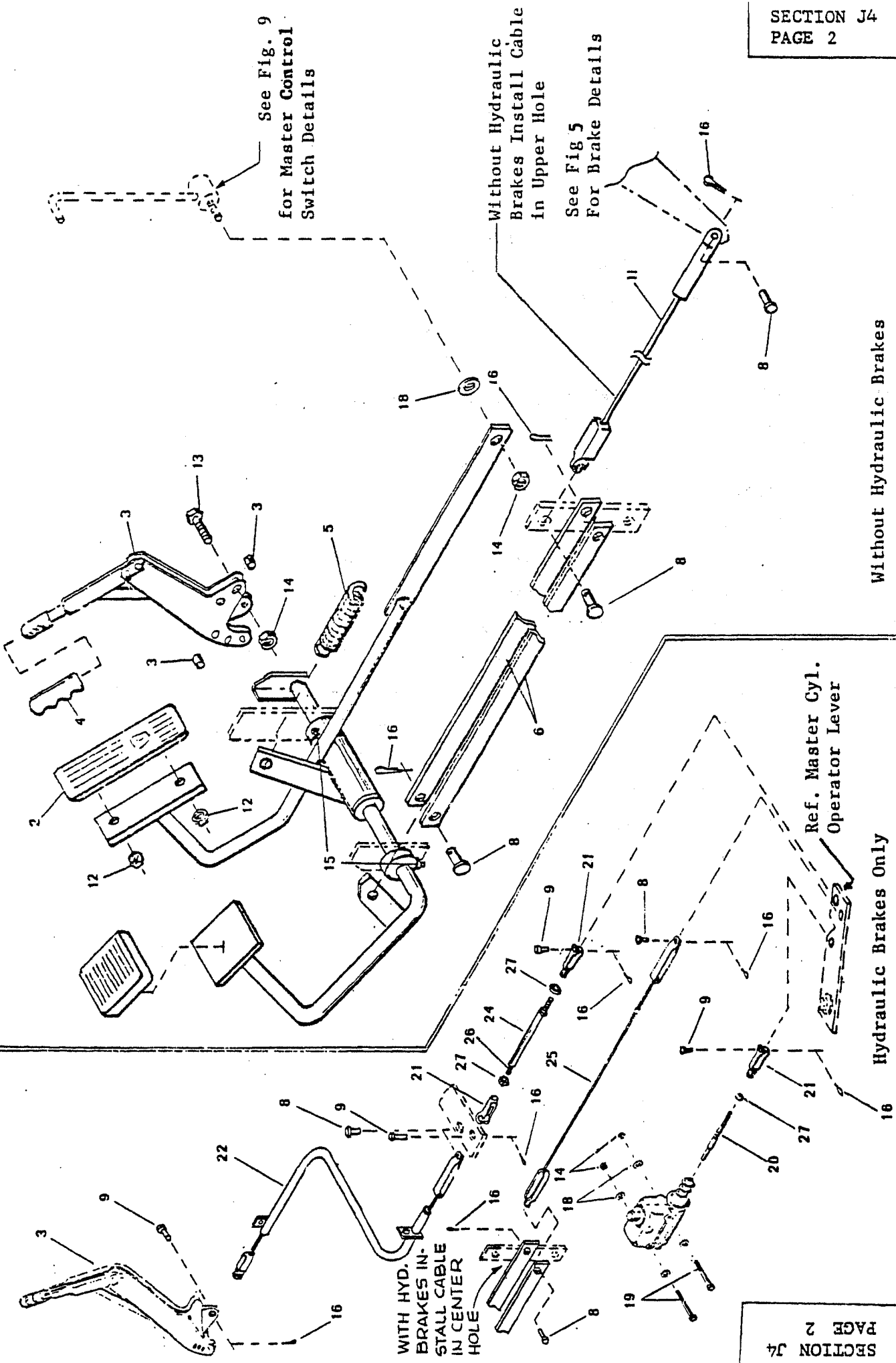


FIGURE NO. 7
MECHANICAL CONTROL LINKAGE

FIG. I.D. NO.	T-D PART NO.	DESCRIPTION	QUANTITY
7-1	98-200-00	Brake Pedal Pad	1
7-2	98-254-00	Accelerator Pad (Aluminum)	1
7-3	51-340-10	Hand Parking Brake Lever with Spacers (5/8 O.D. x 12/32 I.D. x 1/2 Long & 5/8 O.D. x 12/32 I.D. x 15/32 Long)	1
7-4	98-351-00	Hand Grip - 7/8 I.D. x 4-1/2 Long	1
7-5	85-250-00	Spring, Extension, 1-1/16 O.D. x 3-7/8 Long (Accelerator Return)	1
7-6	50-430-00	Strap, Brake Pedal to Cable Linkage	2
7-8	96-771-00	Clevis Pin, 3/8 x 3/4 Face to Hole	3
7-9	96-772-00	Clevis Pin, 3/8 x 1 Face to Hole (Hyd. Brakes Only)	4
7-11	96-818-00	Adj. Cable Assy.	1
7-12	88-069-87	1/4 N.C. Fastite Nut	2
7-13	88-100-14	3/8 x 1-1/2 N.C. Hex Head Cap Screw	2
7-14	88-109-81	3/8 N.C. Locknut	6
7-15	87-071-00	Grease Fitting, 3/16 Drive	2
7-16	88-517-09	3/32 x 3/4 Long, Cotter Pin	3 or 7
7-18	88-108-60	3/8 Washer	1 or 4
7-19	88-100-20	3/8 x 3 N.C. Hex. Head Cap Screw (Hyd. Brakes Only)	2
7-20	50-009-00	Master Cyl. Push Rod 3/8 x 5-3/8 (Hyd. Brakes Only)	1
7-21	96-762-00	Cast Clevis, 3/8 (Hyd. Brakes Only)	3
7-22	96-821-10	Adj. Cable & Conduit Assy., (Hydraulic Brakes Only)	1
7-24	50-012-00	Mechanical Brake Push Rod, (Hydraulic Brakes Only)	1
7-25	96-813-00	Adj. Cable Assy., (28-1/4 to 31-1/4) (Hyd. Brakes Only)	1
7-26	50-482-00	Mechanical Brake Link Slip Joint, (Hyd. Brakes Only)	1
7-27	88-119-80	3/8 N.F. Hex Nut, (Hydraulic Brakes Only)	3

MAINTENANCE PROCEDURES

REFER TO FIGURE 9A - MASTER CONTROL SWITCH

GENERAL :

The master control switch is located below the seat, and is readily accessible when the seat is raised. The left side, operated by the hand lever which projects into the passenger compartment, controls direction of travel. The right side, operated by the accelerator pedal, controls the vehicle speed by regulating the voltage applied to the motor, using coils of nichrome resistance wire.

It is recommended that all terminal connections be checked and tightened at least once a month. If a terminal bolt or wire becomes loose, sufficient heat will be generated to cause permanent damage at the connection.

CAUTION: The nuts which secure the wire terminals to the contact buttons on the forward/reverse rotor must NOT be used to tighten the contact buttons to the rotor board. The contact buttons must be free to rotate in order to avoid wire breakage.

A light coating of grease must be maintained on all switch components where sliding contact occurs, and the spaces between bars should be cleaned monthly using either a piece of wood or plastic, or by steam cleaning.

The key lock mechanism should be lubricated occasionally with powdered graphite, or similar key lock lubricant.

Refer to Sections D & E for recommended scheduling of routine maintenance and lubrication, and to detailed instructions in this section for adjustments and replacement of parts.

SERVICE AND ADJUSTMENT

REFER TO FIGURE 9A - MASTER CONTROL SWITCH

Replacement of Power Bars

NOTE: Power bars tend to wear at the same rate, except when one bar may become excessively burned because of poor contact. When replacing with new power bars, it is important that all bars be of the same thickness. Binding and sticking will occur when bars are not of uniform thickness. For this reason, it is recommended that power bars be replaced as a full set.

1. Note connections of resistor coils to power bars for correct positioning at reassembly.
2. With power disconnected, remove resistor coils from power bars.
3. Remove holding screws from power bars and slide power bars from switch.
4. Clean switch thoroughly and install new bars.
5. Install resistor coils.
6. Adjust Rotor travel.
7. Reconnect power supply.

Adjustment of Forward-Reverse Rotor

NOTE: The rate of wear of the moving contacts of the forward-reverse portion of the switch will be very small in normal use, and frequent adjustment will not be necessary. The pressure is properly set when the two inch long spring is compressed to a length within the 1-1/8 to 1-1/4 inch range.

Replacement of Master Control Switch

1. Disconnect power supply at battery main positive terminal.
2. Note location of wires connected to switch and mark accordingly, to insure their return to correct locations on re-assembly.
3. Remove wires at respective terminals.
4. Disconnect rod end from accelerator pedal extension (See Diagram A).
5. Remove three bolts holding switch to bracket and remove switch.
6. Replace switch in the reverse manner to which it was removed.
7. Adjust Speed Rotor Travel as outlined in following subsection.
8. Reconnect power supply.

Adjustment of Speed Rotor Travel - EM Switch (Refer to Diagram A)

NOTE: Rotor travel adjustment is set at the factory, and will require adjustment only if the vehicle is subjected to severe damage, or if a new switch assembly is installed.

1. Check Accelerator pedal travel. With Rod End disconnected from accelerator pedal extension, depress pedal to bottom of travel. If pedal contacts floor-mat before pedal extension contacts angle cross brace, bend pedal extension upward (or angle cross brace lip downward) sufficiently far to assure that pedal travel is stopped before pedal contacts floormat.

Adjustment of Rotor Travel - EM Switch (cont'd.)

2. Depress pedal, and clamp pedal extension tightly to angle cross brace.
3. Position rotor so that lower contact button clears the 4th speed bar by 1/8 inch (See Diagram). This will cause approximately 95% of the contact button to be in contact with the high speed bar.
4. With the lower contact button held as described in Step 3, adjust the position of the Rod End on the adjustable accelerator link so that it mates with the hole in the end of the pedal extension, and fasten in position.
5. Remove clamp and operate the accelerator pedal several times, using normal force, and re-check the position of the lower contact button when the pedal is fully depressed. If it fails to clear the 4th speed bar by 1/8 inch, readjust the Rod End position accordingly, and check the clearance again after operating the pedal, readjusting as necessary until the desired condition is obtained and remains constant. Note: The lower contact button should not travel to the stop when the accelerator is fully depressed and properly adjusted.
6. With the pedal in neutral position, the lower contact button must clear the 1st speed bar by a minimum of 1/8 inch, and rest on the neutral button. This condition should automatically occur when the high speed adjustment is properly set.

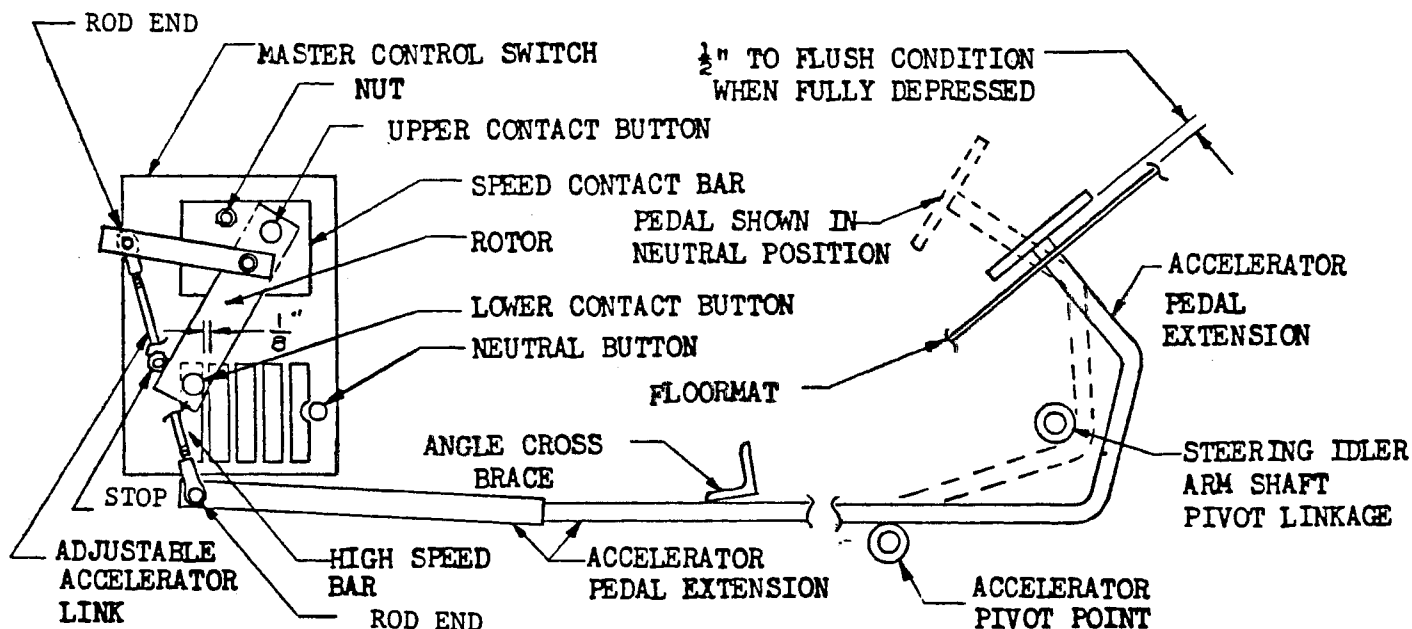
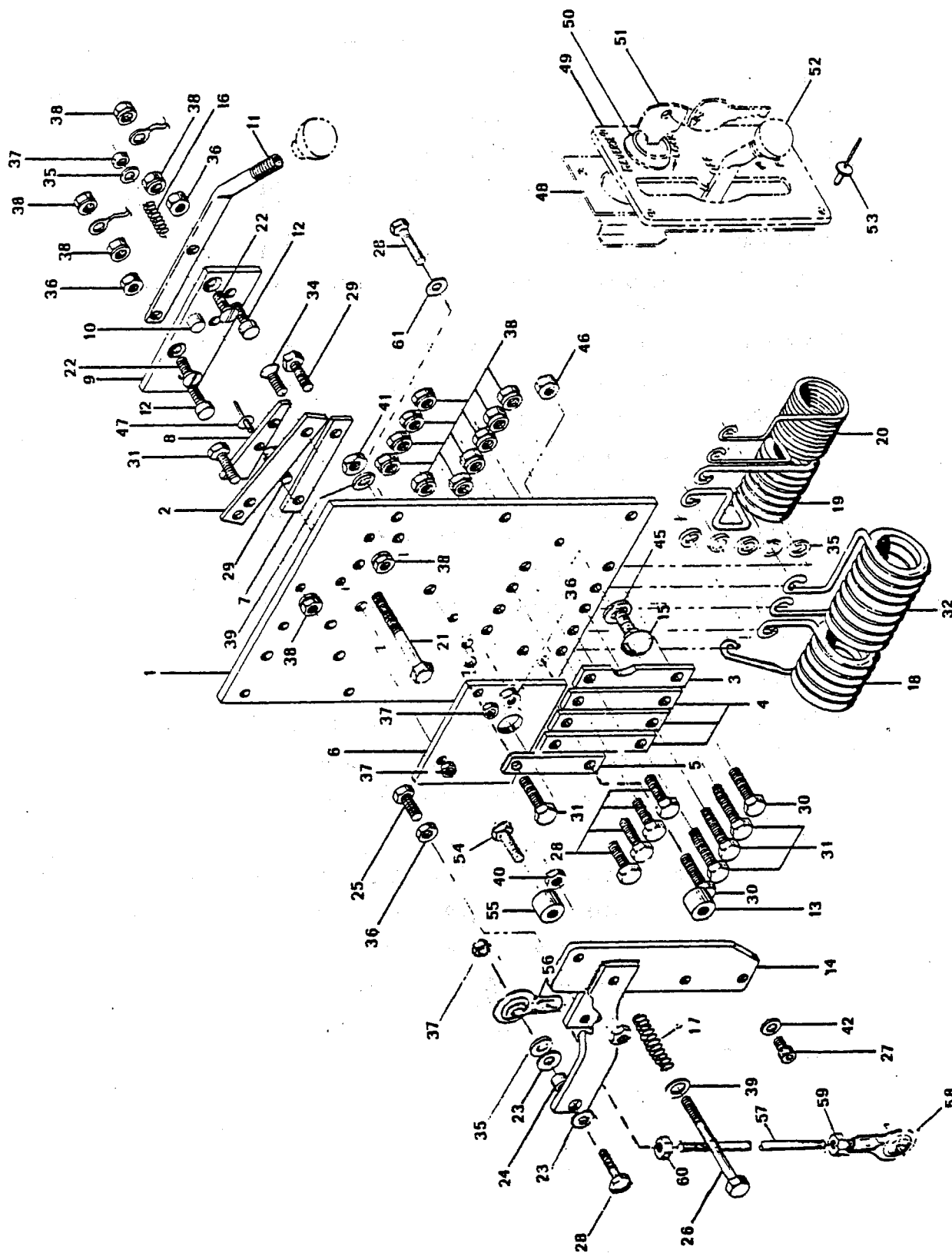


Diagram A - Rotor Travel Adjustment - EM Switch



LENGTH QUAN. REVISED DATE REVISION

MASTER CONTROL SWITCH - EN TYPE

FIGURE 9

IO. DESCRIPTION

OL. FRAC. DEC. +

SCALE NONE

FIGURE 9A MASTER CONTROL SWITCH - EM TYPE

FIG. I.D. NO.	T-D PART NO.	DESCRIPTION	QUANTITY
9A-0	61-845-30	Master Control Switch Assembly Complete	1
9A-1	61-845-00	Mounting Board	1
9A-2	61-831-10	Power Bar With Countersunk Hole	1
9A-3	61-831-12	Power Bar With Notch	1
9A-4	61-831-13	Power Bar	4
9A-6	61-831-15	Speed Contact Bar	1
9A-7	61-840-00	Forward Reverse Power Bar	1
9A-8	61-839-51	Neutral Board	1
9A-9	61-846-50	Rotor Board	1
9A-10	61-846-51	Stabilizer Button	1
9A-11	61-841-00	Handle	1
9A-12	71-030-58	Contact Button	2
9A-13	61-849-50	Contact Button	1
9A-14	61-849-00	Speed Switch Rotor	1
9A-15	88-102-11	Neutral Button (3/8 x 1 Carriage Bolt)	1
9A-16	85-034-00	Spring 7/16 x 2	1
9A-17	85-060-00	Spring 5/8 x 2 1/2	1
9A-18	78-212-63	Resistor Coil #5 Wire - 6 Turns	1
9A-19	78-212-52	Resistor Coil #6 Wire - 9 Turns	1
9A-20	78-212-51	Resistor Coil #9 Wire - 10 Turns	1
9A-21	88-060-20	1/4 N.C. X 3 Hex Head Cap Screw	1
9A-22	88-066-09	1/4 N.C. X 3/4 Flat Head Machine Screw	2
9A-23	97-170-00	Washer, Insulated	2
9A-24	32-212-50	Plastic Bushing, 1/4 I.D. x 1/4 Long	1
9A-25	96-300-09	Bronze Bolt	1
9A-26	88-081-22	5/16 N.C. x 3 1/2 H.H. Cap Screw	1
9A-27	88-047-06	10-32 x 1/2 Socket Head Cap Screw	1
9A-28	88-060-11	1/4 N.C. x 1 Hex Head Cap Screw	6
9A-29	88-060-12	1/4 N.C. x 1 1/8 Hex Head Cap Screw	2
9A-30	88-060-13	1/4 N.C. x 1 1/4 Hex Head Cap Screw	2
9A-31	88-060-14	1/4 N.C. x 1 1/2 Hex Head Cap Screw	5
9A-32	88-060-20	1/4 N.C. x 3 Hex Head Cap Screw	1
9A-33	88-066-09	1/4 N.C. x 3/4 F.H. Machine Screw	2
9A-34	78-212-62	Resistor Coil #8 Wire - 8 Turns	1

FIGURE 9A MASTER CONTROL SWITCH - EM TYPE (Cont'd)

FIG. I.D. NO.	T-D PART NO.	DESCRIPTION	QUANTITY
9A-34	88-066-11	1/4 N.C. x 1 F.H. Machine Screw	1
9A-35	88-068-61	1/4 S.A.E. Washer	1
9A-36	88-069-80	1/4 N.C. Hex Nut	4
9A-37	88-069-81	1/4 N.C. Hex Lock Nut	3
9A-38	88-069-87	1/4 N.C. Fastite Nut	16
9A-39	88-088-60	5/16 Flat Washer	2
9A-40	88-089-80	5/16 Hex Nut	1
9A-41	88-089-81	5/16 Hex Lock Nut	2
9A-42	88-048-61	#10 Washer, S.A.E.	1
9A-45	88-527-11	Cotter Pin (Used In Earlier Models)	1
9A-47	88-737-11	Aluminum Rivet, 3/16 Dia. x 1" Long	1
9A-48	97-314-10	Lock Plate and Lock Cylinder Assembly	1
9A-49	94-307-00	Forward/Reverse Switch Plate	1
9A-50	71-040-55	Lock Assembly with Two Keys	1
9A-51	71-040-74	Key Only (Give Lock No. or Vehicle Serial No.)	1
9A-52	95-907-00	Plastic Knob	1
9A-53	88-727-06	Aluminum Rivet 5/32 Dia. x 1/2 Long	4
9A-54	96-302-01	Screw, Bronze 5/16 N.C. x 1, Hex Hd.	1
9A-55	61-849-51	Spacer, Rotor Contactor	1
9A-56	86-503-99	Rod End, Spherical Bearing - Right Hand Thread	1
9A-57	50-002-00	Rod, Accelerator Adjusting, 4 1/8 Long	1
9A-58	86-503-98	Rod End, Spherical Bearing - Left Hand Thread	1
9A-59	97-211-00	Nut, 1/4 N.F.-Left Hand Thread	1
9A-60	88-079-80	1/4-28 N.F. Hex Nut	1
9A-61	88-068-62	1/4 Lock Washer	1
9A-62	16-509-00	3/8 O.D. x 1/4 I.D. x 3/16 Long, Required Only for Vehicles with 3/8 Dia. Hole in Accelerator Pedal Extension.	1
9A-63	97-173-00	Special Washer	1
9A-64	88-109-87	3/8 N.C. Fastite Nut	1

MAINTENANCE PROCEDURES
GENERAL ELECTRICAL SYSTEM

Your electrical system has been installed with care, utilizing quality materials for safe trouble free service. Proper fuses have been located where necessary to prevent unsafe overloads and protect the wiring from being damaged from short circuits.

Little care will be required, except for an occasional visual inspection for loose connections or some unusual condition causing the insulation to be rubbed off on a wire.

Normal replacement parts such as light bulbs, fuses, flasher, etc., have been arranged for simple changing by plug in devices or conveniently located terminals.

CAUTION: A blown fuse is usually indicative of a short circuit or faulty device. Care should be exercised to remove the faulty condition before replacing fuse. DO NOT place larger capacity fuses or "jumpers" to overcome the condition as serious wiring damage can occur.

Refer to the following sections for more detailed information on the main power and electrical components:

- Section G - Wiring Diagram
- Section J2 - Motor
- Section J6 - Speed Control and Main Power Switching
- Section J8 - Batteries and Charger

Refer to the following page for a listing of electrical parts.

ELECTRICAL PARTS

T-D PART NO.	DESCRIPTION	QUANTITY
71-100-00	Light Switch	1
71-110-00	Brake Light Switch (Hydraulic Operation)	1
71-111-00	Brake Light Switch (Mechanical Operation)	1
71-130-00	Micro Switch	1
71-141-00	Turn Indicator Switch, 7 Wire	1
71-501-00	Horn Button - Steering Wheel Model	1
71-900-00	Flasher (12 Volt)	1
72-005-00	Chrome Headlight Fixture With 4" Sealed Beam Bulb	1
72-022-00	Stop and Taillight Fixture, 4" Rubber Mount	2
72-051-00	Turn Light Fixture, 4" Rubber Mount	2
72-072-00	4" Sealed Beam Headlight Bulb	1
73-000-00	Horn, 12 Volt	1
74-000-00	Hour Meter	1
74-050-00	Windshield Wiper Motor	1
74-051-00	Windshield Wiper Arm	1
74-052-00	Windshield Wiper Blade	1
75-081-00	Wiring Harness (Power Only)	1
75-082-00	Wiring Harness for Lights & Horn	1
75-081-50	Wiring Harness, Windshield Wiper	1
76-002-00	Charging Plug, 30 Amp, 3 Prong	1
76-012-00	Charging Receptacle	1
50-225-00	Wiring Harness Support Rod	1
88-577-90	1/4 Dia. Push On Cap for Wiring Harness Support Rod	1
78-010-00	Secondary Fuse and Holder Inline Type	1
79-823-00	Fuse, Buss Type 20 Amp, (for Inline Fuse Holder)	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, in appropriate use and with proper care.

It can not be over emphasized how important good maintenance procedures and careful 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.

Over charging 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 J8, 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 over discharging is to prepare a rigid schedule for charging batteries which will insure against their being discharged beyond the limits of their capacity.

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.

4. CLEANING

Batteries pick up various kinds of dirt and dust, depending on their surrounding and the type of service they are subject to. This is usually dry dirt, which can 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 pound 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 an 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° below zero. Yet a battery in a very low state of charge may freeze at temperatures around 10° to 15° 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.

BATTERY MAINTENANCE RECORD

VEHICLE NO.

Battery No.	Cell No.	Date			Date			Date		
		Water OK or Low	Gravity Before Charge	Gravity After Charge	Water OK or Low	Gravity Before Charge	Gravity After Charge	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 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.
- 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 a 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, but not while batteries are being charged.
- 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 oftener) record as shown in above 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.

BATTERIES AND CHARGER

T-D PART NO.	DESCRIPTION	QTY. REQ.
SEE PARTS LIST IN CHARGER MANUALS		
75-231-00	Battery Jumper #6 Wire (8" Long)	5
76-012-00	Charging Receptacle, 30 Amp, 3 Prong	1
76-020-00	Charging Receptacle and Plug, Anderson Type SB #6313 - 175 Amp	1
77-010-00	6 Volt, 170 A.H. Battery	4 or 6
77-031-00	6 Volt, 190 A.H. Battery	4 or 6
77-042-00	6 Volt, 217 A.H. Battery	4 or 6
77-048-00	6 Volt, 250 A.H. Battery	4 or 6
77-200-00	Hydrometer	1
77-201-00	Battery Filler	1

SERVICE AND ADJUSTMENTS
BATTERY CHARGER

INTRODUCTION

This Section describes the operation, trouble-shooting and repair of the CHRISTIE Series A and T Battery Chargers. They are designed for safe and efficient daily charging of batteries. Chargers may be furnished in a portable cabinet or of a type built-into the vehicle.

SPECIFICATIONS

		<u>"A" SERIES</u>					
<u>MODEL</u>							
Portable	Built-In	A-C Volts	A-C Amps	Batt Amp Hrs*	D-C Volts	D-C Amps	
2420A	2420A-C/2420A-SS/2420AB	115	5	130/170	24	20	
3620A	3620A-C/3620AB	115	9	130/170	36	20	
	2410A	115	2.5	90	24	10	
		<u>"T" SERIES</u>					
2420T	2420T-C	115	5	130/220	24	20	
2430T	2430T-C/2430TB	115	7	170/250	24	30	
3620T/T3620T	T3620TG/T3620T-C T3620TB	115	9	130/220	36	20	
3630T/T3630T	T3630TG/T3630T-C T3630TB	115	10	170/250	36	30	
4820T		115	10	130/220	48	20	

* Higher capacity batteries may be charged if longer than 12 hours recharge time is available.

CHARGING CHARACTERISTICS

Series A - This charger uses a constant potential method of recharging. This means the charger output voltage is held relatively constant through the charge cycle. Since the rate of charge is a function of the difference between charger output voltage and battery voltage, the charger output current is reduced by the increased voltage of the battery as it recharges. On a discharged battery the charger should start charging at near it's rated output and as the battery recharges the charge rate will be reduced until it reaches a final charge rate of approximately 2 to 3 amps on a fully charged battery. The charging time is controlled by a timer which terminates the charge at the end of a preset time. Recommended minimum charging times are shown on the CHARGING TIME CHART.

Series T - This charger also uses a constant potential method for recharging, however, it is equipped with a voltage sensing device that activates the timer when the battery reaches 80% of full charge. The timer then times out the balance of the charge, normally 4 hours. The time required for the battery to reach the 80% level will vary with the capacity and state of charge of the battery. On a discharged battery, the charger will start charging at near it's rated output and it will reduce it's charging rate as the battery is recharged. The final charge rate on a charged battery will be approximately 6 to 10 amperes depending on the rating of the charger. A shorter recharge time is achieved by using this method. Protection from overcharging is provided by the voltage sensing device.

INSTALLATION

Portable models may be set on any suitable working surface so that there is access to the control panel. There should be at least six inches of clearance on each side and two inches on the top to allow free flow of air for cooling. Do not expose charger to rain or other adverse weather conditions. The charger may be suspended overhead by placing the handle in a suitable support. There must be a separately fused, three-wire, single phase, 115 volt, 15 ampere power receptacle within reach of the A-C input cord of the charger. If the A-C input voltage at your location varies from the nominal 115 volts, it will be necessary to adjust the charger for proper operation. Inside the charger there is a terminal board with input tap settings for 105 v, 110 v, 115 v, 120 v, and 125 v. The charger should be set on the input tap nearest your voltage. This terminal board is normally reached through an access panel in the back or top of the charger. On some built-in models it is necessary to remove the cabinet cover. On chargers with a "T" prefix in the model number, an external "HI, MED, LO" switch is provided to make these adjustments. The "HI" setting is for 105 v, "MED" for 115 v, and "LO" is for 125 v. The output voltage of the charger will vary with the input tap setting. A plate on the charger has "General Instructions" showing an "open" circuit output voltage (not connected to the battery) for that particular model. When connected to the correct a-c tap, the "open" circuit output voltage should measure approximately that value shown. Once properly installed and adjusted, the charger needs no further adjustment.

OPERATING INSTRUCTIONS

1. Verify that the output fuses are fully tightened.
2. Connect the D-C plug to the battery receptacle. Portable chargers are furnished with a polarized D-C plug that mates with a corresponding polarized receptacle in the vehicle to prevent improper connections to the battery. Built-in models are permanently connected to the batteries.
3. Connect the A-C plug to a suitable, grounded receptacle.
4. A Series - Determine the minimum charging time (see CHARGING TIME CHART). Turn the charger on by setting the timer knob to the desired charging time.
T Series - Turn the charger on by setting the timer knob to the "START" position (4 hours). The voltage sensing unit will automatically start the timer when the battery reaches 80% of full charge.
5. Verify that the output meter indicates a charging current. If there is no charging current, see TROUBLE SHOOTING section. Never let the charger charge higher than it's rated output. If the charger is charging too high, check the batteries to be sure there are no defective cells or short circuits. See the instructions concerning input tap setting under INSTALLATION section.

6. The timer control will turn off the charger (positive turn off feature) at the completion of the charge.
7. Disconnect the battery from the charger. On built-in models, disconnect the A-C cord.
8. Using a hydrometer, verify that the battery is properly charged.

CHARGING TIME CHART (A Series)

The following chart provides useful information for determining the minimum charging time needed to restore a battery to a full charge condition. In addition to normal charging, the cells of the batteries should be equalized twice each month. This is done by charging the batteries an additional seven (7) hours after a normal charge cycle. The current indications of the ammeter must be low during cell equalization.

<u>Specific Gravity Reading</u>	<u>Condition of Battery</u>	<u>Hours Needed to Charge</u>
1100	fully discharged	12
1125	10% charged	10
1150	20% charged	8
1175	30% charged	7
1200	60% charged	4
1225	75% charged	2
1250	95% charged	1/2
1260	fully charged	0

TROUBLE SHOOTING & REPAIR INSTRUCTIONS

LOW OR NO CHARGING CURRENT

1. Using a voltmeter, verify that the battery being charged has no open or dead cells. Check jumper cables between batteries for tight and clean connections, and also verify that the battery is not already fully charged.
2. Check the output fuses of the charger to make sure they are not loose or "blown."
3. Verify that the A-C receptacle has power by plugging in an electrical appliance. Using a voltmeter, check A-C input voltage at the receptacle. Taps are provided inside back panel of charger to adjust for input voltages from 105 to 125. Verify that charger is connected for correct voltage.
4. Turn the charger ON and verify that the transformer hums. If no hum is heard, proceed with step 4.1. If a hum exists, go to step 5.
 - 4.1 Remove A-C plug from power source.
 - 4.2 Remove the cabinet cover (1) to gain access to the interior of the charger.
 - 4.3 With the timer switch OFF, check for continuity between the two primary input leads of the transformer. If no continuity is found, replace the transformer. If continuity is found, proceed as follows:
 - 4.4 With the timer switch ON, check for continuity across the switch. On "T" Series chargers there are two switches - check both. If switch is open with the timer ON, replace the timer assembly.
 - 4.5 If all of the above checks indicate continuity, but the transformer does not hum, check for loose or broken leads between the A-C plug, the timer assembly and the terminal board.

5. If the transformer hums, proceed as follows:
 - 5.1 Remove AC plug from power source.
 - 5.2 Check the two output fuses to insure they are good. Inspect the fuse holders for damage or a blackened appearance. (If the fuse holder is blackened, it indicates oxidation and should be replaced).
 - 5.3 Remove both output fuses. Check for continuity from the output side of both fuse holders to the positive side of the DC plug, connecting continuity indicator first in one direction and then the other of each. The indicator should show an open in one direction and continuity in the other. Continuity in both directions or no continuity in either direction indicates a bad diode. Replace the diode connected to that fuse holder.
 - 5.4 Check for continuity between the input side of one fuse holder and the input side of the other. If no continuity exists, the transformer secondary is open. Replace the transformer.
 - 5.5 Check for continuity across the two terminals of the meter. If no continuity exists, the meter is open. Replace the meter.
 - 5.6 If all indications to this point are normal, test the entire DC output circuitry for continuity by progressing from the DC output prong to the negative DC output prong in incremental test sections, checking each connection for open circuits and poor connections.

AC-LINE FUSES BLOW

6. With unit unplugged and timer turned on, check for continuity between each input prong of the AC plug and the ground prong. If continuity is found between either input prong and ground, a short circuit exists and must be found and removed. If all indications are open and the AC fuses are of sufficient rating for the charger, a shorted transformer is the most probable cause of this problem. Replace transformer.

OUTPUT FUSES BLOW

7. Verify that the circuit under charge is not shorted by disconnecting the charger and operating it disconnected.
8. If output fuses continue to blow, test the charger as per steps 5.1 through 5.6.

TIMER DOES NOT TURN UNIT OFF

9. Unplug charger. Check continuity of timer motor. If open, replace timer. If not, check timer switch contacts. If timer assembly is not defective, adjust Voltage Sensing Unit as per instructions in next paragraph ("T Series only).

VOLTAGE SENSING UNIT ADJUSTMENT PROCEDURE ("T SERIES)

NOTE: A DC voltmeter with the appropriate voltage range is required to perform the following adjustment.

10. The unit is assembled on a small panel inside the charger cabinet (see item 23, exploded diagram). Each unit has been carefully adjusted at the factory to actuate at the proper voltage; however, if it is desired to change the actuation voltage point, the following procedure should be followed:
 - 10.1 Connect the charger to a battery which is known to be fully charged.
 - 10.2 Observing polarity, connect the voltmeter across the battery terms.
 - 10.3 Turn the charger on. The voltage across the battery, as indicated by the voltmeter, will rise slowly. When the proper voltage (dependent upon the number of cells) is reached, the small relay in the voltage sensing unit will actuate. This can be detected since it generates an audible click.

NOTE: The Voltage Sensing Unit should be set for 2.37 volts per cell. On a 24 volt system, the Voltage Sensing Unit should actuate at 28.4 volts. On a 36 volt system, the unit should actuate at 42.7 volts.

- 10.4 Turn the adjustment shaft on the Voltage Sensing Unit clockwise to raise the actuating voltage and counter-clockwise to lower voltage.
- 10.5 Turn the ON and OFF, as necessary, to raise and lower battery voltage, while repeating steps 10.3 and 10.4 until the desired actuation point is achieved.

IMPORTANT FACTS ON BATTERIES AND CHARGERS

To determine whether or not a battery is properly charged, a measuring device known as a hydrometer is used. A hydrometer measures the specific gravity of a liquid and is graduated to measure the specific gravity of battery electrolyte. The electrolyte in your battery becomes heavier as it is charged, therefore, a higher specific gravity reading indicates a higher charge condition of your battery. The specific gravity reading will range from 1100 for a completely discharged battery to 1260 for a fully charged battery. No amount of overcharging will raise the specific gravity above 1260 on the electric vehicle type battery. Overcharging and undercharging can cause premature failure of a battery. Overcharging destroys the positive plates. Consistent undercharging causes a buckling of the plates.

Do not discard a good battery as being defective because its specific gravity does not show an increase immediately upon applying a charge. Many good batteries require a charging period as long as three hours before they show any increase in specific gravity. Do not charge a battery if the electrolyte temperature could rise above 120 degrees F. This could damage both battery and charger. As a rule of thumb, the electrolyte temperature during normal charging will rise about 25 degrees above the temperature in the charging area.

Failure to keep the battery electrolyte up to the proper level will result in a crumbling (abnormal sulfation) of the plates and cause failure of the batt. Distilled water must be added to the battery regularly to make up for the loss due to evaporation. Prior to charging, the electrolyte level should cover the battery plates. Fill the battery to the proper level only after it has been fully charged.

WARNING - HAZARD OF EXPLOSIVE GAS MIXTURE

Batteries being charged or discharged will give off hydrogen gas. If this gas is concentrated, it can cause an explosion. Concentrations of gas may remain for several hours if ventilation is not provided. Do not have any fire in the vicinity and do not tamper with circuits that might cause sparking while charging or discharging batteries.

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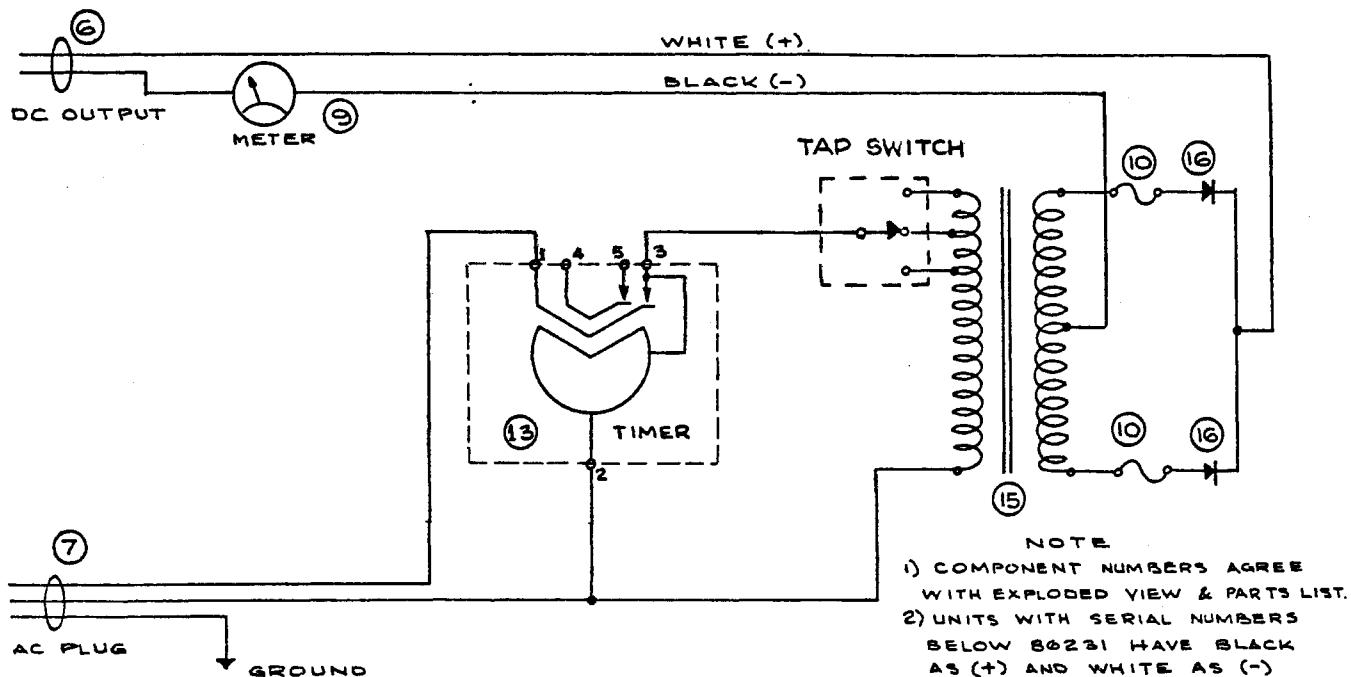
INSPECTION OF BATTERIES AND ASSOCIATED CIRCUITS

An inspection of batteries and associated circuits is required to assure that the batteries are being properly charged. For this inspection we recommend the use of a hydrometer and a continuity tester.

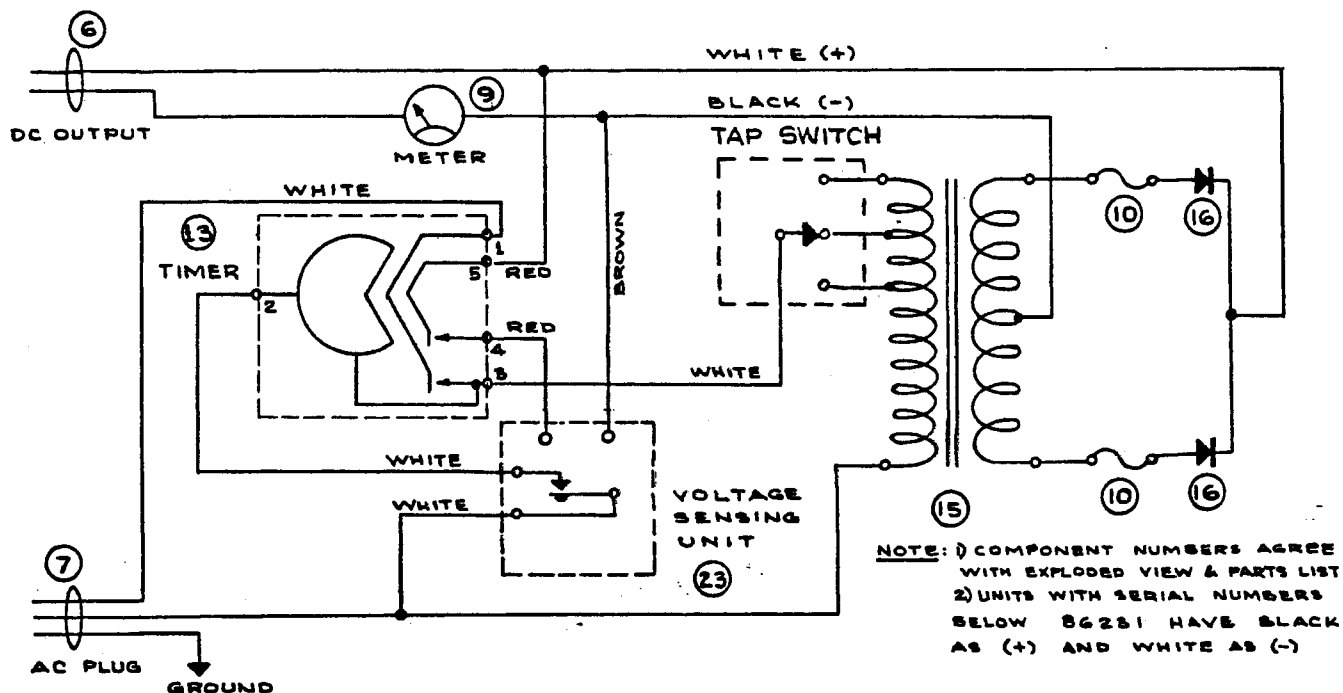
1. Verify that all connections within the unit to be charged are clean and right.
2. Check each battery for loose terminal posts.
3. Test for continuity between all battery terminals and the charging receptacle.
4. Verify that the top of each battery is free of moisture, grease and acid film, which may cause terminal corrosion and current leakage.
5. After the battery has been recharged, test each individual cell in each battery with the hydrometer to verify that all specific gravity readings are within 10 points of each other.
6. Using the hydrometer, pull out acid from a cell and then vigorously expel the acid back into the cell to cause a violent stirring action. Immediately draw out another sample of acid and visually inspect it to see if it contains a brownish sediment (indicates positive plates are deteriorated).
7. When testing battery condition with hydrometer, always return electrolyte solution to the same cell from which it was removed. DO NOT MIX electrolyte from one cell to another.

CIRCUIT DIAGRAMS

SERIES "A" & "T" CHARGERS



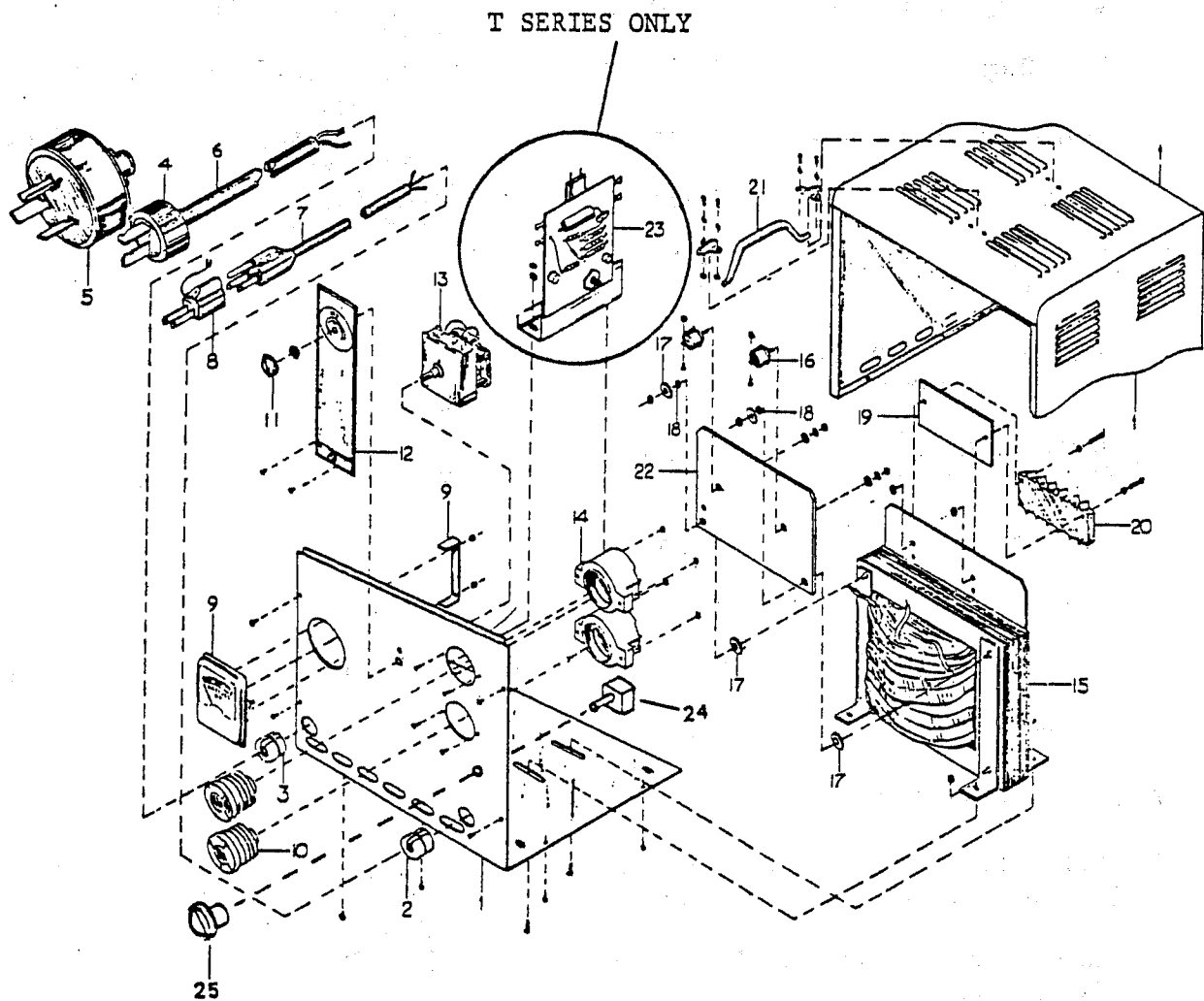
CHRISTIE SERIES "A" BATTERY CHARGERS



CHRISTIE SERIES "T" BATTERY CHARGERS

PART IDENTIFICATION
SERIES "A" & "T" CHARGERS

EXPLODED DIAGRAM



Portable Cabinet Shown.

I.D. Numbers of Internal Components are Identical for Portable and Built In Charger.

PARTS LIST

Item	Taylor-Dunn Part No.	Item	Taylor-Dunn Part No.
1 Cabinet		15 Transformer, 24V/20A ("T" Series)	79-630-00
2 Bushing (A-C)	79-530-00	Transformer, 24V/20A ("A" Series)	79-606-00
3 Bushing (D-C)	79-531-00	Transformer, 24V/30A ("T" Series)	79-607-00
4 D-C Plug (2 prongs)	76-001-00	Transformer, 36V/20A ("T" Series)	79-613-00
5 D-C Plug (3 prongs)	76-002-00	Transformer, 36V/20A ("A" Series)	79-612-00
6 Output Cord (no plug)	79-560-00	Transformer, 36V/30A ("T" Series)	79-614-00
Output Cord w/molded plug	79-566-00	Transformer, 48V/20A ("T" Series)	79-620-00
7 A-C Cord and Plug (portable model)	79-570-00		
Molded A-C Assembly (built-in model)	79-575-00	16 Diode, 24/36V	79-720-00
Recessed Male Plug (built-in model)	76-251-00	Diode, 48V	79-724-00
8 Adapter	79-580-00	17 Washer Assembly, 3/4"	97-170-00
9 Ammeter (0-30 amp)	79-851-00	18 Washer Assembly, 3/8"	97-171-00
10 Fuse (30 amp)	79-819-00	19 Mounting Plate	94-325-00
11 Control Knob	79-803-00	20 Terminal Board	79-860-00
12 Instruction Plate	94-321-00	21 Handle Assembly	79-509-00
13 Timer Assembly, 12 hr. ("T" Series)	79-800-00	22 Heat Sink	79-742-00
Timer Assembly, 24 hr. ("A" Series)	79-801-00	23 Voltage Sensing Unit, 24V ("T" Series)	79-810-00
14 Fuse Holder	79-830-00	Voltage Sensing Unit, 36V ("T" Series)	79-811-00
		Voltage Sensing Unit, 48V ("T" Series)	79-812-00

When ordering parts, please specify both serial number and model of charger.

MODELS 2445 AND 3645
OPERATING AND SERVICING DATA SHEET

INSPECTION AND INSTALLATION

Inspect the exterior of the shipping container for signs of rough handling during shipment. Remove charger from the shipping container and inspect it for damage (cracked knob, etc.). CLAIMS FOR SHIPPING DAMAGE SHOULD IMMEDIATELY BE FILED WITH THE CARRIER.

The charger may be installed on any suitable working surface (bench or floor). Insure that there is clearance above and around the charger so as to allow free flow of air for cooling.

Remove the panel on back of cabinet to gain access to the terminal panel.

WARNING: Voltages hazardous to life exist at terminal panel when charger is turned on. Turn OFF the charger before making any of the following adjustments.

The adjustment for a charging voltage of 2.50 volts per cell should be made at this time. This is done by monitoring the DC output voltage with a voltmeter (0 to 50 volts) and setting the AC tap lead to the transformer terminal which gives the desired DC output voltage as indicated below. Move the tap connection to the right to increase the DC output voltage. Move the tap connection to the left to decrease the DC output voltage.

DC OUTPUT VOLTAGE SETTING CHART

<u>MODEL</u>	<u>DC OUTPUT VOLTS</u>
2445	30.0
3645	45.0

If a DC output plug is not furnished with the charger, attach a suitable polarized plug of adequate current capacity to the DC output leads (See NOTE in Step 2 below).

OPERATING INSTRUCTIONS

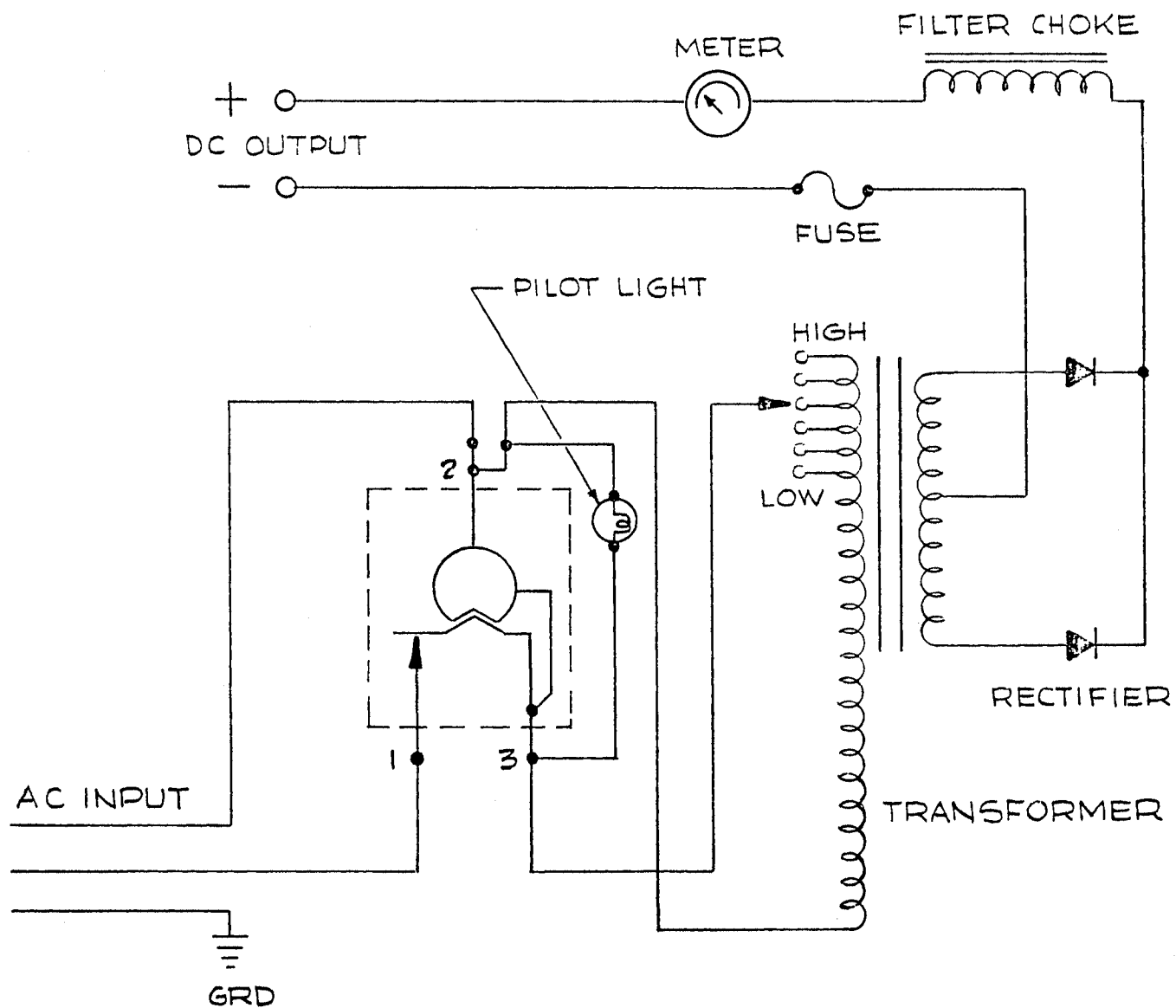
1. Connect the AC input to the proper power source.
2. Connect the DC output plug to the batteries to be charged.
NOTE: Check the output plug for the correct polarity.
3. Turn on the charger by setting the timer control knob to the desired charging time.
4. Verify that the pilot light illuminates and that the output ammeter indicates a charging current.
5. The timer control will turn off the charger at the completion of the charge cycle.
6. Disconnect the charger DC plug from the batteries after the charger is turned off.
7. Using a hydrometer, verify that the batteries are properly charged.

PARTS LIST

79-531-00 Bushing, AC	94-326-00 Timer Dial	79-714-00 Choke, 36V
79-530-00 Bushing, DC	72-095-00 Pilot Light	79-641-00 Transformer, 24V
79-567-00 Cord, DC	79-720-00 Diode	79-642-00 Transformer, 36V
79-573-00 Cord, AC	79-852-00 Ammeter	79-862-00 Terminal Panel
79-801-00 Timer	97-170-00 Insulator Washer (3/4")	79-826-00 Fuse (Link)
79-803-00 Control Knob	97-171-00 Insulator Washer (3/8")	71-304-00 Relay, 115V
	79-713-00 Choke, 24V	(3645 Only)

When ordering replacement parts, give model and serial number of charger. Specify wire size and number of wires required when ordering cords.

CIRCUIT DIAGRAM
MODELS 2445 & 3645 CHARGERS



MAINTENANCE PROCEDURES

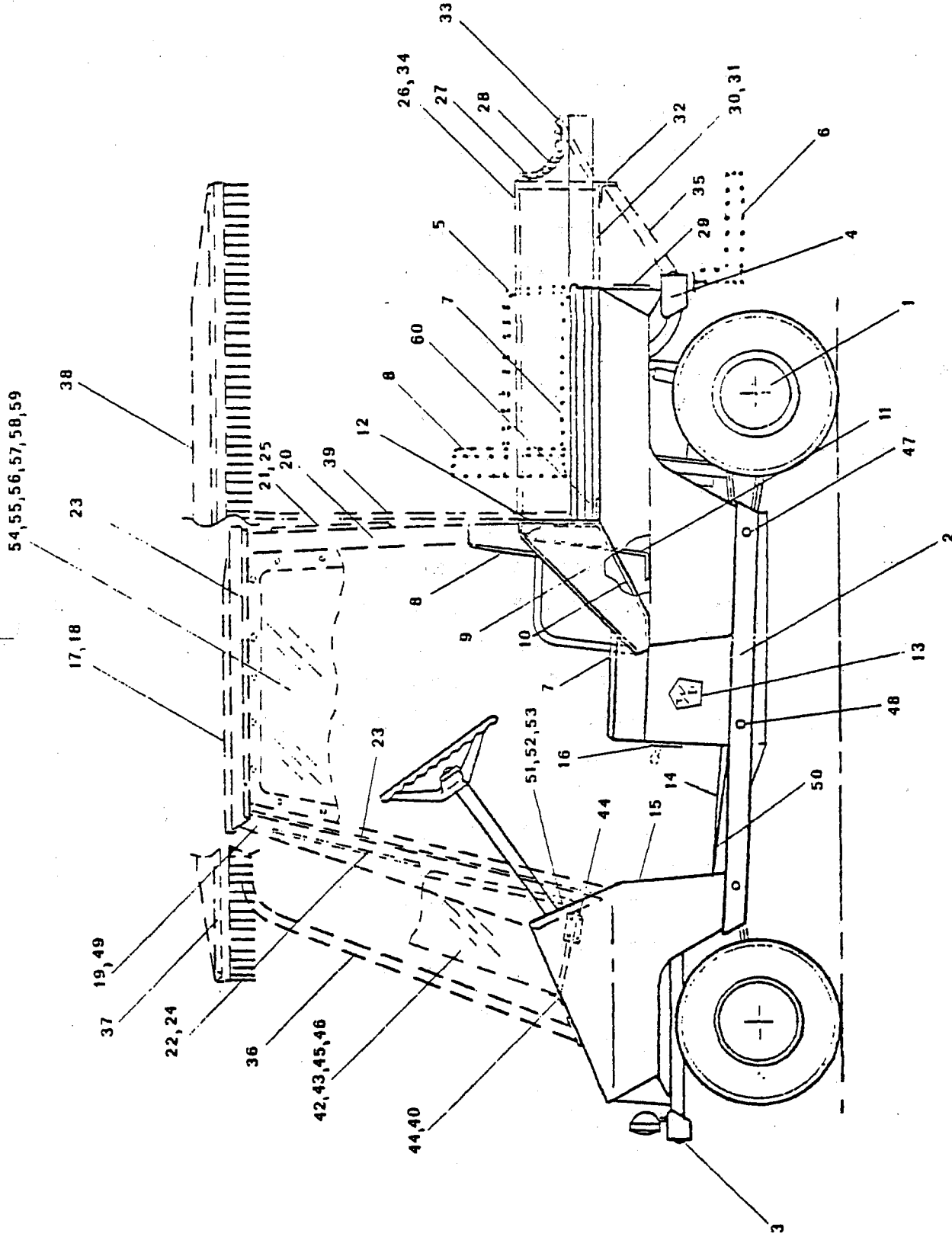
BODY AND TRIM

Your vehicle has been finished with several coats of durable baked on enamel.

It will require the same care as you would give your automobile. The chrome trim is also resistant to corrosion and will require an occasional cleaning.

It is recommended that your vehicle be washed with a mild soap and warm water. For long life a good automotive type of wax will extend the life of the finish and maintain lasting beauty.

For identification of Body and Trim parts available for repair and replacement, refer to the following pages in this section.



LENGTH | QUAN. | REVISED DATE | REVISION

BODY & TRIM PARTS
MODEL R 360 SERIES

FIGURE 11

TAYLOR DUNN MFG. CO.
2114 West Ball Rd.
CINCINNATI, OH 45223

DESCRIPTION

FRAC.† DEC.†

FILE

BODY & TRIM PARTS

FIG. I.D. NO.	T-D PART NO.	DESCRIPTION	QUANTITY
11-1	92-001-00	Wheel Cover - Chrome	4
11-2A	91-920-98	Left Side Bumper - Zinc Plated	1
11-2B	91-920-99	Right Side Bumper- Zinc Plated	1
11-2C	91-916-98	Left Side Bumper - Chrome Plated	1
11-2D	91-916-99	Right Side Bumper - Chrome Plated	1
11-3A	91-920-51	Front Bumper - Zinc Plated	1
11-3B	91-916-51	Front Bumper - Chrome Plated	1
11-4A	91-920-52	Rear Bumper - Zinc Plated	1
11-4B	91-916-52	Rear Bumper - Chrome Plated	1
11-5	90-105-00	Seat Back & Armrest Weldment	1
11-6	90-106-00	Bolt On Step Weldment	1
11-7	90-156-00	Seat Cushion - Black	2
11-8	90-157-00	Backrest Cushion - Black	2
11-9	91-276-98	Seat Side Panel (Left) Painted Gray	1
11-9	91-276-99	Seat Side Panel (Right) Painted Gray	1
11-10	91-277-98	Seat Backrest Supp. & Trim (Left) Painted Gray	1
11-10	91-277-99	Seat Backrest Supp. & Trim (Right) Painted Gray	1
11-11	91-278-00	Seat Backrest Supp. Panel, Painted Gray	1
11-12	91-279-00	Bulkhead, Painted Gray	1
11-13	94-201-00	Taylor-Dunn Emblem	2
11-14	98-017-50	Floor Mat - Hand Parking Brake	1
11-15	98-017-60	Floor Mat - Foot Parking Brake	1
11-15	94-034-51	Plastic Trim Strip - 78" Long - White	1
11-16	94-307-00	Forward/Reverse Switch Plate,	1
11-17	91-282-62	Kit- Complete Cab Components for Field Install., including Hardware & Instructions	1
11-18	91-282-52	Cab Roof Weldment, Painted Gray	1
11-19	91-282-50	Cab Front Panel Weldment, Painted Gray	1
11-20	91-282-51	Cab Rear Panel, Painted Gray	1
11-21	90-850-00	Rear Window, Safety Glass	1
11-22	90-800-00	Windshield, Safety Glass	1
11-23	94-011-50	Drip Rail, Top	1
11-23	94-011-51	Drip Rail, Side	1
11-24	98-311-00	Rubber Channel - 107" Long, Front	1
11-25	98-313-00	Rubber Channel - 85" Long, Rear	1

FIG. I.D. NO.	T-D PART NO.	DESCRIPTION	QUANTITY
11-26	91-281-62	Kit - Complete Cargo Box Components for Field Installation, including Hardware & Instructions	1
11-27	30-551-00	S-Hook (Cargo Box)	2
11-28	30-552-00	Coil Chain (1/4") Galvanized	2
11-29	71-650-00	3" Red Reflector	2
11-30	90-408-00	Deck Board, 1/2" Plywood, Painted Black 34 x 42-5/8	1
11-31	90-402-00	Deck Board, 1/2" Plywood, Painted Black 24 x 42-5/8	1
11-32	91-281-50	Bumper & Rear Support Angle	1
11-33	91-281-54	Tail Gate	1
11-34	91-281-58	Side Panel (Left)	1
11-34	91-281-59	Side Panel (Right)	1
11-35	91-281-98	Bumper Support (Left)	1
11-35	91-281-99	Bumper Support (Right)	1
11-36	91-034-10	Front Top Support	1
11-37B	91-043-00	Surrey Top Frame - 4 Pass. 62" Long	1
11-38B	91-043-61	Kit, 4 Psgr. Surry Top - Includes Frames & Hdware	1
11-38B	91-103-00	Surrey Top with Fringe - 4 Pass.	1
11-39	91-043-50	Rear Top Support, Gray - Right or Left	2
11-40	98-617-00	Gasket - Front Support to Cowl	1
11-42	90-825-00	Rigid Plastic Windshield	1
11-43	98-616-00	Rubber Windshield Bumper	1
11-44	98-826-00	Rigid Windshield, Mounting Bracket Set	1
11-45	98-314-00	Rubber Lip Seal Channel for Rigid Windshield	2
11-46	90-825-61	Kit - Windshield including Hardware	1
11-47	16-205-00	Spacer - Side Bumper - Front & Rear Plated	4
11-48	16-206-00	Spacer - Side Bumper - Center Plated	2
11-49	98-451-00	Tape, Weather Strip)Rubber 3/4 x 55")	1
11-50	94-027-00	Aluminum Trim Strip, Floor Mat	2
11-51	94-371-00	Serial No. Plate	1
11-52	94-373-00	Vehicle Data Plate	1
11-53	94-309-00	Decal, Brake Warning	1
11-54	90-909-00	Side Curtains only, Right or Left	1
11-54	90-909-62	Kit, Side Curtains, Includes Frames, Curtains, Handles, Hinges, Hardware & Instructions	1

FIG. I.D. NO.	T-D PART NO.	DESCRIPTION	QUANTITY
11-55	97-315-50	Handle, Door Latch - Inner	1
11-56	97-315-51	Latch, Door Handle	1
11-57	97-315-53	Handle, Door Latch Outer	1
11-58	91-808-00	Hinge, Side Curtain Frame	4
11-59	17-104-00	Collar, 3/8 Shaft	2
11-60	94-025-00	Aluminum Trim - Rear Deck	1
<u>BODY & TRIM PARTS - NOT ILLUSTRATED</u>			
	50-226-00	Battery Rod - 15-1/4"	2
	50-235-00	Battery Rod - 21-3/4"	4
	94-304-00	Switch, Nameplate	1
	50-225-00	Wiring Harness Support Rod	1
	98-613-00	Grommet, Rubber (2" I.D.) Steering Column	1
	94-026-00	Aluminum Trim Strip Cowl Shelf	1
	92-201-00	Mirror, 4 X 8	1
	92-204-00	Mirror Bracket Base	1
	92-205-00	Mirror Bracket Arm	1
	86-002-62	Shock Absorber Kit, Front only, for 2362R & GT-360	1
	74-005-00	Charge Indicator, 12 Volt	1

BODY & TRIM PARTS - FASTENERS

USED WITH I.D. NO.	T-D PART NO.	DESCRIPTION	QUANTITY
11-2,4,6	88-102-17	3/8 N.C. x 2-1/4 Carriage Bolt	3,3,3
11-3,4	88-102-11	3/8 N.C. x 1 Carriage Bolt	3,3
11-2,3,4,	88-109-87	3/8 N.C. Fastite Nut	3,6,3
11-13	88-557-91	1/8 Push-On Nut	6
11-51	88-807-01	#4 x 3/16 Drive Screw	2
11-50,60	88-737-08	3/16 Dia. x 5/8 Aluminum Pop Rivet	7,7
11	88-088-62	5/16 Lock Washer	
11-16,23	88-727-06	5/32 Dia. x 1/2 Aluminum Pop Rivet	4,26
11-7	88-837-11	#14 x 1 Pan Head Sheet Metal Screw	32
11-36	88-100-13	3/8 N.C. x 1-1/4 Hex Head Screw	2
11-36	88-108-62	3/8 Lock Washer	2
11-37A,37B	88-080-14	5/16 N.C. x 1-1/2 Hex Head Bolt	6,4
11-37A,37B	88-089-81	5/16 N.C. Lock Nut	6,4
11-42	88-069-87	1/4 N.C. Fastite Nut	1
11-42	88-069-83	1/4 N.C. Acorn Nut	1
11-42	88-065-06	1/4 N.C. x 1/2 Truss Head Screw	1
11-42	88-068-61	1/4 S.A.E. Washer	1
11-42	88-068-62	1/4 Lock Washer	1
11-20,26	88-065-09	1/4 x 3/4 N.C. Truss Head Machine Screw	8,4
11-26	88-065-11	1/4 x 1 N.C. Truss Head Machine Screw	6
11-26	88-065-13	1/4 x 1-1/4 N.C. Truss Head Machine Screw	2
11-26	88-068-60	1/4 S.A.E. Washer	16
11-17	88-065-08	1/4 x 5/8 N.C. Truss Head Machine Screw	16

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

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2114 W. BALL ROAD
ANAHEIM, CA 92804

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