OPERATION
AND
MAINTENANCE MANUAL
WITH
PARTS LIST

MODEL: SS 5-31 & SS 5-33
YEAR: 1967 - 1974
SERIAL NO: 8400 - 30999
MANUAL NO: MS-531-98
PRICE: $25.00

—IMPORTANT—

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

TAYLOR-DUNN
Commercial and Industrial Vehicles Since 1949

2114 WEST BALL RD., ANAHEIM, CA. 92804 (714) 956-4040 TELEX 65-5393

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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.

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INSPECTION AND INTRODUCTION

INTRODUCTION

This vehicle is designed to be driven on smooth surfaces in and around industrial plants, nurseries, institutions, motels, mobile home parks and resorts. It is not designed to be driven on the public highways. It is not designed to be 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 - 2531SS and 2533 SS, starting with serial no. 8400

Serial No.

The serial number of your unit is stamped into frame angle that supports the side of the seat 2" from the front of the seat on left side. The model number and serial number are on a nameplate riveted to kick panel on the right side. 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.

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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 - SERVICE & PARKING - FOOT OPERATED

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. the brake pedal pad swivels to engage a lock for parking vehicle. Applying foot pressure to forward (top) part of pedal when depressing pedal will engage the lock and hold pedal in the depressed position after foot is removed from pedal. To release pedal from the locked position apply foot pressure to the rear (bottom) part of pedal. Lock will disengage and pedal will be free to travel.

FORWARD-REVERSE SWITCH

The forward-reverse switch is located to the left of the drivers seat. It is operated by the red handle. To place in forward position pull the red handle to the right towards the driver. To place in reverse position push the red handle to the left away from driver.

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.

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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 3 steps. When driving your vehicle you will be able to feel the 3 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 steering tiller or adjacent to steering gear box. Depressing button sounds horn. Releasing button will immediately silence horn.

Light Switch

The light switch that controls headlamps and taillamps is located on the steering tiller or adjacent to steering gear box. It is labelled for On-Off positions.

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.

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OPERATING YOUR VEHICLE

To put your vehicle into operation, unlock forward-reverse switch by turning keyed lock counter clockwise. Select direction you wish to travel by moving red handle of forward-reverse switch into position. Release parking brake, 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.

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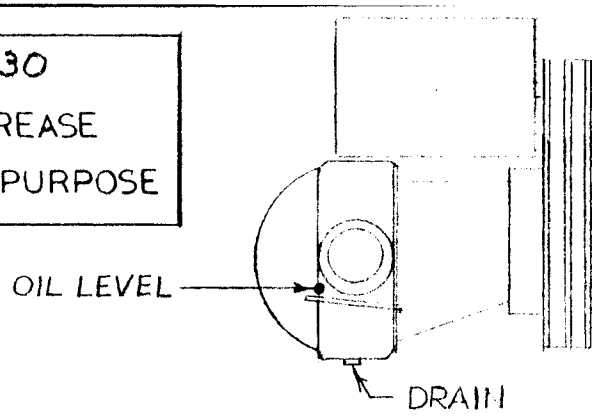
MAINTENANCE GUIDE CHECKLIST

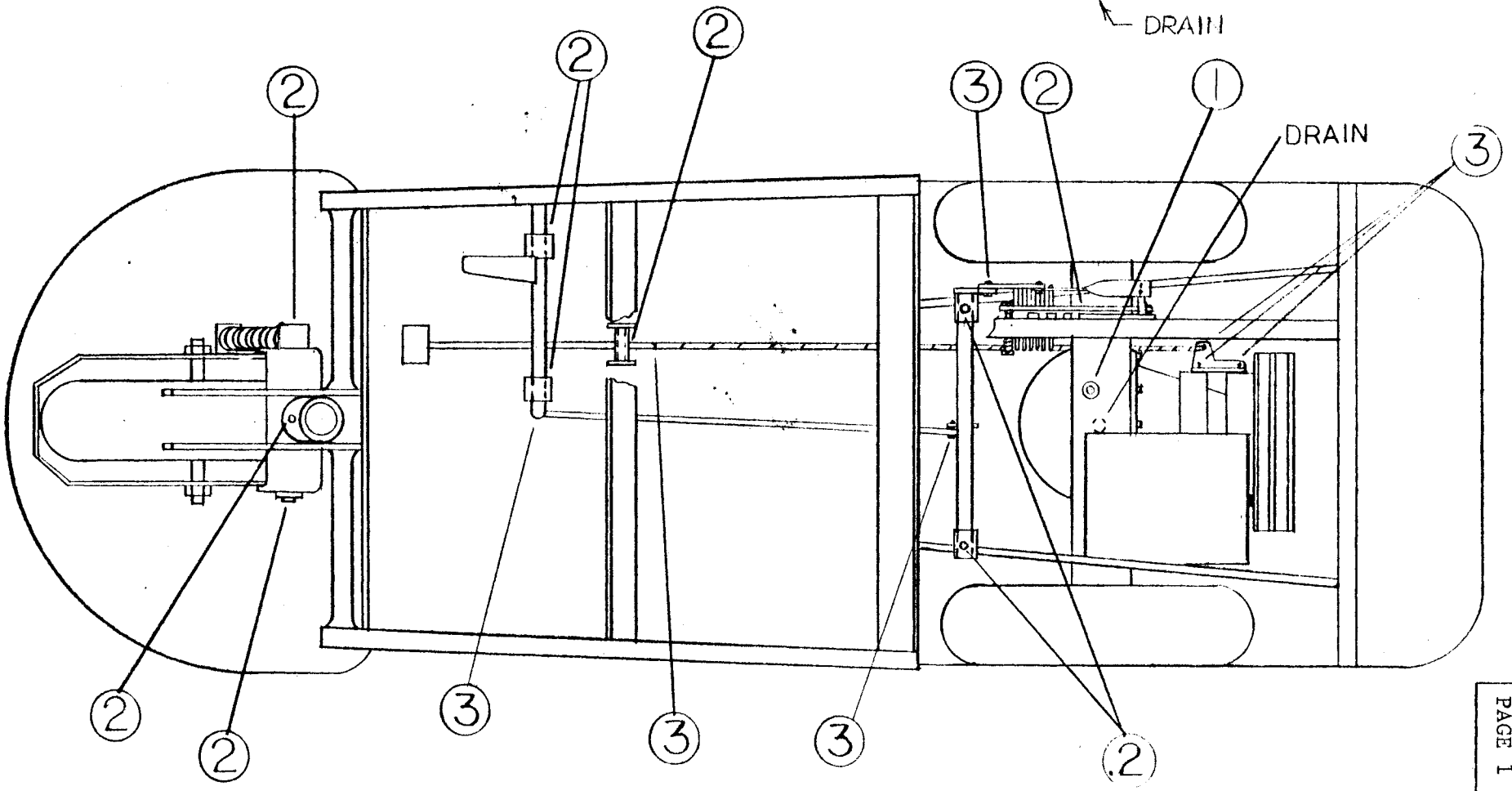
This checklist is provided for your convenience as a guide for servicing your vehicle. If followed you will enjoy a good running and trouble free unit. It has been set up for average normal use. More frequent service is recommended for extreme of heavy usage. If desired your Taylor-Dunn dealer will gladly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

Maintenance Service	Refer Section	Every Week	Every Month	Every 3 Months	Every Year
Check 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
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 service and adjust parking and manually operated brake. (Check brake lining for wear).	J2		X	X	X
Check rear axle differential 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
Drain differential and refill with SAE 30 oil (refer to lubrication diagram).	J2 & E				X
Repack front wheel bearing and front fork spindle bearings.	J1 & E				X

LUBRICANTS

1. ENGINE OIL–SAE 30
2. PRESSURE GUN GREASE
3. ENGINE OIL–ALL PURPOSE





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TOL. FRAC.± DEC.±	PART NO. 500 SERIES	LUBRICATION CHART	FIGURE	TAYLOR DUNN MFG. CO.
SCALE	REVISED DATE	MODEL 2531 SS	1	2114 West Ball Rd.
DRAWN BY REA				Anaheim, Calif.
DATE 7-27-81				

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TROUBLE SHOOTING PROCEDURES

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

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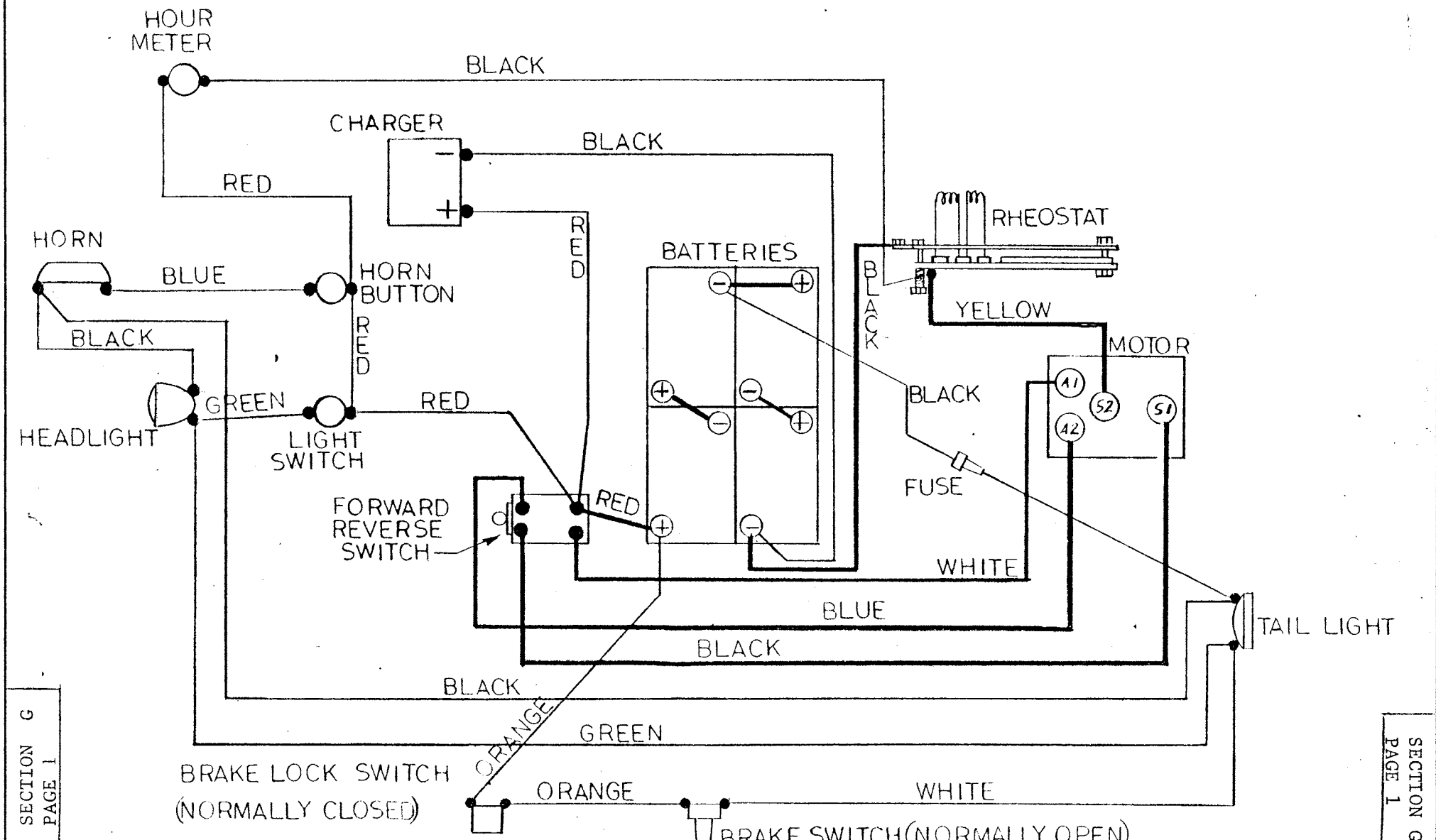
SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
(c) Jerky Starting	1. Resistor coil burned open	Replace
	2. Resistor shorted together	Spread apart
	3. Poorly adjusted rheostat	Re-adjust
	4. Badly worn J-Hook	Replace J-Hook and bars
	5. Dirt between power bars causing shorts	Clean
(d) Takes off in forward or reverse without accelerator depressed	1. Dirt shorting out neutral bar	Clean, readjust or replace bars
	2. Check rheostat adjustment	
	3. Short in wiring circuit	Correct
	4. Burned forward-reverse switch	Replace
(e) Lack of power or slow operation	1. Dragging brake	Re-adjust
	2. Tight front wheel bearings	Re-adjust
	3. Rheostat not making contact on high speed bar	Re-adjust or replace bars.
	4. Loose connection in wiring	Tighten
	5. Partially burned out motor or thrown lead	Replace or re-solder
	6. Weak batteries	Replace
	7. Bind or drag on differential	Repair
(f) Thump or grinding noise in drive axle	1. Motor bearing	Replace
	2. Loose motor on base	Tighten & Adjust
	3. Worn sprockets	Replace sprocket and chain
	4. Defective bearing in differential	Replace
	5. Defective gears in differential	Replace
	6. Slack Drive Chain	Adjust (Refer Section J2)

NO.	DESCRIPTION	LENGTH	QUAN.



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TOL. FRAC.± DEC.±	PART NO. 500 SERIES	WIRING DIAGRAM	FIGURE	TAYLOR DUNN MFG. CO.
SCALE	REVISED DATE	1967 & UP MODEL 253 SS	2	2114 West Ball Rd.
DRAWN BY REA				Anaheim, Calif.
DATE 5-26-71				

PARTS ORDERING PROCEDURE

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

When ordering parts, be sure to specify the complete model no. and serial no. of the unit. Also specify the full Taylor-Dunn part number, description of part and quantity of parts required. You will find a complete listing of part numbers and descriptions in the following pages of this manual. When ordering parts for the drive motor, also include the specifications found on the motor name plate. Be sure to give complete shipping and billing address on all orders. Example:

1 - Part No. 86-501-98 Ball Joint (Left Hand Thread)

1 - Set of 4 - Part No. 70-124-00 Motor Brushes for Baldor Motor, 3½ H.P., 36 Volt, Specification No. 28-1408-11704

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

Parts ordered under warranty must be placed with your authorized Taylor-Dunn Dealer Be sure to include original invoice number, date of shipment of vehicle, and vehicle serial number.

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
Telex: 65-5393

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SUGGESTED SPARE PARTS LIST

FIG. I.D. NO.	TAYLOR-DUNN PART NO.	DESCRIPTION	QUANTITY OF 1 - 20 UNITS
		REFER TO FIGURE NO. 3 FRONT AXLE, FORK & STEERING	
3-10	97-100-00	Woodruff Key, 3/16	1
3-11	87-071-00	Grease Fitting, 3/16 Drive	3
3-15	80-700-00	Dust Ring For Wheel With 3/4" Bearing	2
3-16	12-120-00	Wheel Hub - 3/4" Tapered Roller Bearings (Five Studs on 4½" Bolt Circle)	0 or 1
3-17	80-014-00	Bearing, Tapered Roller 3/4"	2
3-21	13-989-00	Valve Stem (For Tubeless Tires)	1
3-22	13-576-00	Tire, Wheel & 4" Hub With 400 x 8, 4 Ply Tubeless Super Rib Tire & 3/4" Tapered Roller Bearings.	1
3-26	45-307-00	Grease Seal	2
3-28	87-050-00	Grease Fitting 90 Deg., ¼ - 28	1
3-30	97-235-00	Lug Nut 7/16" (Tapered)	5
		REFER TO FIGURE NO. 4A GEARED STEERING ASSEMBLY	
4A-42	97-100-00	Woodruff Key - 3/16"	2
4A-44	80-706-00	O Ring 3/4" O.D.	1
4A-45	31-255-00	Stem Pinion - 7 Tooth	1
4A-49	45-004-00	Gasket (4 x 6 O.D.)	2
4A-50	45-003-00	Gasket (4 x 4½ O.D.)	1
4A-51	32-202-00	Bushing, Bronze - ½" I.D. x 5/8" O.D. x ½" Lg.	1
4A-52	80-400-00	Ball Bearing - 3/4" I.D.	2
4A-53	32-203-00	Bushing, Bronze - 3/4" I.D. x 7/8" O.D. x ½" Lg.	1
		REFER TO FIGURE NO. 5 BELT DRIVE REAR AXLE	
5-1	13-734-00	Tire & Demountable Wheel, 400 x 8, 4 Ply, Tubeless Super Rib Tire With Five ½" Holes on 4½" Bolt Circle On Wheel.	2
5-2	13-989-00	Valve Stem (For Tubeless Tire)	2
5-5	88-527-14	Cotter Pin, 1/8" X 1½"	2
5-10	45-323-00	Oil Seal, Rear Axle, Inner	2
5-31	97-236-00	Lug Nut ½" NF (Used On Hub With Studs)	10
5-31	96-320-00	Lug Bolt, ½" NC (Used On Hub Without Studs)	10
5-47	45-040-00	Gasket, Ring And Pinion Gear Housing To Differential Housing.	1
5-55	---------	Electric Motor. Refer to Section J2, Page 10 for Part Number. Recommended quantity is one spare motor for each five vehicles.	-
5-57	---------	Motor Brushes, Refer to Section J2, Page 11 for Part Number. Recommended quantity is one set of brushes (two or four per set) for each vehicle.	-

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SUGGESTED SPARE PARTS LIST

FIG. I.D. NO.	TAYLOR-DUNN PART NO.	DESCRIPTION	QUANTITY OF 1 - 20 UNITS
5-57	-----	Motor Brush Spring-Refer to Section J2 Page 11 for Part Number. Recommended Quantity is One Set (Two or Four) Plus One Set for each Five Vehicles.	
5-59	41-660-00	Brake Band For Drive Shaft Brake	1
5-60	88-100-24	Hex Head Cap Screw, 3/8" X 4 NC	1
5-75	45-330-00	Oil Seal, Pinion	1
5-77	30-619-00	Belt, 3V375 (3V Section)	2
5-79	41-997-00	Level Plug & Drain Plug (1/8 Pipe)	2
5-81	97-100-00	3/16 Woodruff Key	1
		REFER TO FIGURE NO. 7 MECHANICAL CONTROL LINKAGE	
7-11	87-071-00	3/16 Drive Grease Fitting	1
7-22	85-295-00	Spring Extension 9/16" OD by 4-7/8" Long	1
7-26	96-772-00	Clevice Pin, 3/8 x 1	3
7-27	96-762-00	Clevice, 3/8 Cast	1
7-28	88-517-11	Cotter Pin, 3/32 x 1	3
7-32	96-812-00	Brake Cable Assembly 31-3/4" to 34-3/4" Length	1
7-33	85-233-00	Spring Extension 11/16" OD x 6¼" Free Length	1
		REFER TO FIGURE NO. 8 FORWARD AND REVERSE SWITCH	
8-1	71-040-60	Switch Finger - Silver Plated With ¼" Hole	4
8-5	71-040-71	Bolt-Finger Mounting (¼" NF x 7/8" Spec.)	4
8-11	71-040-62	Switch Handle - Metal (Red Color)	1
8-19	71-040-54	Spring - Cam	1
8-28	71-040-52	Rotor Assembly	1
		REFER TO FIGURE NO. 9 SPEED CONTROL RHEOSTAT	
9-2	61-834-00	Insulating Board for J-Hook-2 Hole Pattern	1
9-5	61-832-00	Sliding J-Hook Bar	1
9-22	78-212-51	Resistor Coil (#9 Wire 10 Turns)	1
9-23	78-212-52	Resistor Coil (#6 Wire 9 Turns)	2
9-12	61-836-00	Pressure Bar	1
9-13	61-831-00	Power Bar	3
9-17	85-034-00	Spring - Compression 7/16" OD x 2" Long	1
		REFER TO GENERAL ELECTRICAL SECTION J7	
	71-100-00	Light Switch	1
	71-111-00	Brake Light Switch (Mechanical Operated)	1

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SUGGESTED SPARE PARTS LIST

FIG. I.D. NO.	TAYLOR-DUNN PART NO.	DESCRIPTION	QUANTITY OF 1 - 20 UNITS
		REFER TO GENERAL ELECTRICAL SECTION J7 (CONTD.)	
	72-072-00	4" Sealed Beam Headlight Bulb (12 Volt)	1
	72-022-00	Stop & Taillight Fixture, 4" Rubber Mount (12 Volt)	2
	71-900-00	Flasher (12 Volt)	1
	71-501-00	Horn Button (Steering Wheel Model)	1
	71-502-00	Horn Button (Tiller Model)	1
	75-231-00	Jumper Cable - 8" Long	4
	78-010-00	Secondary Fuse & Holder (Inline Type)	1
	79-823-00	Fuse - Buss Type 20 Amp	5
		REFER TO BATTERY & CHARGER SECTION J8	
	76-012-00	Charging Receptacle, 30 Amp, 3 Prong	1
	76-020-00	Receptacle - Charging - Anderson Type SB6313	1
	77-200-00	Hydrometer	1
	77-201-00	Battery Filler	1
	79-819-00	Fuse, 30 Amp - Screw Type	6
		REFER TO BODY AND TRIM PARTS	
	50-227-00	¼" Battery Rod - 11¼ Long Plus Bend	2
	77-858-00	Battery Hold-Down Strap	1
	85-295-00	Spring - Extension 9/16" x 4-7/8"	2
	88-066-06	Flat Head Machine Screw ¼" x ½" NC	2

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. A heavy coil spring provides a comfortable ride. With proper care, these parts should give long service.

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.

The steering gear box is packed with grease. No adjustment is necessary. It requires very little attention.

Refer to maintenance guide and lubrication diagrams (section D & E) for normal care of your front wheel and steering assembly.

Tire Care:

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

Slightly lower pressure will assist traction 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 it recommended for heavy loads:

400 x 8	4 ply Tires	40 to 65 lbs. (Hard Surface Design Only)
400 x 8	6 ply Tires (Steel Guard)	60 to 80 lbs.
650 x 8	4 Ply Tires	14 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.

SERVICE AND ADJUSTMENT
REFER TO FIGURE 3
FRONT AXLE, FORK, STEERING AND TIRES

Adjustment of Wheel Bearings

1. Adjust wheel bearings by holding 1 axle nut and tightening the other until a drag is felt on wheel. Then back off nut approximately 1/4 turn. Wheel should turn free but not have excess play in bearings.

Removal of Wheel & Axle Assembly

1. Remove 1 axle nut by holding nut on one end of axle and unscrewing nut on opposite end.
2. Slide axle from fork & wheel, being careful to catch spacers and wheel as they come free.
3. Wheel bearings may be flushed, cleaned and repacked without removing from hub, unless, severely damaged or embedded with foreign material.
4. 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 of Wheel & Axle

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. Install wheel & hub assembly into fork by starting axle through one side of fork, inserting 1 spacer then sliding axle through wheel bearings. Insert other spacer and slide axle through remainder of fork assembly.
5. Install locknut.
6. Adjust wheel bearings as outlined above.
7. Wheel hub has 1 zerk fitting for grease lubrication.

Adjustment of Fork Spindle Bearings

1. Adjust by tightening nut until drag is felt on spindle bearings. Loosen about 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 of Fork From Vehicle

1. Loosen tiller clamp and remove tiller from fork spindle. It may be necessary to work tiller loose from spindle by rocking back and forth while pulling upward until tiller is free of shaft.

NOTE: On models equipped with steering gear box, dissassemble gear box as outlined on page 3 of this section.

2. Remove woodruff key and remove bearing lock nut. On earlier models it will be necessary to remove dust cap to gain access to spindle bearing locknut.
3. Raise vehicle on suitable hoist and remove fork assembly from bearing housing. Observe the location of all spacers etc., and if necessary note their location for proper replacement when reassembling the fork in vehicle.
4. Remove bearings and dust seals.
5. A puller is required to remove bearing races from housing.

Re-Assembly of Fork and Spindle

1. 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.
2. Generously pack bearings with wheel bearing grease. Assemble one dust seal and bearing in lower part of housing. Refer to Figure 3 for proper location. Slide fork spindle through housing and insert upper bearing spacers and washer.
3. Install spindle nut.
4. Adjust fork spindle bearings as previously outlined.
5. Replace dust cap on fork spindle housing. (Early models).
6. Replace bearing seal if it has been removed from bearing housing. (Late Models - Tiller Only).
7. Install woodruff key.
8. Install tiller and tighten tiller clamp securely. On models equipped with steering gear box, re-assemble box as outlined on page 4 of this section.

Dis-Assembly of Steering Gear Box

NOTE: It is not necessary to remove steering wheel from shaft unless service work is to be performed on the bearings or shaft assembly. If steering wheel is not to be removed then start with Step 2 below.
1. Remove wheel lock nut and with suitable puller remove steering wheel.
2. Remove 6 bolts holding box together.
3. Set horn button and light switch bracket aside.
4. Place sufficient rags or waste around box before removing cover to help catch the grease which has been packed inside.
5. Remove cover and gasket and set aside.
6. Scoop out as much grease as possible and then remove center of box and lower gasket.
7. Remove countershaft gear and pinion.
8. Remove fork spindle gear.

SECTION J1
PAGE 4

9. It will only be necessary to remove bottom gear box plate to replace bronze bushing or lower gasket. To do so remove 3 bolts and lift plate from spindle housing flange.

REPLACEMENT OF STEERING SHAFT BEARINGS

1. Remove steering shaft from steering column by removing steering wheel and top of steering gear box as previously outlined in steps 1 thru 5.

2. Slide steering shaft from assembly. Take care to note spacer location and when reassembling to return spacers to their original location.

3. Pull bearing from it's seat in the end of the steering column.

4. Clean all parts thoroughly.

5. Tap or press in new bearings seating the flange against the housing.

6. Re-assemble all parts in the reverse order to which they were removed, taking care to align steering wheel with fork.

7. Adjust shaft end play by adding or removing shims.

RE-ASSEMBLY OF STEERING GEAR BOX.

1. Bolt bottom gear box plate to spindle housing flange.

2. Install woodruff key in fork spindle shaft.

3. Install fork spindle gear (hub down).

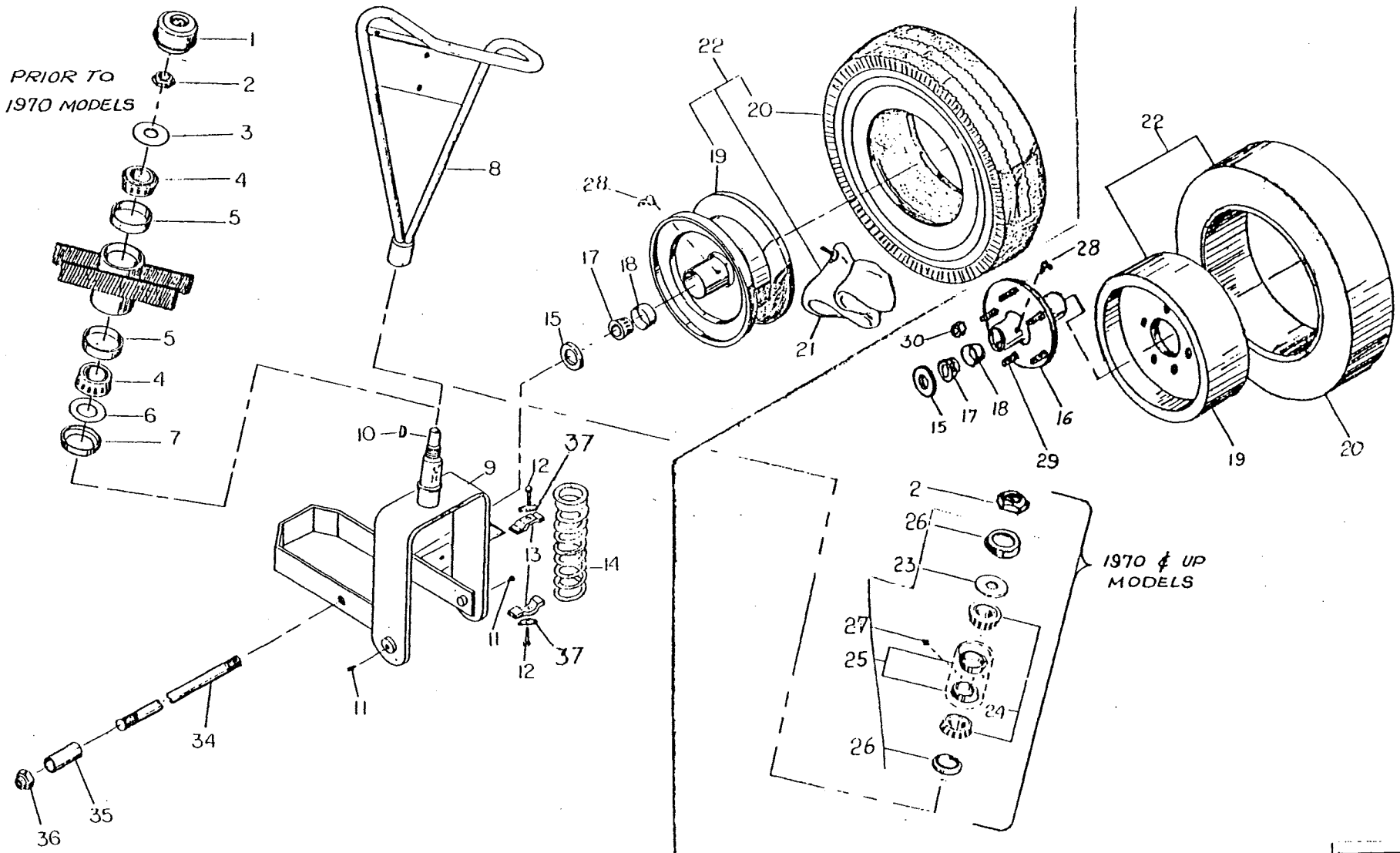
4. Install countershaft gear and pinion.

5. Install lower gasket, center section of box and upper gasket.

6. Place cover assembly in position. Align front wheel in forward position with steering wheel. It may be necessary to remesh steering shaft gear with counter shaft gear to allow steering wheel to align with fork when in forward position.

7. Replace 6 bolts, horn and light switch bracket and tighten evenly.

8. Fill steering gear box with lubricant through zerk fitting. Note that steering gear box and fork spindle bearing housing are coupled together forming one continuous assembly. Lubricating one section will lubricate the adjoining section.



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TOL. FRAC.± DEC.±	PART NO. 500 SERIES
SCALE	REVISED DATE 10-10-72
DRAWN BY PEA	
DATE 5-7 -71	

FRONT STEERING AND FORK

196 & UP

FIGURE 3

TAYLOR DUNN MFG. CO
2114 est Ball Rd.
Ar m, Calif.

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FIGURE NO. 3

FRONT STEERING & FORK

FIG. I.D. NO.	T-DUNN PART NO.	DESCRIPTION	QTY. REQ.
3-1	92-100-10	Dust Cap, 1⅛ (Drilled For Tiller)	1
3-2	97-230-00	Nut, 1" - Full Fiber Insert	1
3-3	88-308-61	Washer, 1" SAE	1
3-4	80-010-00	Bearing - Tapered Roller 1⅛"	2
3-5	80-100-00	Bearing Race for 1⅛" Tapered Bearing	2
3-6	80-804-00	Dust Washer For 1⅛" Bearing	2
3-7	80-704-00	Dust Ring for 1⅛" Bearing	2
3-8	19-101-11	Steering Loop Tiller	1
3-9	14-079-10	Front Fork (Less Springs)	1
3-10	97-100-00	Woodruff Key, 3/16	1
3-11	87-071-00	Grease Fitting, 3/16 Drive	3
3-12	88-100-13	Hex Head Cap Screw, 3/8 x 1⅛ NC	2
3-13	85-141-00	Spring Clip	2
3-14	85-140-00	Spring-Compression, 2-7/16 x 6⅛" Long (.362 Dia. Wire)	0 or
3-14	85-145-00	Spring-Compression, 2-7/16 x 6⅛ Long (.307 Dia. Wire)	0 or
3-15	80-700-00	Dust Ring for Wheel With 3/4" Bearing	2
3-16	12-120-00	Wheel Hub - 3/4" Tapered Roller Bearings (Five Studs on 4½" Circle)	1
3-17	80-014-00	Bearing, Tapered Roller 3/4"	2
3-18	80-104-00	Bearing Race for 3/4 Tapered Bearing	2
3-19	13-000-00	Wheel & 5" Hub For 400 x 8 Tire (Discontinued, use 13-001-00 & 2 Additional Spacers Part No.16-050-00)	1
3-19	13-001-00	Wheel & 4" Hub For 400 x 8 Tubeless Tire With 3/4" Tapered Roller Bearings. (Also Used For 650 x 8 Tire)	1
3-19	12-012-00	Wheel For 400 x 8 Tubeless Tire. Five ½" Holes on 4½" Bolt Circle (Used For Steelguard Tire)	1
3-19	12-041-00	Wheel For 16 x 400 Zero Pressure Tire, Demountable, H.D., Split Disk, Five - ½" Holes on 4½" Bolt Circle.	1
3-19	12-050-00	Wheel for 16 x 4 x 12-1/8, Solid Cushion Tire, Five ½" Holes on 4½ Bolt Circle.	1
3-19	12-054-00	Wheel For 16⅛ x 4 x 11⅛, Solid Cushion Tire, Five ½" Holes on 4½" Bolt Circle.	1

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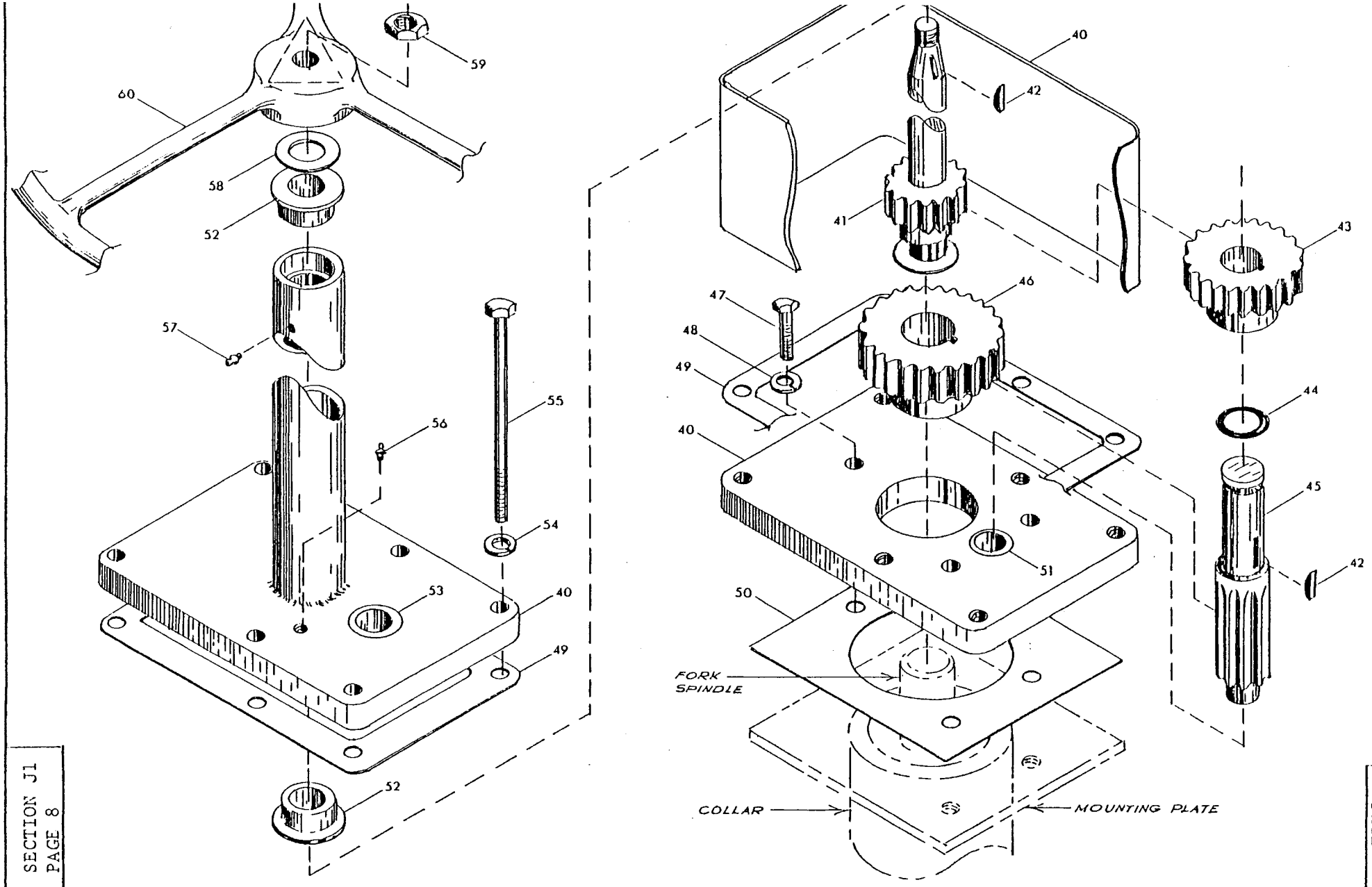
FIG. I.D. NO.	T-DUNN PART NO.	DESCRIPTION	QTY. PER
3-20	10-074-00	Tire, 400 x 8, 4 ply, Super Rib, Tube Type	
3-20	10-075-00	Tire, 400 x 8, 4 ply, Super Rib, Tubeless	1
3-20	10-078-00	Tire, 400 x 8, 6 ply, Steelguard, Tube Type	1
3-20	10-089-00	Tire, 650 x 8, 4 ply, Terra Tire, Traction Tubeless	1
3-20	10-240-00	Tire, Zero Pressure, 16 x 4.00 H.S. With Dimpled Ring	1
3-20	10-241-00	Tire, Zero Pressure, 16 x 4.00 H.S. With Smooth Inside Ring.	1
3-20	10-261-00	Tire, Solid Xtra Cushion, All Service, 16½ x 4 x 11½	1
3-20	10-250-00	Tire, Solid Cushion, Smooth, 16 x 4 x 12-1/8	1
3-21	11-030-00	Tube, 400 x 8, Straight Valve Stem	1
3-21	11-040-00	Tube, 500 x 8, Straight Valve Stem (For 650 x 8 Tire)	1
3-21	13-989-00	Valve Stem (For Tubeless Tires)	1
3-22	13-575-00	Tire, Tube, Wheel & 5" Hub With 400 x 8, 4 Ply, Super Rib Tire (Discontinued, Use 13-576-00 & 2 Additional Spacers Part No. 16-050-00)	1
3-22	13-576-00	Tire, Wheel And 4" Hub With 400 x 8, 4 Ply Tubeless Super Rib Tire & 3/4" Tapered Roller Bearings.	1
3-22	13-595-00	Tire, Tube, Wheel & 4" Hub With 650 x 8, 4 Ply, Tire	1
3-22	13-861-00	Tire & Demountable Split Wheel Zero Pressure, 16 x 4.00 H.S. With Five - ½" Holes on 4½" Bolt Circle.	
3-22	13-952-10	Tire & Demountable Cast Iron Wheel With 16 x 4 x 12-1/8 Solid Cushion Tire.	1
3-22	13-954-10	Tire & Demountable Cast Iron Wheel With 16½ x 4 x 11½ Solid Xtra Cushion, All Service Tire.	1
3-23	16-409-00	Spacer, .250 Thk. - 1½ I.D. x 1½ O.D.	1
3-24	80-011-00	Bearing - Tapered Roller 1½"	2
3-25	80-102-00	Bearing Race for 1½ Tapered Bearing	2
3-26	45-307-00	Grease Seal	2
3-27	87-074-00	Grease Fitting, ¼ - 28 Straight	1
3-28	87-050-00	Grease Fitting 90 Deg., ¼ - 28	1
3-29	96-333-00	Bolt - Wheel Lug - 7/16 NF	5
3-30	97-235-00	Lug Nut 7/16" (Tapered)	5
3-34	15-010-00	Front Axle 3/4 Dia. x 9½" Long	1
3-35	16-050-00	Wheel Spacer ½" Long (For 4" Hub)	4
3-35	16-030-00	Wheel Spacer 1½" Long (For 3" Hub)	2
3-36	88-229-81	Lock Nut, 3/4" N.C.	2
3-37	88-108-62	Lock Washer, 3/8	



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NO.	DESCRIPTION	LENGTH	QUAN.	REVISED DATE	REVISION

TOL. FRAC.± DEC.±	FIGURE 4A	GEARED STEERING ASSEMBLY
SCALE NONE	SECTION J1	FOR MODEL 'SS' WITH STEERING WHL.
DRAWN BY M A		
DATE 4-6-71		

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Anaheim, Calif.

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FIGURE NO. 4A

GEARED STEERING ASSEMBLY

FOR MODEL SS WITH STEERING WHEEL

FIG. I.D.#	T-D PART NO.	DESCRIPTION	QTY REQ
4A-40	18-309-00	Steering Gear Box Only, With Bolts, Bushings & Grease Fittings	1
4A-41	20-031-00	Steering Shaft With Gear	1
4A-42	97-100-00	Woodruff Key - 3/16"	2
4A-43	31-253-00	Spur Gear, 36 Tooth 16 D.P. - 14½°P.A. - 3/4" Bore with Keyway	1
4A-44	80-706-00	0 Ring 3/4" O.D.	1
4A-45	31-255-00	Stem Pinion - 7 Tooth	1
4A-46	31-254-00	Spur Gear, 36 Tooth 12 D.P. 14½° P.A. 7/8" Bore With Keyway.	1
4A-47	88-080-11	Hex Head Cap Screw 5/16" X 1" N.C.	3
4A-48	88-088-62	Lock Washer, 5/16	3
4A-49	45-004-00	Gasket (4 x 6 O.D.)	2
4A-50	45-003-00	Gasket (4 x 4½ O.D.)	
4A-51	32-202-00	Bushing, Bronze - ½" I.D. x 5/8" O.D. x ½" Lg.	1
4A-52	80-400-00	Ball Bearing - 3/4" I.D.	2
4A-53	32-203-00	Bushing, Bronze - 3/4" I.D. x 7/8" O.D. x ½" Lg.	1
4A-54	88-068-62	Lockwasher ¼"	6
4A-55	88-060-24	Hex Head Cap Screw ¼" x 4" N.C.	4 o
4A-55	88-060-25	Hex Head Cap Screw ¼" x 4½" N.C. (with Horn)	0 o
4A-56	87-074-00	Grease Fitting ¼"-28 N.F.	1
4A-57	87-071-00	Grease Fitting 3/16 Drive	1
4A-58	16-405-00	Spacer - 3/4" I.D. x 1¼" O.D.	1 o
4A-59	88-199-82	Nut 5/8 N.F. (Jam)	1
4A-60	19-001-00	Steering Wheel	1

SECTION J2
PAGE 1

MAINTENANCE PROCEDURES
REFER TO FIGURE 5
BELT DRIVE REAR AXLE, MOTOR AND BRAKES

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

an adjustable motor mount has been provided to keep belts properly tensioned. Refer to Section J2, Page 5 for proper adjustment procedures. It is important to maintain belt tension and alignment as outlined on Page 5. Failure to do so will seriously effect belt 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 they should be replaced. Approximately 3000 hours operating life may be expected from a new set of brushes. To determine when to replace worn brushes, proceed as follows:

1. For motors equipped with brushes having end pigtails and side hooks, replace brush when hook is within 1/16" from bottom of hook slot.
2. For motors equipped with brushes having side pigtails only, replace brush when pigtail is within 1/16" from bottom of pigtail slot.

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

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 montly 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.

SECTION J2
PAGE 2

SERVICE AND ADJUSTMENTS
REFER TO FIGURE 5
BELT DRIVE REAR AXLE, MOTOR AND BRAKES

Adjustment of Brake (Minor) To Compensate For Normal Lining Wear.
Important Note.
Observe position of Brake Lever Arm. Front of arm should be from vertical to 5^{o} rearward with brake pedal and hand brake fully released.

If brake lever arm is not in the correct position, due to improperly adjusted cable 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 ¼ of it's stroke.

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 in vertical position 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 Step 1 above.

3. Adjust hand parking brake lever knob on end of handle, turning counter-clockwise until it stops. Next turn knob 5 turns clockwise. 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.

SECTION J2
PAGE 3

Removal of Brake Assembly and Drum

1. Remove cotter pin and clevis pin, disconnecting cable, (or cables) from brake lever arm, (Note location of clevis). Remove lever arm return spring.
2. Remove anchor bolt and pivot bolt holding brake band and lever to brackets.
3. Rotate and slide brake band assembly off of brake drum.
4. Band and drum may now be cleaned, inspected, and if necessary parts may be replaced as needed.
5. 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.
6. 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.
7. Inspect seal in pinion 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.
8. Re-assemble drum and spacer on pinion shaft. Tighten to 100 lb. ft. torque.
9. Replace brake assembly in the reverse order to which it was removed.
10. Adjust brake band and cables as outlined on Page 2.

Removal of Rear Axle and 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 (or cables) from brake arm.
5. Remove lower bolt from shock absorber. (Only vehicles equipped with shock absorbers).
6. Disconnect hydraulic brake line at hose end. (Only vehicles equipped with hydraulic brakes.)
7. Remove "U" bolt clamp and nuts attaching spring to frame.
8. Remove spring eye anchor bolts.
9. Remove axle and drive assembly from chassis.
10. 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.)
11. Check brake adjustments as previously outlined on Page 2.
12. On models equipped with hydraulicbrakes, it will be necessary to bleed the air from brake system. Follow procedure outlined in Hydraulic Brake Section J3 of this manual.

SECTION J2
PAGE 4

DRIVE AXLE - SERVICE & ADJUSTMENT

Differential Unit:

General - The drive pinion is held in position by the shoulders in the differential carrier upon which the pinion bearing cups seat. The pinion position is maintained by a washer or shims located between the pinion head and the rear bearing cone. Shims between the bearing spacer and the front bearing cone are used to adjust pinion bearings. The threaded nut type of differential bearing adjustment is used.

Pinion and Bearings, Replace - The differential unit must be removed before the drive pinion can be taken out, but it is not necessary to remove the drive pinion or differential unit if only the drive pinion bearing oil seal is replaced. To remove the oil seal, take off the pinion flange retaining nut and use a suitable tool to remove the flange. The oil seal may then be pulled out of the carrier. Pull the drive pinion through the gear end of the differential carrier. The bearing spacer, front bearing and shims may then be taken out. Using a bearing puller, remove the rear bearing cone from the pinion shaft and unless the ring gear and pinion are to be replaced with new parts, use care not to allow the front and rear shim packs to become mixed. If the differential unit was satisfactory from the standpoint of noise before the unit was dismantled, the drive pinion may be assembled with the original shims (or washer) behind the rear bearing. If new parts are used or if an adjustment was necessary, change the shims until the correct combination is obtained to locate the pinion properly.

To Assemble - Place the front bearing in position in it's cup and install the pinion shaft oil seal, using a suitable tool. Place the washer or shims on the pinion shaft against the pinion head and press on the rear bearing. Slip the bearing spacer against the rear bearing, then place the front bearing shims ahead of the spacer. Install the pinion and assembled parts in the carrier, passing the forward end of the pinion through the front bearing. Replace the pinion flange, slip the washer, screw on the retaining nut and tighten it securely.

Pinion Bearing, Adjust - The only occasion for adjusting the drive pinion bearings is when a new pinion or differential carrier is installed. To make the adjustment, install sufficient shimsbetween the bearing spacer and front bearing so that when the pinion retaining nut is tightened against the pinion flange, all rollers in the bearings are tight, but still permit rotating the pinion by hand.

The bearing pre-load should be .0015 to .0025 inch. To check and adjust the pre-load (tension) mount a dial indicator on the carrier with the stem of the indicator contacting the pinion flange. Then if the indicator, for example, shows .004 inch end play, remove the parts including .006 inch of shimming to give the necessary .002 inch draw tension or pre-load on the bearings.

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PAGE 5

Pinion, Adjust - After adjusting the pinion bearings, the position of the pinion should be checked. If a pinion setting gauge is available, check the pinion depth. If a correction is necessary, disassemble the parts and, if the pinion is to be moved toward the center of the axle, add shims or install a thicker washer (whichever is used) between the pinion head and the rear bearing cone. If the pinion has to be moved away from the center of the axle, remove shims or install a thinner washer. If no pinion setting gauge is available, assemble the differential unit in the carrier and check the tooth contact by painting the ring gear teeth. When the adjustment is correct, install a new cotter-pin in the pinion retaining nut.

Axle Shaft - To remove the axle shaft and inner oil seal, remove the wheel hub. Do not use a knock-out type puller or strike the ends of the axle shafts to loosen wheel hubs as this may damage bearings. Keep each set of shims separate to assure proper assembly. Use a suitable puller to remove axle shaft and bearing from the housing. Then pull the inner oil seal from the housing. To adjust axle shaft end play, add or remove shims to obtain the desired end play of .003" to .008". When adjusting bearings, remove or install an equal thickness of shims on the right and left sides of the axle housing to maintain central position of thrust block.

BELT TENSION ADJUSTMENT AND ALIGNMENT

1. Loosen motor mount clamp bolts slightly.
2. Loosen adjusting bolt lock nut and turn adjusting bolt in or out as needed to tension belts properly.

NOTE: Belts tension is correct when they will deflect between ¼" and 3/8" at the mid point between pulleys. Press each belt firmly at the mid point with your thumb or finger and measure the deflection at the same point.

3. Rotate drive pulley sufficiently so belts will travel at least one full turn and check belt tension again. This will allow belts to seat properly in grooves. Repeat tension adjustment as necessary until satisfactory results are obtained.
4. Check pulley alignment with straight edge. If misaligned, move motor forward or rearward on it's mounting bracket to bring pulleys into alignment. If necessary tap motor mount bracket into position with soft hammer.
5. Retighten motor mount clamp bolts securely.
6. Hold adjustment bolt in position with one wrench while tightening lock nut with second wrench.

SECTION J2
PAGE 6

Replacement of Belts (Helpful Hints)

1. Always loosen belt tension sufficiently to allow belts to be lifted in or out of grooves without forcing or prying them.

2. Do not replace one belt only. They must be replaced as a set with new belts all of equal length.

3. Adjust tension and alignment as outlined above.

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

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.

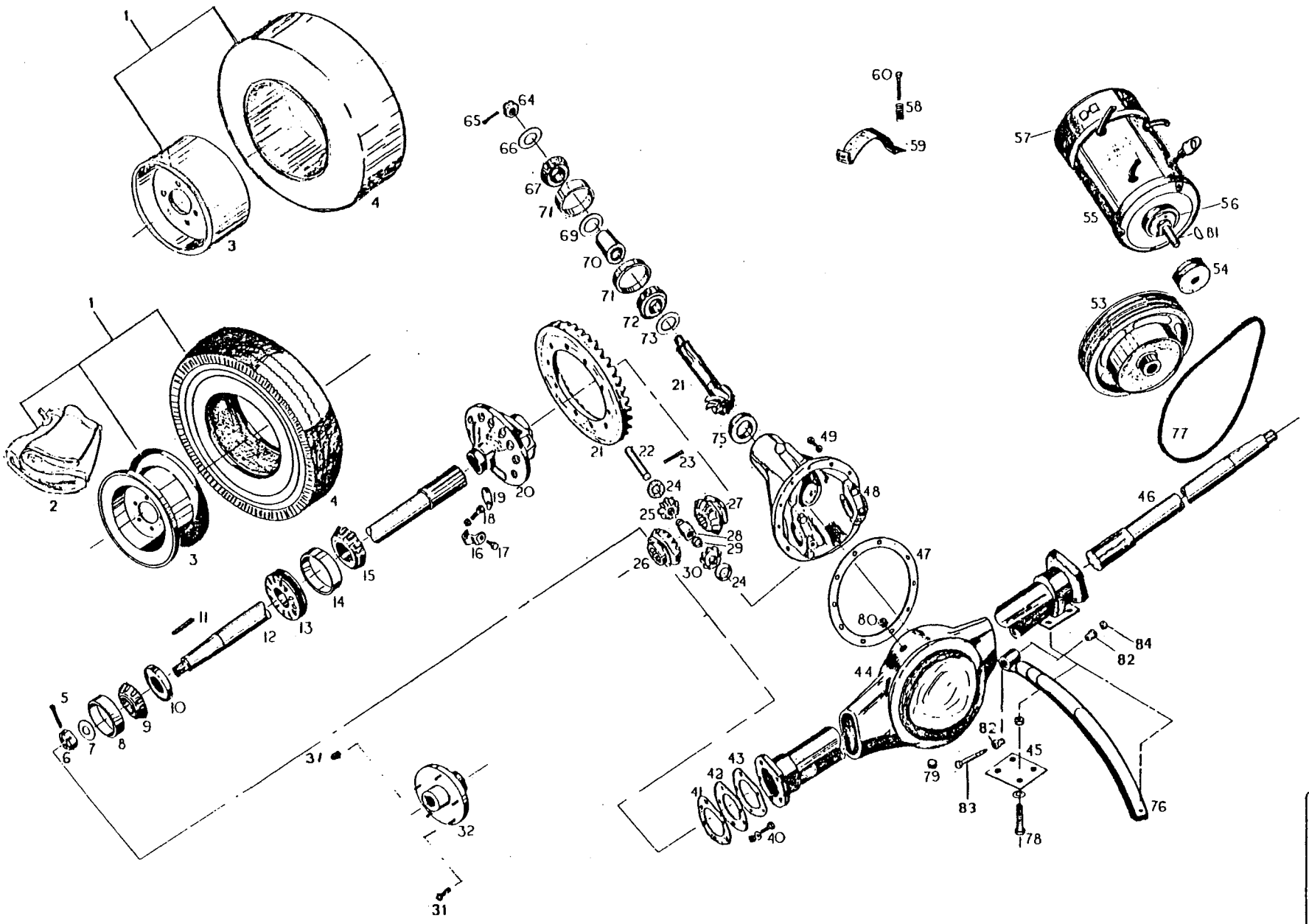
6. If the commutator is worn or "burned" it should be turned, the mica undercut, and the commutator polished.

7. Oil bearing housing lightly to aid in re-assembly.

8. Re-assemble motor taking care that all parts are kept clean.

9. Install brushes and seat in with fine sand paper.

10. Adjust brush tension, replace covers.



TOL. FRAC.± DEC.±	PART NO. 500 SERIES	BELT DRIVE AND REAR AXLE 1967 & UP MODELS	FIGURE 5	TAYLOR DUNN MFG. CO. 2114 West Ball Rd. Anaheim, Calif.
SCALE	REVISED DATE 10-10-72 CG			
DRAWN BY REA				
DATE 5-25-71				

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FIGURE NO. 5

BELT DRIVE REAR AXLE

FIG. I.D. NO.	TAYLOR-DUNN PART NO.	DESCRIPTION	Q REQ.
5-1	13-731-00	Tire, Tube & Demountable Wheel, 400 x 8, 4 Ply, Super Rib Tire With Five ½" Holes on 4½" Bolt Circle on Wheel.	2
5-1	13-734-00	Tire & Demountable Wheel, 400 x 8, 4 Ply, Tubeless Super Rib Tire With Five ½" Holes On 4½" Bolt Circle On Wheel.	2
5-1	13-738-00	Tire, Tube And Demountable Wheel, 400 x 8, 6 Ply Steelguard Tire With Five ½" Hole on 4½" Bolt Circle On Wheel.	2
5-1	13-748-00	Tire And Demountable Wheel, 650 x 8, 4 Ply Terra Tire, Traction With Five ½" Holes On 4½" Bolt Circle On Wheel.	2
5-1	13-861-00	Tire, And Demountable Split Wheel, Zero Pressure H.S. Tire, 16 x 400 And Five ½" Holes On 4½" Bolt Circle.	2
5-1	13-952-10	Tire And Demountable Cast Iron Wheel With 16 X 4 X 12-1/8 Solid Cushion Smooth Tire, Five ½" Holes On 4½" Bolt Circle On Wheel.	2
5-1	13-954-10	Tire And Demountable Cast Iron Wheel With 16½ X 4 X 11½ Solid Cushion All Service Tire, Five ½" Holes On 4½" Bolt Circle On Wheel.	-
5-2	11-030-00	Tube, 400 x 8 Straight Valve Stem	2
5-2	11-040-00	Tube, 500 x 8 Straight Valve Stem	2
5-2	13-989-00	Valve Stem (For Tubeless Tire)	2
5-3	12-011-00	Wheel For 400 x 8 Tire Demountable, Drop Center, Five ½" Holes On 4½" Bolt Circle	2
5-3	12-012-00	Wheel For 400 x 8 Tubeless Tire, Demountable Heavy Duty Drop Center, Five ½" Bolts On 4½" Bolt Circle.	2
5-3	12-041-00	Wheel For 16 x 400 Zero Pressure Tire, Demountable, H.D., Split Disk, Five ½" Holes On 4½" Bolt Circle.	2
5-3	12-045-00	Wheel For 650 x 8 Tire, Demountable, Drop Center, Off Center Mount, Five ½" Holes On 4½" Bolt Circle	2
5-3	12-050-00	Wheel For 16 X 4 X 12-1/8 Solid Cushion Tire, Five ½" Holes On 4½" Bolt Circle.	2
5-3	12-054-00	Wheel For 16½ X 4 X 11½, Solid Cushion Tire, Five ½" Holes On 4½" Bolt Circle.	2
5-4	10-075-00	Tire, 400 x 8, 4 Ply, Super Rib	2
5-4	10-078-00	Tire, 400 x 8, 6 Ply, Steelguard, Tube Type	2
5-4	10-089-00	Tire, 650 x 8, 4 Ply, Terra Tire, Traction, Tubeless	-
5-4	10-240-00	Tire, Zero Pressure, 16 X 400 H.S. With Dimple On Inside Ring.	2

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FIGURE NO. 5

FIG. I.D. NO.	TAYLOR-DUNN PART NO.	DESCRIPTION	QTY. REQ.
5-4	10-241-00	Tire, Zero Pressure, 16 X 400, H.S. With Smooth Inside Ring.	2
5-4	10-250-00	Tire, Solid Cushion Smooth, 16 X 4 x 12-1/8	2
5-4	10-261-00	Tire, Solid Xtra Cushion, All Service, 16½ X 4 X 11½	2
5-5	88-527-14	Cotter Pin, 1/8" X 1½"	2
5-6	88-239-85	Castle Nut, 3/4" NF	3
5-7	88-228-61	Washer, 3/4" SAE	3
5-8	80-120-00	Tapered Bearing Race For Axle Bearing	2
5-9	80-500-00	Tapered Roller Bearing For Rear Axle	2
5-10	45-323-00	Oil Seal, Rear Axle, Inner	2
5-11	97-052-00	5/16" Square Key For Axle, (2½" Long)	2
5-12	41-125-52	Axle, Rear, 11½" Overall Length 16 Teeth On Spline	2 or (
5-13	41-970-00	Bearing Adjuster	2
5-14	80-123-00	Tapered Bearing Race For Carrier Bearing	2
5-15	80-510-00	Tapered Roller Bearing, Carrier	2
5-16	41-971-00	Bearing Adjuster Lock	2
5-17	88-080-09	Hex Head Cap Screw, 5/16" x 3/4" NC	2
5-18	41-990-00	Axle Gear Bolt	10
5-19	41-991-00	Axle Gear Bolt Lock Nut	10
5-20	41-980-00	Differential Case	1
5-21	31-249-00	Ring And Pinion Gear Set 3.54 Ratio	1
5-22	41-910-00	Pinion Shaft, Differential	1
5-23	41-900-00	Pinion Shaft Lock Pin	1
5-24	41-923-00	Differential Pinion Gear Washer	2
5-25	41-950-00	Pinion Gear, Differential	2
5-26	41-921-52	Differential Gear (For 16 Spline Axle)	2
5-27	41-921-51	Differential Gear For (10 Spline Axle)	2
5-28	41-920-00	Axle Thrust Block	2
5-29	41-922-00	Axle Thrust Block Spacer	2
5-30	41-950-00	Pinion Gear, Differential	2
5-31	97-236-00	Lug Nut ½" NF (Used On Hub With Studs)	10
5-31	96-320-00	Lug Bolt, ½" NC (Used On Hub Without Studs)	10
5-32	12-205-73	Rear Hub, Five ½" Holes On 4½" Bolt Circle, Wide Width (1" Face To Outside Hub End) Requires 96-320-00 Lug Bolts.	2
5-40	41-992-00	Rear Wheel Support Bolt	10

SECTION J2
PAGE 10

FIGURE NO. 5

FIG. I.D. NO.	TAYLOR-DUNN PART NO.	DESCRIPTION	REQ
5-41	80-790-00	Dust Washer For Outer Axle	2
5-42	32-510-00	Retainer, Rear Axle, Wheel Bearing	2
5-43	41-961-00	Axle Bearing Shim	0 -
5-44	41-282-00	Housing, Differential	1
5-45	16-861-00	Spring Pad	2
5-46	41-125-51	Axle Rear, 11½" Overall Length, 10 Teeth On Spline	2 c
5-47	45-040-00	Gasket, Ring And Pinion Gear Housing To Differential Housing.	1
5-48	44-326-00	Differential Ring And Pinion Gear Housing	1
5-49	88-119-80	Nut, 3/8" NF	11
5-53	30-105-00	Pulley, 4 Belt, 3V Section With Hub And Brake Drum 9.8" OD	1
5-54	30-106-00	Pulley, 4 Belt 3V Section, 2.65" O.D. - 7/8" Bore	1
5-54	30-107-00	Pulley, 4 Belt 3V Section 3.15" O.D. - 7/8" Bore	1
5-54	30-108-00	Pulley, 2 Belt 3 V Section 2.65" O.D. - 3/4" Bore	1
5-54	30-112-00	Pulley, 4 Belt 3 V Section, 3.65" O.D. - 7/8" Bore	1
5-54	30-157-00	Pulley, 2 Belt 3 V Section, 3.65" O.D. - 3/4" Bore	
5-54	30-160-10	Pulley, 2 Belt 3 V Section, 3.15" O.D. - 3/4" Bore	1
5-54	30-168-00	Pulley, 2 Belt 3 V Section, 5.00" O.D. - 3/4" Bore	1
5-55 A	70-049-00	Motor, 1.5/2 H.P. G.E. Model 48JB-265 used up to Serial No. 21250. Not available. Used with motor mount 70-432-00.	1
5-55B	70-049-00	Motor, 1.5/2 H.P. G.E. Model 48JB-503 used after Serial No. 21250. Used with motor mount 70-429-61.	1
5-55 C	70-049-00	Motor, 1.5/2 h.p. Taylor-Dunn. Used with motor mount 70-432-61.	1
5-55 D	70-054-00	Motor, 2.25/3.5 H.P., G.E. Model 49JB-122, Used with Motor Mount 70-432-61.	1
5-55 E	70-020-00	Motor 1.0 H.P., G.E. Model 56 EA-8. Used with Motor Mount 70-433-61.	1
5-55 A,C,D	70-432-61	Motor Mount Kit for Taylor-Dunn Motor, G.E. Motors 48JB-265 and 49JB-122.	1
5-55 B	70-429-61	Motor Mount Kit for G.E. Motor 48JB-503	1
5-55 E	70-433-61	Motor Mount Kit for G.E. Motor 56EA-8	1

FIGURE NO. 5

SECTION J2
PAGE 11

FIG. I.D. NO	TAYLOR-DUNN PART NO.	DESCRIPTION	QTY. REQ.
5-56	45-506-00	Oil Seal	1
5-57 A,B,DE	80-504-00	Ball Bearing, Front only, G.E. Motors	1
5-57 A,B,D	80-200-00	Ball Bearing, Rear only, G.E. Motors 48JB-265, 49JB-122, and 48JB-503.	1
5-57, C	80-205-00	Ball Bearing, Frontonly, Taylor-Dunn Motor	1
5-57, C	80-204-00	Ball Bearing, Rear only, Taylor-Dunn Motor	1
5-57, E	80-201-00	Ball Bearings, Rear only, G.E. Motor 56 EA8	1
5-57 A,D	70-100-00	Motor Brush, G.E. Motors 48JB-265, 49JB-122	4
5-57 B,E	70-101-00	Motor Brush, .G.E. Motors 48JB-503, 56EA-8	4 or 2
5-57 C	70-102-00	Motor Brush, Taylor Dunn Motor	4
5-57 A,D	85-401-00	Brush Spring, G E. Motors 48JB-265, 49JB-122	4
5-57 B,E	85-412-00	Brush Spring, G.E. Motors 48JB.503, 56 EA-8	4 or 2
5-57 C	85-413-00	Brush Spring, Taylor-Dunn Motor	4
5-57 A,D	70-185-00	Brush Holder, G.E. Motors 48JB-265, 49JB-122	1
5-57 B	70-188-00	Brush Holder, G.E. Motor 48JB-503	1
5-57 C	70-187-00	Brush Holder, Taylor-Dunn Motor	1
5-57 E	70-189-00	Brush Holder, G.E. Motor, 56 EA-8	1
5-57 B	30-801-00	Brush Inspection Cover, G E. Motor 48JB-503	4
5-58	85-060-00	Compression Spring 5/8" OD By 2½" Long	1
5-59	41-660-00	Brake Band For Drive Shaft Brake	1
5-60	88-100-24	Hex Head Cap Screw, 3/8" X 4 NC	1
5-64	88-239-85	Castle Nut, 3/4 NF	3
5-65	88-527-14	Cotter-Pin, 1/8 X 1½	3
5-66	88-228-61	Washer, 3/4 SAE	3
5-67	80-551-00	Tapered Roller Bearing Front Pinion	1
5-69	41-926-00	Drive Pinion Bearing Adjustment Shim	1
5-70	41-925-00	Drive Pinion Spacer	1
5-71	80-122-00	Tapered Bearing Race For Front & Rear Pinion	1
5-72	80-553-00	Tapered Roller Bearing, Rear Pinion	1
5-73	41-924-00	Drive Pinion Rear Bearing Washer	1
5-75	45-330-00	Oil Seal, Pinion	1
5-76	85-510-13	Three Leaf Cantilever Spring	2
5-77	30-619-00	Belt, 3V375 (3V Section)	2
5-78	88-101-18	Hex Head Cap Screw, 3/8 x 2½" Heat Treated	8
5-79	41-997-00	Level Plug & Drain Plug (1/8 Pipe)	2
5-80	41-995-00	Filler Plug 3/8" With Square Top	1
5-81	97-100-00	3/16 Woodruff Key	1
5-82	98-601-00	Rubber Bushing, Spring Eye	4
5-83	96-240-00	Hex Head Cap Screw, ½ NC x 4, Pointed	2
5-84	88-149-81	Lock Nut ½ NC	2

SECTION J4
PAGE 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. (Note that on vehicles equipped with mechanical brakes only, this cable serves as the operating cable for the foot brake system as well.)

The footbrake system consists of the foot pedal, pivot shaft, brake operating cable as mentioned above, 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.

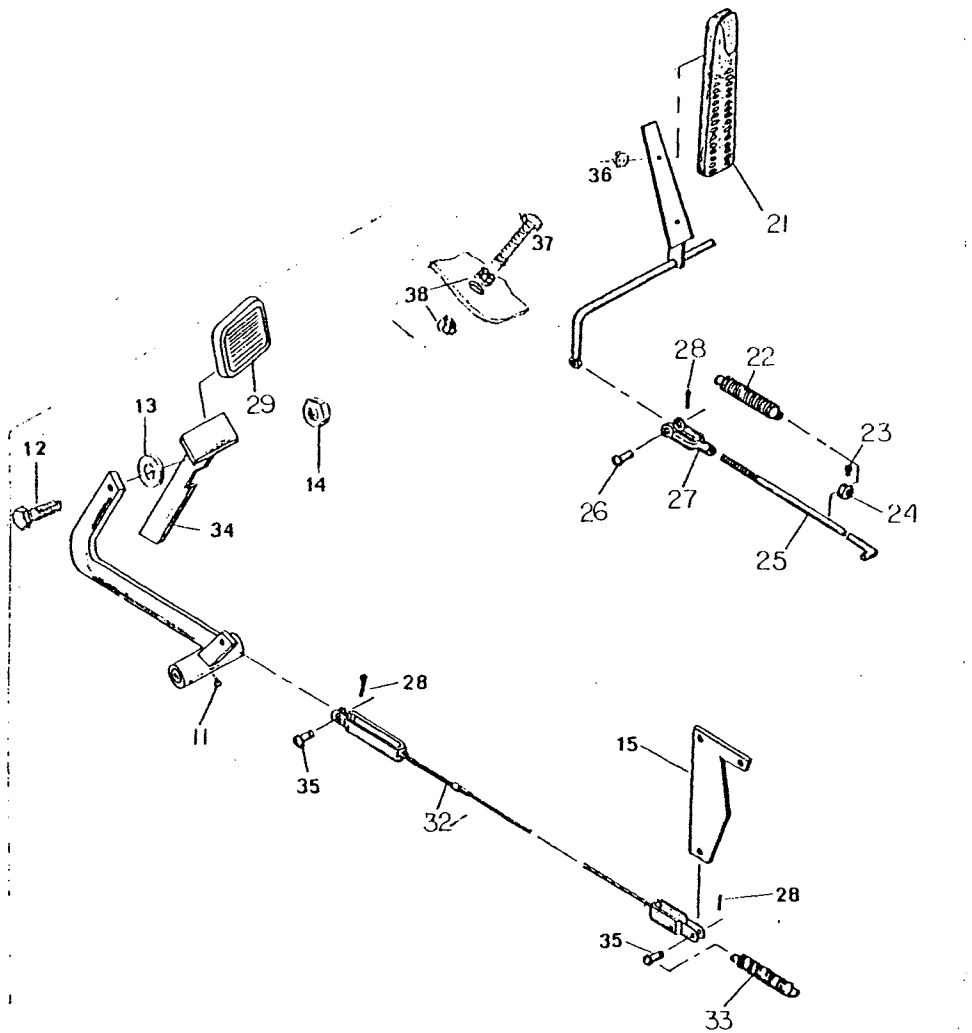
All wear points should be lubricated monthly. Refer to Maintenance Guide Section D and Lubrication Diagram Section E for proper application of lubricants.

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.



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PAGE 2

NO.	DESCRIPTION	LENGTH	QUAN.	REVISED DATE	REVISION

TOL. FRAC.± DEC.±
SCALE NONE
DRAWN BY REA
DATE 5-26 '

FIGURE 7
SECTION J4

CONTROL LINKAGE
1967 & UP MODEL 2531 SS

TAYLOR DUNN MFG. CO.
2114 West Ball Rd.
Ana[illegible], Calif.

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PAGE 3

FIGURE No. 7

MECHANICAL CONTROL LINKAGE

FIG. I.D. NO.	T-DUNN PART NO.	DESCRIPTION	QTY. REQ.
7-11	87-071-00	3/16 Drive Grease Fitting	1
7-12	88-140-14	Hex Head Cap Screw, ½ NC x 1½	1
7-13	88-148-60	Washer, ½"	1
7-14	88-149-81	Lock Nut, Hex ½" NC	1
7-15	50-655-00	Brake Arm	1
7-21	98-254-00	Accelerator Pedal Pad	1
7-22	85-295-00	Spring Extension 9/16" OD by 4-7/8" Long	1
7-23	88-071-06	Hex Head Cap Screw, ¼ x ½ NF	1
7-24	17-104-00	3/8" Shaft Collar	1
7-25	50-123-00	3/8" Accelerator Rod (22" Overall Length)	1
7-26	96-772-00	Clevice Pin, 3/8 x 1, Face to Hole.	1
7-27	96-762-00	Clevice, 3/8 Cast	1
7-28	88-517-11	Cotter Pin, 3/32 x 1	3
7-29	98-200-00	Brake Pedal Pad	1
7-32	96-812-00	Brake Cable Assembly 31-3/4" to 34-3/4" Length	1
7-33	85-233-00	Spring Extension 11/16" OD x 6¼" Free Length	1
7-34	51-507-00	Pedal, Brake Lock	1
7-35	96-771-00	Clevis Pin, 3/8 x 3/4 Face to Hole	2
7-36	88-069-87	Nut, ¼ NC, Fastite, Hex	2
7-37	88-100-14	Hex Head Cap Screw, 3/8 NC x 1½ (Accelerator Stop)	1
7-38	88-109-87	Nut, 3/8 NC, Fastite, Hex	2

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.

SECTION J5
PAGE 2

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.

SECTION J5
PAGE 3

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

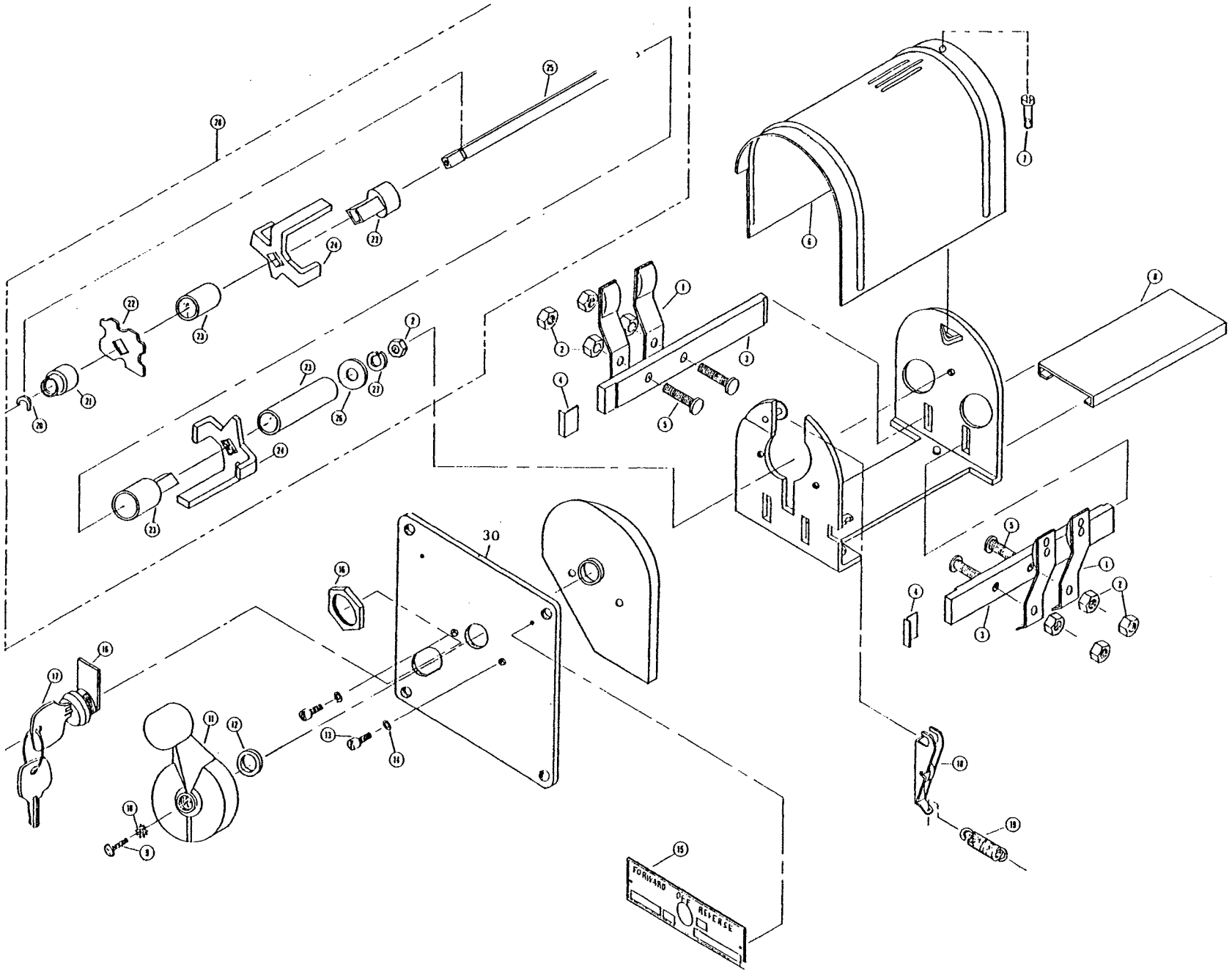
1. Remove cover. (Note: on some vehicles it will be necessary to remove switch from mounting plate to gain access to cover.)

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.



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PAGE 4

NO.	DESCRIPTION	LENGTH	QUAN.	REVISED DATE	REVISION

TOL. FRAC. ± DEC. ±
SCALE NONE
DRAWN BY REA
DATE 9-3-69

FIGURE 8
SECTION J5

FORWARD - REVERSE SW.
PART NO. 71-040-00

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

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PAGE 4

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PAGE 5

FIGURE NO. 8
GROUP 8 FORWARD AND REVERSE SWITCH

FIG. I. D. NO.	T-D PART NO.	DESCRIPTION	QTY 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 S
8-24	71-040-58	Rotor Contacts (Set Of 2-1 Right & 1 Left)	1 S
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
		Switch Extension Handle Parts	
8-9	71-040-80	Extension Rod-8-32 x 6½" Long	1
8-9	71-040-78	Extension Tube-11/16 OD x 5½"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

SECTION J6
PAGE 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.

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PAGE 2

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.

SECTION J6
PAGE 3

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.

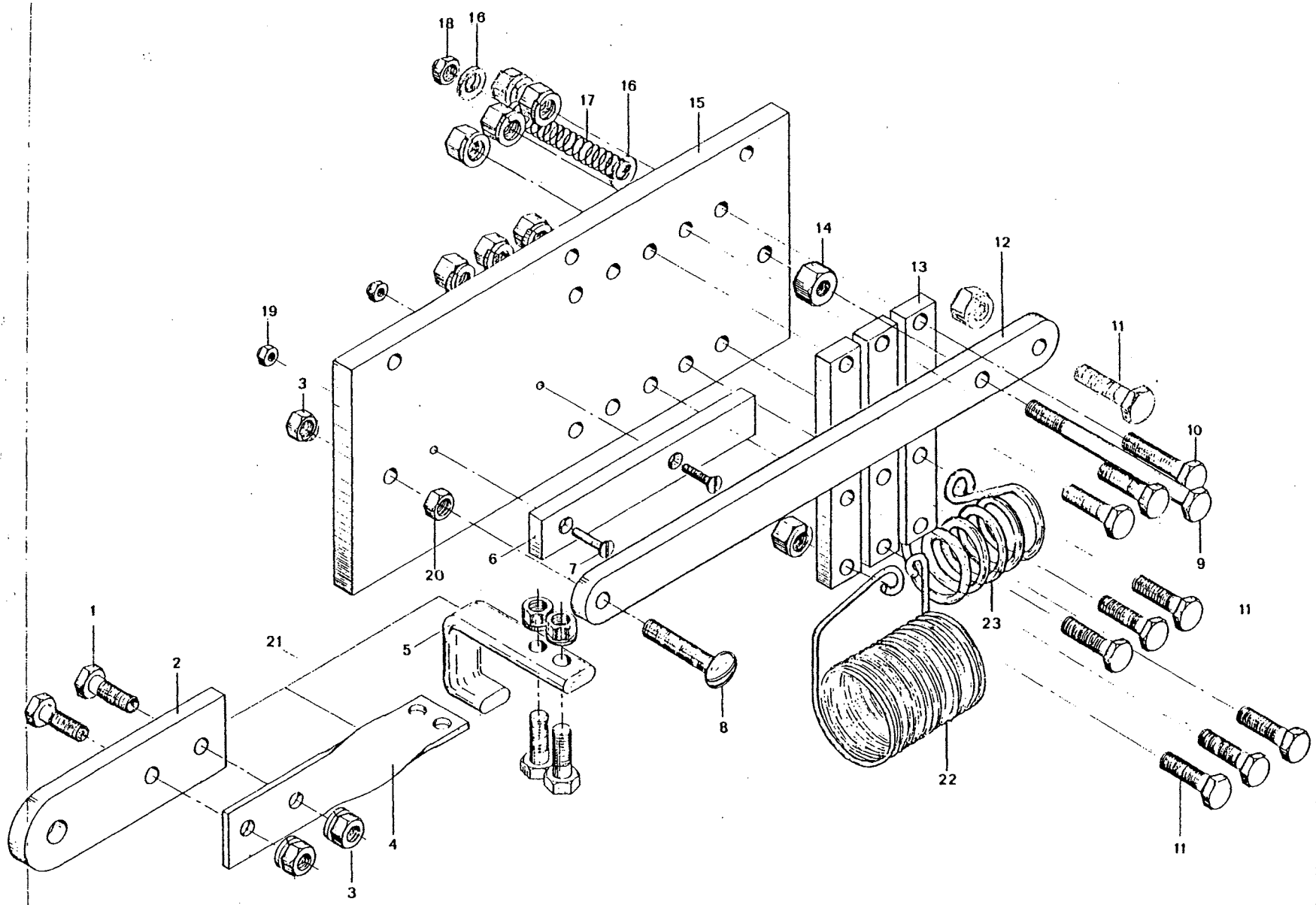
It is recommended that power bars be replaced as a set rather than individually to avoid the above condition.

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

NO.	DESCRIPTION	LENGTH	QUAN.	REVISED DATE	REVISION

TOL. FRAC.± DEC.±
SCALE NONE
DRAWN BY EA
DATE 11- -70

FIGURE 9
SECTION J6

SPEED CONTROL RHEOSTAT
3 SPEED

TAYLOR DUNN MFG. CO.
2114 West Ball Rd.
A im, Calif.

SECTION J6
PAGE 4

SECTION J6
PAGE 5

FIGURE NO. 9

RHEOSTAT SPEED CONTROL

FIG. I.D. NO.	T-D PART NO.	DESCRIPTION	Q R
9-0	61-830-11	Sliding Bar Rheostat 3 Speed Complete With 61-837-21 Assembly And 61-832-10 Assembly.	
9-1	88-060-09	Hex Head Cap Screw ¼" N.C. X 3/4"	
9-2	61-834-00	Insulating Board	
9-3	88-069-87	Fastite Nut ¼" N.C.	2
9-4	61-833-00	J-Hook Twisted Strap (4½" Long)	
9-5	61-832-00	Sliding J-Hook Bar	
9-6	61-835-13	Neutral Bar (3 speed)	
9-7	88-026-10	Flat Head Machine Screw 8-32 X 7/8"	
9-8	88-065-14	Truss Head Machine Screw ¼" N.C. X 1½"	
9-9	88-060-22	Hex Head Cap Screw ¼" X 3½" N.C.	
9-10	88-060-14	Hex Head Cap Screw ¼" X 1½" (Terminal Bolt)	
9-11	88-060-11	Hex Head Cap Screw ¼" X 1" N.C.	
9-12	61-836-00	Pressure Bar	
9-13	61-831-00	Power Bar	
9-14	88-109-80	Nut - 3/8" N.C. (Hex)	1
9-15	61-837-00	Mounting Board	1
9-16	88-068-60	Washer - ¼" Flat	2
9-17	85-034-00	Spring - Compression 7/16" O.D. X 2" Long	1
9-18	88-069-86	Nut - ¼" N.C. Flexlock	1
9-19	88-029-86	Nut - 8-32 Flexlock	2
9-20	88-069-80	Nut - ¼" N.C. (Hex)	1
9-21	61-832-10	Sliding J-Hook Assembly (Includes J-Hook Insulating Board and Strap)	1
9-22	78-212-51	Resistor Coil (#9 Wire 10 Turns)	1
9-23	78-212-52	Resistor Coil (#6 Wire 9 Turns)	1

SECTION J7
PAGE 1

MAINTENANCE PROCEDURES
GENERAL ELECTRICAL SYSTEM

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

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

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

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GENERAL ELECTRICAL PARTS

T-D PART NO.	DESCRIPTION	R
71-100-00	Light Switch	1
71-111-00	Brake Light Switch (Mechanical Operated)	1
71-130-00	Micro Switch	1
71-500-00	Bracket - Horn Button & Light Switch (Steering Wheel Model)	1
71-501-00	Horn Button - Steering Wheel Model	1
71-502-00	Horn Button - Tiller Model	1
72-005-00	Chrome Headlight Fixture With 4" Sealed Beam Bulb	1
72-022-00	Stop & Taillight Fixture, 4" Rubber Mount (12 Volt)	2
72-072-00	4" Sealed Beam Headlight Bulb (12 Volt)	1
73-000-00	Horn (12 Volt)	1
74-000-00	Hour Meter	1
74-005-00	Charge Indicator (12 Volt)	1
75-069-00	Wiring Harness For Power	1
75-078-00	Wiring Harness For Lights & Horn	1
75-204-00	Wire #4 (Per Foot)	
75-208-00	Wire #8 (Per Foot)	
75-218-00	Wire #16 (Per Foot)	
75-231-00	Battery Jumper #6 Wire (8" Long)	
75-404-53	Terminal Lug #4 Wire ¼" Hole	
75-404-54	Terminal Lug #4 Wire 5/16" Hole	
75-408-52	Terminal Lug #8 Wire 3/16" Hole	
75-408-53	Terminal Lug #8 Wire ¼" Hole	
75-418-51	Terminal Lug #16 Wire #6 Hole	
75-418-52	Terminal Lug #16 Wire 3/16" Hole	
75-418-53	Terminal Lug #16 Wire ¼" Hole	
78-010-00	Secondary Fuse & Holder (Inline Type)	1 t
79-823-00	Fuse - Buss Type 20 Amp	1 t

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MAINTENANCE PROCEDURES

BATTERIES

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

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

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

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

1. CORRECT CHARGING

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

Over charging will reduce battery life. Undercharging will cause poor vehicle performance, and shorten the life of all electrical components, including the batteries. Refer to Service and Adjustment, Section J8, for proper methods to determine charge condition.

2. DISCHARGING - CAPACITY

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

3. WATERING

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

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4. CLEANING

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

When wet dirt accumulates on top of the battery, remove it by washing the battery with a strong solution of baking soda and hot water (1 pound of soda to 1/2 gallon of water).

A convenient brush to use is one having flexible bristles like an old paint brush. Continue the application of the soda solution until all fizzing stops, which indicates that the acid has been neutralized. Then rinse thoroughly with clear water.

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

5. RECORDS

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

A. Overcharging
B. Undercharging
C. Overdischarging
D. Excessive Water Consumption
E. Cleanliness
F. Worn Out Batteries
G. Excessive Current Consumption On Trucks

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

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

BATTERY MAINTENANCE RECORD VEHICLE NO.

Battery No.	Cell No.	Date			Date			Date			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												

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

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BATTERIES & CHARGER

T-DUNN 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
76-999-00	6 Volt - 110 A.H. Battery	4
77-010-00	6 Volt, 170 A.H. Battery	4
77-031-00	6 Volt, 190 A.H. Battery	4
77-042-00	6 Volt, 217 A.H. Battery	4
77-200-00	Hydrometer	1
77-201-00	Battery Filler	1
77-202-00	Battery Breakdown Meter	1
79-215-00	Built In Charger (2420A-SS) Standard	0 or 1
79-215-10	Built In Charger (2420A-SS) Modified For Use With Steering Gear Box	0 or 1
79-226-00	Built In Charger (2425L-SS) Heavy Duty	0 or 1
79-226-10	Built In Charger (2425L-SS) Modified for Use with Steering Gear Box	0 or 1

See Parts List in Charger Manuals for Charger Replacement Parts.

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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 Portable	Built-in	A-C Volts	A-C Amp	Battery Amp Hours*	D-C Volts	D-C Amp
2420A	2420A-C/2420A-SS/2420AB	115	5	130/170	24	20
3620A	3620A-C/3620AB	115	9	130/170	36	20
	2410A	115	2.5	90	24	10
	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.

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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 acheived by using this method. Protection from over-charging 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 whould 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 "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.

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5. The timer control will turn off the charger (positive turn off feature) at the completion of the charge.
6. Disconnect the battery from the charger. On built-in models, disconnect the A-C cord.
7. 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 condiction. 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.

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

TROUBLE SHOOTING & REPAIR INSTRUCTIONS

LOW OR NO CHARGING CURRENT

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

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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.

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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 know 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 1100 for a completely discharged battery to 1260 for a fully charged battery. No amount of overcharging will raise the specific gravity above 1260 on the electric vehicle type 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.

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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 ciruits 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 it 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.

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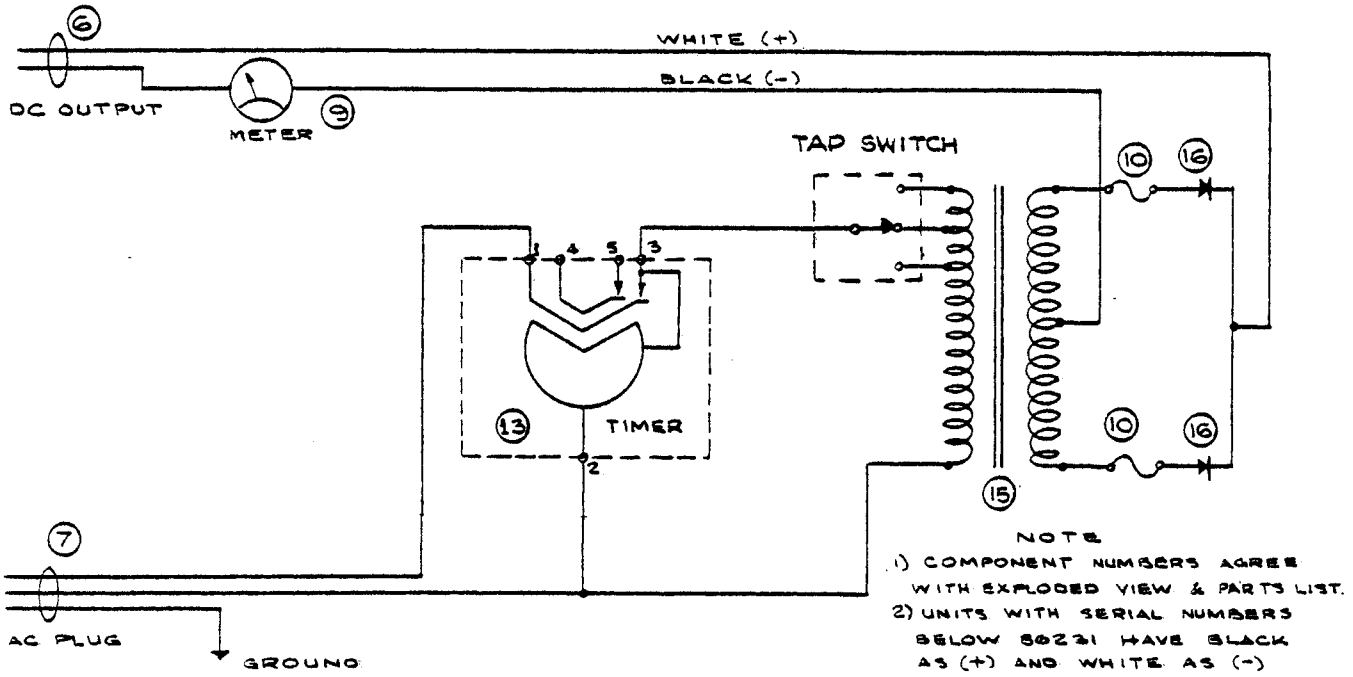
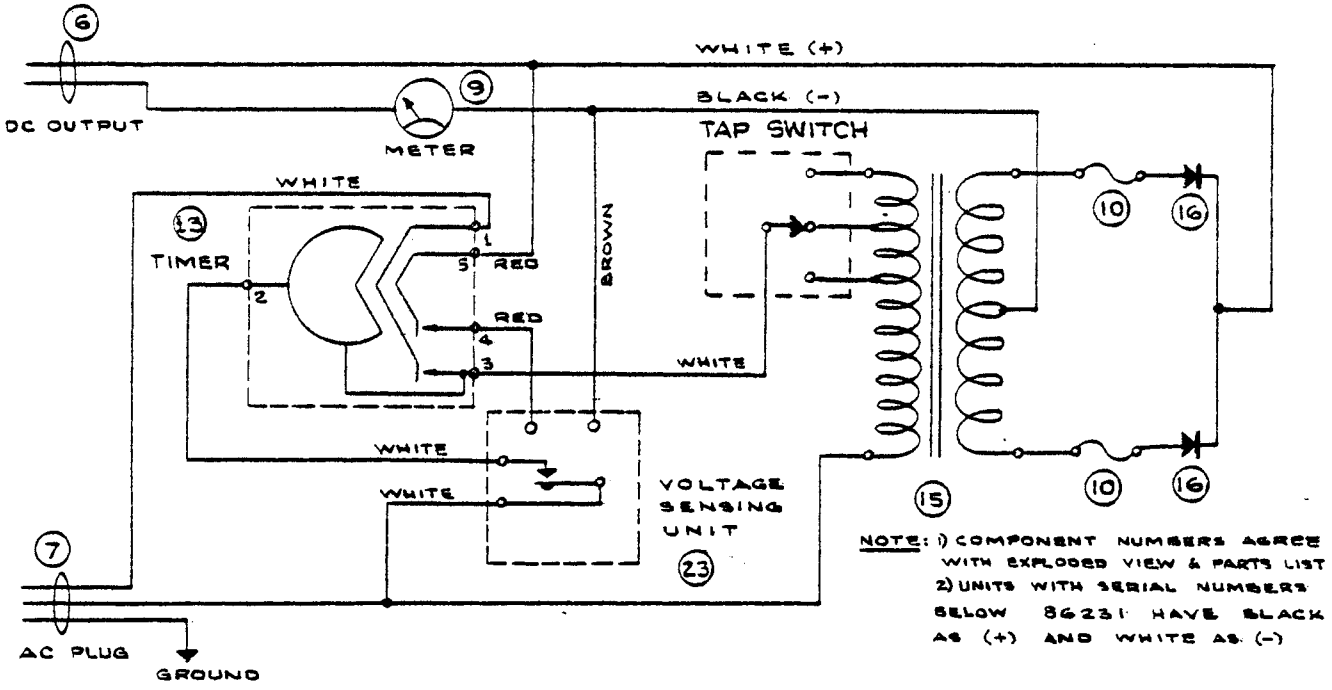
CIRCUIT DIAGRAMS

SERIES "A" & "T" CHARGERS



CHRISTIE SERIES "A" BATTERY CHARGERS



CHRISTIE SERIES "T" BATTERY CHARGERS

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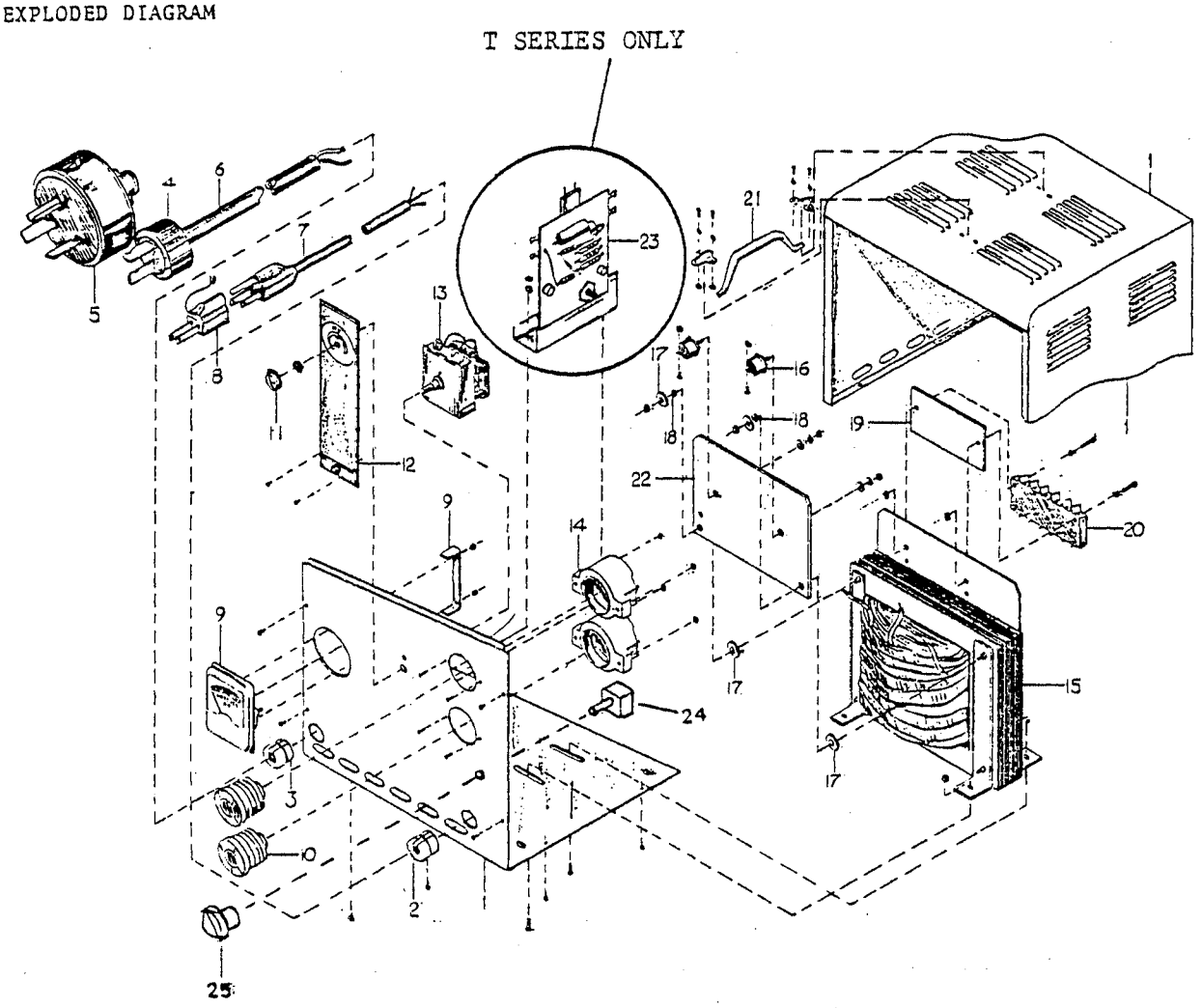
PART IDENTIFICATION

SERIES "A" & "T" CHARGERS

EXPLODED DIAGRAM



Portable Cabinet Shown.

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

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PARTS LIST

	ITEM	Taylor-Dunn Part No.
1	Cabinet	
2	Bushing (A-C)	79-530-00
3	Bushing (D-C)	79-531-00
4	D-C Plug (2 prongs)	76-001-00
5	D-C Plug (3 prongs)	76-002-00
6	Output Cord (no plug)	79-560-00
	Output Cord w/molded plug	79-566-00
7	A-C Cord and Plug (portable model)	79-570-00
	Molded A-C Assembly (built-in model)	79-575-00
	Recessed Male Plug (built-in model)	76-251-00
8	Adapter	79-580-00
9	Ammeter (0-30 amp)	79-851-00
10	Fuse (30 amp)	79-819-00
11	Control Knob	79-803-00
12	Instruction Plate	94-321-00
13	Timer Assembly, 12 hr. ("T" Series)	79-800-00
	Timer Assembly, 24 hr. ("A" Series)	79-801-00
14	Fuse Holder	79-830-00

	ITEM	Taylor-Dunn Part No.
15	Transformer, 24V/20A ("T" Series)	79-630-00
	Transformer, 24V/20A ("A" Series)	79-606-00
	Transformer, 24V/30A ("T" Series)	79-607-00
	Transformer, 36V/20A ("T" Series)	79-613-00
	Transformer, 36V/20A ("A" Series)	79-612-00
	Transformer, 36V/30A ("T" Series)	79-614-00
	Transformer, 48V/20A ("T" Series)	79-620-00
16	Diode, 24/36V	79-720-00
	Diode, 48V	79-724-00
17	Washer Assembly, 3/4"	97-170-00
18	Washer Assembly, 3/8"	97-171-00
19	Mounting Plate	94-325-00
20	Terminal Board	79-860-00
21	Handle Assembly	79-509-00
22	Heat Sink	79-742-00
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
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.

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MODELS 2445 AND 3645
OPERATING AND SERVICING DATA SHEET

INSPECTION AND INSTALLATION

Inspect the exterior of the shipping container for signs of rough handling during shipment.

Remove charger from the shipping container and inspect it for damage (cracked knob, etc.). CLAIMS FOR SHIPPING DAMAGE SHOULD IMMEDIATELY BE FILED WITH THE CARRIER.

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

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

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

The adjustment for a charging voltage of 2.50 volts per cell should be made at this time. This is done by monitoring the DC output voltage with a voltmeter (Oto50 volts) and setting the AC tap lead to the transformer terminal which gives the desired DC output voltage as indicated below. Move the tap connection to the right to increase the DC output voltage. Move the tap connection to the left to decrease the DC output voltage. Move the tap connection to the left to decrease the DC output voltage.

DC OUTPUT VOLTAGE SETTING CHART

MODEL	DC OUTPUT VOLTS
2445	30.0
3645	45.0

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

OPERATING INSTRUCTIONS

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

PARTS LIST

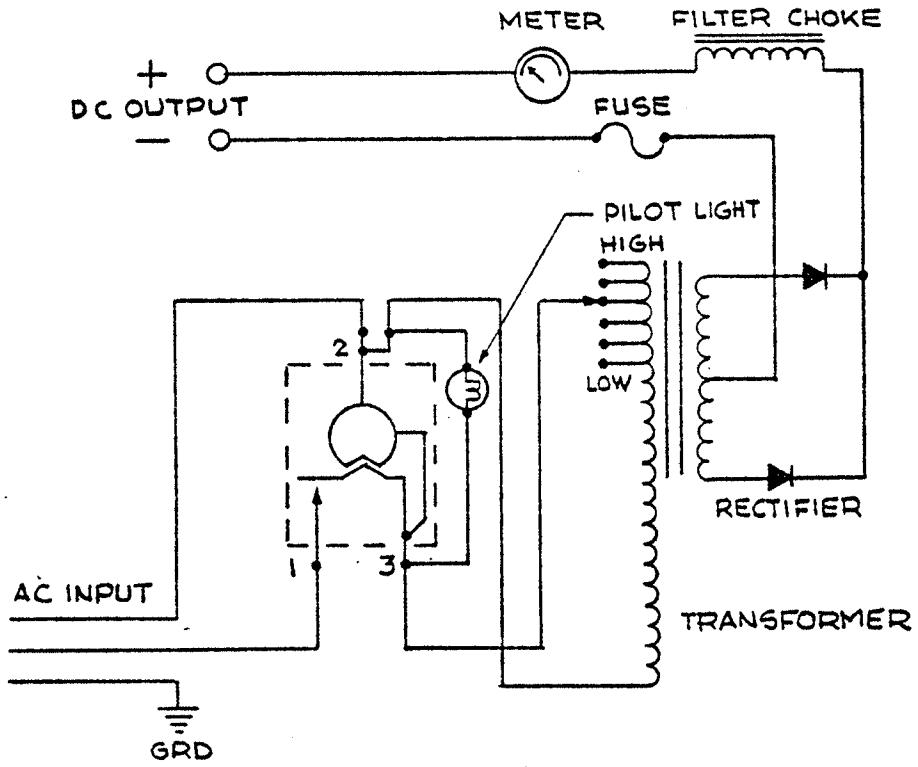
79-505-00 Cabinet	94-326-00 Timer dial	79-714-00 Choke, 36V
79-531-00 Bushing, AC	72-905-00 Pilot Light	79-641-00 Transformer,24V
79-530-00 Bushing, DC	79-720-00 Diode	79-642-00 Transformer, 36V
79-567-00 Cord, DC	79-852-00 Ammeter	79-862-00 Terminal Panel
79-537-00 Cord, AC	97-170-00 Insulator Washer (3/4")	79-826-00 Fuse (Link)
79-801-00 Timer	97-171-00 Insulator Washer (3/8")	71-304-00 Relay, 115V (3645 only)
79-803-00 Control Knob	79-713-00 Choke, 24V	

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

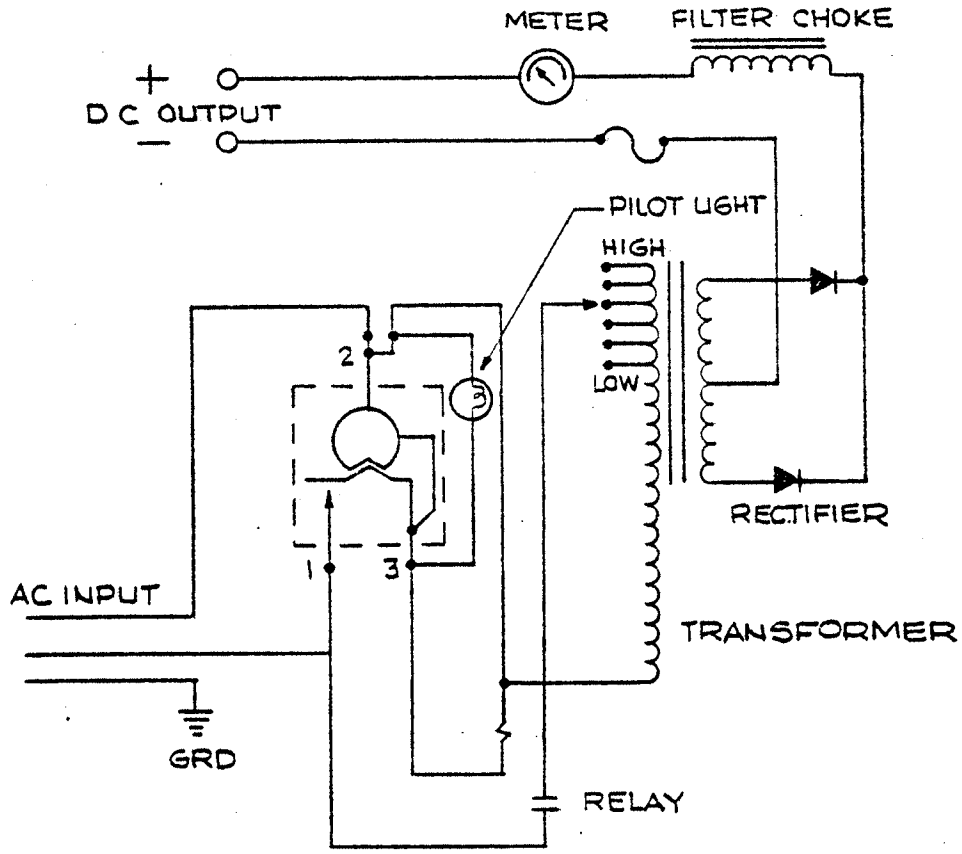
SECTION J8
PAGE 15

CIRCUIT DIAGRAM

MODELS 2445 & 3645 CHARGERS



MODEL 2445



MODEL 3645

SECTION J9
PAGE 1

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.

BODY & TRIM PARTS

T-DUNN PART NO.	DESCRIPTION	QTY. REQ.
50-227-00	½" Battery Rod - 11½ Long Plus Bend	2
50-460-00	Strap, Rear Axle Spacer (3-1/8" Long)	2
71-650-00	3" Red Reflector	1
72-022-51	Rubber Ring 90-131-00 SEAT CUSHION	0 to 2
77-858-00	Battery Hold-Down Strap	1
85-295-00	Spring - Extension 9/16" x 4-7/8" 90-130-00	2
88-065-08	Truss Head Machine Screw 1/4" x 5/8" NC BACKREST	6
88-065-11	Truss Head Machine Screw ½" x 1" NC	2
88-068-62	Lock Washer½"	8
88-066-06	Flat Head Machine Screw ½" x ½" NC	2
88-069-87	Nut Fastite ½" NC	6
88-069-83	Nut Acorn ½" NC	2
90-306-00	Seat, Back Lock	2
90-439-00	Deck Board With Cover	1
92-000-00	Chrome Wheel Covers 8" for 400 x 8 Wheel	2
92-201-00	4 x 8 Mirror	1
92-202-00	Mirror Bracket	1
94-201-00	Taylor-Dunn Emblem	1
94-301-00	Taylor-Dunn Decal	2
94-305-00	Forward/Reverse Switch Plate	1
94-371-00	Serial Number Plate (Please state Serial No.)	1
94-410-00	Seat Cleaner (1 Quart) (Mixes 5 to 1 w/water)	
95-910-00	Knob - Deck Board	2
95-950-00	Paint - ½ Pt. Can (Specify Color)	
95-951-00	Paint - 1 Pt. Can (Specify Color)	
95-952-00	Paint - 1 Qt. Can (Specify Color)	

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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.

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* 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, CYLINDER REPAIR SHOULD BE PART NO. 41-350-66.

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2114 W. BALL ROAD
ANAHEIM, CA 92804

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