

OPERATION

AND

MAINTENANCE

MANUAL

WITH

PARTS LIST

| | |
|--------------------|----------------------|
| Model: | R |
| Serial No.: | 17900 - 26000 |
| Year: | 1970 - 1973 |
| Manual: | MR-339-96 |

- IMPORTANT -

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



TAYLOR-DUNN[®]
Commercial and Industrial Vehicles Since 1949

2114 West Ball Road, Anaheim, CA 92804 (714) 956-4040 FAX (714) 956-0504

Mailing Address: P.O. Box 4240, Anaheim, California 92803

MAINTENANCE INSTRUCTIONS
And PARTS LIST
For MODEL R
Serial No. 17900 to 26000
Year Range 1970 to 1973
MANUAL NO: MR-339-96

\$25.00

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.

TABLE OF CONTENTS

| CONTENTS | SECTION | ILLUSTRATION |
|--|---------|---------------|
| INSPECTION CHECK LIST AND INTRODUCTION | A | |
| OPERATING INSTRUCTIONS | B | |
| WARRANTY | C | |
| MAINTENANCE GUIDE CHECKLIST | D | |
| LUBRICATION DIAGRAM | E | Figure 1 |
| TROUBLE SHOOTING CHECKLIST | F | |
| WIRING DIAGRAM | G | Figure 2 |
| PARTS ORDERING PROCEDURE | H | |
| RECOMMENDED SPARE PARTS LIST | I | |
| MAINTENANCE PROCEDURES, SERVICE AND ADJUSTMENTS, PARTS ILLUSTRATIONS AND LISTINGS | | |
| FRONT AXLE STEERING AND TIRES | J1 | Figure 3 or 4 |
| REAR AXLE, MOTOR AND BRAKES | J2 | Figure 5 |
| HYDRAULIC BRAKE SYSTEM | J3 | Figure 6 |
| MECHANICAL CONTROL LINKAGE | J4 | Figure 7 |
| FORWARD REVERSE SWITCH | J5 | Figure 8 |
| SPEED CONTROL AND MAIN POWER SWITCHING | J6 | Figure 9 |
| GENERAL ELECTRICAL SYSTEM | J7 | Figure 10 |
| BATTERIES AND CHARGER | J8 | |
| BODY AND TRIM PARTS | J9 | Figure 11 |

INSPECTION 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, an operational test should be made. Refer to operating instructions Section B.

INSPECTION 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 15 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 15 m.p.h.

MODEL NO.

The following Model numbers are covered by this manual - 2332R, 2339R, 2342R, and 2349R - starting with Serial No. 17900.

SERIAL NO.

The serial number of your unit is stamped into frame angle that supports rear of left seat 6" from left side of truck. The model number and serial number are on a nameplate riveted to kick panel behind drivers left leg. In ordering parts or referring to your unit, please use these numbers. Replacement parts can be purchased directly from factory in Anaheim, California, or 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 - TILLER TYPE

The steering tiller is designed for two hand control. It is directly connected to the front wheel fork spindle. Move the tiller to the right when making a left turn and left when making a right turn.

STEERING - WHEEL TYPE

The steering wheel and steering system is similar to automotive types. 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 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 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 to your vehicle.

FORWARD-REVERSE SWITCH

The forward-reverse switch is located on the console between the seats. It is operated by the red handle. To place in Forward position move the red handle to the left. To place in Reverse position move the red handle to the right.

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 hub of the steering wheel. Depressing the button sounds horn. Releasing button will immediately silence horn.

LIGHT SWITCH (Optional)

The switch for operating headlights and taillights is located on the console between the seats. 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 or accessory your vehicle may have.

OPERATING YOUR VEHICLE

To put your vehicle into operation, unlock forward-reverse switch by turning keyed lock counterclockwise. Select direction you wish to travel by moving red handle of forward-reverse switch into position. Release parking brake by pushing hand lever all the way forward. 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 as desired. 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 faster 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 your foot brake or hand brake to hold the vehicle on a hill safely.

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

Drive Safely and enjoy your Taylor-Dunn Vehicle.

TAYLOR-DUNN LIMITED 90 DAY WARRANTY

TAYLOR-DUNN MANUFACTURING COMPANY (TDMC), warrants each new Taylor-Dunn vehicle for ninety (90) days according to the following terms:

This warranty provides coverage for the original retail purchaser only and becomes effective on the date of the original retail purchase.

Any part of the Taylor-Dunn vehicle manufactured or supplied by TDMC and found in the reasonable judgment of TDMC to be defective in material or workmanship will be repaired and/or replaced at the business location of an authorized Taylor-Dunn distributor only without charge for parts and labor. The Taylor-Dunn vehicle (including any defective part) must be delivered to an authorized Taylor-Dunn distributor within the warranty period.

All costs of a service call regarding warranty-related repairs and/or replacements on the Taylor-Dunn vehicle at the owner's location, the labor performed by the distributor at the owner's location, all costs of delivering the Taylor-Dunn vehicle to the distributor for warranty work and the costs of returning the Taylor-Dunn vehicle back to the owner after repair or replacement will be paid for by the owner. Proof of purchase will be required by the authorized Taylor-Dunn distributor to substantiate any warranty claim. All warranty work must be performed by an authorized Taylor-Dunn distributor.

TDMC does not provide a warranty related to SCR's, tires, batteries, chargers, or other parts not of their manufacture as such parts are usually warranted separately by their respective manufacturers.

This warranty does not include service items subject to normal wear such as brake linings, seals, belts, light bulbs and fuses.

This warranty does not provide coverage for any Taylor-Dunn vehicle that has been subject to misuse, neglect, negligence, accident, or operated in any way contrary to the operating or maintenance instructions as specified in the TDMC operator's manual. The warranty does not apply to any Taylor-Dunn vehicle that has been altered or modified so as to adversely affect the vehicle's operation, performance or durability or that has been altered or modified so as to change its intended use. In addition, the warranty does not extend to repairs made necessary by normal wear, or by the use of parts or accessories which in the reasonable judgment of TDMC are either incompatible with the Taylor-Dunn vehicle or adversely affect its operation, performance or durability.

Repairs or replacements qualifying under this warranty will be performed by an authorized Taylor-Dunn distributor following delivery of the vehicle to the distributor's place of business. TDMC's responsibility in respect to claims is limited to making the required repairs or replacements. No claim of breach of warranty shall be cause for cancellation of the contract of sale of any Taylor-Dunn vehicle.

TDMC assumes no liability or responsibility for loss of use of the Taylor-Dunn vehicle, loss of time, inconvenience, or other damage, consequential or otherwise, including, but not limited to, all costs for delivering the Taylor-Dunn vehicle to the distributor and all costs of returning the vehicle back to the owner, mechanic's travel time, telephone or telegram charges, trailering or towing charges, rental of a like vehicle during the time warranty repairs are being performed, travel, lodging, loss or damage to personal property, or loss of revenue.

TDMC reserves the right to change or improve the design of any vehicle without assuming any obligation to modify any TDMC vehicle previously manufactured.

All implied warranties are limited in duration to the ninety (90) day warranty period. Accordingly, any such implied warranties

including merchantability, fitness for a particular purpose, or otherwise, are disclaimed in their entirety after the expiration of the ninety (90) day warranty period. TDMC's obligation under this warranty is absolutely and exclusively limited to the repair or replacement of defective parts, and TDMC does not assume, or does not authorize anyone to assume for them, any other obligation.

This warranty applies to all TDMC vehicles sold in the United States.

WARRANTY SERVICE

To make a claim under warranty, contact an authorized Taylor-Dunn distributor immediately upon realizing a problem exists. We recommend having the warranty work performed by the distributor who originally sold you the vehicle; however, warranty work can be obtained from any authorized Taylor-Dunn distributor. Remember, your Taylor-Dunn vehicle must be delivered to an authorized distributor within the warranty period, and all warranty work must be performed only by an authorized Taylor-Dunn distributor. Your proof of purchase will be required by the dealer to verify any warranty claim.

Examples of Items Not Covered by Warranty

Provisions of the warranty will not apply to:

Normal service requirements occurring during the warranty period, such as adjustment and cleaning or wear of a drive belt, drive chain, brake or rheostat.

Normal service work over and above the repair and replacement of defective parts. Vehicles subject to misuse, neglect, negligence, or accident.

Vehicles that have been altered or modified so as to adversely affect their operation, performance or durability or to change their intended use.

Repairs made necessary by the use of parts or accessories which are either incompatible with the vehicle or adversely affect its operation, performance or durability.

Vehicles not operated or maintained in accordance with the instructions in the Taylor-Dunn Operator's Manual.

Periodic checking, lubricating the vehicle or service check-up.

All costs of delivering the vehicle to the distributor and all costs of returning the vehicle back to the owner, mechanic's travel time, trailering or towing charges, or rental of a like vehicle during the time warranty repairs are being performed.

This warranty applies only to the original retail purchaser. Second-owner or subsequently owned vehicles are not covered under the warranty.

Owner's Obligation and Responsibility

Normal maintenance service and replacement of service items are the responsibility of the owner and as such are not considered defects in material or workmanship with the terms of this warranty. Individual operating habits and usage may contribute extensively to the need for maintenance service.

Consult with your authorized Taylor-Dunn distributor for advice on proper maintenance and care of your vehicle. Proper maintenance and care will be very helpful in keeping your overall operating costs at a minimum.

To assure warranty coverage, it is the owner's responsibility to maintain all components in proper adjustment and to service the vehicle as specified in the Taylor-Dunn Vehicle Operator's Manual. It is the owner's responsibility to provide proper lubrication for all components and provide correct recommended battery maintenance, to maintain the battery liquid level and charge as specified, as well as maintain the correct pressure in the tires of the 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.

| <u>MAINTENANCE SERVICE</u> | <u>REFER SECTION</u> | <u>EVERY WEEK</u> | <u>EVERY MONTH</u> | <u>EVERY 3 MONTHS</u> | <u>EVERY YEAR</u> |
|---|--------------------------|-----------------------|------------------------|---------------------------|-----------------------|
| Check and fill batteries. If necessary fill with distilled water only. | J8 | X | X | X | X |
| Clean off all dirt and grease on and between power bars and J hook. Reapply chassis lube. | J6 | X | X | X | X |
| Check rheostat adjustment | J6 | X | X | X | X |
| Check tire pressure | J1 | X | X | X | X |
| Adjust belt tension | J2 | X | X | X | X |
| Adjust motor mount & chain (See chart, Section J2) | J2 | | X | X | X |
| Lubricate all zerk fittings | E | | X | X | X |
| Lubricate all moving parts without zerk fittings. Use 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. | | | X | X | X |
| Check and adjust hand & foot operation of brake system. | J2 | | X | X | X |
| Check drive axle oil level. (Refer to lubrication diagram). | J2 & E | | X | X | X |
| Check, clean, and adjust forward reverse switch. | J5 | | X | X | X |
| Check motor brushes. Blow out carbon dust. (Replace if necessary). | J2 | | | X | X |
| Check and adjust front wheel bearings and fork spindle bearings. | J1 | | | X | X |

MAINTENANCE GUIDE CHECKLIST

| Maintenance Service | Refer Section | Every Week | Every Month | Every 3 Months | Every Month |
|--|------------------|---------------|----------------|-------------------|----------------|
| Check Brake Lining for wear. | J2 | | | X | X |
| Drain differential and refill with SAE 30 oil (refer to lubrication diagram) | J2 & E | | | | X |
| Repack front wheel bearing and front fork spindle bearings (use wheel bearing grease). | J1 & E | | | | X |

| NO. OF GREASE POINTS | 4 whl. 3whl. |
|--|--------------|
| 1. Ball Joints | 6 0 or 2 |
| 2. Front Wheel Hub | 2 1 |
| 3. Front Wheel Spindle | 2 0 |
| 4. Rocker Arm. | 1 1 |
| 5. Rheostat Bar | 1 1 |
| 6. Brake Linkage | 1 1 |
| 7. Accelerator Linkage | 2 2 |
| 8. Steering Worm Fill To Grease Level Hole (Point 9) | 1 0 or 1 |
| 10. Fork Pivot | 0 2 |
| 11. Collar (Spindle) | 0 1 |

A. PRESSURE GUN GREASE

1. Ball Joints
2. Front Wheel Hub
3. Front Wheel Spindle
4. Rocker Arm.
5. Rheostat Bar
6. Brake Linkage
7. Accelerator Linkage
8. Steering Worm Fill To Grease Level Hole (Point 9)
10. Fork Pivot
11. Collar (Spindle)

B. LIGHT OIL

20. Clevis Pins - Mech. Linkage 6

C. "POWER TRACTION" USE SAE 30 OIL

Proper Oil Level Check at Plug 42

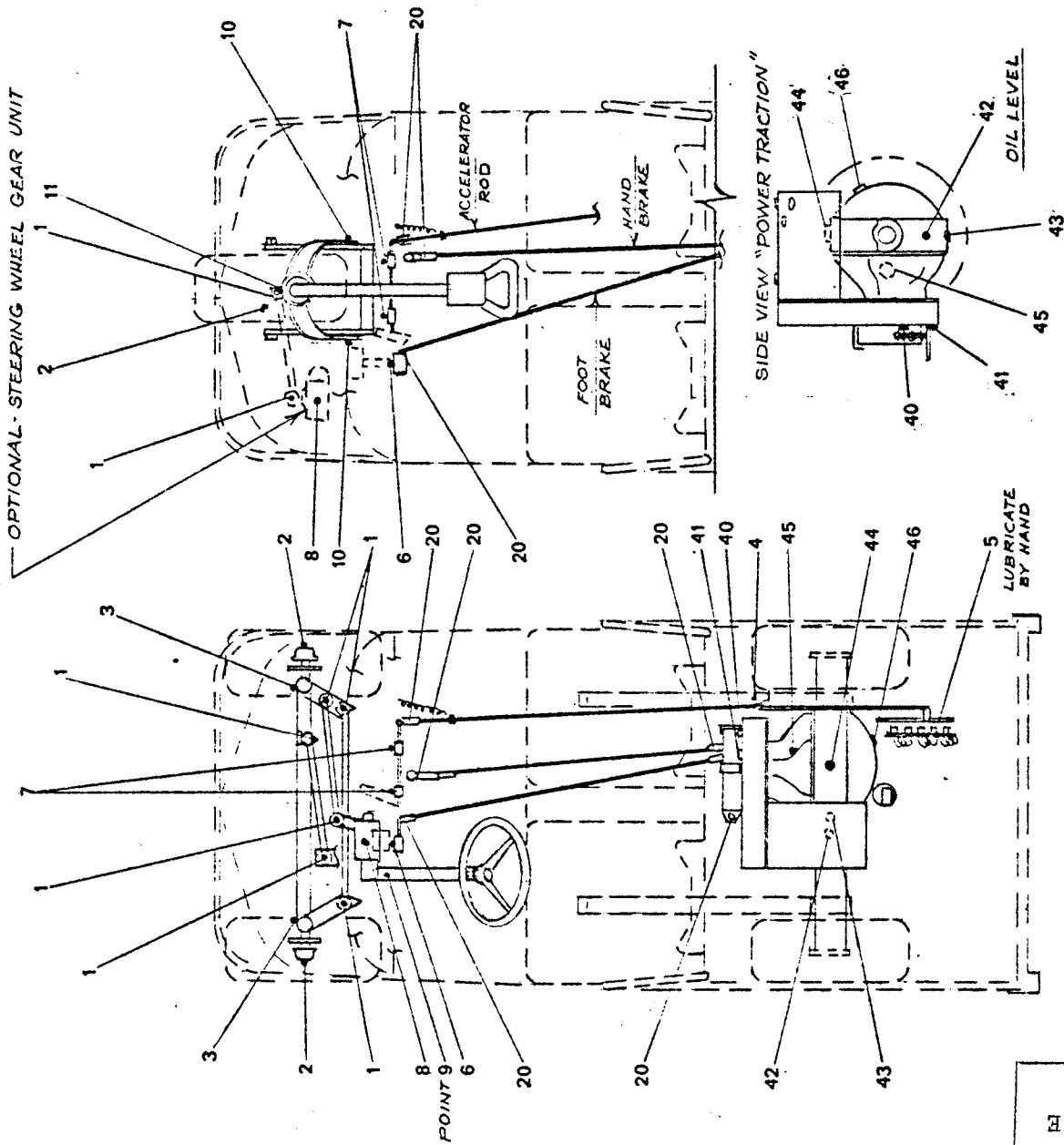
TO CHANGE OIL USE 2 QTS.

- a. Remove Drain Plugs 41 & 43
- b. Remove Level Plugs 40, 42 & Fill Plug 44.
- c. Drain Oil & Replace 41 & 43
- d. Add Oil by 44 to Level of 42
- e. Add Oil by 40 to $\frac{1}{2}$ " below 40
- f. Replace Plugs

NOTE: 45 & 46 Not Used This Configuration.

NOTE: Plug 40 added for ease in refilling gear case to proper level. Gear case oil level is maintained by recirculation from differential during operation.

SECTION E
PAGE 1



3 WHEEL MODEL
(REAR ASSEMBLY SAME AS 4 WHL.)

1 WHEEL MODEL

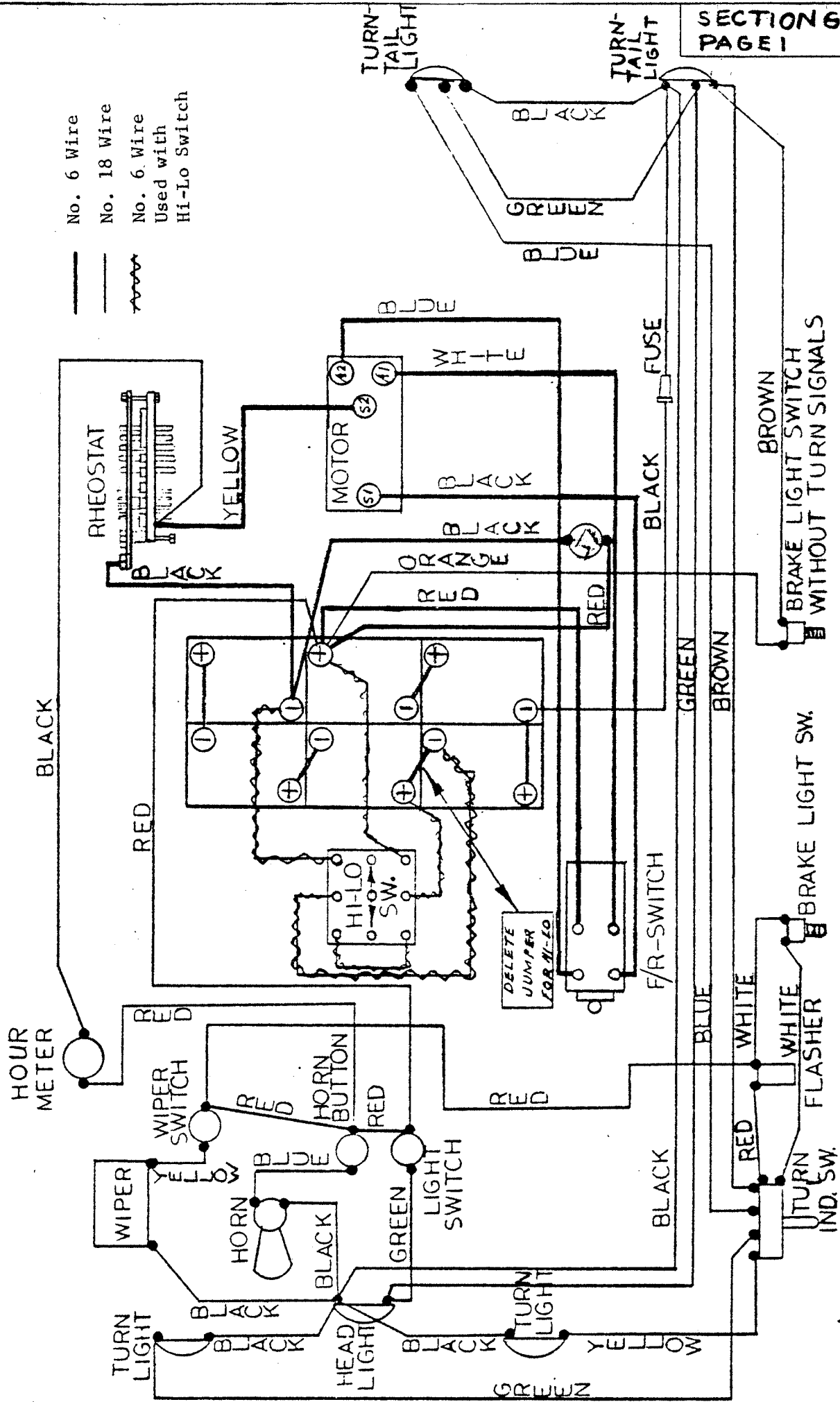
SECTION E
PAGE 1

| NO. | DESCRIPTION | LENGTH | QUAN. | REVISED DATE | REVISION |
|--------------|-------------|--|-------|--------------|----------|
| TOL. FRAC. ± | DEC. ± | "POWER TRACTION" LUBRICATION DIAGRAM MODEL 2339-2349- 2332-2342 | | | |
| SCALE | NONE | | | | |
| DRAWN BY | REA | | | | |
| DATE | 7-23-81 | | | | |

TROUBLE SHOOTING PROCEDURES

| <u>SYMPTOM</u> | <u>PROBABLE CAUSE</u> | <u>CORRECTIVE ACTION</u> |
|------------------------------|--|---|
| 1. <u>Steering:</u> | | |
| (a) Pull in one direction | 1. Check for bent fork | Replace or straighten |
| (b) Hard Steering | 1. Bad or frozen bearing in fork spindle collar 2. Low tire pressure | Replace Inflate to recommended pressure |
| (c) Sloppy or loose Steering | 1. Loose spindle bearing 2. Loose wheel bearing | Adjust Adjust |
| 2. <u>Brakes:</u> | | |
| (a) Soft Brakes | 1. Check for worn lining 2. Alignment of brake shoes 3. Oil on brake lining 4. Dirt on brake lining 5. Bind in linkage 6. Weak spring 7. Air in hydraulic brake lines 8. Bad seals in brake cylinders | Adjust or replace when 1/8 or less of lining left Realign Find oil source and correct. Wash brake band. Clean Loosen or Realign Replace Bleed brakes Replace |
| (b) No brakes | 1. Broken shoe 2. Broken connection in linkage 3. Broken axle 4. Break in hydraulic line 5. Seal failure in brake cylinder | Replace Replace Replace Repair Replace |
| 3. <u>Drive Axle:</u> | | |
| (a) No Power | 1. Discharged batteries 2. Check rehostat for contact 3. Check motor brushes for contact 4. Poor contact on forward-reverse switch 5. Check for loose wire 6. Check continuity through motor | Recharge or replace Adjust or replace bars Clean or Replace Replace Tighten or replace Repair or replace |
| (b) Erratic Operation | 1. Rheostat making poor contact 2. Motor brushes 3. Check motor commutator for burning or wear. 4. Check for loose wiring 5. Badly worn drive sprockets or belts | Adjust or replace Clean or replace Turn or replace Tighten Adjust or replace sprockets, chain and belts |

| <u>SYMPTOM</u> | <u>PROBABLE CAUSE</u> | <u>CORRECTIVE ACTION</u> |
|---|---|--|
| (c) Jerky Starting | <ol style="list-style-type: none"> 1. Resistor coil burned open 2. Resistor shorted together 3. Poorly adjusted rheostat 4. Badly worn J-Hook 5. Dirt between power bars causing shorts | <p>Replace Spread apart Re-adjust Replace J-Hook and bars Clean</p> |
| (d) Takes off in forward or reverse without accelerator depressed | <ol style="list-style-type: none"> 1. Dirt shorting out neutral bar 2. Check rheostat adjustment 3. Short in wiring circuit 4. Burned forward-reverse switch | <p>Clean readjust or replace bars Correct Replace</p> |
| (e) Lack of power or slow operation | <ol style="list-style-type: none"> 1. Dragging brake 2. Tight front wheel bearings 3. Rheostat not making contact on high speed bar 4. Loose connection in wiring 5. Partially burned out motor or thrown lead 6. Weak batteries 7. Bind or drag on differential | <p>Re-adjust Re-adjust Re-adjust or replace bars. Tighten Replace or re-solder Replace Repair</p> |
| (f) Thump or grinding noise in drive axle | <ol style="list-style-type: none"> 1. Motor bearing 2. Loose motor on base 3. Worn sprockets 4. Defective bearing in differential 5. Defective gears in differential 6. Slack Drive Chain | <p>Replace Tighten & Adjust Replace sprocket and chain Replace Replace Adjust (Refer Section J2)</p> |



| NO. | DESCRIPTION | LENGTH | QUAN. | REVISED DATE | REVISION |
|--------------|-------------|--------|-------|--------------|----------|
| TOL. FRAC. ± | DEC. ± | | | | |
| SCALE | | | | | |
| DRAWN BY | cg. | | | | |
| DATE | 6-15-72 | | | | |


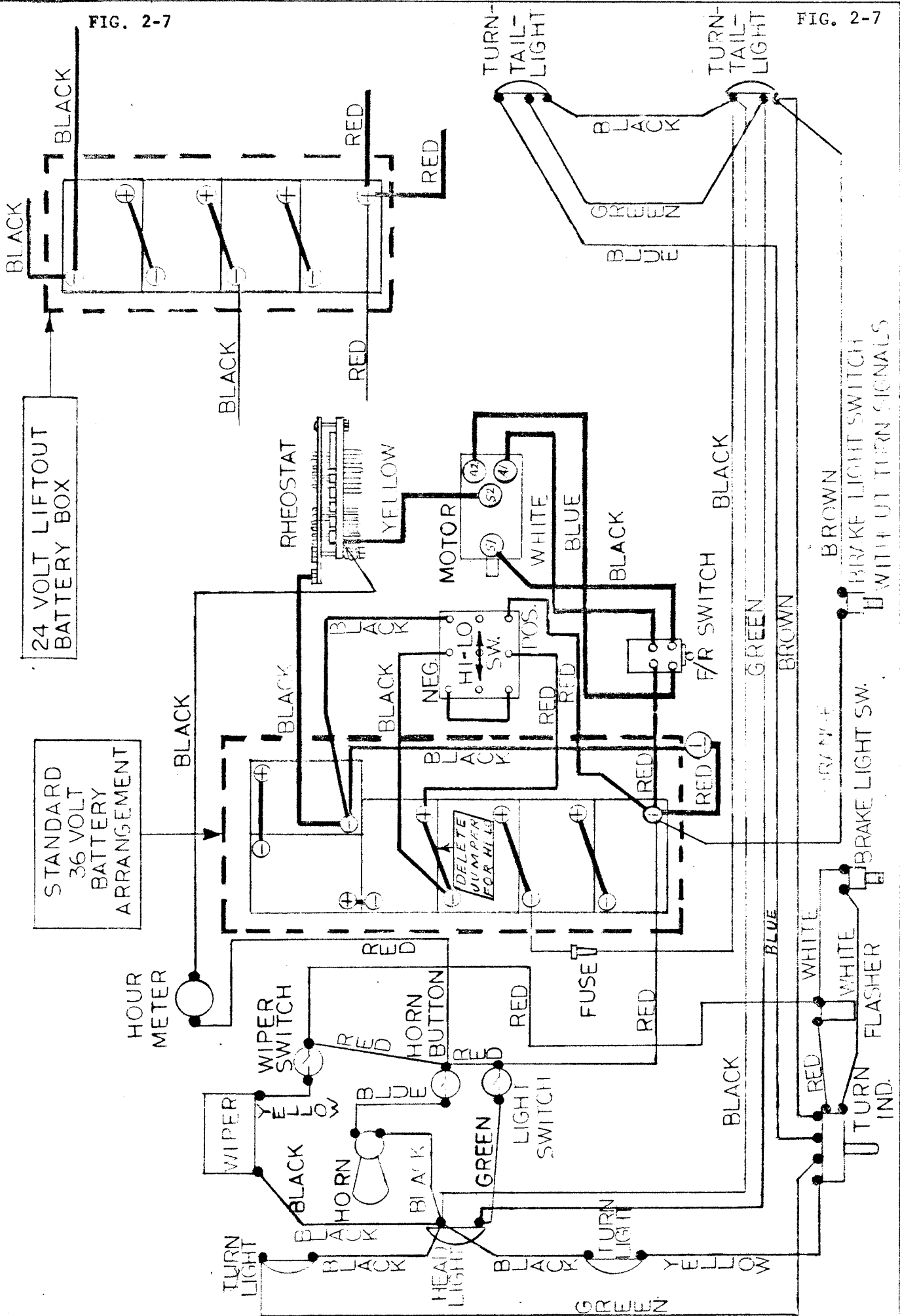
| | | |
|---------------------|--|---|
| SECTION G PAGE 1 | WIRING DIAGRAM MODEL R 1970 & UP |  TAYLOR DUNN MFG. CO. 2114 West Ball Rd. Anaheim, Calif. |
|---------------------|--|---|

FIG. 2-7

FIG. 2-7



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

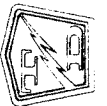


FIG. 2A

WIRING DIAGRAM MODEL R

| | | |
|---------------|--------|---------------------|
| TOL. FRAC. ± | DEC. ± | PART NO. 300 SERIES |
| SCALE | | REVISED DATE |
| DRAWN BY D.H. | | |
| DATE 8-3-57 | | |

PARTS ORDERING PROCEDURE

Parts may be purchased from your local authorized Taylor-Dunn Dealer or direct from the factory if desired. 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, also include the specifications found on the motor nameplate. 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 or direct to Factory located in Anaheim, California. 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 W. BALL ROAD
ANAHEIM, CALIFORNIA 92804

PHONE: 714-956-4040

SUGGESTED SPARE PARTS LIST

| Fig. I. D. No. | T-D Part No. | Description | Quantity Fo l-20 Vehicl |
|-------------------|--------------|-------------|----------------------------|
|-------------------|--------------|-------------|----------------------------|

REFER TO FIGURE 3 - FRONT FORK, STEERING, TIRES (3 WHEEL MODEL)

| | | | |
|-----|-----------|---|---|
| 3-1 | 45-308-00 | Oil Seal for 12-120-00 Hub | 1 |
| 3-7 | 13-734-00 | Tire and Wheel - 400 x 8 Four Ply Super Rib Tubeless Tire (Five $\frac{1}{2}$ " Holes on 4- $\frac{1}{2}$ " Bolt Circle) | 1 |
| 3-7 | 13-742-00 | Tire & Wheel - 500 x 8, 4 Ply Super Rib - Tubeless Tire (Five $\frac{1}{2}$ " Holes on 4- $\frac{1}{2}$ " Bolt Circle) | 1 |
| 3-7 | 13-746-00 | Tire and Wheel - 850 x 8, 4 Ply Power Rib - Tubeless (Five $\frac{1}{2}$ " Holes on 4- $\frac{1}{2}$ " Bolt Circle) | 1 |

REFER TO FIGURE 4 - FRONT AXLE, STEERING, TIRES (4 WHEEL MODEL)

| | | | |
|------|-----------|--|---|
| 4-68 | 45-338-00 | Oil Seal for 1" Bearing | 1 |
| 4-78 | 13-746-00 | Tire and Demountable Wheel, 850 x 8, 4 Ply, Tubeless Power Rib, with Five $\frac{1}{2}$ " Holes on 4- $\frac{1}{2}$ " bolt circle | 1 |
| 4-81 | 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 | 1 |
| 4-81 | 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 | 1 |
| 4-81 | 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 | 1 |

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

| | | | |
|------|-----------|---|---|
| 5-3 | 41-997-00 | Drain and Level Plug. (1/8" Pipe) | 2 |
| 5-6 | 96-331-00 | Bolt - $\frac{1}{2}$ " N.F. (Spec.) Rear Hub | 5 |
| 5-16 | 97-236-00 | Nut $\frac{1}{2}$ " N.F. (Lug) | 5 |
| 5-45 | 41-996-00 | Plug - (Level) $\frac{1}{2}$ " With Recessed Top | 1 |
| 5-57 | 41-989-00 | Plug (Filler Level and Drain) $\frac{1}{2}$ " N.P.T. | 2 |
| 5-61 | 85-270-00 | Extension Spring 1 $\frac{1}{2}$ " O.D. x 4-3/8" Free Length | 1 |
| 5-87 | 70-124-00 | Motor Brushes - Baldor Motor (4 per vehicle) | 4 |
| 5-87 | 70-100-00 | Motor Brushes, Taylor-Dunn Motor 70-049-50 & G.E. Motors 48JB-265, 49JB-122B (4 per vehicle) | 4 |
| 5-87 | 70-101-00 | Motor Brushes, G.E. Motor 48JB-503D (4 per vehic) | 4 |

REFER TO FIGURE 7 - MECHANICAL CONTROL LINKAGE

| | | | |
|-----|-----------|--|---|
| 7-3 | 96-772-00 | 3/8 Clevis Pin | 2 |
| 7-6 | 96-762-00 | 3/8 Clevis Pin | 1 |
| 7-7 | 85-295-00 | Spring, Extension, 11/16 O.D. x 4-7/8 Long (Accelerator Return) | 4 |

SUGGESTED SPARE PARTS LIST (Cont'd.)

| Fig. I.D. No. | T-D Part No. | Description | Quantity For 1-20 Vehicles |
|------------------|--------------|-------------|-------------------------------|
|------------------|--------------|-------------|-------------------------------|

REFER TO FIGURE 8 - FORWARD - REVERSE SWITCH

| | | | |
|------|-----------|---|-------|
| 8-1 | 71-040-60 | Switch Finger - Silver Plated with $\frac{1}{2}$ " Hole. | 4 |
| 8-3 | 71-040-61 | Finger Board with $\frac{1}{2}$ " Mounting Holes (2 Per Cart) | 2 |
| 8-11 | 71-040-62 | Switch Handle - Metal (Red) | 1 |
| 8-23 | 71-040-66 | Plastic Spacer | 2 |
| 8-24 | 71-040-58 | Rotor Contacts (2 Per Set, 1 rt. & 1 lft.) | 1 Set |

REFER TO FIGURE 9 - SPEED CONTROL RHEOSTAT

| | | | |
|------|-----------|-----------------------------------|---|
| 9-5 | 61-832-00 | Sliding J-Hook Bar | 1 |
| 9-9 | 78-212-51 | Resistor Coil (#9 Wire, 10 Turns) | 1 |
| 9-10 | 78-212-52 | Resistor Coil (#6 Wire, 9 Turns) | 1 |
| 9-11 | 78-212-53 | Resistor Coil #5 Wire, 6 Turns) | 1 |
| 9-14 | 61-831-00 | Power Bar (5 Per Vehicle) | 5 |

PARTS NOT ILLUSTRATED

| | | |
|-----------|--|---|
| 94-400-00 | Mirror Glaze (For Cleaning Plastic Windows - 8 Oz.) | 1 |
| 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 | 3 |
| 76-012-00 | Charging Receptacle, 3 Prong, 30 Amp | 3 |
| 77-200-00 | Hydrometer (To Check Battery Charge) | 1 |
| 77-201-00 | Battery Filler | 1 |
| 79-819-00 | Fuse, 30 Amp, Screw Type | 1 |
| 75-231-00 | Battery Jumper, #6 Wire, 8" Long (5 per Vehicle) | 5 |
| 77-202-00 | Battery Breakdown Meter | 1 |

MAINTENANCE PROCEDURES
REFER TO FIGURE 3
FRONT AXLE, FORK, STEERING, AND TIRES (3 WHEEL MODEL)

Your front wheel assembly consists of a ruggedly designed fork mounted with 2 Timken Roller Bearings. The front wheel is mounted on a 3/4" axle and turns on 2 Timken Roller Bearings. Two heavy coil springs are provided to absorb shock and produce a comfortable ride. With proper care, these parts should give long service.

Axle

If by chance the front wheel should be submerged for any length of time in mud or water, it is recommended that you remove, wash and clean the axle assembly. Clean all parts, especially bearings, in a suitable cleaning solvent, re-assemble and repack with wheel bearing grease. Follow the procedures outlined in the service and adjustment Section J1 of this manual.

Steering

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 of your front wheel and steering assembly.

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

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 needs. 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 3
FRONT AXLE, FORK, STEERING AND TIRES

Adjustment of Wheel Bearings

1. To adjust wheel bearings, loosen one outer nut, and turn adjacent inner nut until bearing drag barely occurs. Back off inner nut $\frac{1}{2}$ turn, and tighten outer nut. Wheel should turn freely without noticeable end play.

Removal of Tire, Wheel, and Axle Assembly

1. Remove outer axle nuts and slide axle retaining clips free of fork.
2. Slide axle out of slots in fork, and remove axle, wheel, and tire assembly from fork.
3. Remove one inner lock nut and spacer from axle. Slide axle with remaining spacer and inner lock nut from wheel hub.
4. Tire may be changed or repaired without removing wheel from hub. To change wheel, remove 5 lug nuts which retain wheel to hub.
5. To remove wheel bearings and seals:
 - A. Pull seals from hub.
 - B. Remove taper roller bearings.
 - C. If necessary, press bearing races from hub with suitable press or with flat punch by hitting back and forth one side to other.

Re-Assembly and Adjustments of Tire, Wheel and Axle Assembly

1. Press bearing races into hub with suitable press, taking care that they are seated against stops within the hub.
2. Generously lubricate wheel bearings with wheel bearing grease and insert into bearing races.
3. Press or tap seals into place. (Proper position, is when face of seal is flush with end of hub) Note: It is recommended that new seals be installed whenever bearings are removed from wheel hub, or whenever seals are worn or damaged. Worn or damaged seals allow dirt and foreign matter to enter wheel bearings, shortening bearing life.
4. Insert axle into wheel hub, and assemble spacers and inner locknuts to axle, center axle and tighten locknuts.
5. Slide wheel and axle into fork. Assemble axle retaining clips to axle and fork. Install and tighten outer locknuts.
6. Adjust wheel bearings as described above.
7. Wheel hub has one zerk fitting for periodic bearing lubrication.

Adjustment of Fork Spindle Bearings

1. Adjust by tightening nut until drag is felt on spindle bearings. Loosen about $\frac{1}{4}$ turn or until spindle rotates free but does not have any play in bearings. Note: Any excessive play in spindle bearings can lead to bearing failure due to shock effect when vehicle encounters bumps or uneven terrain.

Removal and Installation of Fork and Fork Spindle Bearings

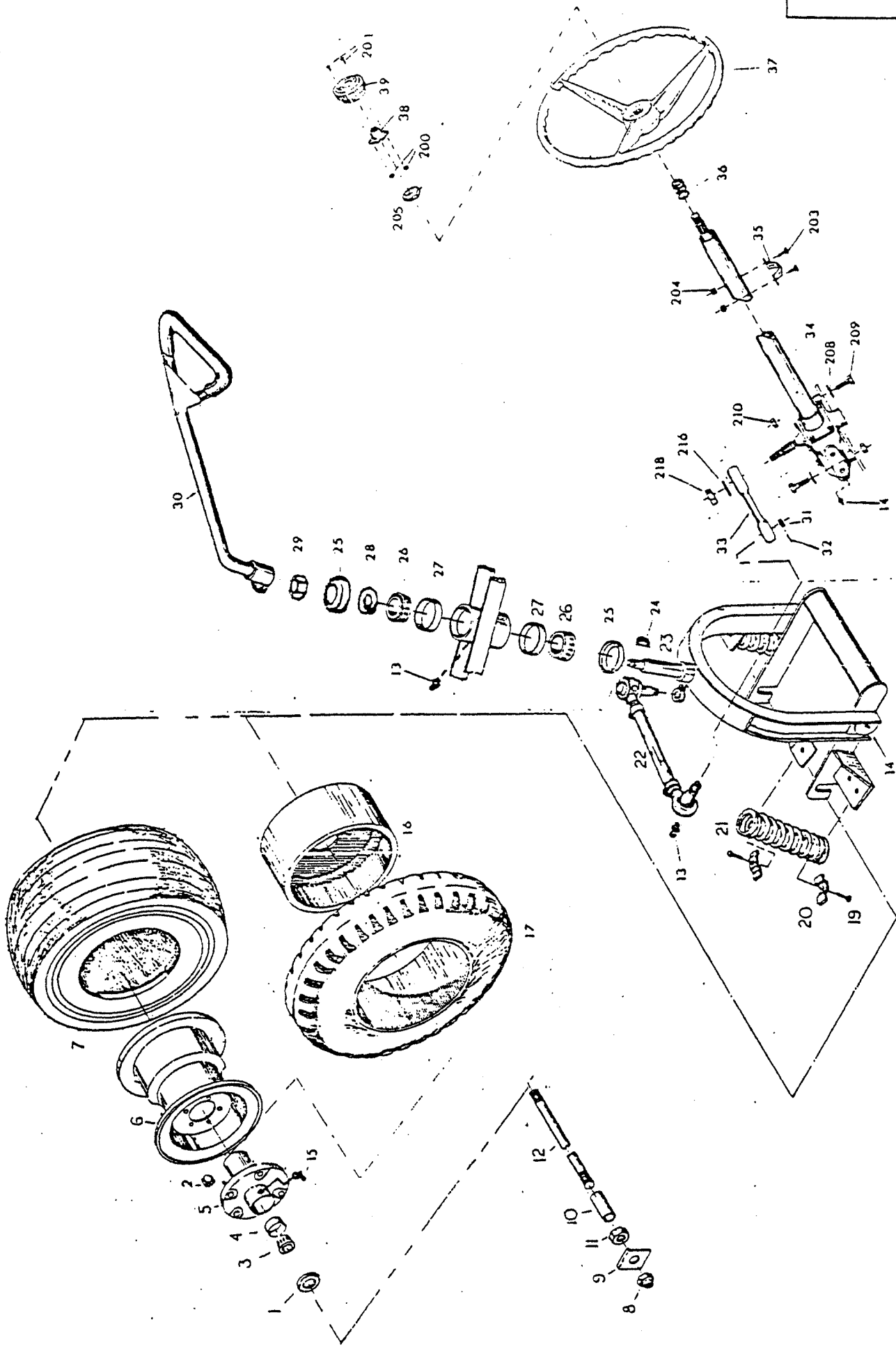
1. Tiller Model. Loosen clamp at lower end of tiller. Remove tiller from spindle by rocking tiller back and forth while pulling upward. Remove woodruff key.
Steering Wheel Model. Remove ball joint steering link from steering gear lever arm to fork. Remove cotter pins; remove nuts; and loosen sleeve clamp slightly. Rap studs sharply with soft hammer or block to loosen tapered studs from gear lever arm and fork.
2. Remove bearing lock nut from upper end of spindle.
3. Slide fork and spindle from spindle housing.
4. Remove spacer, grease seals, and bearings from housing and spindle.
5. Remove bearing races from housing with suitable puller.
6. Bearing races may be pressed into position by using a 1/2" x 6" bolt. Place a disc or bar of suitable size over bolt then one bearing race, pass this assembly through housing. Place other bearing race, a suitable disc or bar and then the nut. Tightening the nut and bolt will draw the two bearing races into position without damage.
7. Generously pack bearings with wheel bearing grease. Assemble one grease seal and bearing on spindle in reverse order of removal. Refer to Figure 3 for proper location. Slide fork spindle through housing and install upper bearing, spacer, and grease seal.
8. Install spindle nut, and adjust as described under "Adjustment of Fork Spindle Bearings."
9. Tiller Model. Install woodruff key and tiller. Tighten clamp.
Steering Wheel Model. Install ball joint and sleeve assembly to gear lever arm and fork. Install and tighten stud nuts and cotter pins. Tighten sleeve clamp. Check steering, and refer to Sub-Section titled "Remove and Replace Ball Joints" for adjustments if they appear necessary.

Remove and Replace Ball Joint - Steering Wheel Model

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 or fork.
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 fork.
7. Replace nut, tighten securely and replace cotter pin.
8. Check travel of steering linkage to be sure it has not been affected by the new ball joint not being correctly positioned. Steering wheel should be in central position when road wheel is in straight ahead position. Correct any misalignment by loosening both clamps and turning sleeve.
9. Tighten sleeve clamps securely.
10. Lubricate zerk fitting on new ball joint with appropriate grease. 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 wheel in a straight forward direction, then install steering wheel with one of the spokes as close to the 6 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 wheel 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 6 o'clock spoke condition.
9. Lubricate steering worm through the zerk fitting located on the steering worm housing. Refer to Lube Chart in Section E.



SECTION J1
PAGE 5

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



LENGTH QUAN REVISED DATE REVISION

FRONT FORK & STEERING
3 WHEEL MODEL R 1970 & UP

FIGURE 3
SECTION J1

NO. DESCRIPTION
TOL. FRAC. DEC. +
SCALE 1/2" = 1"
DRAWN BY

FIGURE NO. 3
GROUP 3 - WHEEL, FRONT FORK, AND STEERING

| Fig. I.D. No. | T-D Part No. | Description | Quantity |
|------------------|--------------|---|----------|
| 3-1 | 45-308-00 | Oil Seal for 12-120-00 Hub | 2 |
| 3-2 | 97-236-00 | Lug Nut - $\frac{1}{2}$ " | 5 |
| 3-3 | 80-015-00 | $\frac{3}{4}$ " Tapered Roller Bearing | 2 |
| 3-4 | 80-105-00 | Tapered Bearing Race for $\frac{3}{4}$ " Bearing | 2 |
| 3-5 | 12-120-00 | Wheel Hub, $4\frac{1}{2}$ " long, five $\frac{1}{2}$ " studs on $4\frac{1}{2}$ " bolt circle with $\frac{3}{4}$ " tapered roller bearings | 1 |
| 3-6 | 12-012-00 | Wheel for 400 x 8 or 500 x 8 tire, demountable, drop center, five $\frac{1}{2}$ " holes on $4\frac{1}{2}$ " bolt circle | 1 |
| 3-6 | 12-020-00 | Wheel for 850 x 8 tire, demountable, drop center, five $\frac{1}{2}$ " holes on $4\frac{1}{2}$ " bolt circle | 1 |
| 3-7 | 10-075-00 | Tire, 400 x 8, 4 ply, Super Rib, tubeless | 1 |
| 3-7 | 10-078-00 | Tire, 400 x 8, 6 ply, Steel Guard, tube type | 1 |
| 3-7 | 10-081-00 | Tire, 500 x 8, 4 ply, Super Rib, tubeless | 1 |
| 3-7 | 10-093-00 | Tire, 850 x 8, 4 ply, Terra Rib, tubeless | 1 |
| 3-7 | 11-030-00 | Tube, 400 x 8 (Optional) | 1 |
| 3-7 | 11-040-00 | Tube, 500 x 8 (Optional) | 1 |
| 3-7 | 11-041-00 | Tube, 850 x 8 or 950 x 8 (Optional) | 1 |
| 3-8 | 88-229-81 | $\frac{3}{4}$ NC Locknut | 2 |
| 3-9 | 32-500-00 | Retainer, Front Axle Clip | 2 |
| 3-10 | 16-041-00 | Wheel Spacer - $\frac{3}{4}$ " I.D. by 2-5/8" Long | 2 |
| 3-11 | 88-229-80 | $\frac{3}{4}$ NC Hex Head Nut | 2 |
| 3-12 | 15-030-00 | Front Axle - $\frac{3}{4}$ " Dia. x 13" Long | 1 |
| 3-13 | 87-074-00 | Grease fitting, $\frac{1}{4}$ -28 NF, straight | 3 |
| 3-14 | 87-071-00 | Grease fitting, $\frac{3}{16}$ straight drive | 3 |
| 3-15 | 87-050-00 | Grease fitting, $\frac{1}{4}$ -28 NF, 90° | |
| 3-16 | 12-054-00 | Wheel for 16 $\frac{1}{2}$ x 4 x 11 $\frac{1}{2}$ Solid Tire | 1 |
| 3-17 | 10-261-00 | Tire, solid Xtra Cushion, 16 $\frac{1}{2}$ x 4 x 11 $\frac{1}{2}$ | 1 |
| 3-19 | 88-100-13 | $\frac{3}{8}$ x 1 $\frac{1}{2}$ Hex Head Cap Screw | 4 |
| 3-20 | 85-141-00 | Spring Clip for 85-145-00 Spring | 4 |
| 3-21 | 85-145-00 | Spring-Compression 2-7/16 Dia. x 6-1/4 Long | 2 |
| 3-22 | 18-028-10 | Steering Link (7 $\frac{1}{2}$ " Long) with ball joints | 1 |
| 3-22 | 86-501-99 | Ball joint, right hand | 1 |
| 3-22 | 86-501-98 | Ball joint, left hand | 1 |
| 3-22 | 86-510-00 | Ball joint, clamp | 2 |
| 3-23 | 14-081-10 | Front Fork, less spring | 1 |
| 3-24 | 97-100-00 | Woodruff Key - $\frac{3}{16}$ " | 1 |
| 3-25 | 45-307-00 | Seal | 2 |
| 3-26 | 80-011-00 | 1 $\frac{1}{2}$ " Tapered Roller Bearing | 2 |
| 3-27 | 80-102-00 | Tapered Bearing Race for 1 $\frac{1}{2}$ " Bearing | 2 |
| 3-28 | 16-409-00 | Spacer - .250 x 1" I.D. x 1 $\frac{1}{2}$ " O.D. | 1 |
| 3-29 | 97-230-00 | Nut - 1" - Full Fibre Insert | 1 |
| 3-30 | 19-111-11 | Steering Tiller - Dipped Loop Handle | 1 |
| 3-31 | 88-159-85 | $\frac{1}{2}$ x 20 NF Slotted Hex Nut | 2 |

| Fig. I.D. No. | T-D Part No. | Description | Quantity |
|------------------|--------------|--|----------|
| 3-32 | 88-527-11 | Cotter Pin - 1/8 x 1 | 2 |
| 3-33 | 18-107-00 | Steering Lever | 1 |
| 3-34 | 18-307-11 | Steering Worm Assembly with Steering Column and Lever Arm | 1 |
| 3-35 | 96-613-00 | Steering Column Clamp | 1 |
| 3-36 | 85-122-00 | Spring - Compression - 1-1/8" O.D. x 1" Long | 1 |
| 3-37 | 19-003-00 | Steering Wheel - (Splined Hub) | 1 |
| 3-38 | 71-501-00 | Horn Button (Steering Wheel) | 1 |
| 3-38 | 71-502-00 | Horn Button (Tiller) | 1 |
| 3-39 | 19-004-00 | Steering Wheel Cap | 1 |
| 3-39 | 19-004-10 | Steering Wheel Cap with Horn Button Hole | 1 |
| 3-200 | 88-029-81 | Lock Nut 8-32 Hex | 2 |
| 3-201 | 88-025-08 | Truss Head Machine Screw - 8-32 x 5/8 | 2 |
| 3-203 | 88-060-06 | 1/2 x 1/2 NC Hex Head Cap Screw | 2 |
| 3-204 | 88-069-87 | 1/2 NC Fastite Nut | 2 |
| 3-205 | 88-259-82 | 13/16 NF Hex Jam Nut | 1 |
| 3-208 | 88-128-00 | 7/16 Washer | 2 |
| 3-209 | 88-130-14 | 7/16 x 1 1/2 NF Hex Head Cap Screw | 2 |
| 3-210 | 88-139-81 | 7/16 NF Hex Locknut | 2 |
| 3-216 | 88-268-62 | 7/8 Lock Washer | 1 |
| 3-218 | 88-279-82 | 7/8 NF Hex Jam Nut | 1 |

MAINTENANCE PROCEDURES
REFER TO FIGURE 4
FRONT AXLE, STEERING AND TIRES (4 WHEEL MODEL)

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 needs. 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 (4 WHEEL MODEL)

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

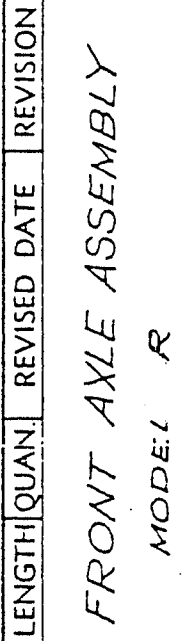
1. Caster and camber are set at the factory, and do not require adjustment. To adjust toe-in, raise front end of vehicle off the ground.
2. With a pencil, make a mark around center of tread of tire by holding pencil point against tire while turning wheel. Mark both front tires.
3. Lower vehicle to ground. 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.



| | |
|-----------|-------------|
| O. | DESCRIPTION |
| DL. FRAC. | + DEC. + |
| SALE | NONE |
| RAWN BY | REA |
| DATE | 6-8-72 |

FIGURE NO. 4
GROUP 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 | 19-004-00 | Steering Wheel Cap with Horn Button Hole | 1 |
| 4-5 | 19-003-00 | Steering Wheel Deluxe - Splined Hub | 1 |
| 4-8 | 85-122-00 | Spring - Compression 1-1/8" O.D. x 1" Long | 1 |
| 4-9 | 18-307-11 | Steering Worm Assembly with Steering Lever and Grease Fitting | 1 |
| 4-10 | 18-107-00 | Steering Lever | 1 |
| 4-13 | 96-613-00 | Clamp - Steering Column | 1 |
| 4-15 | 16-399-00 | Spacer - Steering Gear Box - Tapered 7/16" I.D. x 3/8" Long. (Not used with 1/2" Mounting Hole | 1 |
| 4-19 | 87-071-00 | Grease Fitting - 3/16 Drive | 1 |
| 4-20 | 18-029-10 | Steering Adjustment Sleeve Assembly With Ball Joints and Clamps - 13" long. | 2 |
| 4-21 | 18-045-10 | Steering Adjustment Sleeve Assembly with Ball Joints and Clamps - 15-3/4" Long | 1 |
| 4-27 | 18-029-00 | Steering Adjustment Sleeve - 13" Long | 2 |
| 4-28 | 18-045-00 | Steering Adjustment Sleeve - 15-3/4" Long | 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 - 1/2 x 1 1/2 Long | 1 |
| 4-40 | 15-064-10 | Front Axle Assembly - Complete - With Spindles Hubs, Springs, and Tie Rod | 1 |
| 4-44 | 15-064-00 | Front Axle Less Spindles | 1 |
| 4-46 | 14-155-98 | Wheel Spindle Assembly - Left Side | 1 |
| 4-47 | 14-155-99 | Wheel Spindle Assembly - Right Side | 1 |
| 4-50 | 32-200-00 | Bushing - Bronze, Oil Impregnated, With Flange 7/8" I.D. x 1" O.D. | 4 |
| 4-54 | 96-103-00 | U-Bolt - 1/2" Rd. x 1-7/8" I.D. x 3-1/2" Long | 4 |
| 4-56 | 85-510-13 | Three Leaf Cantilever Spring, 1/2" Eye, With Liner | 2 |
| 4-58 | 96-097-11 | Spring Center Bolt - 5/16 NF x 1" - Heat Treated | 2 |
| 4-59 | 96-108-51 | Liner - Leaf Spring - 1-3/4" x 20" | 2 |
| 4-59 | 96-108-52 | Liner - Leaf Spring - 1-3/4" x 26" | 2 |
| 4-59 | 96-108-00 | Liner - U-Bolt - 1-3/4" x 4-1/4" | 4 |
| 4-60 | 50-460-00 | U-Bolt Bar - 3-3/8" Long | 2 |
| 4-61 | 98-601-00 | Grommet - Rubber - 1/2" I.D. | 4 |
| 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 - 1" I.D. | 4 |
| 4-68 | 45-338-00 | Oil Seal for 1" Bearing | 2 |
| 4-69 | 71-501-00 | Horn Button | 1 |

| Fig. I.D. No. | T-D Part No. | Description | Quantity |
|------------------|--------------|--|----------|
| 4-70 | 96-329-00 | Lug Bolt - $\frac{1}{2}$ " NF | 0 or 10 |
| 4-70 | 96-333-00 | Lug Bolt - 7/16" NF (Replaced by 96-329-00 in later models) | 0 or 10 |
| 4-72 | 97-236-00 | Lug Nut - $\frac{1}{2}$ " NF | 0 or 10 |
| 4-72 | 97-235-00 | Lug Nut - 7/16" NF (Replaced by 97-236-00 in later models) | 0 or 10 |
| 4-73 | 92-104-00 | Dust Cap with Grease Fitting | 2 |
| 4-78 | 13-746-00 | Tire and Demountable Wheel, 850 x 8, 4 ply, tubeless power rib, with five $\frac{1}{2}$ " holes on 4 $\frac{1}{2}$ " bolt circle | 2 |
| 4-79 | 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 |
| 4-80 | 10-093-00 | Tire, 850 x 8, 4 ply, Terra Power Rib tubeless | 2 |
| 4-81 | 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 |
| 4-81 | 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 |
| 4-81 | 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 |
| 4-82 | 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 |
| 4-83 | 10-075-00 | Tire, 400 x 8, 4 ply, Super Rib, tubeless | 2 |
| 4-83 | 10-078-00 | Tire, 400 x 8, 6 ply, Steel Guard, tube type | 2 |
| 4-83 | 10-081-00 | Tire, 500 x 8, 4 ply, Super Rib, tubeless | 2 |
| 4-84 | 11-030-00 | Tube, 400 x 8 (Optional) | 2 |
| 4-84 | 11-040-00 | Tube, 500 x 8 (Optional) | 2 |
| 4-84 | 11-041-00 | Tube, 850 x 8 or 950 x 8 (Optional) | 2 |
| 4-85 | 13-954-10 | Tire and Demountable cast iron wheel with 16 $\frac{1}{2}$ x 4 x 11 $\frac{1}{2}$ Solid Xtra Cushion tire, five $\frac{1}{2}$ " holes on 4 $\frac{1}{2}$ " bolt circle | 2 |
| 4-86 | 12-054-00 | Wheel for 16 $\frac{1}{2}$ x 4 x 11 $\frac{1}{2}$ Solid Tire, | 2 |
| 4-87 | 10-261-00 | Tire, Solid Xtra Cushion, 16 $\frac{1}{2}$ x 4 x 11 $\frac{1}{2}$ | 2 |
| 4-88 | 96-240-00 | Hex Head Cap Screw, $\frac{1}{2}$ " NC x 4" (Pointed) | 2 |
| 4-200 | 88-029-81 | Lock Nut - 8-32 Hex | 2 |
| 4-201 | 88-025-08 | Truss Head Machine Screw 8-32 x 5/8 | 2 |
| 4-203 | 88-060-06 | Screw, $\frac{1}{2}$ x $\frac{1}{2}$ NC Hex Head Cap | 2 |
| 4-204 | 88-069-87 | Nut, $\frac{1}{2}$ NC Hex Fastite | 2 |
| 4-205 | 88-080-18 | Screw, 5/16 x 2-1/2 NC Hex Head Cap | 1 |
| 4-206 | 88-089-81 | Nut, 5/16 Hex Lock | 1 |
| 4-207 | 88-099-80 | Nut, 5/16 NF Hex | 2 |
| 4-208 | 88-128-60 | Washer, 7/16 | 2 to 4 |
| 4-209 | 88-130-14 | Screw, 7/16 x 1-1/2 NF Hex Head Cap | 2 |

SECTION J1
PAGE 14

| Fig. I.D. No. | T-D Part No. | Description | Quantity |
|------------------|--------------|------------------------------|----------|
| 4-210 | 88-139-81 | Nut, 7/16 NF Hex Lock | 2 |
| 4-211 | 88-149-81 | Nut, 1/2 NC Lock | 10 |
| 4-212 | 88-159-85 | Nut, 1/2 - 20 NF Slotted Hex | 6 |
| 4-213 | 88-228-60 | Washer, 3/4 | 2 |
| 4-214 | 88-239-85 | Nut, 3/4 NF Slotted Hex | 2 |
| 4-215 | 88-259-82 | Nut, 13/16 NF Hex Jam | 1 |
| 4-216 | 88-268-62 | Lock Washer, 7/8 | 1 |
| 4-217 | 88-279-81 | Nut, 7/8 NF Lock | 1 |
| 4-218 | 88-279-82 | Nut, 7/8 NF Hex Head Jam | 1 |
| 4-219 | 88-527-11 | Cotter Pin, 1/8 x 1 | 6 |
| 4-220 | 88-527-14 | Cotter Pin, 1/8 x 1-1/2 | 2 |

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

Your "Power Traction" direct 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.

An adjustable motor mount has been provided to extend normal chain life. Refer to Section J2 Page 7 for proper adjustment procedures. It is important to adhere to the adjustment schedule included on Page 7. Failure to do so will seriously effect normal chain life.

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 3/4" 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.

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.

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 2 years.

NOTE: Earlier Model "Power Traction" drive units were not equipped with the adjustable motor mount feature. Although the majority of vehicles in service do not require an adjustment, it was found to be beneficial under certain unusual operating conditions.

Taylor-Dunn has a newly designed conversion kit which is available for all earlier model "Power Traction" drive units.

Order Kit Number 44-352-41 for use with G.E. motors and Kit Number 44-352-42 for use with Baldor Motors. The kit is complete with detailed instructions for it's installation.

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

Adjustment Of Brake (Minor) To Compensate For Normal Lining Wear.
Important Note.

Observe position of Brake Lever Arm. It must be 1/16" to 1/2" from Gear Case Cover with brake pedal and hand brake fully released.

If brake lever arm is not in the correct position, due to improperly adjusted cables or brake rods, then it will be necessary to perform a complete major brake adjustment as itemized under next section "Adjustment of Brakes (Complete)".

Note: If brake lever arm is in the correct position as described above, it will not be necessary to touch cable or rod adjustments.

1. Adjust brake band anchor bolt and nut, tightening it until brake pedal travels approximately half way to floorboard engaging brake sufficiently to stop vehicle. Vehicles equipped with automatic (deadman) brake requires the treadle to operate the braking action within the last 1/2 of it's stroke.
2. Adjust centering screws, centering band around drum to bring band as close to drum as possible without brake dragging. Lock centering screw. If band is too far from brake drum, brakes will grab in the forward direction.

Adjustment of Brake (Complete) Except For Automatic (Deadman) Brake Refer to Section J4

1. Loosen clevis and locknut on foot brake, cable (or rod) and adjust length to position brake lever arm 1/16" to 1/2" from gear case cover as described above.
It may be necessary on vehicles equipped with other control cables such as handbrake cables to disconnect them so they will not interfere with this first important adjustment.
2. Adjust brake band as outlined in steps 1 and 2 above.
3. Adjust hand parking brake lever knob on end of handle, turning counter-clockwise until it stops. Place lever in locked position. Then loosen clevis locknut on cable or rod on underside of parking brake lever and adjust cable or rod (by shortening) until brake band engages drum properly. Lock clevis nut.

Note: Brake band and brake cable must be adjusted first as outlined above.

4. Try completely releasing hand lever to be certain brake band is completely released. Additional brake holding power can be applied by turning knob on end of handle in clockwise direction.

Note: Turning knob in clockwise direction increases travel of brake cable but decreases leverage of brake lever. Therefore, if it is adjusted too far clockwise the lever will be difficult to operate. You compensate for this condition by shortening hand brake rod as outlined above. Caution: if you shorten rod too far, you will not allow the brake band to completely release. Obviously the ideal condition is midway between the two extremes described above.

5. If vehicle is equipped with hydraulic wheel brakes, refer to Section J3 for service and adjustment.
6. If vehicle is equipped with brake-accelerator lock, refer to Section J4 for service and adjustment.
7. If vehicle is equipped with Automatic (Deadman) brake, refer to Section J4 for service and adjustment.

Removal Of Brake Assembly And Drum

1. Remove cotter pin and clevis pin, disconnecting cable from brake lever arm, (Note location of clevis). Remove lever arm return spring.
2. Remove 4 bolts holding brake mounting assembly and slide assembly off drum.
3. Band and drum may now be cleaned, inspected, and if necessary parts may be replaced as needed.
4. Brake band lining is bonded to the band for long dependable service. When it wears to approximately 1/16" thickness the band should be replaced.
5. If the brake drum is scored, it should be removed and turned. It is recommended that a brake drum that has been severely scored or damaged should be replaced with a new drum.
6. Inspect seal in gear case cover. If worn or damaged, replace with new one. It is recommended that new seal be pre-soaked in light oil for several hours before installation. Use small amount of oil resistant sealer on seal opening in cover when pressing seal into place.
7. Re-assemble drum and spacer on pinion shaft. Tighten to 100 lb. ft. torque.
8. Replace brake assembly in the reverse order to which it was removed.
9. Adjust brake band and cables as outlined on page 2.

Removal Of "Power Traction" Rear Axle & Drive Assembly From Chassis.

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 pin and disconnect brake cable 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.)
- Note: Steps 7 and 8 refer to vehicles with spring suspension.
7. Remove "U" Bolt clamp and nuts attaching spring to frame.
 8. Remove spring eye anchor bolts.
 9. Remove 4 bolts attaching power traction assembly to frame (Only on unsprung type vehicles).
 10. Remove axle and drive assembly from chassis.
 11. Install axle and drive assembly in the reverse order of removal, taking care that support pads and rubber bushings are in good condition. (Replace if worn or damaged).
 12. Check brake adjustments as previously outlined on page 2.
 13. 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 "Power Traction" Rear Axle

1. Remove unit from chassis. (As previously outlined)
2. Remove wheels and drain oil from housing.
3. Lock drive shaft brake by pulling brake lever. Remove pinion nut and pull off brake drum.
4. Remove four bolts and spring and lift off brake assembly.
5. Remove remaining nuts and bolts, and remove drive case cover.
6. Remove 3 nuts and washers and remove motor and mount plate. (If motor requires further service, refer to appropriate Section J2 of this manual.)
7. Remove chain and pinion sprocket. Observe location of spacers on shaft. Refer to Figure 5 for their correct location.
8. Remove five bolts holding back plate and remove from carrier housing.
9. On hydraulic brake models, remove brake drums, disconnect hydraulic line, remove brake shoe return springs (orange color) and remove wheel cylinders.
10. Remove four bolts on each end holding axle retainer (and brake backing plate on hydraulic brake models) and pull both axles.
11. Remove nuts around differential carrier housing and remove carrier from axle housing. (Note position of clip for proper reassembly of brake spring.)
12. 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.
13. Remove drive gear from differential case.
14. Drive out differential pinion shaft retainer and separate the differential pinion shaft and remove gears and thrust washers.
15. Remove drive pinion retainer from carrier. Remove O-ring from retainer.
16. Remove pinion locating shim. Measure shim thickness with micrometer.
17. 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.
18. Press the pinion shaft out of front bearing cone and remove spacer.
19. Remove pinion bearing cone.
20. 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 gauge between cup and bottom of bore.

Re-Assembly of Power Traction Rear Axle

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.
2. If the differential bearings have been removed, use a suitable press to install them.
3. Pinion and Retainer: 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.
4. Lubricate both bearings with differential oil. Place spacers, sprocket and brake drum on spline with nut and washer and tighten to 100 lb. ft. torque.

NOTE: The bearing should spin free but have no play. If tight or loose, adjust with .005" and .019" shims.

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, Fig. 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 "O" ring seal and pinion retainer assembly into differential carrier. Tighten 5 retainer bolts to 50 lb. ft. torque. (Note: The 5 bolts will have to be removed later to install back plate assembly.)
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 inevitably 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 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 nut, spacers, brake drum, and sprocket. Remove 5 bolts from pinion bearing retainer.
13. Install gasket (use gasket sealer) and back plate assembly. Tighten 5 bolts to 50 lb. ft. torque.
14. Install spacers, sprockets and chain in the reverse order to which they were removed. Take care that 3/16" woodruff key is in proper position and all spacers are in original position. Tighten 3/4" motor shaft nut to 75 lb. ft. torque (if sprocket was removed from motor).
15. Install motor and motor mount plate with "O" ring. Do not tighten 3 nuts until final adjustment is made. Be sure motor terminals are located in the same position as when motor was removed.
16. If seal is worn or damaged in gear case cover, replace with new seal. It is recommended that new seal be pre-soaked in light oil for several hours before installation. When pressing new seal into cover use small amount of oil resistant sealer on seal opening in cover.
17. Install cover gasket and cover.
18. Install brake drum and pinion nut. Tighten to 100 lb. ft. torque.
19. Install brake assembly in the reverse order to which it was removed.
20. Replace wheels and fill chain and differential housing with approximately 2 qts. SAE 30 oil.
21. Replace unit in chassis following steps 11 to 13 outlined in Section titled Removal Of "Power Traction" Rear Axle.
22. Adjust motor mount plate (as outlined in Motor Adjustment Section following) to proper chain tension.

Adjustment Of Motor Mount To Tension Chain

1. Tighten three motor mount nuts.
2. 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 effect the life of the chain.
3. 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.
4. After developing the required torque, unscrew the adjusting screw exactly 2½ turns. It is also very important to be exact on this adjustment.
5. Tighten locknut, DO NOT allow adjusting screw to move while tightening locknut.
6. 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.
7. 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 " | 100 Hrs. | Normal Running Conditions |
| 3rd " | Next 150 Hrs. | " " " |
| 4th " | Next 250 Hrs. | " " " |
| Thereafter | Every 400 Hrs. | " " " |

Removal Of Motor For Minor Repairs

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. Unhook brake spring.
4. Remove all bolts & nuts around gear case cover.
5. Remove brake band assembly with brake cables attached. Place assembly on floor under chassis.
6. Remove pinion nut, washer & brake drum.
7. Remove gear case cover.
8. Clearly mark motor leads to insure their proper location when re-assembling. Remove motor leads.
9. Remove 3 nuts & washers and remove motor & mount plate.
10. If replacing motor, remove nut, washer, sprocket, and spacers. Also remove motor mount plate. Note: Observe location of motor terminals in relation to motor mount plate.

Install Motor In "Power Traction" Drive.

It is not necessary to remove motor mount plate when performing minor motor repairs. Therefore, follow step 1 only when replacing motor with new one.

1. Clean motor surface and install mounting plate with four flat head cap screws. Tighten to 30 lb. ft. torque. Stake head in place with centerpunch.
Note: It is important to locate the motor mount plate in relation to the motor terminal so that they motor terminals will be in an accessible location when drive is completely assembled.
2. Place "O" ring into motor mount plate opening and attach motor and plate to back plate.
3. Re-assemble drive in the reverse order to that of removal.
4. Adjust motor mount to obtain proper chain tension.
5. Refill gear case with SAE 30 oil.

Motor Repairs.

Unless the maintenance man is properly qualified, it is advisable that repair work be done at a qualified service station. When ordering replacement parts, give complete name plate data.

Disassembly of Motor

1. Remove cover, exposing brush assembly.
2. Lift brushes out of brush holder.
3. 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.
4. Press or pull old bearings off by using bearing press or bearing puller. Do not damage shaft while removing bearings.
5. 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.
6. On "Power Traction" Model, replace motor seal in shaft extension end bell housing.
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 re-assembly.
9. Re-assemble motor taking care that all parts are kept clean.
10. Install brushes and seat in with fine sand paper.
11. Adjust brush tension, replace covers.

FIGURE 5
POWER TRACTION DRIVE AXLE

| FIG. I.D. NO. | T-D PART NO. | DESCRIPTION | QTY. REQ. |
|------------------|--------------|--|--------------|
| 5-1 | 41-291-00 | 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 |
| 5-4 | 88-100-11 | Hex Head Cap Screw 3/8" X 1" N.C. | 8 |
| 5-5 | 88-109-81 | Lock Nut 3/8" N.C. (Hex) | 18 |
| 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 |
| 5-10 | 41-160-00 | Rear Axle (22-1/8" Overall Length) Left Side | 1 |
| 5-10 | 41-161-00 | Rear Axle (13-1/8" Overall Length) Right Side | 1 |
| 5-11 | 41-160-10 | Axle Assembly With Axle, Retainer Ring, Retainer Plate, And Bearing (22-1/8" Long) Left Side | 1 |
| 5-11 | 41-161-10 | Axle Assembly With Axle, Retainer Ring, Retainer Plate And Bearing (13-1/8" Long) Right Side | 1 |
| -12 | 32-512-00 | Retainer Spacer (Used Only <u>Without</u> Hydraulic Brakes) | 2 |
| 5-13 | 45-042-00 | Gasket (Housing To Differential Carrier) | 1 |
| 5-14 | 80-511-00 | Tapered Roller Bearing - Carrier (Small 1.628 I.D.) | 2 |
| 5-14 | 80-512-00 | Tapered Roller Bearing - Carrier (Large 1.784 I.D.) | 2 |
| 5-15 | 80-127-00 | Tapered Bearing Race-Carrier (Small) | 2 |
| 5-15 | 80-128-00 | Tapered Bearing Race-Carrier (Large) | 2 |
| 5-16 | 97-236-00 | Nut 1/2" N.F. (Lug) | 10 |
| 5-17 | 88-101-18 | Hex Head Cap Screw 3/8" X 2-1/2" N.C. (H.T.) | 8 or 2 |
| 5-19 | 85-510-13 | Spring Assembly - Three Leaf Cantilever <i>code 3</i> | 2 |
| 5-19 | 85-510-14 | Spring Assembly - Four Leaf Cantilever <i>code 3</i> | 2 |
| 5-19 | 85-510-15 | Spring Assembly - Five Leaf Cantilever <i>code 1</i> | 2 |
| 5-20 | 16-861-00 | Pad-Spring (3/8" Bolt Spring Mount) | 2 |
| 5-21 | 88-139-81 | Lock Nut 7/16" N.F. (Hex) | 6 |
| 5-22 | 98-601-00 | Rubber Grommet 1/2" I.D. For Leaf Spring Eye | 4 |
| 5-23 | 96-240-00 | Hex Head Cap Screws 1/2" X 4" N.C. (Pointed) | 2 |
| 24 | 88-149-81 | Lock Nut 1/2" N.C. (Hex) | 6 |
| 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 Shafts) | 1 Kit |

| FIG. I.D. NO. | T-D PART NO. | DESCRIPTION | QTY. |
|------------------|--------------|---|--------|
| 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 K: |
| 5-31 | 41-712-00 | Differential Gear Case Assembly (Small Carrier Bearings 1.628" I.D.) | 1 |
| 5-31 | 41-713-00 | Differential Gear Case Assembly (Large Carrier Bearings 1.784" I.D.) | 1 |
| 5-32 | 88-130-10 | Hex Head Cap Screw 7/16" X 7/8" N.F. | 10 |
| 5-33 | 97-163-00 | Washer 7/16" I.D. X 3/4" O.D. X 1/32" | 10 |
| 5-34 | 88-080-04 | Hex Head Cap Screw 5/16" X 3/8" N.C. | 2 |
| 5-35 | 41-706-00 | Differential Bearing Adjustment Nut Lock | 2 |
| 5-36 | 41-707-00 | Nut-Differential Bearing Adjustment 3-1/8"-16 Thread (For Small Carrier Bearing 1.628" I.D.) | 2 |
| 5-36 | 41-708-00 | Nut-Differential Bearing Adjustment 3-5/16"-16 Thread (For Large Carrier Bearing 1.784" I.D.) | 2 |
| 5-37 | 88-140-16 | Hex Head Cap Screw 1/2" X 2" N.C. | 4 |
| 5-38 | 41-709-00 | Differential Carrier Assembly (For Small Carrier Bearing 1.628" I.D.) | 1 |
| 5-38 | 41-710-00 | Differential Carrier Assembly (For Large Carrier Bearing 1.784" I.D.) | |
| 5-39 | 88-119-80 | Nut - 3/8" N.F. (Hex) | 14 |
| 5-40 | 41-711-00 | Shim - Drive Pinion Bearing | 1 To 3 |
| 5-41 | 31-235-00 | Ring And Pinion Gear Set 2.69 Ratio | 1 |
| 5-41 | 31-236-00 | Ring And Pinion Gear Set 2.91 Ratio | 1 |
| 5-41 | 31-237-00 | Ring And Pinion Gear Set 3.10 Ratio | 1 |
| 5-41 | 31-238-00 | Ring And Pinion Gear Set 3.56 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 |
| 5-45 | 41-996-00 | Plug - (Level) 1/2" With Recessed Top | 1 |
| 5-46 | 91-509-00 | Spring Clip | 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 | 41-715-10 | 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) | |
| 5-52 | 16-419-00 | Spacer Pinion Shaft (.002" Thick) | 2 to 6 |
| 5-52 | 16-410-00 | Spacer Pinion Shaft (.018" 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 (.440" Thick) | 1 |
| 5-55 | 16-417-00 | Spacer Pinion Shaft (.002" Thick) | 1 |

SECTION J2
PAGE 12

| FIG. I.D. NO | T-D PART NO. | DESCRIPTION | QTY. REQ |
|-----------------|--------------|--|-------------|
| 5-55 | 41-371-00 | Brake Alignment Bracket | 2 |
| 5-56 | 88-080-20 | Hex Head Cap Screw 5/16" X 3" N.C. | 9 |
| 5-57 | 41-989-00 | Plug (Filler Level And Drain) 1/4" N.P.T. | 2 |
| 5-58 | 88-228-61 | Washer 3/4" S.A.E. | 2 |
| 5-59 | 88-089-81 | Lock Nut 5/16" N.C. (Hex) | 14 |
| 5-60 | 88-080-11 | Hex Head Cap Screw 5/16" X 1" N.C. | 2 |
| 5-61 | 85-270-00 | Extension Spring 1½" O.D. 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 |
| 5-65 | 97-250-00 | Nut - Pinion 3/4" - 20 Extra Fine Thread | 1 |
| 5-66 | 41-661-00 | Full Brake Band For 6" Drum | 1 |
| 5-67 | 50-656-00 | Brake Lever Arm | 1 |
| 5-68 | 88-517-11 | Cotter Pin 3/32" X 1" | 1 |
| 5-69 | 96-771-00 | Clevis Pin 3/8" X 3/4" Face To Hole | 1 |
| 5-70 | 88-089-80 | Nut - 5/16" N.C. (Hex) | 10 |
| 5-71 | 88-100-13 | Hex Head Cap Screw 3/8" X 1½" N.C. | 7 |
| 5-72 | 41-370-00 | Brake Mounting Bracket | 1 |
| 5-73 | 85-060-00 | Compression Spring 5/8" O.D. X 2½" Long | 1 |
| 5-74 | 88-108-60 | Washer 3/8" Flat Cut | 4 |
| 5-75 | 88-100-24 | Hex Head Cap Screw 3/8" X 4" N.C. | 1 |
| 5-76 | 88-108-62 | Lockwasher 3/8" | 18 |
| 5-77 | 88-103-09 | Flat Head Socket Cap Screw 3/8" X 3/4" N.C. | 4 |
| 5-78 | 30-506-00 | Chain - 36 Links (For 42 Tooth Sprocket) | 1 |
| 5-78 | 30-507-00 | Chain - 41 Links (For 59 Tooth Sprocket) | 1 |
| 5-78 | 30-508-00 | Chain - 48 Links (For 81 Tooth Sprocket) | 1 |
| 5-79 | 30-091-00 | Sprocket - 42 Tooth With Splined Hub | 1 |
| 5-79 | 30-092-00 | Sprocket - 59 Tooth With Splined Hub | 1 |
| 5-79 | 30-093-00 | Sprocket - 81 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 |
| 5-82 | 17-110-10 | Shaft Collar - 3/4" With Keyway | 1 |
| 5-83 | 45-002-00 | Gasket - Gear Case Cover | 1 |
| 5-84 | 88-239-82 | Jam Nut - 3/4" N.F. (Hex) | 1 |
| 5-85 | 44-352-51 | Gear Case Back Plate (Side Motor Mount) Adjustable | 1 |
| 5-85 | 44-352-52 | Gear Case Back Plate (Vertical Motor Mount) " | 1 |
| 5-86 | 45-501-00 | Oil Seal (Baldor Motor) | 1 |
| 5-86 | 45-506-00 | Oil Seal (G.E. & Taylor-Dunn Motor) | 1 |

| Fig. I.D. No. | T-D Part No. | Description | Quantity Revised |
|------------------|--------------|--|---------------------|
| 5-87 | 70-049-00 | Motor 1.5 / 2 H.P.-24 / 36 Volt 1800/2800 R.P.M. G.E. Model 48JB-265 up to June, 1972 G.E. Model 48JB-503 D after June, 1972 | 1 |
| 5-87 | 70-049-50 | Motor, 1.5 / 2 H.P. 24 / 36 Volt, 1800/2800 R.P.M. Taylor-Dunn | 1 |
| 5-87 | 70-054-00 | Motor 2.25/3.5 H.P., 24/36 Volt, 1800/2800 R.P.M. G.E. Model 49JB-122B | 1 |
| 5-87 | 70-053-00 | Motor - 3½ H.P. 36 Volt, 2600 R.P.M., Baldor | 1 |
| 5-87 | 70-124-00 | Motor Brushes - Baldor Motor | 4 |
| 5-87 | 70-100-00 | Motor Brushes, Taylor-Dunn Motor 70-049-50 & G.E. Motors 48JB-265, 49JB-122B | 4 |
| 5-87 | 70-101-00 | Motor Brushes, G.E. Motor 48JB-503D | 4 |
| 5-87 | 70-188-00 | G.E. Brush Head Assembly without Brushes, G.E. Motor 48JB-5030 | 1 |
| 5-87 | 70-182-00 | Baldor Brush Head Assembly with Brushes | 1 |
| 5-87 | 70-187-00 | Taylor-Dunn Brush Head Assembly without Brushes | 1 |
| 5-87 | 70-185-00 | G.E. Brush Head Assembly without Brushes, G.E. Motors 48JB-265, 49JB-122B | 1 |
| 5-87 | 85-410-00 | Brush Torsion Spring, Baldor Motor | 1 |
| 5-87 | 85-401-00 | Brush Extension Spring, G.E. Motors 48JB-265, & 49JB-122B | 4 |
| 5-87 | 85-412-00 | Brush Torsion Spring, G.E. Motor 48JB-503D | 4 |
| 5-87 | 85-413-00 | Brush Torsion Spring, Taylor-Dunn Motor 70-049-50 | 4 |
| 5-87 | 80-504-00 | Ball Bearing, Front and Rear, Baldor Motor, Front Only, G.E. Motors | 2 |
| 5-87 | 80-200-00 | Ball Bearing, Rear Only, G.E. Motors | - |
| 5-87 | 80-205-00 | Ball Bearing, Front Only, Taylor-Dunn Motor | 1 |
| 5-87 | 80-204-00 | Ball Bearing, Rear Only, Taylor-Dunn Motor | 1 |
| 5-87 | 30-801-00 | Brush Inspection Cover, G.E. Motor 48JB-503D | 4 |
| 5-87 | 70-200-00 | Armature, Motor (State Make and Spec. No. of Motor) | 1 |
| 5-87 | 70-250-00 | Field, Motor (State Make and Spec. No. of Motor) | 1 |
| 5-88 | 10-074-00 | Tire, 400 x 8, Four Ply Super Rib | 2 |
| 5-88 | 10-078-00 | Tire, 400 x 8, Six Ply Steel Guard | 2 |
| 5-88 | 10-075-00 | Tire, 400 x 8, Four Ply Super Rib - Tubeless | 2 |
| 5-88 | 10-076-00 | Tire, 400 x 8, Four Ply Knobby - Tubeless | 2 |
| 5-88 | 10-080-00 | Tire, 500 x 8, Four Ply Super Rib | 2 |
| 5-88 | 10-082-00 | Tire, 500 x 8, Four Ply Xtra Grip | 2 |
| 5-88 | 10-088-00 | Tire, 500 x 8, Eight Ply Steel Guard | 2 |
| 5-88 | 10-081-00 | Tire, 500 x 8, Four Ply Super Rib - Tubeless | 2 |
| 5-89 | 13-989-00 | Valve Stem for Tubeless Tires | 2 |
| 5-89 | 11-030-00 | Tube, 400 x 8 | 2 |
| 5-89 | 11-040-00 | Tube, 500 x 8 | 2 |
| 5-90 | 12-011-00 | Wheel for 400 x 8 & 500 x 8 Tire (Five ½" Holes on 4½" Bolt Circle) | 2 |
| 5-90 | 12-012-00 | Wheel for 400 x 8 & 500 x 8 Tubeless Tire (Five ½" Holes on 4½" Bolt Circle) | 2 |
| 5-91 | 13-731-00 | Tire, Tube & Wheel 400 x 8 Four Ply Super Rib Tire (Five ½" Holes on 4½" Bolt Circle) | 2 |
| 5-91 | 13-738-00 | Tire, Tube and Wheel, 400 x 8 Six Ply Steel Guard Tire (Five ½" Holes on 4½" Bolt Circle) | 2 |
| 5-91 | 13-734-00 | Tire and Wheel, 400 x 8 Four Ply Super Rib, Tubeless Tire (Five ½" Holes on 4½" Bolt Circle) | 2 |

SECTION J2
PAGE 14

| Fig. I.D. No. | T-D Part No. | Description | Quantity Required |
|------------------|--------------|---|----------------------|
| 5-91 | 13-735-00 | Tire & Wheel - 400 x 8, 4 Ply Knobby - Tubeless Tire (Five ½" Holes on 4½" Bolt Circle) | 2 |
| 5-91 | 13-742-00 | Tire & Wheel - 500 x 8, 4 Ply Super Rib - Tubeless Tire (Five ½" Holes on 4½" Bolt Circle) | 2 |
| 5-91 | 13-741-00 | Tire, Tube & Wheel - 500 x 8, 4 Ply Super Rib Tire (Five ½" Holes on 4½" Bolt Circle) | 2 |
| 5-91 | 13-744-00 | Tire, Tube & Wheel - 500 x 8, 4 Ply Xtra Grip Tire (Five ½" Holes on 4½" Bolt Circle) | 2 |
| 5-91 | 13-745-00 | Tire, Tube & Wheel - 500 x 8, 8 Ply Steel Guard Tire, (Five ½" Holes on 4½" Bolt Circle) | 2 |
| 5-92 | 12-020-00 | Wheel for 850 x 8 & 950 x 8 Tire (Five ½" Holes on 4½" Bolt Circle) | 2 |
| 5-93 | 10-093-00 | Tire - 850 x 8, 4 Ply Terra Tire, Power Rib | 2 |
| 5-93 | 10-091-00 | Tire - 950 x 8, 4 Ply Terra Tire, Traction | 2 |
| 5-93 | 10-092-00 | Tire - 950 x 8, 6 Ply Terra Tire, Traction | 2 |
| 5-94 | 11-041-00 | Tube - 850 x 8 & 950 x 8 (Optional as Tires are Tubeless) | 2 |
| 5-95 | 13-746-00 | Tire & Wheel - 850 x 8, 4 Ply Terra Tire Power Rib (Five ½" Holes on 4½" Bolt Circle) | 2 |
| 5-95 | 13-751-00 | Tire & Wheel - 950 x 8, 4 Ply Terra Tire, Traction (Five ½" Holes on 4½" Bolt Circle) | 2 |
| 5-96 | 12-054-00 | Wheel for 16½ x 11½ Solid Cushion Tire (Five ½" Holes on 4½" Bolt Circle) | 2 |
| 5-96 | 12-051-00 | Wheel for 18 x 5 x 12-1/8 Solid Cushion Tire (Five ½" Holes on 4½" Bolt Circle) | 2 |
| 5-97 | 10-261-00 | Tire - Solid Xtra Cushion All Service 16½ x 4 x 11½ | 2 |
| 5-97 | 10-260-00 | Tire - Solid Xtra Cushion, All Service, 18 x 5 x 12-1/8 | 2 |
| 5-98 | 13-954-10 | Tire and Cast Iron Wheel 16½ x 4 x 11½ Solid Xtra Cushion All Service Tire (Five ½" Holes on 4½" Bolt Circle) | 2 |
| 5-98 | 13-955-10 | Tire Cast Iron Wheel - 18 x 5 x 12-1/8 Solid Xtra Cushion All Service Tire (Five ½" Holes on 4½" Bolt Circle) | 2 |
| 5-99 | 41-346-98 | Brake Backup Plate Assembly with Shoes (Left Side) | 1 |
| 5-99 | 41-346-99 | Brake Backup Plate Assembly with Shoes (Right Side) | 1 |
| 5-100 | 41-346-10 | Brake Backup Plate Only (Left Side) | 1 |
| 5-100 | 41-346-11 | Brake Backup Plate Only (Right Side) | 1 |
| 5-101 | 41-640-00 | Brake Shoes 7" Internal Expanding (Set for One Wheel) | 2 Sets |
| 5-102 | 42-003-00 | Brake Adjustment Cam (7" Hydraulic Brake) | 4 |
| 5-103 | 85-207-00 | Spring, Extension 3/8 x 1-3/8 Free Length (Red) (Not Used When Items 5-128 thru 5-132 are Used) | 4 |
| 5-104 | 85-208-00 | Spring, Extension, ½" x 4½" Free Length (Orange) | 2 |
| 5-105 | 85-411-00 | Spring, Torsion, 1½" Diameter (Blue) | 2 |
| 5-106 | 45-044-00 | Gasket - Rear Axle Bearing | 2 |
| 5-107 | 88-068-62 | Washer - ½" Lock | 4 |
| 5-108 | 88-060-06 | Hex Head Cap Screw ½" x ½" N.C. | 4 |
| 5-109 | 41-514-00 | Brake Drum (7") | 2 |

| FIG. I.D. NO. | T-D PART NO. | DESCRIPTION | QTY REF |
|------------------|--------------|--|------------|
| 5-110 | 86-000-00 | Shock Absorber | 1 |
| 5-111 | 88-189-81 | Lock Nut 5/8" (Hex) | 2 |
| 5-112 | 88-180-18 | Hex Head Cap Screw 5/8" X 2½" N.C. | 2 |
| 5-113 | 88-188-60 | Washer 5/8" Flat (Cut) | 2 |
| 5-114 | 96-103-00 | "U" Bolt 1/2" X 1-7/8" I.D. X 3½" Overall Length | 2 |
| 5-115 | 50-460-00 | "U" Bolt Strap | 2 |
| 5-116 | 99-506-98 | Wheel Cylinder (7" Brake - Left) | 1 |
| 5-116 | 99-506-99 | Wheel Cylinder (7" Brake - Right) | 1 |
| 5-117 | 99-506-61 | Wheel Cylinder Repair Kit (7" Brake) | 2 |
| 5-118 | 88-527-11 | Cotter Pin 1/8" X 1" (Axle Vent) | 1 |
| 5-119 | 88-088-61 | Washer 5/16" SAE | 11 |
| 5-120 | 96-097-14 | Centerbolt For 5 Leaf Spring 5/16" NF X 1½" (H.T.) | 2 |
| 5-121 | 88-099-80 | Nut 5/16" NF (Hex) | 2 |
| 5-122 | 80-703-00 | "O" Ring Motor Mount Seal | 1 |
| 5-123 | 70-454-00 | Motor Mount Plate | 1 |
| 5-124 | 88-067-11 | Socket Set Screw ½" NC X 1" | 1 |
| 5-125 | 88-069-80 | Nut ½" NC (Hex) | 1 |
| 5-126 | 88-109-80 | Nut 3/8" NC (Hex) | 1 |
| 5-127 | 16-400-00 | Spacer 1½" I.D. X .125" Thick | 0 - 1 or 2 |
| 5-128 | 41-695-00 | Pin, Brake Shoe Anchor | 4 |
| 5-129 | 41-697-00 | Washer (Rubber) 7/16 O.D. x 1/8 I.D. x 3/32 Thick | 4 |
| 5-130 | 88-068-61 | Washer, ½ SAE | 4 |
| 5-131 | 85-050-00 | Spring, Compression, ½" O.D. x 1" Long (Fuschia) | 4 |
| 5-132 | 41-696-00 | Cup, Brake Shoe Anchor | 4 |

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.

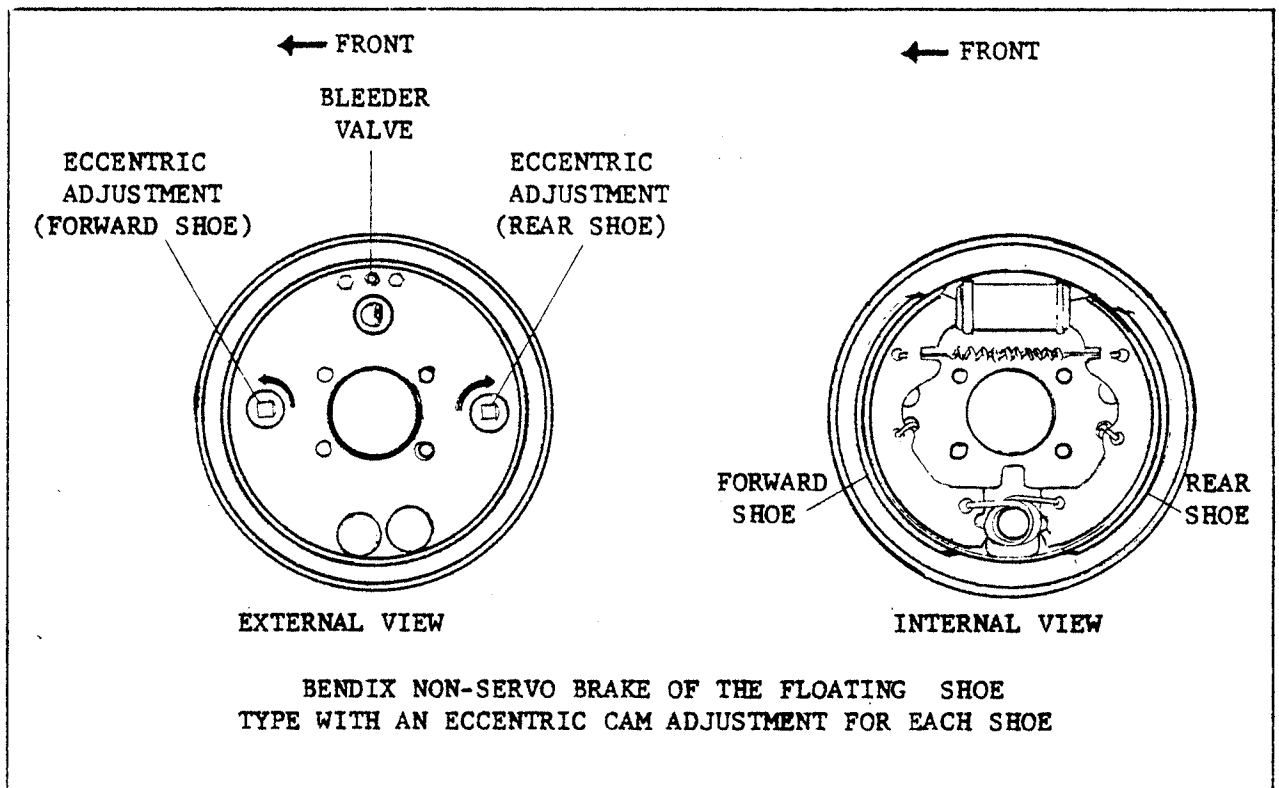
If fluid level is allowed to fall too low in master cylinder reservoir, air will be pumped into system. Consequently the system will have to be bled to remove air. To bleed air from system, follow procedure outlined next.

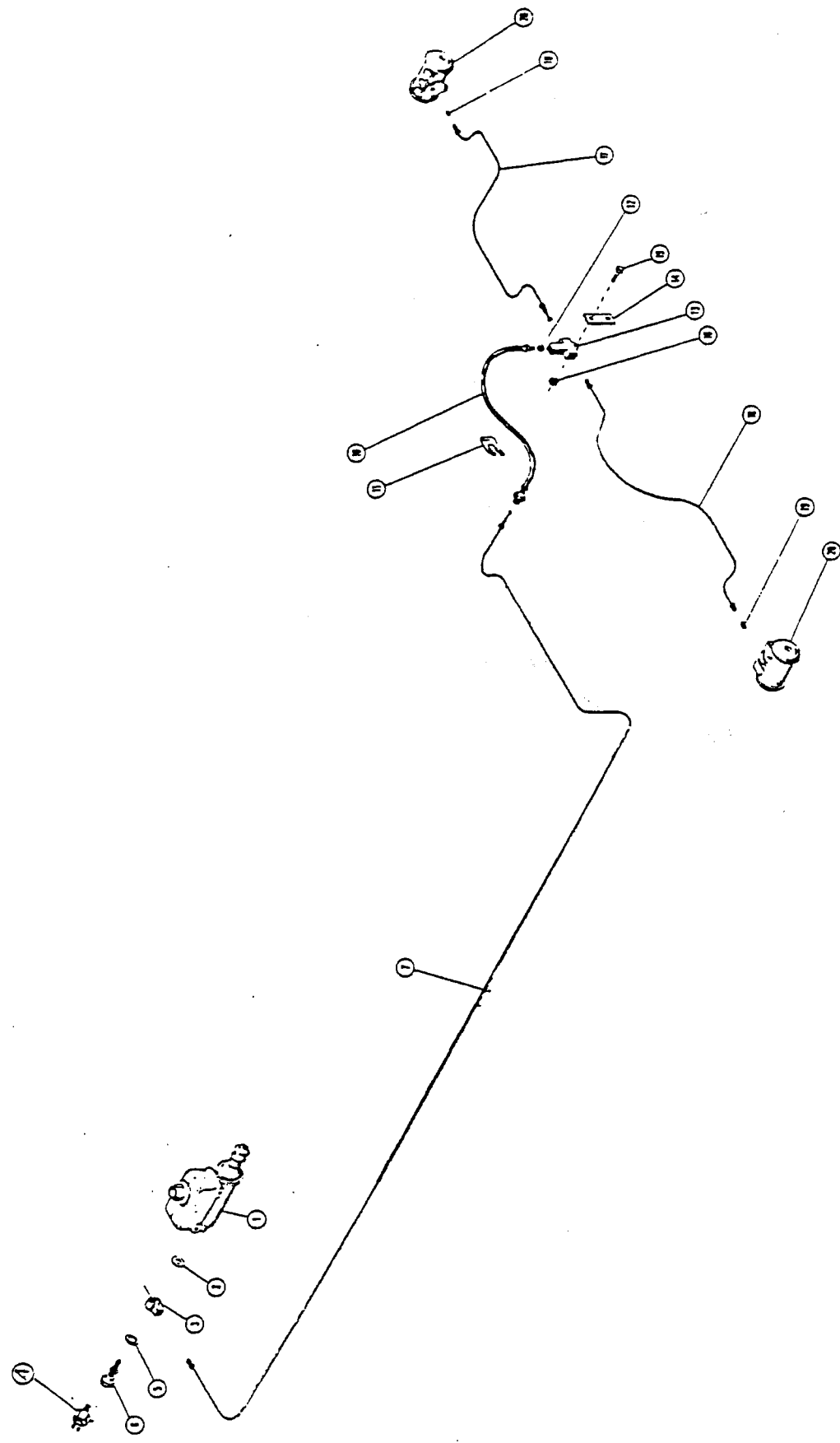
1. For best results brake shoes should be properly adjusted prior to bleeding system. (Refer to Adjustment Section J3 of this manual)
2. Fill master cylinder to top with approved brake fluid or, if available, attach brake bleeder tank to master cylinder.
3. When using bleeder tank, loosen air bleeder 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.





| | | | | | | | |
|------------|--|-------------|--|--------|-------|--------------|----------|
| NO. | | DESCRIPTION | | LENGTH | QUAN. | REVISED DATE | REVISION |
| TOL. FRAC. | | TOL. FRAC. | | | | | |
| SCALE | | NONE | | | | | |
| DRAWN BY | | R F 4 | | | | | |
| DATE | | 6-11-62 | | | | | |

FIGURE 6
SECTION J3

HYDRAULIC BRAKE SYSTEM
MODEL R 970 FUP

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

FIGURE NO. 6
GROUP 6 HYDRAULIC BRAKE SYSTEM

| Fig. I.D. No. | T-D Part No. | Description | Quantity Req. |
|------------------|--------------|---|------------------|
| 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 | 99-566-00 | Fitting (3/16" Tube Single Outlet) 2 Wheel Brakes | 1 |
| 6-4 | 71-110-00 | Switch, Brake Light (Hydraulic) | 1 |
| 6-5 | 99-572-00 | Washer (Copper Large Hole) | 1 |
| 6-6 | 99-578-00 | Master Cylinder Fitting Adaptor (With Stop Light) | 1 |
| 6-6 | 99-579-00 | Master Cylinder Fitting Adaptor (W.O Stop Light) | 1 |
| 6-7 | 99-608-53 | Formed Steel Brake Line (3/16" x 60") | 1 |
| 6-10 | 99-580-00 | Hose | 1 |
| 6-11 | 99-576-00 | Clip (Hose) | 1 |
| 6-12 | 99-570-00 | Washer (Hose) Copper | 1 |
| 6-13 | 99-563-00 | Tee Fitting (3/16" Tube x 3/16" Tube x 3/8-24) | 1 |
| 6-14 | 99-557-00 | Bracket (Fitting Mount) | 1 |
| 6-15 | 88-060-11 | Hex Head Cap Screw 1/4" NC x 1" | 2 |
| 6-16 | 88-069-87 | Nut 1/4" NC Fastite | 2 |
| 6-17 | 99-603-51 | Formed Steel Brake Line 3/16" x 12" | 1 |
| 6-18 | 99-605-51 | Formed Steel Brake Line 3/16" x 30" | 1 |
| 6-19 | 99-574-00 | Spacer Adaptor for 99-506-10 Wheel Cylinder | 2 |
| 6-20 | 99-506-98 | Wheel Cylinder (7" Brake Left Rear) | 1 |
| 6-20 | 99-506-99 | Wheel Cylinder (7" Brake Right Rear) | 1 |
| 6-20 | 99-506-61 | Repair Kit (Wheel Cylinder) | 1 |

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.

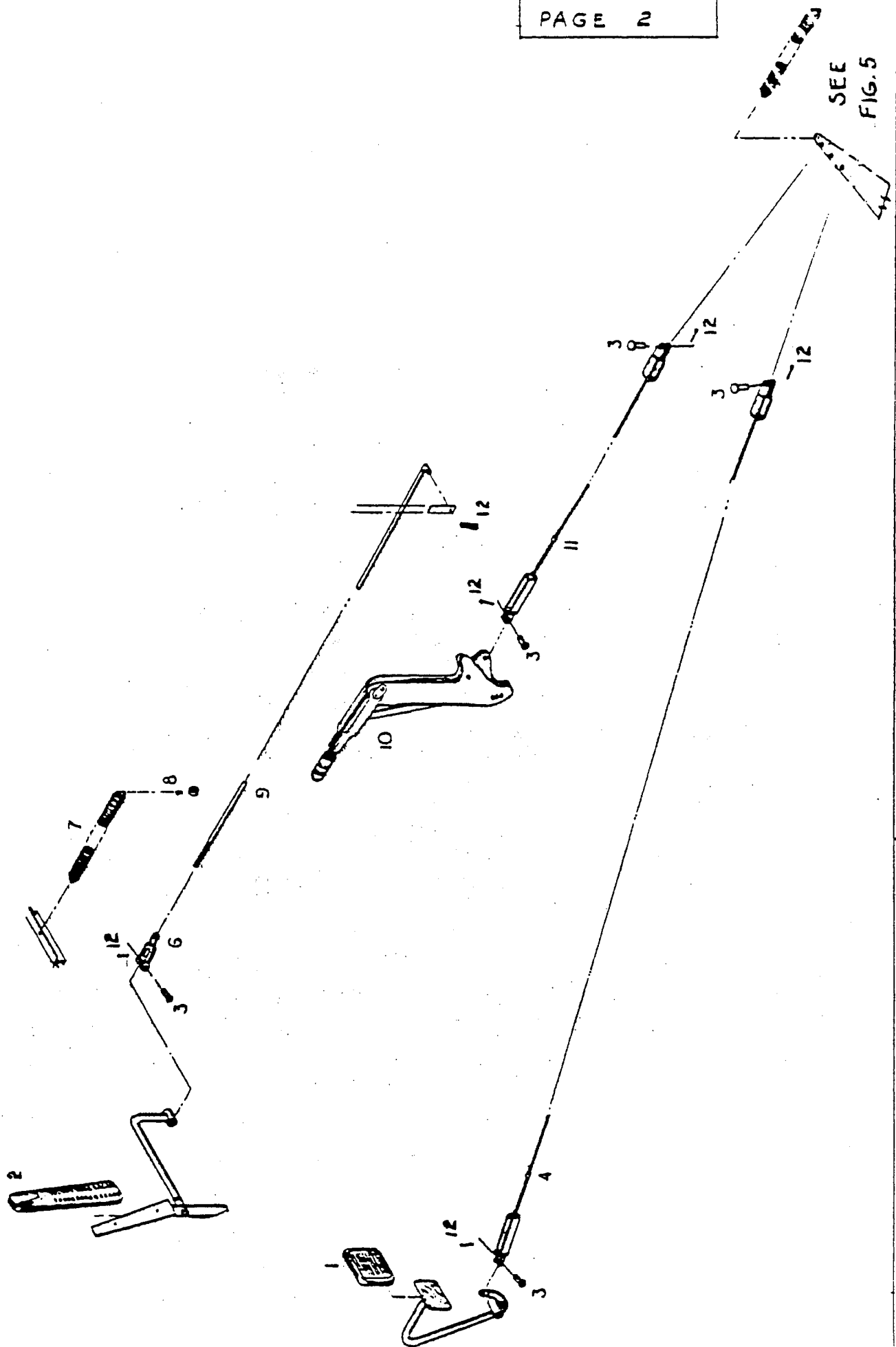
All wear points should be lubricated monthly. Refer to Maintenance Guide Section D and Lubrication Diagram Section E for proper application of lubricants.

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.



TAYLOR DUNN MFG. CO.
2114 West Ball Rd.
ANN ARBOR, MICH.

CONTROL LINKAGE

FIGURE 7
SECTION 14

TOL. FRAC. ± DEC. ±

SCALE

DRAWN BY *CA*

FIGURE NO. 7
GROUP 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 | 1 |
| 7-3 | 96-772-00 | 3/8 Clevice Pin | 5 |
| 7-4 | 96-820-00 | Brake Cable Assembly (34½ to 37½ Length) for Service Brake - Standard Model | 1 |
| 7-4 | 96-812-00 | Brake Cable Assembly (31-3/4 to 34-3/4 Length) for Service Brake - Trident Model | 1 |
| 7-6 | 96-762-00 | 3/8 Clevice | 1 |
| 7-7 | 85-295-00 | Spring Extension 11/16" O.D. x 4-7/8" Long | 2 |
| 7-8 | 17-104-00 | 3/8 Shaft Collar | 1 |
| 7-9 | 50-120-00 | Accelerator Rod, 37½" Long | 1 |
| 7-10 | 51-340-00 | Hand Parking Brake Lever with Spacers | 1 |
| 7-10 | 98-351-00 | Hand Grip - 7/8 I.D. x 4½ Long | 1 |
| 7-11 | 96-812-00 | Brake Cable Assembly (31-3/4 to 34-3/4 Length) for Parking Brake - Standard Model | 1 |
| 7-11 | 96-813-00 | Brake Cable Assembly (28½ to 31½ Length) for Parking Brake - Trident Model | 1 |
| 7-12 | 88-527-11 | Cotter Pin, 1/8 x 1 | 6 |

MAINTENANCE PROCEDURES
REFER TO FIGURE 8
FORWARD-REVERSE SWITCH

The forward-reverse switch on your vehicle serves the same purpose as does the transmission in your automobile. It should be treated with the same respect, for abusive treatment will not only shorten its life, but will seriously effect the life of the motor, drive gears and differential.

DO NOT SHIFT POSITION OF SWITCH FROM FORWARD TO REVERSE OR VICE-VERSA WHILE VEHICLE IS IN MOTION.

It will require very little maintenance if properly used. Every month check contact fingers and rotor contacts for cleanliness and to insure that they are making snug and even contact. If they show evidence of abnormal pitting or burning they should be replaced.

Refer to Service and Adjustment Section J5 of this manual for replacement procedures.

It is recommended that an occasional small quantity of lubricant be placed on the cam and cam follower of the switch. Refer to Figure 8.

An occasional application of powdered graphite or similar key lock lubricant will keep your key and lock in good working order.

SERVICE AND ADJUSTMENT
REFER TO FIGURE 8
FORWARD-REVERSE SWITCH

Caution: Whenever service work is to be conducted on the switch or any part of your vehicle wiring system, disconnect the positive lead at your battery or unplug power leads on vehicles so equipped.

REMOVAL, DIS-ASSEMBLY AND RE-ASSEMBLY OF SWITCH

1. Remove handle screw in center of handle and then remove handle and spacer.
2. Remove 2 screws in center of face plate, this will release switch unit from frame. Then lift switch unit clear of frame noting that the end plate will be free to lift off of switch.
3. Remove cover.
4. If you wish to remove contact fingers or finger-boards at this time, then it will be necessary to follow steps 5-6-8 & 9. If you will only be servicing the rotor assembly it will not be necessary to remove wires.
5. Note position of wires and mark their respective locations to insure that they will be properly placed on re-assembly.
6. Remove 4 wires from switch terminals and slide out of switch housing.
7. Pull cam follower away from cam on rotor and lift rotor assembly from switch housing.
8. If you wish to replace finger-boards at this time, tap them out of their slots in the direction of the handle end of switch taking care to catch the wedges as they come free of the frame.
9. Install new finger board in the reverse manner outlined in step 8, noting that the long notch on end of board is located on handle end of switch. Tap wedges into place to lock finger boards to frame.
10. Inspect cam and spring. If necessary replace with new parts.
11. Remove nut on end of rotor shaft and dis-assemble spacers and rotor contacts. Note: it is very important to observe the position of each part as you remove it from rotor shaft to insure it's proper re-assembly. The rotor contacts look similar but are actually a pair consisting of a left and a right contact.
12. Re-assemble rotor parts on rotor shaft in their proper order and lock into place by tightening 1/4" nut at end of shaft. Use care in tightening nut as undue strain could shear the locking ring on opposite end of shaft.
13. Install rotor assembly into frame moving cam follower enough to allow cam to set in position.
Note: It will ease the rotor installation if you will place it in neutral position. i.e. The contacts will be free from finger contacts and the low side of cam will engage cam follower.

14. Install wires onto their respective terminals and tighten securely.
15. Replace cover.
16. Replace end plate and slide switch unit back into place against face plate.
17. Replace 2 screws. It may be necessary to exert sufficient pressure and joggle switch unit into alignment with screw holes as cam spring tends to hold the switch out of position. A simple method to align the face plate and switch frame together, is to slip a medium size nail or ice pick into one hole through both pieces. Align second hole, insert screw, and tighten. Remove nail or ice pick from first hole and install screw and tighten.
18. Replace spacer and handle and tighten into position with center screw.

REPLACEMENT OF CONTACT FINGERS ONLY

1. Remove cover. (Note: on some vehicles it will be necessary to remove switch from mounting plate to gain access to cover.)
2. If you will be removing more than one finger at a time, it is recommended that you note the position of the wires and mark their respective locations.
3. Remove terminal nut and wire.
4. Remove nut holding finger to finger-board and remove finger.
5. Install new finger and replace nuts and wires in the reverse order to which they were removed.



FORWARD - REVERSE SW,
PAK NO. 71-040-00

FIGURE 8
SECTION J5

LENGTH QUAN. REVISED DATE REVISION

NO. DESCRIPTION

TOL. FRAC. DEC. 1

SCALE NONE

DRAWN BY RF-1

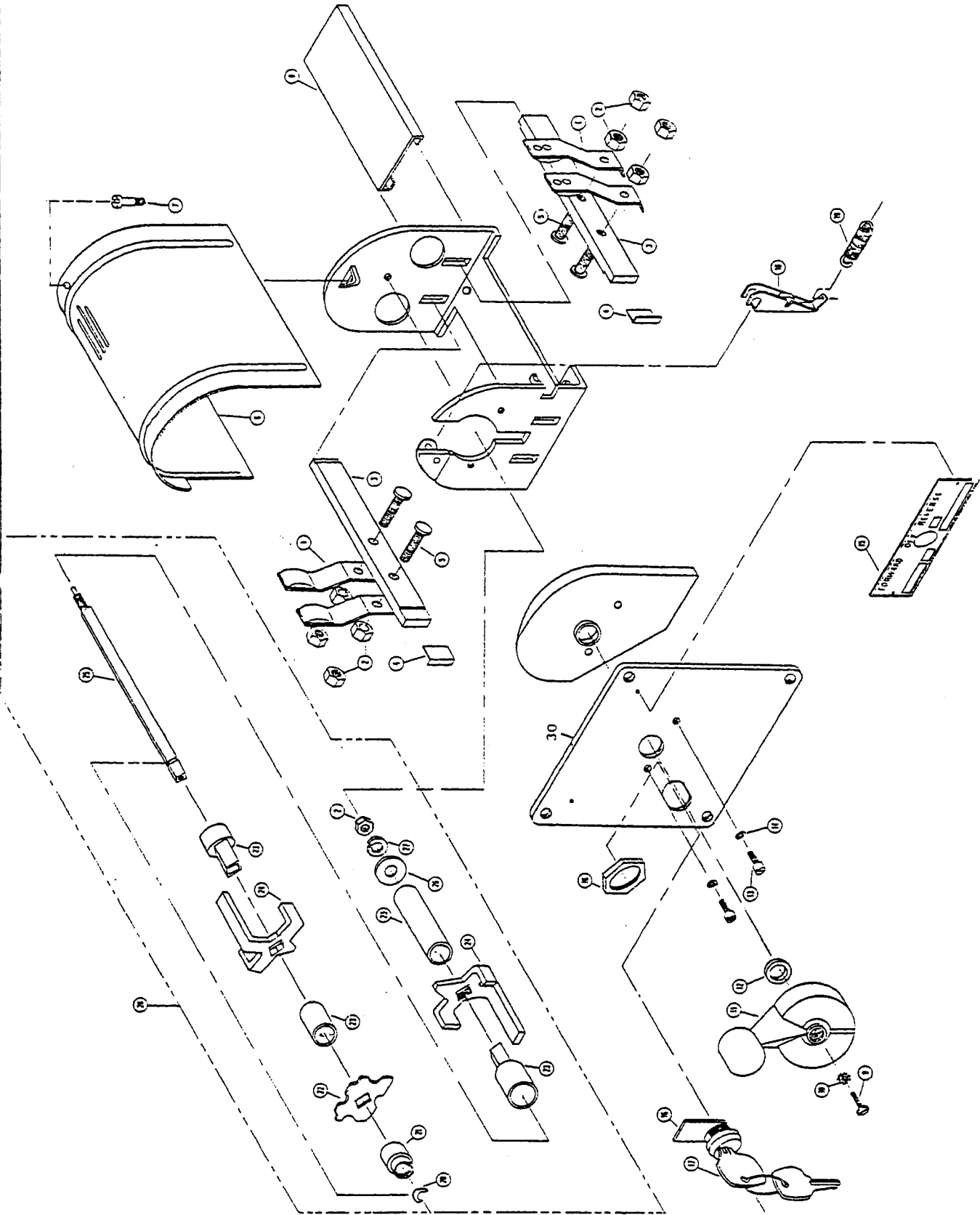


FIGURE NO. 8
GROUP 8 FORWARD AND REVERSE SWITCH

| FIG. I. D. NO. | T-D PART NO. | DESCRIPTION | REQ. |
|--------------------------------------|--------------|---|-------|
| 8-0 | 71-040-00 | Forward & Reverse Switch Complete (4 Fingers) | 1 |
| 8-1 | 71-040-60 | Switch Finger - Silver Plated With 1/4" Hole | 4 |
| 8-2 | 88-079-80 | Nut 1/4" NF (Hex) | 9 |
| 8-3 | 71-040-61 | Finger Board With 1/4" Holes | 2 |
| 8-4 | 71-040-69 | Finger Board Wedge | 2 |
| 8-5 | 71-040-71 | Bolt-Finger Mounting (1/4" NF X 7/8" Spec.) | 4 |
| 8-6 | 71-040-65 | Switch Cover | 1 |
| 8-7 | 71-040-73 | Cover Screw (10-32 X 1/2" Filister Head) | 1 |
| 8-8 | 71-040-70 | Rubber Insulator Strip | 1 |
| 8-9 | 88-025-06 | Screw 8-32 X 1/2" Truss Head | 1 |
| 8-10 | 88-028-64 | Washer 8-32 (External Star Lock) | 1 |
| 8-11 | 71-040-62 | Switch Handle - Metal (Red Color) | 1 |
| 8-12 | 71-040-59 | Spacer Washer | 1 |
| 8-13 | 71-040-72 | Face Stop Bolt (10-32 X 3/8 Spec.) | 2 |
| 8-14 | 88-048-62 | Lock Washer 10-32 | 2 |
| 8-15 | 94-305-00 | Forward-Reverse Switchplate | 1 |
| 8-16 | 71-040-55 | Lock Assembly With 2 Keys | 1 |
| 8-17 | 71-040-74 | Key Only (Give No. Of Lock Or Vehicle Ser. No.) | 2 |
| 8-18 | 71-040-53 | Cam | 1 |
| 8-19 | 71-040-54 | Spring - (Cam) | 1 |
| 8-20 | 71-040-75 | Snap Ring - 1/4" | 1 |
| 8-21 | 71-040-68 | Bushing | 1 |
| 8-22 | 71-040-67 | Cam Index | 1 |
| 8-23 | 71-040-66 | Plastic Spacer Set (Sold Only As Set Of 4 Pcs.) | 1 Set |
| 8-24 | 71-040-58 | Rotor Contacts (Set Of 2-1 Right & 1 Left) | 1 Set |
| 8-25 | 71-040-64 | Rotor Shaft (Only) | 1 |
| 8-26 | 88-068-61 | Washer SAE | 1 |
| 8-27 | 88-068-62 | Lock Washer 1/4" | 1 |
| 8-28 | 71-040-52 | Rotor Assembly | 1 |
| 8-30 | 71-040-82 | Face Plate | 1 |
| | 71-040-76 | Kit-Conversion to Six Finger Switch | 1 |
| <u>Switch Extension Handle Parts</u> | | | |
| 8-9 | 71-040-80 | Extension Rod-8-32 x 6 1/2" Long | 1 |
| 8-9 | 71-040-78 | Extension Tube-11/16 OD x 5 1/2" Long | 1 |
| 8-11 | 71-040-77 | Switch Position Indicator | 1 |
| | 71-040-79 | Bracket - Extension Support | 1 |
| | 88-029-80 | Nut 8-32 (Hex) | 1 |

MAINTENANCE PROCEDURES
REFER TO FIGURE 9
RHEOSTAT SPEED CONTROL

The rheostat, controls the speed of your vehicle through the use of coils of nichrome resistance wire. With this type of resistance control, you use approximately the same amount of power from batteries in low speed as you do in high speed. The flat copper bars and a movable J-Hook are the major parts in the rheostat. With proper adjustment and lubrication the rheostat will give many months of trouble free use. It doesn't take much grease to do the job, but it should be done weekly. Monthly the space between bars should be cleaned with a piece of wood or plastic or steam cleaned if possible. When J-Hook is worn to 1/8" thickness, replace J-Hook and power bars.

Refer to Service and Adjustment Section J6 of this manual for proper adjustment and service procedures.

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 to the connection. Care should also be taken at each inspection to insure that proper contact is maintained between J-Hook and power bars.

J-Hook and accelerator linkage should work freely allowing return spring to always return J-Hook to neutral bar when accelerator is released.

Refer to Lubrication Diagram Section E for proper lubrication.

SERVICE AND ADJUSTMENT
REFER TO FIGURE 9
RHEOSTAT SPEED CONTROL

Caution: Whenever service work is to be performed on the electrical system disconnect the battery by unplugging power leads.

Adjustment of J-Hook Pressure Bar

1. Adjust J-Hook pressure bar by disconnecting J-Hook from accelerator link and sliding J-Hook near the anchor bolt at neutral bar end. Anchor bolt is held in position by 2 nuts. Loosen 1 nut and adjust the other until J-Hook may be moved with a minimum of effort but not allowed to "jiggle" freely. At the opposite end of the pressure bar, adjust the spring pressure to maintain snug contact between J-Hook and power bars. Too much spring pressure will tend to make the J-Hook bind and stick. Too little pressure will promote poor contact, causing burning and pitting to occur. Re-connect operating arm to accelerator link and check operation of switch. J-Hook should slide smoothly with very little noise. If noticeable clicking noises occur as J-Hook passes over power bars, it is usually indicative of poor J-Hook alignment. If necessary, bend or twist connecting strap until J-Hook contacts power bars in a flat and smooth manner.

Caution: Every time adjustments are made to rheostat switch, always check the operation of the accelerator pedal. The J-Hook MUST return completely to neutral bar when pedal is released from any position. Lubricate as outlined in Section E.

Adjustment of J-Hook Travel

1. Adjust rheostat J-Hook travel by depressing accelerator pedal to floor and checking alignment of J-Hook with the 5th power bar. J-Hook and 5th power bar should be in exact alignment with full contact. If J-Hook does not line up properly adjust accelerator control rod length by loosening lock nut and removing cotter pin and clevis pin. If J-Hook does not travel far enough onto the 5th power bar, turn clevis to lengthen rod sufficiently for correct alignment. Adjust clevis in the opposite direction, shortening rod if J-Hook is traveling too far past the 5th power bar.

Note: Each 1/2 turn of clevis will move J-Hook position approximately 1/16".

Replacement of J-Hook

1. With power disconnected, remove 2 bolts attaching J-Hook to connecting strap.
2. Slide J-Hook to full on position and open pressure bar by pulling against spring pressure.
3. Roll J-Hook out from between pressure bar and power bars.
4. Replace J-Hook following reverse procedure.

Replacement of Rheostat Switch

1. Note location of wires connected to switch and mark accordingly, to insure their return to original location on re-assembly.
2. Remove wires at respective terminals.
3. Remove bolts connecting J-Hook insulator to operating link.
4. Remove 3 bolts holding switch to bracket and remove switch.
5. Replace switch in the reverse manner to which it was removed.
6. Check and adjust rheostat switch as outlined above.

Replacement of Power Bars

1. With power disconnected, remove terminal bolt and holding bolts.
2. Slide bar out of rheostat.
3. Clean switch thoroughly and install new bar.

Note: Power bars tend to wear at the same rate, except when 1 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.

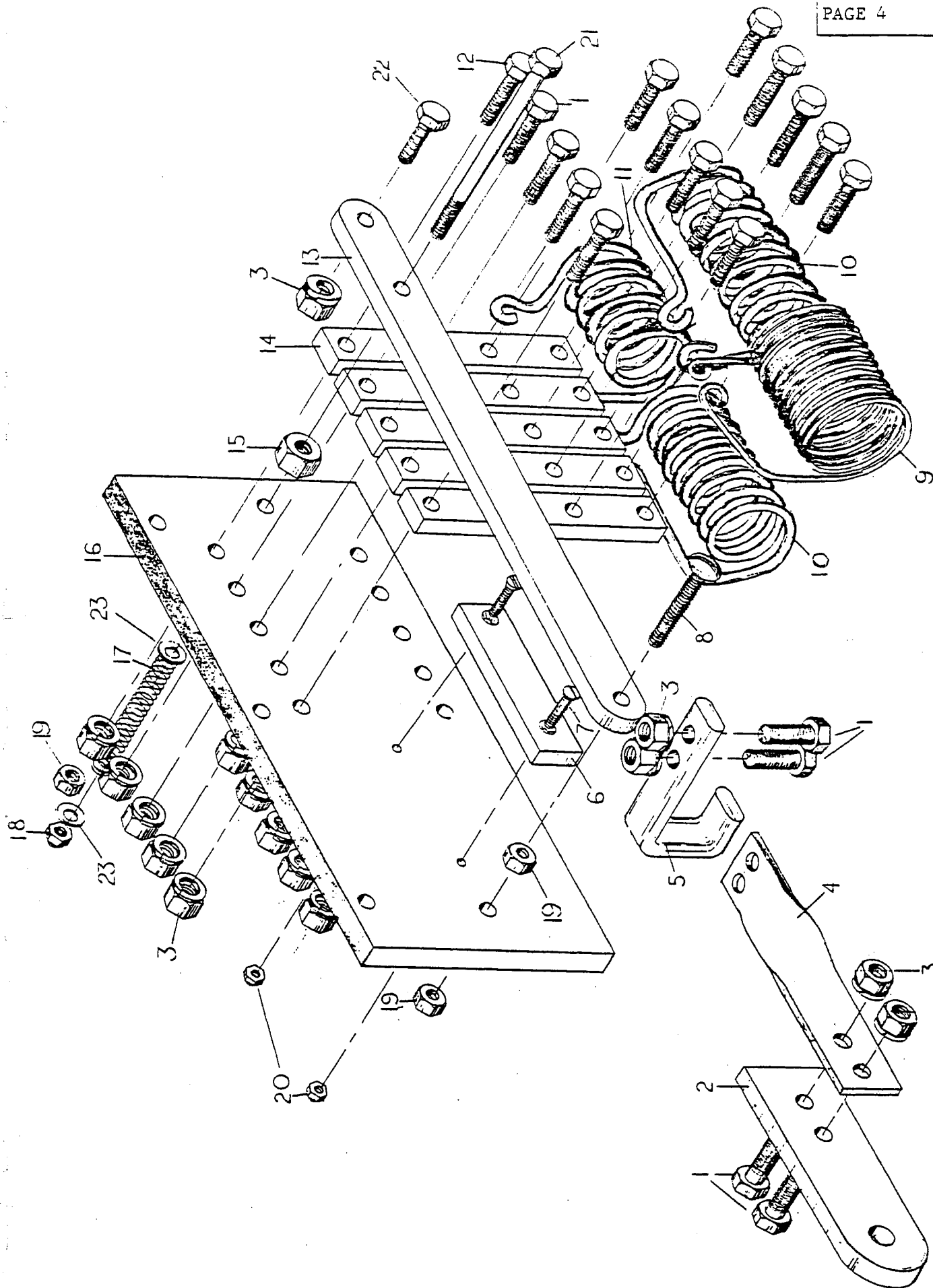
It is recommended that power bars be replaced as a set rather than individually to avoid the above condition.

Minor high points may be removed with a file to produce smooth switching action.

4. Follow adjustment procedures previously outlined.

Adjustment of Dashpot Assembly

Refer to Section J4 and Figure 7



SECTION J6
PAGE 4



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

SPEED CONTROL RHEOSTAT
5 SPEED

FIGURE 9
SECTION J6

| | |
|--------------|---------|
| TOL. FRAC. ± | DEC. ± |
| SCALE | NONE |
| DRAWN BY | REA |
| DATE | 9-13-69 |

SECTION J6
GE 5

FIGURE NO.9
GROUP 9 RHEOSTAT 5 SPEED CONTROL

| FIG. I.D. NO. | T-D PART NO. | DESCRIPTION | QTY. REQ. |
|------------------|--------------|---|--------------|
| 9-0 | 61-830-31 | Sliding Bar Rheostat 5 Speed Complete With 61-837-15 Assembly And 61-832-10 Assembly | 1 |
| 9-1 | 88-060-09 | Hex Head Cap Screw 1/4" NC X 3/4" | 15 |
| 9-2 | 61-834-00 | Insulating Board | 1 |
| 9-3 | 88-069-87 | Fastite Nut 1/4" NC | 20 |
| 9-4 | 61-833-00 | J-Hook Twisted Strap (4-1/2" Long) | 1 |
| 9-5 | 61-832-00 | Sliding J-Hook Bar | 1 |
| 9-6 | 61-835-15 | Neutral Bar (5 Speed) | 1 |
| 9-7 | 88-026-10 | Flat Head Machine Screw 8-32 X 7/8" | 2 |
| 9-8 | 88-065-14 | Truss Head Machine Screw 1/4" NC X 1-1/2" | 1 |
| 9-9 | 78-212-51 | Resistor Coil (#9 Wire 10 Turns) | 1 |
| 9-10 | 78-212-52 | Resistor Coil (#6 Wire 9 Turns) | 2 |
| 9-11 | 78-212-53 | Resistor Coil (#5 Wire 6 Turns) | 1 |
| 9-12 | 88-060-13 | Hex Head Cap Screw (1/4" NC X 1-1/2") (Terminal Bolt) | 1 |
| 9-13 | 61-836-00 | Pressure Bar | 1 |
| 9-14 | 61-831-00 | Power Bar | 5 |
| 9-15 | 88-109-80 | Nut 3/8" NC (Hex) | 1 |
| 9-16 | 61-837-00 | Mounting Board | 1 |
| 9-17 | 85-034-00 | Spring - Compression 7/16" OD X 2" | 1 |
| 9-18 | 88-069-86 | Flexlock Nut 1/4" NC | 1 |
| 9-19 | 88-069-80 | Nut 1/4" NC (Hex) | 3 |
| 9-20 | 88-029-86 | Flexlock Nut 8-32 | 2 |
| 9-21 | 88-060-22 | Hex Head Cap Screw 1/4" NC X 3-1/2" | 1 |
| 9-22 | 88-060-11 | Hex Head Cap Screw 1/4" NC X 1" | 4 |
| 9-23 | 88-068-60 | Washer 1/4" Flat | 2 |

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 J5 - Forward-Reverse Switch
- Section J6 - Speed Control And Main Power Switching
- Section J8 - Batteries And Charger

For identification of parts not covered in the above sections, refer to the following pages of this section.

ELECTRICAL PARTS

| <u>T-D Part No.</u> | <u>Description</u> | <u>Quantity</u> |
|---------------------|--|-----------------|
| 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 |
| 71-502-00 | Horn button - tiller model | 1 |
| 71-607-00 | Switch console | 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 |
| 74-015-00 | Plug in charge indicator | 1 |
| 74-050-00 | Windshield wiper motor | 1 |
| 74-051-00 | Windshield wiper arm | 1 |
| 74-052-00 | Windshield wiper blade | 1 |
| 75-070-00 | Wiring harness (power only) | 1 |
| 75-113-00 | Wiring harness for light, horn, and stop light, on Model R with switch console | 1 |
| 76-002-00 | Charging plug, 30 amp, 3 prong | 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 7½ 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 fully 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 surroundings and the types 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.

VEHICLE NO.

BATTERY MAINTENANCE RECORD

| Battery No. | Cell No. | Date | | | 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 | 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 | | | | | | | | | | | | |

- 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.
- 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.
- Batteries which require unusually frequent watering may indicate overcharging. Review charging practices and/or adjustment of transformer taps in charger.
- 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".
- Periodically check for loose terminal posts or loose connections to terminal posts, but not while batteries are being charged.
- Keep tops of batteries clean, and free of moisture, grease, and acid films. Any of these can cause current leakage.
- 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 |
| 77-031-00 | 6 Volt, 190 A.H. Battery | 4 or |
| 77-042-00 | 6 Volt, 217 A.H. Battery | 4 or |
| 77-048-00 | 6 Volt, 250 A.H. Battery | 4 or |
| 77-200-00 | Hydrometer | 1 |
| 77-201-00 | Battery Filler | 1 |
| 77-202-00 | Battery Breakdown Meter | 1 |

SERVICE AND ADJUSTMENTS
BATTERY CHARGER

INTRODUCTION

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

SPECIFICATIONS

A SERIES

| MODEL | | A-C | A-C | Battery | D-C | D-C |
|----------|-------------------------|-------|-----|------------|-------|-----|
| Portable | Built-in | Volts | Amp | Amp Hours* | Volts | Amp |
| 2420A | 2420A-C/2420A-SS/2420AB | 115 | 5 | 130/170 | 24 | 20 |
| 3620A | 3620A-C/3620AB | 115 | 9 | 130/170 | 36 | 20 |

T SERIES

| | | | | | | |
|--------------|--------------------------|-----|----|---------|----|----|
| 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 that 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 amperes 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 the charger to rain or other adverse weather conditions. 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. A Low-Med-High switch on the charger is designed to make the necessary adjustment convenient. This switch is located on the front panel of all portable models and on the charger portion of the built-in models with separate control console.

The "Med" setting is designed for those locations where the voltage is between 113 and 120 volts. If your input voltage is between 121 and 128 volts, set the switch in the "Low" position. This will reduce the output voltage to compensate for the high input voltage. If the input voltage at your location is between 105 and 112 volts, set the switch in the "High" position. This will raise the output voltage to compensate for low input voltage. For greater accuracy, the input voltage should be measured during the time of day when the battery chargers are normally in use.

If the output current as shown on the meter exceeds the rated output of the charger, set the switch to the next lowest position to avoid damage. Once set, it should not be necessary to change the switch position as long as the charger is used at the same location.

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.
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 "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 tap switch 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 | $\frac{1}{2}$ |
| 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 tap switch or terminal board.

5. If the transformer hums, proceed as follows:
 - 5.1 Remove A-C 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 D-C 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 transformer.
 - 5.5 Check for continuity across the two terminals of the meter. If no continuity exists, the meter is open. Replace meter.
 - 5.6 If all indications to this point are normal, test the entire D-C output circuitry for continuity by progressing from the positive D-C output prong to the negative D-C output prong in incremental test sections, checking each connection for open circuits and poor connections

A-C LINE FUSES BLOW

6. With unit unplugged and timer turned ON, check for continuity between each input prong of the A-C 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 A-C 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 D-C 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 terminals.

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 the actuating voltage.

10.5 Turn the charger 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 a battery hydrometer 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 1.100 for a completely discharged battery to 1.260 for a fully charged battery. No amount of overcharging will raise the specific gravity above 1.260 on the electric vehicle type of battery. Both overcharging and undercharging can cause a 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 the 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 to the proper level will result in a crumbling (abnormal sulfation) of the plates and cause failure of the battery. 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

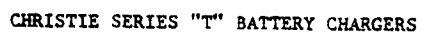
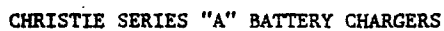
Batteries being charged or discharged will give off hydrogen gas. If this gas is concentrated it can cause an explosion. Concentrations of gas may remain for several hours if ventilation is not provided. Do not have any fire in the vicinity and do not tamper with circuits that might cause sparking while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

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.

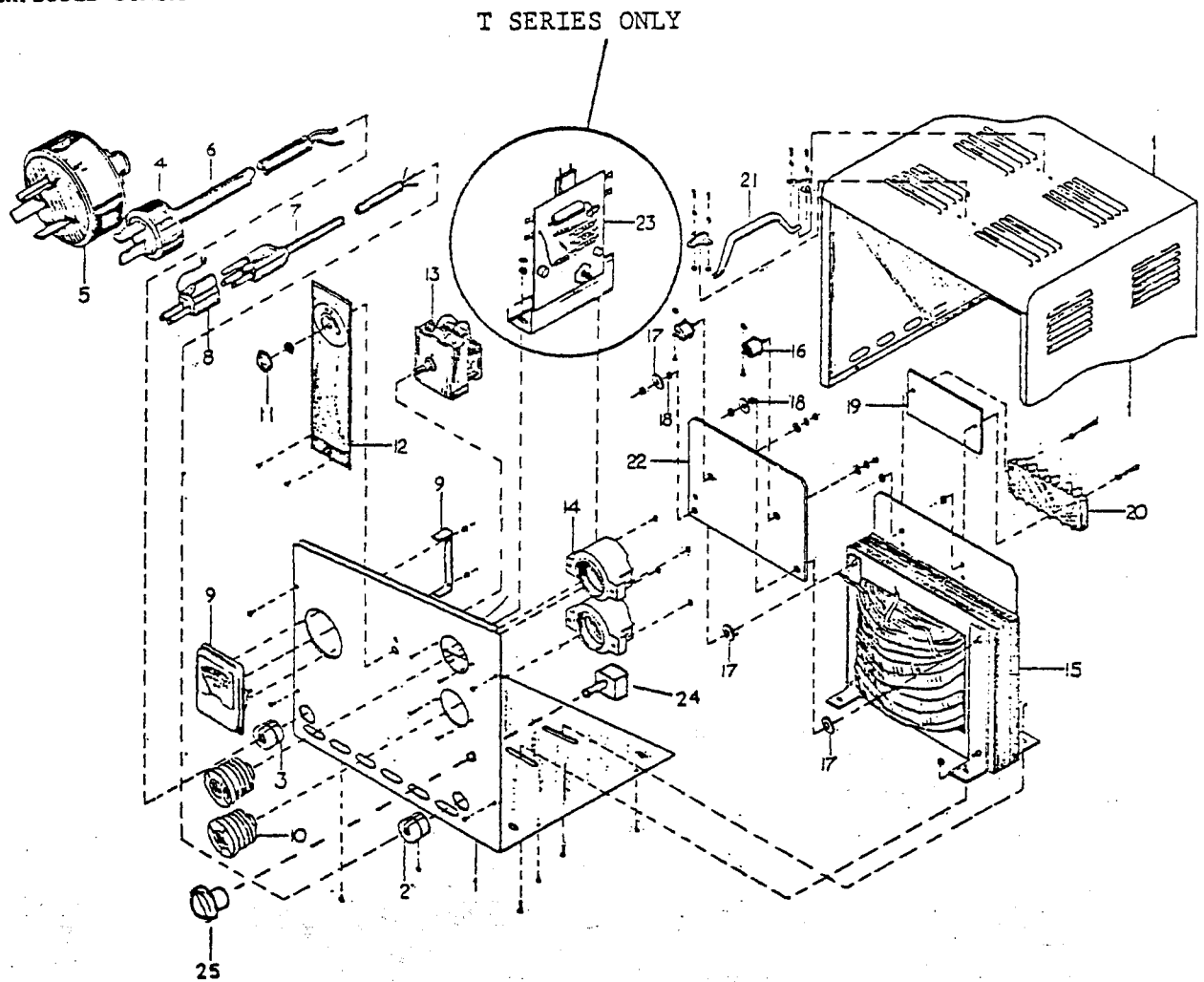
1. Verify that all connections within the unit to be charged are clean and right.
2. Check each battery for loose terminal posts.
3. Test for continuity between all battery terminals and the charging receptacle.
4. Verify that the top of each battery is free of moisture, grease and acid film, which may 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.

SERIES "A" & "T" 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

| <u>Item</u> | <u>Taylor-Dunn Part No.</u> | <u>Item</u> | <u>Taylor-Dunn Part No.</u> |
|---|---------------------------------|--|---------------------------------|
| 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 |
| | | Voltage Sensing Unit, 36V ("T" Series) | 79-811-00 |
| | | Voltage Sensing Unit, 48V ("T" Series) | 79-812-00 |
| 14 Fuse Holder | 79-830-00 | 24 Tap Switch (Low-Med-High) | 79-895-00 |
| | | 25 Knob, (Low-Med-High) | 79-896-00 |

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

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.

BODY AND TRIM PARTS

| T-D Part No. | Description | Quantity |
|--------------|---|----------|
| 50-227-00 | ½" Battery Rod 11-½" plus bend | 4 |
| 50-460-00 | Strap, rear axle spacer (3-3/8" long) | 10 |
| 90-140-xx | Seat backrest, full (specify color) | 1 |
| 90-148-xx | Seat cushion (specify color) | 2 |
| 90-304-98 | Side rails, plastic dipped, bolt on (left side) | 1 |
| 90-304-99 | Side rails, plastic dipped, bolt on (right side) | 1 |
| 90-414-00 | Deck board metal covered for 2 passenger pickup | 1 |
| 90-800-00 | Windshield safety glass for cab | 1 |
| 90-820-00 | Windshield, rigid plexiglass | 1 |
| 90-850-00 | Rear window, safety glass for fiberglass cab | 1 |
| 90-906-00 | Side curtain less steel frame for Model R cab (sold as pair only) | 1 Pair |
| 90-916-00 | Side curtain frame right and left side | 1 |
| 91-004-00 | White fiberglass cab without glass | 1 |
| 91-042-00 | Tubular top frame | 1 |
| 91-042-98 | Top support rod - left side | 1 |
| 91-042-99 | Top support rod - right side | 1 |
| 91-141-00 | White surrey top cover | 1 |
| 91-150-00 | Fiberglass top cover | 1 |
| 91-231-00 | Smooth steel cowl for 3 wheel model, unpainted | 1 |
| 91-232-00 | Smooth steel cowl for 4 wheel model, unpainted | 1 |
| 91-233-00 | Diamond plate steel cowl for 3 wheel model, unpainted | 1 |
| 91-234-00 | Diamond plate steel cowl for 4 wheel model, unpainted | 1 |
| 91-247-99 | Smooth steel right side panel, unpainted | 1 |
| 91-247-98 | Smooth steel left side panel, unpainted | 1 |
| 91-248-99 | Diamond plate steel right side panel, unpainted | 1 |
| 91-248-98 | Diamond plate steel left side panel, unpainted | 1 |
| 91-250-00 | Smooth steel rear panel, unpainted | 1 |
| 91-251-00 | Diamond plate steel rear panel, unpainted | 1 |
| 91-261-00 | Rear section, including kick panel, both side panels, and rear panel - smooth steel | 1 |
| 91-802-98 | Hinge, side curtain door frame - left side | 2 |
| 91-802-99 | Hinge, side curtain door frame, right side | 2 |

BODY AND TRIM PARTS

| T-D Part No. | Description | Quantity |
|--------------|---|----------|
| 91-905-00 | Chrome bumper for 3 wheel model | 1 |
| 91-908-00 | Rear bumper, plastic dipped | 1 |
| 91-911-00 | Chrome bumper for 4 wheel model | 1 |
| 91-912-00 | Bumper brace for 3 wheel model Chrome Bumper | 1 |
| 91-913-00 | Bumper brace for 4 wheel model chrome bumper | 1 |
| 92-000-00 | Chrome Wheel cover 8" for 400 x 8 and 500 x 8 wheel | 2 or 4 |
| 92-001-00 | Chrome wheel cover 6" for 850 x 8 wheel | 2 or 4 |
| 92-201-00 | 4 x 8 mirror | 1 |
| 92-202-00 | Mirror bracket | 1 |
| 94-004-00 | Aluminum trim for cowl (70½" long) | 1 |
| 94-005-00 | Aluminum trim for rear panel (41½" long) | 1 |
| 94-014-00 | Aluminum floor mat edge trim (14½" long) | 2 |
| 94-019-00 | Aluminum trim for front cowl shelf (38" long) | 1 |
| 94-029-00 | Plastic bumper trim (160" long) | 1 |
| 94-033-00 | Plastic cowl trim (82½" long) | 1 |
| 94-201-00 | Taylor-Dunn emblem | 1 |
| 94-301-00 | Taylor-Dunn decal | 1 |
| 94-304-00 | Switch console name plate | 1 |
| 94-305-00 | Forward/reverse switch plate | 1 |
| 94-371-00 | Serial number plate (please state serial number) | 1 |
| 94-373-00 | Vehicle data plate (advise vehicle serial No.) | 1 |
| 97-313-51 | Shaft for curtain door latch | 2 |
| 97-313-52 | Door latch plate | 4 |
| 97-313-53 | Door latch handle | 4 |
| 98-001-51 | Floor mat | 1 |
| 98-311-00 | Window channel - front window (107" long) | 1 |
| 98-313-00 | Window channel - Rear cab window (85" long) | 1 |

NOTICE OF CHANGE

WE WANT OUR MANUALS TO BE USEFUL AND CORRECT. IF YOU DISCOVER AN ERROR OR WISH TO SUGGEST CHANGES, PLEASE FILL OUT THIS SHEET AND MAIL IT TO TAYLOR-DUNN.

MANUAL NO. _____ SERIAL NO. _____ DATE: _____

- * AN ERROR(S) EXISTS ON THE FOLLOWING SECTION(S) AND PAGE(S) NO.
SECTION _____ PAGE NO. _____ LINE OR ITEM _____

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

MAIL TO: TAYLOR-DUNN
ATTN: ENGINEERING
2114 W. BALL ROAD
ANAHEIM, CA 92804

=====

NOTICE OF CHANGE

WE WANT OUR MANUALS TO BE USEFUL AND CORRECT. IF YOU DISCOVER AN ERROR OR WISH TO SUGGEST CHANGES, PLEASE FILL OUT THIS SHEET AND MAIL IT TO TAYLOR-DUNN.

MANUAL NO. _____ SERIAL NO. _____ DATE: _____

- * AN ERROR(S) EXISTS ON THE FOLLOWING SECTION(S) AND PAGE(S) NO.
SECTION _____ PAGE NO. _____ LINE OR ITEM _____

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

MAIL TO: TAYLOR-DUNN
ATTN: ENGINEERING
2114 W. BALL ROAD
ANAHEIM, CA 92804