OPERATION
AND
MAINTENANCE MANUAL
WITH
PARTS LIST

MODEL:	**B, BN AND M**
SERIAL NO. :	**4549 - 14999**
YEAR:	**1964 - 1969**
MANUAL NO. :	**MB-248-98**

- IMPORTANT -

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

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Commercial and Industrial Vehicles Since 1949
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GENERAL DESCRIPTION

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 go in excess of 15 m.p.h. on level surfaces or downhill. Speeds in excess of this may result in difficulty in steering. It is not designed to be towed in excess of 15 m.p.h.

MODEL NO.

The following Model numbers are covered by this manual - 1230B, 1231B, 1240B, 1241B, 2233M, 2243M, 234BN, 235BN, 244BN and 245BN.

SERIAL NO.

The serial number of your unit is stamped into the front seat frame on the left side 6" back from the front edge. The model number and serial number are on a nameplate riveted to the dash panel steering support shelf forward of the steering column. 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.

1. Preparation & Operating Instructions

When first receiving your new Taylor-Dunn vehicle, examine it carefully to make sure that it was not damaged in shipment. Read battery and charging instructions as supplied by the respective manufacturers before attempting to start the truck. Full information regarding the care and operation of your power source will be found in this manual. See that the battery is fully charged and that the electrolyte is at the proper level.

Before using vehicle for the first time, sit down and familiarize yourself with controls and make sure that they are all working freely. On the console in between the seats is located the forward-reverse switch. To go forward, push the handle to the left and to go backward, push the handle to the right. On the upper left corner of switch plate is where the lock is located. The key can only be removed from lock in the locked position or turned clockwise. The accelerator pedal is designed for right foot operation, same as your automobile. The pedal is located just left of center on floor board. The brake pedal is designed for right foot operation and is located to left of accelerator pedal on left floor board. The hand operated parking brake is located in left forward corner of floor board. To engage hand brake pull top part of handle back towards seats. To release, push handle all the way forward. On gear drive hydraulic brake truck never depress the brake pedal and try to engage the hand parking brake at the same time. If you do you will throw the adjustment of the parking brake off and it then must be readjusted. To steer turn steering wheel clockwise to go to the right and counter-clockwise to go to the left. If all controls are working freely you are ready to go under power.

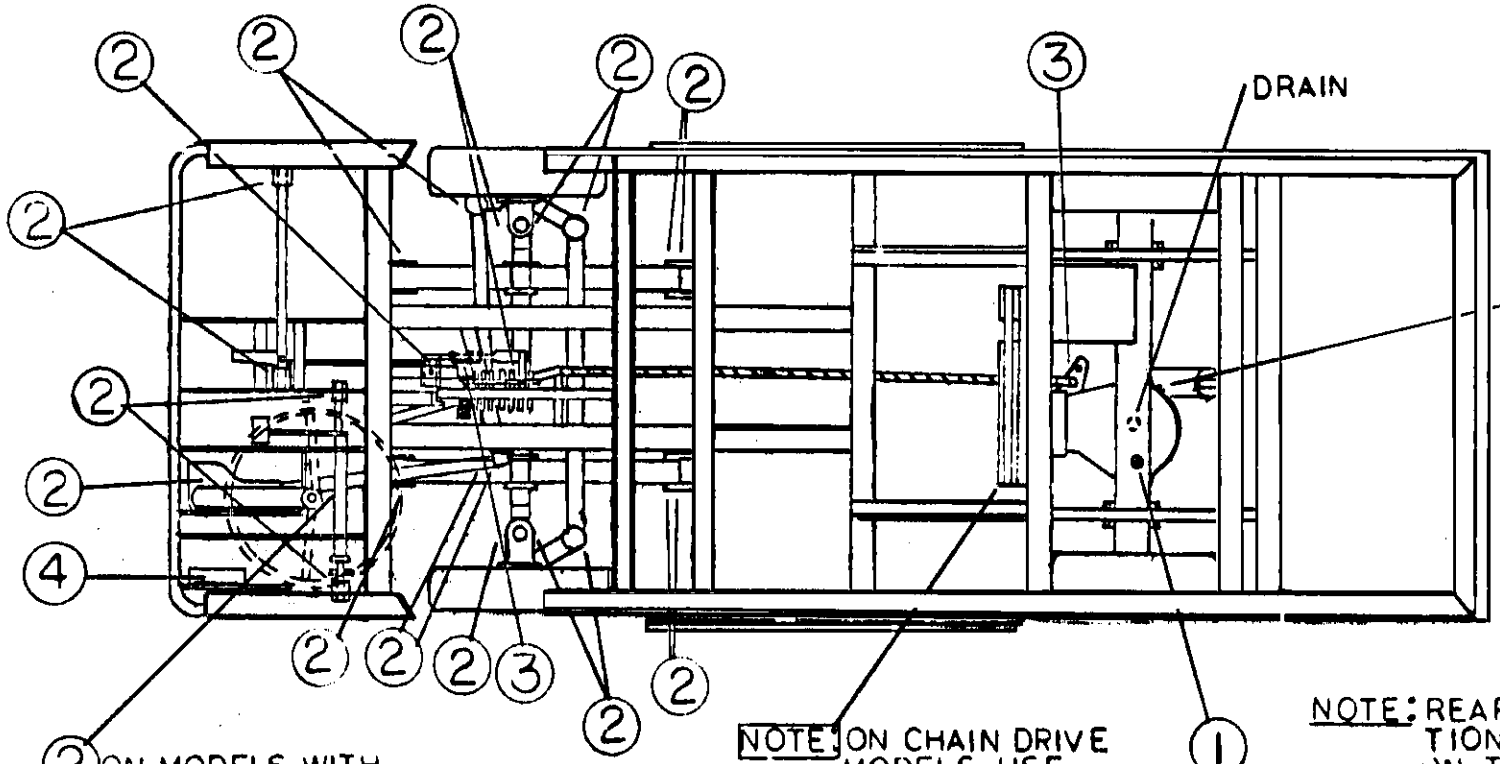
2. General Operating Instructions

To put your new vehicle into operation, turn key counter-clockwise. Next select direction by moving red handle to right or left. Make sure hand parking brake is released, then slowly depress accelerator pedal to go in direction desired. When depressing accelerator pedal, you will feel 5 speeds in either direction. It is recommended to operate your truck in the fastest speed, commensurate with you and your passengers safety. Your truck requires almost the same amount of current to go slow as it does to go at it's fastest speed. This is the most efficient way to operate the truck. When you stop and leave the truck, it is best, for safety reasons, to turn forward and reverse

switch to off position, set hand brake, and lock and remove key.
If it is necessary to stop, going up hill, use brake pedal to hold vehicle and do not hold vehicle by depressing accelerator pedal. Using accelerator pedal can damage motor and wiring of truck. A way to prolong life of switch contacts, rheostat contacts and motor, is not to change position of forward and reverse switch until foot is removed from accelerator pedal and truck is completely stopped.

LUBRICANTS

① ENGINE OIL – SAE 30
② PRESSURE GUN GREASE
③ ENGINE OIL – ALL PURPOSE
④ BRAKE FLUID SAE 70R1



② ON MODELS WITH HYDRAULIC BRAKES ONLY

NOTE: ON CHAIN DRIVE MODELS USE SPRAY-FLEX LUBE ON CHAIN

NOTE: REAR END LUBRICATION IS THE SAME ON THREE WHEEL MODEL WITH BELT DRIVE.

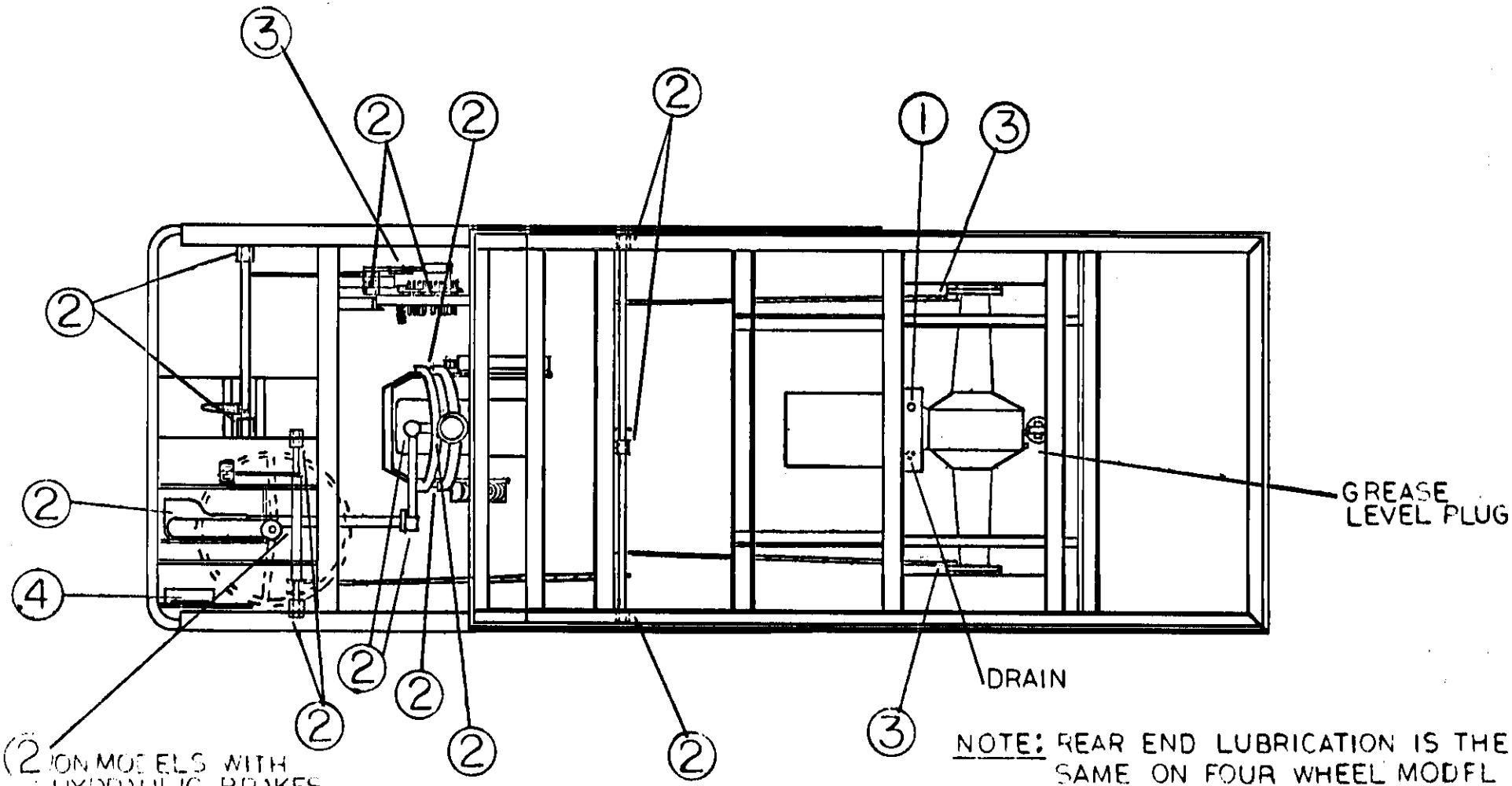
LUBRICATION CHART

FOUR WHEEL WITH BELT DRIVE

FIG. 1-12

LUBRICANTS

(1) EXTREME PRESSURE GREASE - SAE 90 TO 140
(2) PRESSURE GUN GREASE
(3) ENGINE OIL - ALL PURPOSE
(4) BRAKE FLUID - SAE 70R1



NOTE: REAR END LUBRICATION IS THE SAME ON FOUR WHEEL MODEL WITH GEAR DRIVE

FIG. 1-13

LUBRICATION CHART

THREE WHEEL WITH GEAR DRIVE

MAINTENANCE GUIDE CHECKLIST

This guide is provided as a check list for servicing your vehicle, so you will have a good running and trouble free unit. The guide is set up for average use. For extreme usage, more frequent service is recommended. Your Taylor-Dunn dealer will gladly perform these services for you, if desired. He has expert service men in the field to perform these services. Do not hesitate to call Service Manager if you have any questions at all.

	Every Week	Every Month	Every 3 Months	Yearly
Check and fill batteries, if necessary with distilled water (see Sec.22)	X	X	X	X
Check Rheostat Adjustment, (see Sec.17)	X	X	X	X
Check Belt or Chain Adjustment (see Sec. 14 to 16)	X	X	X	X
Check Tire pressure (see Sec.20)	X	X	X	X
Clean all dirt and grease off and between power bars and J-Hook and lubricate with chassis lube (see Sec. 17)	X	X	X	X
Lubricate all zerk fittings (see lube chart)		X	X	X
Lubricate all moving parts with entine oil, all purpose (see lube chart)		X	X	X
Lubricate chain drive with Chester Spra-Flex open gear and chain lubricant or equal.		X	X	X
On belt models, use Fels Naptha (bar) soap or belt dressing - if belts are noisy.		X	X	X
Check all wire connections and make sure they are all tight		X	X	X
Wash off batteries with water, use soda if necessary.		X	X	X
Check service and parking brake adjustment (see Sec. 5 to 11)		X	X	X
Check hydraulic brake for leaks and check brake fluid level (see Sec.7 and 8)		X	X	X
Check differential oil level (see lube chart)			X	X
Check motor brushes. Blow out carbon dust (see Sec. 19)			X	X
Check brake lining for wear			X	X
Check and adjust front wheel bearings and fork spindle bearing (see Sec.1,2, 3)			X	X
Drain differential and replace with SAE 30 oil on belt drive and SAE 90 - 140 oil on gear drives				X
Repack rear wheel bearing. Use wheel bearing grease . Also repack fork spindle bearings.				X
Repack front wheel bearing. Use wheel bearing grease.				X

MAINTENANCE PROCEDURE AND ADJUSTMENT

1. FRONT WHEEL AND FORK - 3 WHEEL

Your front wheel is mounted on a 3/4" axle and turns on two Timken bearings. With proper care these should last indefinitely. If by chance the front axle is submerged in mud or water, it is recommended that you remove and strip down front axle assembly and wash completely in solvent, repack and reassemble bearings. Be sure to use good wheel bearing grease. With normal usage repack front wheel yearly. There is a zerk fitting on front hub so a grease gun can be used if desired. To adjust front wheel bearing, go to nut on end of axle on either side and then tighten nut until there is bearing drag. Then back nut off ¼ turn, or until there is no bearing drag.

Your fork is constructed of heavy material for your safety and for as little maintenance as possible. It is mounted to the frame by means of a 1¼" spindle that has two Timken bearings that are adjusted by means of a large nut on top of the spindle. To get to nut remove hub cap on top. Adjust the same as axle bearings. These bearings require very little care other than proper adjustment and greasing. At the pivot point, there is one zerk fitting for grease, at upper middle of the collar. The two coil springs should require no care at all. The shock absorber should be good for an average of two years normal service.

2. FRONT WHEELS AND AXLE - 4 WHEELS

Your front wheels are mounted on automotive spindles with Timken bearings. Use same care and treatment as a three wheel truck. A zerk fitting is located on the inside of hub for grease lubrication. To adjust wheel bearing on a four wheel truck, you first remove hub caps, dust cap cover bearings, remove cotter-pin thru nut and tighten nut until wheel bearings have slight drag and then back off ¼ turn. Replace parts in reverse order of removal.

The front axle is constructed of heavy duty automotive spindles, king pins and tie rods, which require very little attention other than lubrication and making sure all nuts are tight. Zerk fittings are located on top and bottom of king pin and on end of tie rod. The leaf spring units have three points on each spring that require lubrication with zerk grease gun. Shackle bolts located on center of spring leaf should be tightened. To adjust toe in, jack front end of cart off ground and with a pencil make a mark around center of tread of tire by holding pencil

point against tire and turning wheel. Mark both front wheels. Let truck down on ground. Loosen lock nuts on each end of tie rod shaft so that portion of shaft between tie rod ends will turn. Next in as straight a forward position as possible, measure between marks on wheels, both front and rear side of wheel, then turn tie rod shaft until measurement is the same on both front and rear side of wheel. Retighten lock nuts on each end of tie rod. Camber and caster are set at factory and so will not need resetting in the field.

3. STEERING WORM - 3 WHEEL AND 4 WHEEL

Your steering worm is an automotive gear and should require very little care other than lubrication. Every three months grease two zerk fittings on worm housing with good chassis lube grease. Also every three months grease zerk fitting on both ends of steering link. Also make sure nuts are tight and are cotter pinned on both end of steering link.

4. CONTROL LINKAGE

These linkages are located under floor board of truck. The maintenance on linkage is nil, except to put oil on each end of clevis pins monthly.

5. BRAKE, MECHANICAL ON DRIVE SHAFT OF BELT AND CHAIN DRIVES.

There are two places to adjust the foot brake. One place is the turnbuckle on either cable that runs from the foot brake assembly to the brake arm. To adjust, loosen lock nut and shorten cable until proper free pedal travel, about 1½". If by chance turnbuckle is all the way in, a major adjustment can be made by first lengthening cable, then tighten 3/8" bolt located on top side of brake drum which also holds one end of brake shoe 5 to 6 turns, then readjust cable so there is proper free pedal travel. Make sure when brakes are released there is no drag on brake drum by the brake shoe. Before retightening lock nut on brake cable, push brake pedal down hard and then release to make sure everything is seating properly, if needed readjust cable and tighten lock nut.

6. BRAKES, MECHANICAL WHEEL BRAKES ON GEAR DRIVE ADJUSTMENT.

To adjust mechanical wheel brakes, jack up rear wheels until off ground. Loosen nut on turnbuckle on main cable that runs from brake pedal assembly to equalizer assembly. Adjust turnbuckle until brakes drag and then back off until just free and tighten nut. If it is found the one wheel brake engages before the other wheel brake, the individual cables that run from the equalizer to the brake cam arms can be adjusted to equalize the brakes. To do this, adjust main cable until one brake just drags and then adjust the individual cable up on the other brake until it just drags. Then back off on main cable until brake is free.

It is possible that as the shoes wear that one brake shoe on a wheel may engage before the other shoe on the same wheel. If this is the case, loosen the anchor bolt nut on top side of backing plate. Disconnect cable from brake cam lever. Work anchor bolt back and forth while applying more and more pressure to brake cam arm with your hand until anchor bolt will not move. Maintain pressure on brake cam arm and tighten nut on anchor bolt. Repeat with opposite wheel.

REPLACEMENT.

When cam arm is 40° forward of vertical when brakes are applied, it is time to replace shoes. To replace the brake shoes jack up rear of vehicle and remove hub and drum assembly with axle knocker or wheel puller. This brake design does not allow full use of lining as most of the wear is on the cam end of the shoe. There will be approximately 1/8 of inch of lining left on cam side and more on the opposite side. Remove shoes by removing nut on anchor bolt and replace in same manner as they were. Install hub and brake drum on axle. Center shoes as described in previous paragraph. Adjust brake as described in previous paragraphs.

7. BRAKES, HYDRAULIC WHEEL BRAKES ON BELT OR CHAIN DRIVE.

Check fluid level in master cylinder reservoir monthly. Should be 3/8 to ½" from top of reservoir.

To adjust hydraulic brake, jack up rear wheel until off ground and turn square head adjustment screw opposite wheel cylinder in clockwise direction until brakes drag. Then backoff until wheel just turns free. If leaks develop in wheel cylinders or master cylinder, the cylinders should be replaced. To replace, remove all worn cylinders and replace with new cylinders. After cylinders are replaced or if any other component is replaced the system must be bled of air. If available use a brake bleeder tank and install on master cylinder. If brake bleeder tank is not available, fill master cylinder to top with brake fluid and then by use of extra man, apply pressure with brake pedal to master cylinder. With either brake bleeder or extra man applying pressure, open bleeding valve individually on wheel cylinders until fluid flows out without any air and then close valve. Remove brake bleeder tank. Refill master cylinder to 3/8 of an inch of top. Readjust brakes as stated above.

To replace brake shoes, remove wheels and then remove brake drum with two screws. Remove brake shoes and replace with new shoes. Reassemble drum on hubs and install wheels. Readjust brakes as stated above.

8. BRAKES - HYDRAULIC ON GEAR DRIVE

Check fluid level in master cylinder reservoir monthly. Should be 3/8 to ½" from top of reservoir.

To adjust hydraulic brake, jack up rear wheels until off ground and disconnect spring and brake cable from parking brake cam lever so that parking brake cam lever has nothing attached to it. Center brake cam lever vertically. Each individual shoe must be adjusted. Loosen ½" nut on front adjusting cam and put ½" wrench on from above on adjusting cam and turn toward wheel cylinder until brake drags and back off until free. Tighten ½" nut on cam. Loosen ½" nut on rear adjusting cam and put ½" wrench on from top and turn toward wheel cylinder until brake drags and back off until free. Tighten ½" nut on cam. Repeat this process three times. Now go to second wheel and follow same process. reconnect parking brake cable and return spring on cam arm.

If leaks develop in wheel cylinders or master cylinder, the cylinders should be replaced. To replace, remove all worn cylinders and replace with new cylinders. After cylinders are replaced or if any other component is replaced the system must be bled of air. If available use a brake bleeder tank and install on master cylinder. If brake bleeder tank is not available, fill master cylinder to top with brake fluid and then by use of extra man, apply pressure with brake pedal to master cylinder. With either brake bleeder or extra man applying pressure, open bleeding valve individually on wheel cylinders until fluid flows out without any air and then close valve. Remove brake bleeder tank. Refill master cylinder to 3/8 of an inch of top. Readjust brakes as stated above.

To replace brake shoes, jack up réar of vehicle and remove hub and drum assembly with axle knocker or wheel puller. Remove shoes by removing horse-shoe spring that holds shoes in place. Replace new shoe in same order. Install hub and brake drum on axle. Readjust brake as stated in previous paragraphs.

9. HAND PARKING BRAKE ADJUSTMENT ON MECHANICAL BRAKES

Adjust hand parking brake lever with knob on end of handle until it travels through last third of it's travel. The third of it's travel, where lever at bottom of handbrake lever assembly (underneath vehicle) moves only when handle goes from 2/3 up to locked position. This gives you greatest leverage on parking brake handle. Tighten nuts on connecting rod from parking brake lever to brake assembly until proper adjustment is reached. Minor adjustment can

be made by knob on end of brake lever, but a point will be reached where hand parking brake lever must be adjusted as above and major adjustment made on connecting rod.

10. HAND PARKING BRAKE ADJUSTMENT ON HYDRAULIC BRAKES ON BELT AND CHAIN DRIVE.

On this model we use the same brake as the mechanical driveshaft brake. Use adjustment instruction as stated in section 5. Also adjust brake lever and connecting rod as covered in section 9.

11. HAND PARKING BRAKE ADJUSTMENT ON HYDRAULIC BRAKES ON GEAR DRIVE.

To adjust this brake properly, the brake cable and return spring on the brake cam arm on rear end must be first disconnected. Follow complete instructions and adjust the hydraulic portion of the brake as stated in section 8. To get the mechanical brakes adjusted properly the hydraulic brakes must be adjusted first. Next adjust the parking brake lever as stated in section 9, so that the last third of travel is used. Now adjust the connecting rod that goes to the brake assembly so that the strap that it is connected to on the assembly moves the same distance forward when brake is on, as it moves back when brake is off. Next loosen up and connect individual brake cables and return spring to brake cam arm on rear end. Only on three wheel truck move forward to front cable that goes from brake assembly in front of truck to rocker assembly in middle of truck. Adjust the cable so that the strap tabs on this rocker assembly move the same amount forward when brake is applied as to the rear when brake is released.

Now on both three and four wheel trucks, adjust the individual cable that connects to brake cam arms so that you get the proper parking brake to hold the unit on the hill.

12. DIFFERENTIAL UNIT - BELT AND CHAIN DRIVE.

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 shims between 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 preload (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.

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.

13. DIFFERENTIAL AND GEAR DRIVE UNIT

General - The rear axle is a 3/4 floating type. Bell forgings welded to steel tubing make up the axle shaft housing which is bolted to the differential housing. The driving pinion hub is exceptionally heavy and as the pinion is carried on double taper roller bearings alignment of the gear is always assured.

Dis-Assembly of Rear Axle - To disassemble rear axle, first remove wheels and pull rear hubs from the taper ends of axle shafts. Next, remove left rear axle housing and torque tube by unbolting it from the differential housing. Then with a special puller the drive shaft double taper roller bearings can be removed from the differential housing. Then install the ring gear and pinion and replace and adjust drive pinion taper roller bearing.

Adjustment - Adjustment of the double taper roller bearing on the drive pinion shaft can be made by taking up on the driving pinion adjusting nut and locking in position with lock nut. This adjustment should be made by taking out all the play, but caution however must be used not to adjust the bearing too tight, but leaving bearing to revolve freely.

Gear Replacement Ring & Pinion - When replacing driving gear (ring gear) and driving pinion, care should be taken to see that these gears have been kept in sets, which can be determined by observing if the same number on the pinion is on the ring gear.

Gear Replacement (Spur Gear Reduction) - Remove five 5/16 bolts and nuts and the three 3/8 bolts. This will allow the gear case to come apart. To remove the pinion gear, remove nut and use gear puller to pull gear. Replace new gear and lock down with nuts. To replace driven gear, remove two (2) bolts and slide off splined shaft. To replace new gear slip over spline. The wing nut might have to be loosened slightly to get proper

alignment of holes. Bolt down gear. Re-assemble gear case.

14. BELT ADJUSTMENT - Belt drive units have four of the 3V section belts that require very little attention other than adjustment and proper alignment. The proper adjustment is 3/8" free play each way from a straight line from pulley edge to pulley edge. To make this adjustment loosen lock nut on bolt that holds motor away from differential and then set in or out to make proper belt adjustment. When removing or replacing belts, do not force belts over the edge of pulleys. This will damage the belt structure and cause possible vibration or belts will roll over groove.
15. CHAIN ADJUSTMENT - Chain drive units have two sprockets and a silent chain that need to be lubricated weekly with chain lube to give longer and quieter life. Adjust chain tension same as belt drive except for ½" free travel in each direction from a straight line from sprocket edge to sprocket edge. When replacing a sprocket it is recommended that the chain be replaced also.
16. PULLEY & SPROCKET ALIGNMENT - Make sure pulleys and sprockets are aligned with each other. To do so take a straight edge and place across both pieces. If they are not out of line, loosen the four bolts that hold the motor to round bracket and slide forward or back as needed to align pulleys or sprockets. Then tighten these four bolts.
17. RHEOSTAT

The rheostat, controls the speed of your vehicle through the use of coils of nichrome wire for resistance. With this type of resistance, you use approximately the same amount of power from batteries in low speed as you do in high speed. The 5 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. To adjust rheostat put the forward-reverse switch in off position, with J-Hook in neutral position, you should be able to move J-Hook up and down between neutral bar and pressure bar with very little pressure. To adjust, there are two nuts on the bolt at rear of pressure bar opposite spring, loosen or tighten them accordingly to get proper adjustment. When J-Hook is moved back and forth across the bar, there should be very little noise as J-Hook goes from one bar to another. If there is noise the J-Hook is not aligned to bar or pressing evenly on bars. In some cases the strap holding J-Hook may have to be twisted one way or the other so that J-Hook will make full contact on bars. Spring tension on pressure bar should be enough to hold J-Hook snugly on bars in all speeds. Be sure tension on accelerator return spring (under floor board) is sufficient to return J-Hook to

neutral bar when foot is taken off accelerator pedal. Also when accelerator pedal is all the way to floor the J-Hook should be on 5th bar completely - not a little over or behind. The adjustment for J-Hook is corrected by turning clevis in or out. The clevis is located at the front right hand side under the front cowl. Keep rheostat lubricated with lubricant. 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.

18. FORWARD AND REVERSE SWITCH

Your forward and reverse switch on your truck does the same job as does the transmission on your automobile and should be given the same respect. It is designed for trouble free use if properly used. The four fingers should make even and snug contact with rotor contacts. If they become burned through mis-use, replace with new fingers. To do this, remove main positive lead at battery for safety, next remove nut holding wire lug to post. Then remove nut holding finger on post. Make sure nuts are tight when replacing. The rotor contacts can be replaced by removing rotor from switch. Remove handle first, then the two screws holding switch body to mounting plate, rotor then can be lifted out. Remove nut on end of shaft and carefully remove plastic spacer and contacts so they can be replaced in same position as they were removed. Replace in reverse of removal.

19. MOTOR MAINTENANCE AND REPAIR

Bearings: This motor is provided with high grade ball bearings prelubricated and permanently sealed. The lubrication is sufficient for the life of the bearings. When bearings become worn, they will produce excessive noise, which is a warning that the bearings should be replaced. They should be replaced in the following manner. Pull brushes out of brush holder. Remove pulley end bell, withdrawing rotor. Pull off bearing by means of bearing puller, taking care not to mar center in end of shaft. The new bearing is pushed on the shaft gently by pressure on the inner race or by gently tapping on the inner race. Oil bearing housing and any felt that is in bearing retainer. See that no dirt enters the bearing housing. Reassemble motor, taking care that the bearing shims are properly assembled so that the brushes ride properly on the commutator.

Brushes: Periodically, the brushes should be inspected and the carbon dust blown out of motor. When brushes are worn down to about 3/4 of an inch they

should be replaced. If at this time the commutator is badly burned, it should be turned in a lathe, the mica recut, and the commutator polished. Reassemble,sand in new brushes and be sure rocker arm is set on neutral. In normal service, a set of brushes should give about 3,000 hours operating life.

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

20. TIRE PRESSURE

On 500 x 8 tires, use only recommended pressure below as these tires are designed for hard surfaces. On 800 x 6 and 950 x 8 tires, use only recommended pressure range as stated below. Tire pressure is governed by how you want your vehicle to ride. On soft terrain use less pressure for better traction and on hard surfaces use more pressure.

500 x 8	4 ply Tires	55 lbs.
800 x 6	4 ply Tires	16 - 20 lbs.
950 x 8	4 ply Tires	14 - 20 lbs.

CAUTION: Do not over inflate because they will wear out before their normal life time.

21. CHROME ACCESSORIES

Should your truck be equipped with chrome accessories, use only warm mild soap to clean and then protect with a good automotive wax.

22. BATTERIES

Your vehicle is equipped with batteries designed especially for electric vehicles. They require the same attention as all lead-acid type storage batteries. Your vehicle utilizes six, 6-volt batteries wired in series to produce thirty-six volts. With proper care these batteries can be discharged and recharged approximately 350-400 times. The average life of batteries is around two years. This is due mainly to the care given to the batteries. A battery is nothing but a chemical device to produce electricity. It's main composition is lead and a solution of water and sulphuric acid. These compounds are placed in a compartment with the lead, in the form of plates, submerged in the solution of sulphuric acid and water. Electricity is produced by the acid of this solution soaking into the lead plates. As the acid is absorbed by the plates electricity is given off. The acid will not soak into the plates unless the electricity is being used, except at a very low ration (self discharging scale follows). When all of the acid in a battery has been absorbed by the lead plates the battery is no longer capable

of producing electricity. It is then completely discharged. To restore the battery to it's normal capabilities, a reverse cycle is introduced to the battery by a battery charger. By passing direct current thru the battery in the opposite direction (still negative to negative and positive to positive, but in the opposite direction) the acid is forced out of the plates allowing the battery to again produce electricity by repeating the same process described above. As previously mentioned a properly cared for battery, designed for deep cycling, should be capable of about 350-400 cycles. To determine whether or not a battery is properly charged, a measuring device known as a hydrometer should be used. A hydrometer consists of a glass tube or body with a rubber bulb at one end and a small spout at the other. Inside the tube is a graduated float that is hollow except for one end which is weighted. In pure water this float will rise, as the water is pulled into the tube of the hydrometer, when the water level reaches about 100 on the graduated scale. Since sulphuric acid is heavier than water, if some acid is mixed with the water this float will rise as the level of the solution reaches a point lower than 1000 on the scale. (This scale is graduated from 1100 to 1300 starting with 1100 at the top of the scale). This means that the more acid there is in the acid water solution the higher the float will rise. (Caution: Never add acid to a battery. This solution is at proper strength when battery is manufactured.) As previously mentioned a fully charged battery has all of it's acid in the solution. A discharged battery has all of it's acid soaked into the lead plates. Therefore by using the hydrometer, one can accurately determine the state of charge of any battery. The specific gravity of the battery when it is fully charged is 1.260. You have been cautioned not to overcharge your batteries. It is just as important if not more important, not to undercharge them. You can readily see that if only part of the acid is forced out of the plates, they can only perform at partial efficiency. Probably more important than partial efficiency is the fact that if the acid is allowed to remain in the lead plates they will harden and become sulphated. This will shorten their life as much as overcharging. In this sulphated condition the battery fails to deliver it's rated capacity or come up to full charge. Several long slow charges and discharges are then necessary to correct the sulphation and hard plates.

Once a month the battery should be given an equalizing charge of 25% over and above the regular charge. Whenever the temperature reaches 125 degrees F. the charging rate should be reduced or the battery taken off charge and

allowed to cool down to room temperature. Always correct hydrometer specific gravity reading to temperature of solution. For each ten degrees above 80 degrees F. add 4 points to hydrometer reading. -- EX. 90 degrees F. 1.250 plus 4 equals 1.254. For each ten degrees below 80 degrees subtract 4 points from hydrometer reading. -- EX. 70 degrees F. 1.250 minus 4 equals 1.246.

Do not overfill the cells when adding water. When the cells are filled too full the solution will expand as it becomes warm from charging. It then siphons out the hole in the vent cap. Each time this happens, the solution is weakened by adding water. Loss of ampere hour rated capacity is the result. FILL TO 1/8" BELOW BOTTOM OF CHAMBER IN VENT HOLE. Never add acid to the cell. Only use distilled water and keep solution up to proper level. Water should always be added to the battery AFTER the charge is complete. Never add water to a battery before charging unless the level of water is below the plates. If no water is in sight, it is permissable to add just enough to bring the level up to the top of the plates only.

Solution will freeze at following temperatures:

1.250 specific gravity - 62 degrees F.
1.200 specific gravity - 16 degrees F.
1.150 specific gravity + 5 degrees F.
1.100 specific gravity + 19 degrees F.

Batteries self discharge when idle as follows:

100 degrees F. - 3 points in gravity per day
80 degrees F. - 2 points in gravity per day
50 degrees F. - ½ point in gravity per day
30 degrees F. - 1/19 point in gravity per day

Store batteries FULL CHARGED in a cool place in winter. If stored at 80 degrees F. they should be recharged each 30 days to prevent sulphation and hard plates.

In order for a battery to give maximum service, it should be recharged after every day's use. A battery charger is supplied with every vehicle unless otherwise specified. This charger requires 110-115 volt, 20 amp, 60 cycle single phase electrical circuit per charger.

If you plan to have several chargers working at once, it is necessary to have the electrical requirement problem worked out by an experienced person.

With the electrical problem solved, experience of a few weeks operation will reveal the exact charging rate and time required by your vehicle batteries. The length of your driving will govern the charging rates and the length of time required to properly charge the batteries.

23. BATTERY CHARGER

Your vehicle comes with 3620A Charger as standard equipment. With this charger you have to predetermine the amount of charging time and then set the clock accordingly. An average to go by is two hours charge for one hour of use, Re: - four hours of driving, set charger at eight hours. The amount of charge required can be determined by referring section on batteries and use of hydrometer. If your truck has a 3630T charger all you have to do is set it at four hours and forget it. This charger has a transistor unit in it that automatically turns the clock on when the batteries reach 85% of charge and then runs for four hours to finish the charge. If a fuse should blow out, replace it with a 30 amp buss type fuse only. Make sure fuse is screwed in tight. If service is required call a qualified service man to check out your charger.

SUGGESTED SPARE PARTS LIST

PART #	DESCRIPTION	QUANTITY OF 1-20 UNITS
11020	Tube, 800 x 6 (Optional)	1
11040	Tube, 500 x 8	1
11041	Tube, 950 x 8 (Optional)	1
13585	Tire, Tube, Wheel and 5" hub with 500 x 8, 4 ply, super rib tire and 3/4" tapered roller bearing.	1
13721	Tire, tube, and demountable wheel, 800 x 6, 4 ply, rib caddy master tire with three ½" holes on 3½" bolt circle on wheel (Optional)	1
13741	Tire, tube and demountable wheel, 500 x 8, 4 ply, super rib tire with 5 ½" holes on 4½" bolt circle on wheel	1
13751	Tire and demountable wheel, 950 x 8, 4 ply, terra tire, traction with five ½" holes on 4½" bolt circle on wheel (Optional)	1
30620	Belt 3V400 (3V section) (for 2½ H.P. motor with 3.15 O.D. pulley) (belt drive only)	4
30621	Belt 3V425 (3V section) (for 2½ H.P. motor with 3.65 or 4.15 O.D. pulley or 3½ H.P. motor) (belt drive only)	4
41610	Brake shoe, 1½" wide mechanical, set for one wheel (gear drive only)	2
41660	Brake band for drive shaft brake (belt drive only)	1
45501	Oil seal for Baldor motor with gear case flange. (Motor with specification number starting with 28 (Garlock 63 x 261)	1
61830/5CB	Sliding bar rheostat, 5 speed, complete with 78212 A, B, B & C, coils (61830B-10 plus 61830G-15)	1
61830A	Power Bar (5 to set)	10
61830B	Sliding J-Hook bar	2
70047	DC electric traction motor, 2.5 H.P. 36 volts, 2600 RPM swivel base (belt drive)	1
70053	DC electric traction motor 3.5 H.P., 36 volt, 2600 RPM, NEMA C face (gear drive)	1
70100	Motor brushes, GE, ½ x 5/8 with one wire and hook (Price per set of 4)	1 set
70124	Motor brushes, Baldor, 7/8" x 3/8" with one wire and tab (priced per set of 4)	1 set
71040H	Rotor contact (set of 2, one right and one left)	1 set
71040I	Spacer washer	2
71040J	Switch fingers, silver plated with ¼" mounting hole	8

PART #	DESCRIPTION	QUANTITY OF 1-20 UNITS
71040K	Finger Board with ¼" mounting holes	2
71040L	Metal switch handle (red)	1
71100	Switch, light (single pole, single throw)	1
71502	Horn button (Newtone PB 1)	1
72022	Light, stop & tail, 4" rubber mount (12 volt)	1
72072	Headlight, sealed beam bulb 4" (12 volt)	1
73000	Horn (12 volt)	1
75231	Battery jumper #4 wire, 8" long	5
76001	Charging plug (T-plug) 20 amp.	3
76011	Charging receptacle (T-plug) 20 amp.	3
77200	Hydrometer	2
77201	Battery filler	1
78010	Secondary fuse and holder, inline type	2
78212A	Resistor coil #9 wire, 14 turns (used between 1st and 2nd speed)	1
78212B	Resistor coil #6 wire, 9 turns (used between 2nd and 3rd speed, all rheostats and 3rd and 4th speed on 5 speed rheostats)	2
78212C	Resistor coil #5 wire, 6 turns (used between last speeds on 4 and 5 bar rheostats)	1
79820	Fuse, 30 amp. screw type	10
79823	Fuse, Buss type, 20 amp.	3
85060	Spring, compression 5/8" O.D. X 2½" long (half band brake) (belt drive)	2
85231	Spring extension, 3/4" O.D. X 6-9/16" free length inside loops (accelerator return)	4
85270	Spring extension 1½" O.D. X 4-3/8" free length inside loops (brake return) (gear drive)	4

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.

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
(c) Lack of power or slow operation	1. Dragging brake	Re-adjust
	2. Tight front wheel bearings	Readjust
	3. Rheostat not making contact on high speed bar.	Readjust 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	Repaid
(f) Thump or grinding noise in drive axle.	1. Motor bearing	Replace
	2. Loose motor on base	Tighten
	3. Worn sprockets	Replace sprocket and chain.
	4. Defective bearing in differential.	Replace.
	5. Defective gears in differential.	Replace

PARTS LIST AND PROCUREMENT INFORMATION

Parts can be ordered direct from your local dealer or from the factory if desired. When ordering parts be sure to specify the type unit you have, the unit serial number, the full part number and description, and the quantity required. When ordering parts for the drive motor give the specification number of the motor. Be sure to give proper billing address and shipping address on all parts orders.

When ordering parts under warranty, be sure to place all orders direct to the Factory in Anaheim, California. Also, be sure to give the Invoice number and the date of shipment of the vehicle.

TAYLOR-DUNN MANUFACTURING CO.
2114 WEST BALL ROAD,
ANAHEIM, CALIFORNIA 92804.

PHONE: 714-535-6021

FIGURE 3

CHAIN AND BELT DRIVE
REAR AXLE

1965 TO 1968 MODELS

FIGURE	PART	DESCRIPTION	QUANTITY
3-1	12020	Wheel for 950 x 8 demountable, drop center, five ½" holes on 4½" bolt circle	2
3-2	10091	Tire, 950 x 8, 4 ply, Terra tire, Traction tread	2
3-2	11041	Tube, 950 x 8 (Optional as 950 x 8 is tubeless)	2
3-2	13751	Tire and demountable wheel assembly, 950 x 8 with five ½" holes on 4½" bolt circle (traction tread)	2
3-2	13989	Valve stem (for tubeless tire)	2
3-3	12010	Wheel for 500 x 8 tire, demountable drop center, six 3/8" holes on 5" bolt circle (used up to early 1965 only)	2
3-3	12011	Wheel for 500 x 8 tire, demountable drop center, five ½" holes on 4½" bolt circle (used from middle 1965 on)	2
3-3	12040	Wheel for 500 x 8 tire, demountable, heavy duty, split disk, six 3/8" holes on 5" bolt circle (used up to early 1965 only)	2
3-3	12041	Wheel for 500 x 8 tire, demountable heavy duty, split disk, five ½" holes, on 4½" bolt circle (used from middle 1965 on)	2
3-3	12051	Wheel for 18 x 5 x 12 1/8 solid extra cushion tire with five ½" holes on 4½" bolt circle	2
3-4	10080	Tire, 500 x 8, 4 ply, super rib	2
3-4	10082	Tire, 500 x 8, 4 ply, extra grip	2
3-4	10088	Tire, 500 x 8, 8 ply, steel guard	2
3-4	10260	Tire, solid extra cushion, all service 18 x 5 x 12 1/8	2
3-4	11040	Tube, 500 x 8	2
3-4	13741	Tire, tube, and wheel, 500 x 8, 4 ply super rib tire with five ½" holes on 4½" bolt circle on wheel	2
3-4	13744	Tire, tube, and demountable wheel, 500 x 8, 4 ply extra grip tire with five ½" holes on 4½" bolt circle on wheel	2
3-4	13745	Tire, tube and demountable wheel with 500 x 8, 8 ply steel guard tire and five ½" holes on 4½" bolt circle on wheel	2
3-4	13955	Solid extra cushion tire, 18 x 5 x 12 1/8 with cast iron wheel, with five ½" holes on 4½" bolt circle	2
3-5	-----	1/8 x 1½ steel cotter pin	2
3-6	-----	3/4" NF castle nut	3

FIGURE 3

FIGURE	PART	DESCRIPTION	QUANTITY
3-7	-----	3/4" SAE washer	3
3-8	80120	Tapered bearing race for axle bearing	2
3-9	80500	Tapered roller bearing for rear axle	2
3-10	45323	Oil Seal, rear axle, inner	2
3-11	97052	5/16" Square key for axle, (2½" long)	2
3-12	41100A	Axle, rear, 14½" overall length 10 teeth on spline (left side)	1
3-12	41100B	Axle, rear, 14½" overall length 16 teeth on spline (left side)	1
3-13	41970	Bearing adjuster	2
3-14	80123	Tapered bearing race for carrier bearing	2
3-15	80510	Tapered roller bearing, carrier	2
3-16	41971	Bearing adjuster lock	2
3-17	-----	5/16" x 3/4" NC Hex head cap screw	2
3-18	41990	Axle gear bolt	10
3-19	41991	Axle gear bolt lock nut	10
3-20	41980	Differential case	1
3-21	31245	Ring and pinion gear set 6.17 ratio	1
3-21	31246	Ring and pinion gear set 4.10 ratio	1
3-21	31247	Ring and pinion gear set 3.90 ratio	1
3-21	31248	Ring and pinion gear set 3.73 ratio	1
3-21	31249	Ring and pinion gear set 3.54 ratio	1
3-22	41910	Pinion shaft, differential	1
3-23	41900	Pinion shaft lock pin	1
3-24	41923	Differential pinion gear washer	2
3-25	41950	Pinion gear differential	2
3-26	41921A	Differential gear thrust (10 spline)	2
3-26	41921B	Differential gear thrust (16 spline)	2
3-27	-----	Same as figure 2-26	-
3-28	41920	Axle thrust block	2
3-29	41922	Axle thrust block spacer	2
3-30	41950	Pinion Gear differential	2
3-31	41512	Brake drum with five ½" holes on 4½" bolt circle	2
3-32	12205N	Rear hub, five ½" holes on 4½" bolt circle narrow width (1 3/8" face to outside hub end) requires 96320 lug bolts	2
3-32	12207W	Rear hub, five ½" holes on 4½" bolt circle, machined for brake drum, requires 96320 lug bolts	2

FIGURE 3

FIGURE	PART	DESCRIPTION	QUANTITY
3-32	12205W	Rear hub, five ½" holes on 4½" bolt circle, wide width (1" face to outside hub end) requires 96320 lug bolts	2
3-33	85065	Spring, compression 9/16" OD by ½" long (Dico brake shoe) (Green)	2
3-34	85205	Spring, extension 5/16" OD by 4½" free length inside loops (Dico brake shoe bottom) (Red)	2
3-35	41601	Brake shoe 1¼" wide, (Dico) hydraulic mechanical set for one wheel	2
3-36	85206	Spring, extension 3/8" OD by 3 3/8" free length inside loops (Dico brake shoe top) (Black)	2
3-37	42050	Mechanical lever, Dico brake	2
3-37	99501	Wheel cylinder (Dico)	2
3-38	42051	Brake adjustment unit	2
3-39	41332R	Brake back up plate without shoes (right side)	1
3-39	41332L	Brake back up plate without shoes (left side)	1
3-40	41992	Rear wheel support bolt	10
3-41	80790	Dust washer for outer axle	2
3-42	32510	Retainer, rear axle, wheel bearing	2
3-43	41961	Axle bearing shim	0-8
3-44	41283	Housing, differential	1
3-45	16861	Spring pad	2
3-46	41111A	Axle rear, 23 1/16" overall length, 10 teeth on spline	1
3-46	41111B	Axle rear, 23 1/16" overall length 16 teeth on spline	1
3-47	45040	Gasket, ring and pinion gear housing to differential housing	1
3-48	44326	Differential ring and pinion gear housing	1
3-49	-----	3/8 NF nut and lock washer	11
3-50	30707	Chain guard band	1
3-51	30704	Chain guard front cover	1
3-52	30705	Chain guard rear cover	1
3-52	30703	Chain guard support bracket set	1 set
3-53	30105	Pulley, 4 belt, 3V section with hub and brake drum 9.8" OD	1
3-54	30160	Pulley, 4 belt, 3V section, 3.15" OD, 3/4 bore	1
3-54	30161	Pulley, 4 belt, 3V section, 3.65" OD, 3/4 bore	1
3-54	30162	Pulley, 4 belt, 3V section, 4.15" OD, 3/4 bore	1

FIGURE 3

FIGURE	PART	DESCRIPTION	QUANTITY
3-55	70047	DC electric traction motor, 2.5 H.P. 36 volt, 2600 RPM, swivel base	1
3-55	70053	DC electric traction motor, 3.5 H.P. 36 volt, 2600 RPM, swivel base	1
3-56	98604	Grommet plug, rubber for 1 3/8 hole	1
3-57	70100	Motor brushes, GE, ½ x 5/8 with one wire and hook (priced per set of 4)	1 set
3-57	70122	Motor brushes, Baldor, 7/8 x 5/16 with one wire and tab (for 2 and 2½ H.P., 36 volt motor) (priced per set of 4)	1 set
3-57	70125	Motor brushes, Baldor, 5/8 x 5/16 with one wire and tab (for 2½ H.P., 36 volt motor) (priced per set of 8)	1 set
3-57	70124	Motor brushes, Baldor, 7/8 x 3/8 with one wire and tab (for 3 and 3½ HP, 36 volt and 2½ HP, 24 volt motors) (priced per set of 4)	1 set
3-57	70180	Baldor brush head assembly with 7/8 x 5/16" brushes (for 2 and 2½ HP, 36 volt Baldor motor)	1
3-57	70182	Baldor brush head assembly with 7/8 x 3/8" brushes (for 3 and 3½ HP, 36 volt and 2½ HP, 24 volt motor)	1
3-57	70185	General Electric brush head assembly with brushes	1
3-57	70200	Baldor or GE armature (please state make of motor and specification number) (price are 65% of current equal motor)	1
3-57	70250	Baldor or GE fields and housing (Please state make of motor and specification number) (Price is 65% of current equal motor)	1
3-57	70421	Motor mount straps (2½" long, two holes)	2
3-57	70430	Cast swivel motor base for 2 and 2½ HP, 36 volt Baldor motors	1
3-57	70431	Cast swivel motor base for 3 and 3½ HP, 36 volt and 2½ HP, 24 volt Baldor motor	1
3-57	70432	Cast swivel motor base for GE motor	1
3-57	80200	Ball bearing front for 2 or 2½ HP, 36 volt Baldor motor	1
3-57	80201	Ball bearing rear for 2 or 2½ HP, 36 volt, Baldor motor	1
3-57	80504	Ball bearing front and rear for 3 or 3½ HP, 36 volt and 2½ HP, 24 volt, Baldor motor	2
3-57	80204	Ball bearing front for GE motor	1
3-57	80205	Ball bearing rear for GE motor	1

FIGURE 3

FIGURE	PART	DESCRIPTION	QUANTITY
3-57	85401	General Electric brush spring, extension ½" OD X 1¼"	4
3-57	85409	Baldor brush torsion spring, painted red for 2 and 2½ HP, 36 volt motors	4
3-57	85410	Baldor brush torsion spring, painted white for 3 and 3½ HP, 36 volt and 2½ HP, 24 volt motor	4
3-58	85060	Compression spring 5/8" OD by 2½" long	1
3-59	41660	Brake band for drive shaft brake	1
3-60	-----	3/8 x 4 NC Hex head cap screw	1
3-61	30080	Sprocket, silent chain, 15 tooth, 3/4 bore	1
3-61	30082	Sprocket, silent chain, 17 tooth, 3/4 bore	1
3-61	30083	Sprocket, silent chain, 19 tooth, 3/4 bore	1
3-61	30084	Sprocket, silent chain, 21 tooth, 3/4 bore	1
3-61	30086	Sprocket, silent chain, 24 tooth, 3/4 bore	1
3-62	30088	Sprocket, silent chain, 67 tooth, 4 hole, demountable	1
3-63	30503	Chain, silent, 47 links (35¼" long)	1
3-63	30504	Chain, silent, 50 links (37½" long)	1
3-64	-----	3/4 NF Castle nut	3
3-65	-----	1/8" x 1½ cotter-pin	3
3-66	-----	3/4 SAE washer	3
3-67	80551	Tapered roller bearing front pinion	1
3-68	80122	Tapered bearing race for front and rear pinion	2
3-69	41926	Drive pinion bearing adjustment shim	1
3-70	41925	Drive pinion spacer	1
3-71	80122	Tapered bearing race for front and rear pinion	1
3-72	80553	Tapered roller bearing, rear pinion	1
3-73	41924	Drive pinion rear bearing washer	1
3-74	-----	Pinion gear see item 3-21 for gear set price	1
3-75	45330	Oil seal, pinion	1
3-76	85510-14R	Four leaf cantilever spring, ½" eye, right and left side (right side only to 1966)	2
3-76	85510-14L	Four leaf cantilever spring 5/8" eye, (left side only to 1966) (use 85510-14R with sleeve to 5/8")	1
3-76	85510-15R	Five leaf cantilever spring, ½" eye, right and left side (right side only to 1966)	2
3-76	85510-15L	Five leaf cantilever spring 5/8" eye (left side only to 1966) (use 85510-15R with sleeve to 5/8")	1

FIGURE 3

FIGURE	PART	DESCRIPTION	QUANTITY
3-77	30620	Belt, 3V400 (3V section) (for 2½ HP motor with 3.15 OD pulley)	4
3-77	30621	Belt, 3V425 (3V section)(for 2½ HP motor with 3.65 or 4.15 OD pulley or 3½ HP motor)	4
3-78	-----	3/8 x 2½ heat treated hex head cap screw	8
3-79	41997	Level plug and drain plug (1/8 pipe)	2
3-80	41995	Filler plug 3/8" with square top	1
3-81	97100	3/16 Woodruff key	1
3-82	41531-10	Brake drum and hub assembly	1
3-83	-----	½" NF lug nut (used on hub with studs)	10
3-83	96320	½" NC lug bolt (used on hub without studs)	10
3-84	86000	Shock Absorber	1

FIGURE 4

GEAR DRIVE - REAR AXLE

1965 TO 1968 MODELS

4-1	-----	5/8 NF castle nut	2
4-2	-----	1/8 x 1¼ cotter pin	2
4-3	-----	3/4 SAE washer	2
4-4	41510-10	Brake drum and hub assembly, six 3/8" holes on 5" bolt circle with bearing and seal (used up to early part of 1965 only)	2
4-4	41511-10	Brake drum and hub assembly, five ½" holes, on 4½" bolt circle with bearing and seal (used from middle 1965 on)	2
4-5	41252-L	End bell, leaf spring suspension, left side	1
4-6	41331	Brake backup plate, hydraulic mechanical with cam	2
4-7	-----	3/8 x 5/8 NF Hex head bolt	20
4-8	41060-A	Axle, rear, 19 - 13/16" overall length, 16 teeth on gear end, short taper, heat treated	2
4-8	41060-B	Axle, rear, 19 - 13/16" overall length, 18 teeth on gear end, short taper, heat treated	2
4-9	80506	Tapered roller carrier bearing	2
4-10	31240	Ring and pinion gear set 6.17 ratio	1
4-10	31241	Ring and pinion gear set 3.78 ratio	1
4-11	41927-A	Differential gear 11 tooth	4
4-11	41927-B	Differential gear 12 tooth	4

FIGURE 4

FIGURE	PART	DESCRIPTION	QUANTITY
4-12	41912	Differential gear x shaft	1
4-13	41260-10	Banjo housing with shock strap	1
4-14	41930	Differtial gear cage	1
4-15	80124	Tapered bearing race for carrier bearing	2
4-16	96000	Anchor bolt	2
4-17	41252R	End bell, leaf spring suspension, right side	1
4-18	45300	Oil seal, rear hub	2
4-19	80502	Roller bearing	2
4-20	41510-10	Brake drum and hub assembly, six 3/8" holes on 5" bolt circle with bearing and seal (used up to early part of 1965 only)	2
4-20	41511-10	Brake drum and hub assembly, five ½" holes on 4½" bolt circle with bearing and seal (used from middle 1965 on)	2
4-21	85270	Spring, extension 1¼" OD x 4-3/8" free length inside loops	2
4-22	41610	Brake shoe, 1½" wide mechanical, set for one wheel	2
4-22	41610E	Brake shoe, 1½" wide mechanical, exchange set for one wheel, credit will be issued only if shoes are relinable	2
4-23	41320-10R	Mechanical brake backup plate with cam (right side)	1
4-23	41320-10L	Mechanical brake backup plate with cam (left side)	1
4-24	85200	Spring extension 7/16" OD by 2-7/16" (brake shoe spring on cam side)	1
4-25	85220	Spring extension 5/8" OD x 2-3/8" (brake shoe anchor bolt side) free legnth inside loops	1
4-26	80490	Ball bearing for front pinion (6.17 to 1 ratio only)	1
4-27	-----	Pinion gear see figure 4-10	1
4-28	80508	Tapered roller bearing for pinion	2
4-29	80126	Double tapered bearing race for pinion	1
4-30	80508	Tapered roller bearing for pinion	2
4-31	41928	Retainer washer	1
4-32	41993	Pinion bearing nut	1
4-33	41929	Lock washer nut	1
4-34	43200	Gear Case	1
4-35	97210	Wing nut	1
4-36	31200	Spur gear, 84 tooth, six spline hub	1
4-36	31201	Spur gear, 84 tooth, ten spline hub	1
4-36	31210	Spur gear, 64 tooth, six spline hub	1

FIGURE 4

FIGURE	PART	DESCRIPTION	QUANTITY
4-36	31211	Spur gear, 64 tooth, ten spline hub	1
4-37	45000	Gear case gasket	1
4-38	44350	Gear case cover	1
4-39	45010	Motor gasket	1
4-40	31230	Spur gear, 17 tooth, 3/4 bore	1
4-40	31233	Spur gear, 20 tooth, 3/4 bore	1
4-41	41997	Fill plug (1/8 pipe)	1
4-42	41999	Drain plug ½" with recessed top	1
4-43	41999	Level plug ½" with recessed top	1
4-44	45030	Gasket, end bell	2
4-45	45020	Gasket, gear case to differential	1
4-47	-----	3/8 x 3 NC Hex head bolt	3
4-48	-----	5/16 x 3 NC Hex head bolt	5
4-49	99500	Wheel cylinder	2
4-49	99500K	Wheel cylinder repair kit	2
4-50	-----	¼ x 3/4 NC Hex head bolt	4
4-51	42002	Cam, hydraulic brake adjustment	4
4-52	85310	Spring, horseshoe shape (1½" wide hydraulic brakes)	2
4-53	41602	Brake shoe, 1½" wide, hydraulic mechanical (set for one wheel)	2
4-53	41602-E	Brake shoe, 1½" wide, hydraulic mechanical (set for one wheel) (credit will be issued only if shoes are relinable)	2
4-54	70053	DC electric traction motor, 3.5 HP, 36 volt, 2600 RPM, NEMA C face and seal	1
4-55	97100	3/16 woodruff key	1
4-56	45501	Oil seal, Baldor motor with gear case. Flange used after 1962 on 2 HP to 3½ HP motors or with specification numbers starting with 28 (Garlock 63 x 261).	1
4-57	70124	Motor brushes, Baldor, 7/8" x 3/8" with one wire and tab	1
4-57	70182	Baldor brush head assembly with 7/8" x 3/8" brushes	1
4-57	70200	Baldor armature (price is 65% of motor)	1
4-57	70250	Baldor field (price is 65% of motor)	1
4-57	80504	Ball bearing front and rear for Baldor 3½ HP motor	2
4-57	85410	Baldor brush torsion spring painted white for 3½ HP motor	4

FIGURE 4

FIGURE	PART	DESCRIPTION	QUANTITY
4-58	85510-15R	Five leaf cantilever spring 1½" eye (right and left side) (right side only to 1966)	2
4-58	85510-15L	Five leaf cantilever spring 5/8" eye (left side to 1966)	1
4-59	-----	3/8 lock nut	8
4-60	16861	Spring pad	2
4-61	-----	3/8 x 3 NC heat treated hex head cap screw	8
4-62	86000	Shock Absorber	1
4-63	12020	Wheel for 950 x 8 demountable, drop center, five ½" holes on 4½" bolt circle	2
4-64	10091	Tire, 950 x 8, 4 ply, Terra tire, Traction tread	2
4-64	11041	Tube, 950 x 8 (Optional as 950 x 8 is tubeless)	2
4-64	13751	Tire and demountable wheel assembly, 950 x 8 with five ½" holes on 4½" bolt circle (traction tread)	2
4-64	13989	Valve stem (for tubeless tire)	2
4-65	12010	Wheel for 500 x 8 tire, demountable drop center, six 3/8" holes on 5" bolt circle (used up to early 1965 only)	2
4-65	12011	Wheel for 500 x 8 tire, demountable drop center, five ½" holes on 4½" bolt circle (used from middle 1965 on)	2
4-65	12040	Wheel for 500 x 8 tire, demountable, heavy duty, split disk, six 3/8" holes on 5" bolt circle (used up to early 1965 only)	2
4-65	12041	Wheel for 500 x 8 tire, demountable heavy duty, split disk, five ½" holes on 4½" bolt circle (used from middle 1965 on)	2
4-65	12051	Wheel for 18 x 5 x 12 1/8 solid xtra cushion tire with five ½" holes on 4½" bolt circle	2
4-66	10080	Tire, 500 x 8, 4 ply, super rib	2
4-66	10082	Tire, 500 x 8, 4 ply, extra grip	2
4-66	10088	Tire, 500 x 8, 8 ply, steel guard	2
4-66	10260	Tire, solid xtra cushion, all service 18 x 5 x 12 1/8	2
4-66	11040	Tube, 500 x 8	2
4-66	13741	Tire, tube, and wheel, 500 x 8, 4 ply super rib tire with five ½" holes on 4½" bolt circle on wheel	2
4-66	13743	Tire, tube, and demountable wheel, 500 x 8, 4 ply extra grip tire with five ½" holes on 4½" bolt circle on wheel	2
4-66	13745	Tire, tube and demountable wheel with 500 x 8, 8 ply steel guard tire and five ½" holes on 4½" bolt circle on wheel	2

SECTION J
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FIGURE 4

FIGURE	PART	DESCRIPTION	QUANTITY
4-66	13955	Solid xtra cushion tire, 18 x 5 x 12 1/8 with cast iron wheel, with five ½" holes on 4½" bolt circle, demountable all service	2
4-67	45-320-00	Oil Seal, Rear Axle, Inner	1

FIGURE 5

FRONT STEERING AND FORK

(AFTER SERIAL NUMBER 4824)
1964 TO 1968 MODELS

5-1	19002-1	Cover, steering wheel, drilled for horn	1
5-2	-----	5/8 NF hex head jam nut	1
5-3	71502	Horn Button	1
5-4	19002	Steering wheel, deluxe	1
5-5	80410-10	3/4" Oil-lite bearing with slot for O ring	1
5-5	80701	O ring for bearing steering shaft	1
5-6	18305	Steering worm, 3 wheel truck	1
5-7	18025	Steering link (4½" long) with ball joints	1
5-7	86502R	Ball joint, right hand	1
5-7	86502L	Ball joint, left hand	1
5-7	86510	Ball joint, clamp	2
5-8	87071	Grease fitting, 3/16 drive	4
5-9	-----	3/4 NC lock nut	2
5-10	16040	Wheel spacer 3/4" ID by 2-1/8" long	2
5-10	16041	Wheel spacer 3/4" ID by 2-5/8" long	2
5-11	15030	Front axle 3/4" diameter by 13" long	1
5-12	85150	Spring compression 2½" OD by 9-3/8" long	2
5-13	14023	Front fork for 500 x 8, 800 x 6 or 950 x 8 tires (used on model with leaf spring suspension on rear axle) less springs	1
5-14	80704	Dust ring for 1¼" bearing	1
5-15	80804	Dust washer for 1¼" bearing	1
5-16	80010	1¼" tapered roller bearing	2
5-17	80100	Tapered bearing race for 1¼" bearing	2
5-18	-----	3/4" SAE washer	1
5-19	-----	3/4" NC lock nut	1
5-20	92100	1¼" dust cap	1
5-21	86000	Shock absorber	1

FIGURE 5

FIGURE	PART	DESCRIPTION	QUANTITY
5-22	45308	Oil seal for 12120 and 12121 hub	2
5-23	-----	7/16 NF lug nut	5
5-24	80015	3/4" tapered roller bearing	2
5-25	80105	Tapered bearing race for 3/4" ID bearing	2
5-26	12120	Wheel hub, 4½" long, five ½" studs on 4½" bolt circle with 3/4" tapered roller bearings	1
5-26	12121	Wheel hub, 4½" long, three ½" studs on 3½" bolt circle with 3/4" tapered roller bearings	1
5-27	12020	Wheel for 950 x 8 tire, demountable, drop center, five ½" holes on 4½" bolt circle	1
5-27	12033	Wheel for 800 x8 tire, demountable drop center, three ½" holes on 3½" bolt circle	1
5-27	13721	Tire, tube and wheel 800 x 6, 4 ply rib, with three ½" holes on 3½" bolt circle	1
5-27	13751	Tire and wheel, 950 x 8, 4 ply Terra tire traction with five ½" holes on 4½" bolt circle	1
5-28	10091	Tire, 950 x 8, 4 ply, Terra tire, traction	1
5-28	10061	Tire, 800 x 6, 4 ply, rib caddy master	1
5-28	10260	Tire, solid xtra cushion all service 18 x 5 x 12-1/8	1
5-28	11020	Tube 800 x 6	1
5-28	11041	Tube, 950 x 8 (Optional as tire is tubeless)	1
5-28	13989	Valve stem for tubeless tire	1
5-28	13955	Tire and demountable cast iron wheel with 18 x 5 x 2-1/8 solid xtra cushion all service tire and five ½" holes on 4½" bolt circle on wheel	1
5-29	80700	Dust ring for wheel with 3/4" bearing	2
5-30	80800	Dust washer for wheel with 3/4" bearing	2
5-31	80014	3/4" tapered roller bearing (09078)	2
5-32	80104	Tapered bearing race for 3/4" ID bearing	2
5-33	13000	Wheel and 5" hub for 400 x 8 or 500 x 8 tires with 3/4" tapered roller bearing	1
5-34	10080	Tire, 500 x 8, 4 ply, super rib	1
5-34	10088	Tire, 500 x 8, 8 ply, steel guard	1
5-34	11040	Tube, 500 x 8	1
5-34	13585	Tire, tube, wheel and 5" hub with 500 x 8, 4 ply super rib tire and 3/4" tapered roller bearings	1
5-34	13588	Tire, tube, wheel and 5" hub with 500 x 8, 8ply steel guard tire and 3/4" tapered roller bearings	1
5-35	84003	**Split Cast iron 1" Pillow block**	1

FIGURE 6

FOUR WHEEL FRONT AXLE AND STEERING

(AFTER SERIAL NO. 4548) - (1964 TO 1968 MODELS)

FIGURE	PART	DESCRIPTION	QUANTITY
6-1	92102	Dust cap for four wheel front axle	2
6-2	-----	5/8 NF Hex head nut	2
6-3	-----	½" NF lug nut (used on hub with studs)	10
6-3	96320	½" NC lug bolt (used on hub without studs)	10
6-4	97162	Washer front hub	2
6-5	80528	Tapered roller bearing (outer)	2
6-6	80104	Tapered bearing race (outer)	2
6-7	12152	Four wheel front hub, six 3/8" studs on 5" bolt circle with bearings and seal	2
6-7	12154	Four wheel front hub, five ½" holes on 4½" bolt circle with bearings and seal	2
6-8	10091	Tire, 950 x 8, 4 ply, Terra tire, traction	2
6-8	11041	Tube, 950 x 8 (optional as 950 x 8 is tubeless)	2
6-8	13989	Valve stem for tubeless tires	2
6-9	12020	Wheel for 950 x 8 tire, demountable, drop center, five ½" holes on 4½" bolt circle	2
6-9	13751	Tire and demountable wheel, 950 x 8, 4 ply, Terra tire with five ½" holes on 4½" bolt circle on wheel	2
6-10	12010	Wheel for 500 x 8 tire, demountable drop center, six 3/8" holes on 5" bolt circle (used up to early 1965 only)	2
6-10	12011	Wheel for 500 x 8 tire, demountable drop center, five ½" holes on 4½" bolt circle (used from middle 1965 on)	2
6-11	10080	Tire, 500 x 8, 4 ply, super rib	2
6-11	10088	Tire, 500 x 8, 8 ply, steel guard	2
6-11	10260	Tire, solid xtra cushion, all service, 18 x 5 x 12-1/8	2
6-11	11040	Tube, 500 x 8	2
6-11	13740	Tire, tube and demountable wheel, 500 x 8, 4 ply, super rib tire with six 3/8" holes on 5" bolt circle on wheel (used up to early 1965 only)	2
6-11	13741	Tire, tube and demountable wheel, 500 x 8, 4 ply, super rib tire with five ½" holes on 4½" bolt circle on wheel (used from middle 1965 on)	2
6-11	13745	Tire, tube and demountable wheel with 500 x 8, 8 ply, steel guard tire and five ½" holes on 4½" bolt circle on wheel	2

FIGURE 6

FIGURE	PART	DESCRIPTION	QUANTITY
6-11	13955	Tire and demountable cast iron wheel, (#12051) solid xtra cushion tire, 18 x 5 x 12-1/8, with five ½" holes on 4½" bolt circle, all service	2
6-12	80132	Tapered bearing race for inner bearing	2
6-13	80527	Tapered roller bearing (inner)	2
6-14	45336	Oil seal, four wheel front hub	2
6-15	-----	1/8 x 1½ cotter pin	2
6-17	85500	Leaf spring unit (26" centers) (4 leafs)	2
6-18	85501	Shacket set for #85500 leaf spring unit including three shackle bolts and nuts, two shackle straps, two U bolts and one spring pad	2
6-20	18304	Steering worm (used after serial #4548)	1
6-21	80410-10	3/4" Oilite bearing with slot for O ring	1
6-21	80701	O ring for steering shaft	1
6-22	19002	Steering wheel deluxe	1
6-23	19002-1	Cover, steering wheel, drilled for horn	1
6-24	-----	5/8 NF Hex head jam nut	1
6-25	14147R	Front spindle, right side	1
6-25	14147L	Front spindle, left side	1
6-26	21012-10	King pin set with 2 king pins, 2 thrust bearings, 4 bushings, 4 shims, and 2 taper pins	1 set
6-26	32211	Bushing, front axle, king pin (sold only as set, see 5-26)	4
6-29	21012	King pin (sold only as set, see 5-26)	2
6-30	50193	Tie rod(21½" long) with ball joints	1
6-30	86502R	Ball joint (right hand) 9/16" threads on tapered end	1
6-30	86502L	Ball joint (left hand) 9/16" threads on tapered end	1
6-30	86510	Ball joint clamp	2
6-31	50192	Steering link tie rod (16½" long) with ball joints	1
6-32	80314	Thrust ball bearing (sold only as set, see 6-26)	2
6-33	15054	Front axle only without spindles	1
6-34	95402	Taper pin (sold only as set, see 5-26)	2
6-35	71502	Horn button	1
6-36	84003	Split cast iron 1" pillow block	1

FIGURE 7

CONTROL LINKAGE

THREE WHEEL

(1964 TO 1968 MODELS)

FIGURE	PART	DESCRIPTION	QUANTITY
7-1	51340	Hand parking brake lever	1
7-2	-----	5/16" Lock nut	2
7-3	50481	Parking brake slip connector (1" long)	1
7-4	50006	3/8" master cylinder push rod 6¼" long	1
7-5	96762	3/8" cast clevice	1
7-6	96772	3/8" x 1" clevice pin	9
7-7	50013	5/16" brake rod, 6½" long	1
7-8	98200	Brake pedal pad	1
7-9	98253	Accelerator pedal pad	1
7-10	96763	5/16" cast clevice	3
7-11	96 773	5/16" clevice pin	3
7-12	96812	Adjustable cable assembly (34-3/4" maximum to 31-3/4" minimum hole to hole)	1
7-13	50010	5/16" Accelerator rod, 9½" long	1
7-14	17102	5/16" Shaft collar	1
7-15	85231	Spring extension 3/4" OD x 6-9/16" free length inside loops (accelerator return)	1
7-17	96812	Adjustable cable assembly (34-3/4" maximum to 31-3/4" minimum hole to hole) (mechanical brakes)	2
7-17	96819	Adjustable cable assembly (39-3/4" maximum to 36-3/4" minimum hole to hole) (mechanical parking brake on hydraulic brake gear drive)	2
7-18	96813	Adjustable cable assembly(31¼" maximum to 28¼" minimum hole to hole).	1

FIGURE 8

CONTROL LINKAGE

FOUR WHEEL

(1964 TO 1968 MODELS)

8-1	51340	Hand parking brake lever	1
8-2	-----	5/16" Lock nut	2
8-3	50481	Parking brake slip connector (1" long)	1
8-4	50006	3/8" Master cylinder push rod 6¼" long	1
8-5	96762	3/8" cast clevice	1

FIGURE 8

FIGURE	PART	DESCRIPTION	QUANTITY
8-6	96772	3/8" x 1" clevice pin	9
8-7	50013	5/16" brake rod, 6½" long	1
8-8	98200	Brake pedal pad	1
8-9	98253	Accelerator pedal pad	1
8-10	96763	5/16" cast clevice	3
8-11	96773	5/16" clevice pin	3
8-12	96812	Adjustable cable assembly (34-3/4" maximum to 31-3/4" minimum hole to hole) (belt or chain drive rear axle)	1
8-12	96819	Adjustable cable assembly (39-3/4" maximum to 36-3/4" minimum hole to hole) (gear drive rear axle)	1
8-13	50010	5/16" accelerator rod, 9½" long	1
8-14	17102	5/16" shaft collar	1
8-15	85231	Spring extension 3/4" OD x 6-9/16" free length inside loops (accelerator return)	1
8-16	50316	Brake equalizer bar	1
8-17	96813	Adjustable cable assembly (31¼" maximum to 28¼" minimum hole to hole) (mechanical brakes)	2
8-17	96812	Adjustable cable assembly (34-3/4" maximum to 31-3/4" minimum hole to hole) (mechanical parking brake on hydraulic brake gear drive)	2
8-18	96813	Adjustable cable assembly (31¼" maximum to 28¼" minimum hole to hole)	1

FIGURE 9

SPEED CONTROL RHEOSTAT

1965 TO 1968 MODELS

9	61830/5CR	Rheostat complete with coils	1
9-1	-----	¼ x 1 NC Hex head cap screw	18
9-2	61830D	Insulating board	1
9-3	-----	¼ NC fastite nut	20
9-4	61830C	Long J-Hook twisted strap 4½" long	1
9-5	61830B	Sliding J-Hook bar	1
9-6	61830E/5	Neutral bar 5 speed	1
9-7	-----	8-32 x 7/8 Flat head machine screw	2
9-8	-----	¼ NC Truss head machine screw	1
9-9	78212A	Resistor coil #9 wire, 14 turns	1

FIGURE 9

FIGURE	PART	DESCRIPTION	QUANTITY
9-10	78212B	Resistor coil #6 wire, 9 turns	2
9-11	78212C	Resistor coil #5 wire, 6 turns	1
9-12	-----	½ NC x 1¼ Silicon bronze bolt	1
9-13	61830F	Pressure bar	1
9-14	61830A	Power bar	5
9-15	-----	3/8 Nut	1
9-16	61830G	Mounting board	1
9-17	85034	Compression spring 7/16" OD by 2" long	1
9-18	-----	½ NC Lock nut	1
9-19	-----	½ NC Hex head nut	1
9-20	-----	8-32 Flex lock nut	1
9-21	-----	½ NC x 3½ Hex head cap screw	1

FIGURE 10
FORWARD AND REVERSE SWITCH

10	71040	Forward and reverse switch complete	1
10-1	71040J	Switch finger silver plated with ½" mounting hole	4
10-2	-----	½ NF Hex head nut	4
10-3	71040K	Finger board with ½" mounting holes	2
10-4	71040U	Finger board wedge	2
10-5	71040W	Finger mounting bolt	4
10-6	71040P	Switch housing (set of four pieces)	1
10-7	-----	See 10-6	-
10-8	-----	See 10-6	-
10-9	-----	See 10-6	-
10-10	71040Y	Cover bolt	1
10-11	-----	8-32 x ½ filster head bolt	1
10-12	71040L	Metal switch handle (red)	1
10-13	71040I	Spacer washer	1
10-14	71040X	Face stop bolt	2
10-15	-----	10-32 washer	2
10-16	71040E	Lock assembly with two keys	1
10-17	71040Z	Key only (give # of lock or truck serial #)	2
10-18	71040V	Rubber insulation strip	1
10-19	71040C	Cam	1
10-20	71040D	Cam spring	1
10-21	71040N	Rotor shaft only	1

FIGURE 10

FIGURE	PART	DESCRIPTION	QUANTITY
10-22	71040R	Plastic spacer set (set of 4)	1
10-23	71040H	Rotor contacts (set of two-one right and one left)	1
1-24	-----	See 10-22	-
10-25	71040S	Cam index	1
10-26	71040T	Bushing	1
10-27	-----	¼" Snap ring	1
10-28	-----	See 10-22	-
10-29	-----	¼" SAE washer	1
10-30	-----	¼" Lock washer	1
10-31	-----	¼" NF Hex head nut	1
10-32	94305	Forward-reverse switch nameplate	1
10-33	71040B	Rotor assembly	1

FIGURE 11

HYDRAULIC SYSTEM

11-1	99565	Y fitting with hole for bolt (Wagner 5727) (4 wheel brakes)	1
11-2	99566	Straight fitting with hole for bolt (Wagner 5733) (2 wheel brakes)	1
11-3	99579	Bolt (Wagner FC 673)	1
11-4	99572	Washer (Wagner FC 603)	2
11-5	99510	Master cylinder	1
11-6	71110	Switch brake light	1
11-7	99562	Coupling (B--103)	1
11-8	99560	3/16 Tubing end (Wagner FC 5555)	12
11-9	-----	Tubing tee end (part of 99561)	2
11-10	99561	3/16 Tubing tee (B-72)	1
11-11	99501	Wheel cylinder (Dico)	4
11-12	99570	Washer (Wagner FC 1511)	3
11-13	99580	Hydraulic hose (Wagner FC 11191)	3
11-14	99564	T fitting (Wagner 5728)	1
11-15	99576	Clip (Wagner FC 3052)	3
11-16	99551	3/16" Copper tubing (state length) per ft.	16
11-17	99563	T Fitting with mounting hole (Wagner FC 5772)	1

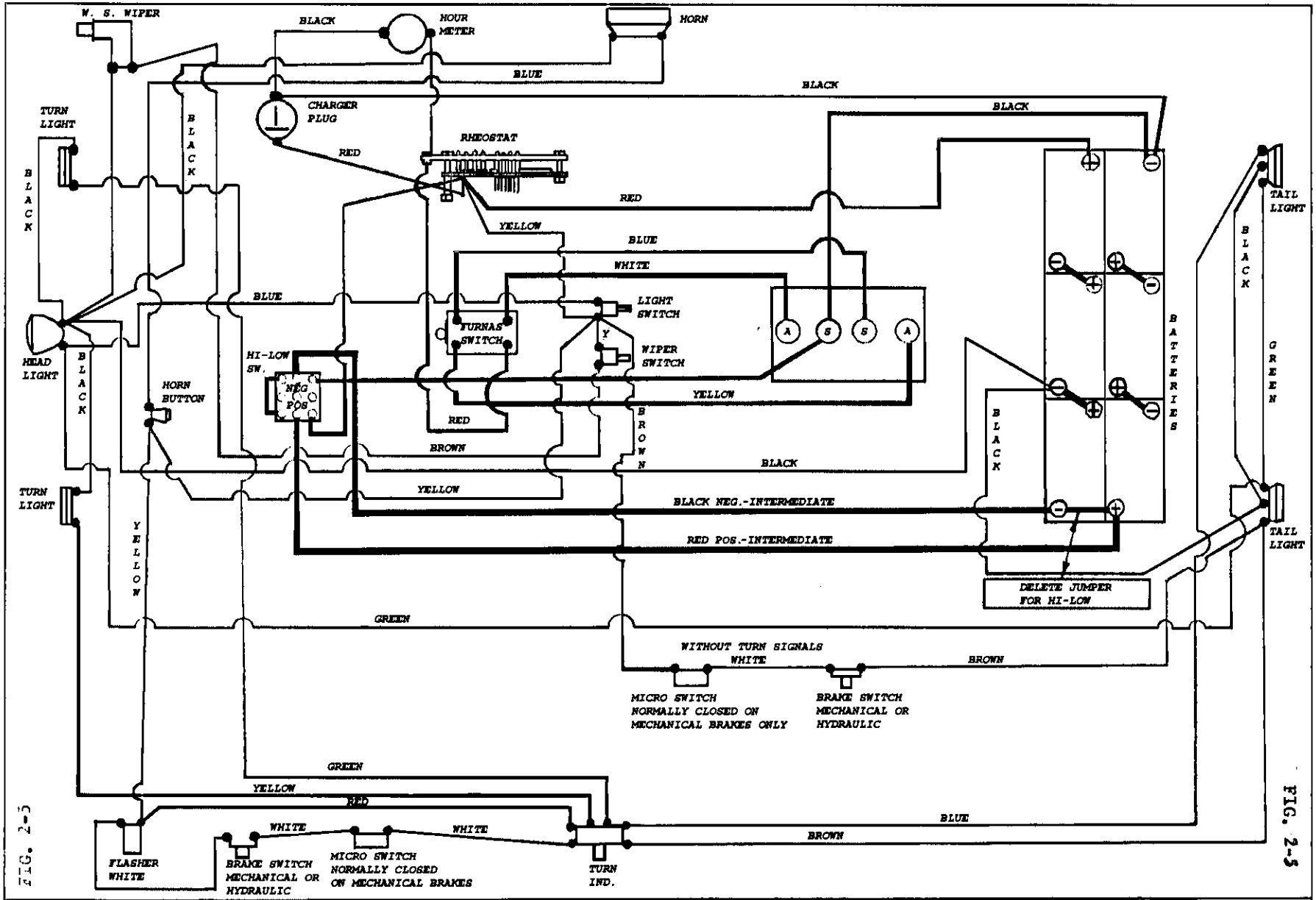
ELECTRICAL PARTS

PART	DESCRIPTION	QUANTITY
71100	Light switch	1
71110	Brake light switch (hydraulic operated)	1
71111	Brake light switch (mechanical operated)	1
71130	Micro switch	1
71141	Turn indicator switch, 7 wire	1
71502	Horn button	1
71607	Switch console	1
71900	Flasher (12 volt)	1
72005	Chrome headlight fixture with 4" sealed beam bulb	1
72022	Stop and taillight fixture, 4" rubber mount (12 volt)	2
72051	Turn light fixture, (12 volt) Amber, 4" rubber mount	2
72072	4" Sealed beam headlight bulb	1
73000	Horn, 12 volt	1
74000	Hour meter	1
74015	Plug in charge indicator	1
74050	Windshield wiper motor	1
74051	Windshield wiper arm	1
74052	Windshield wiper blade	1
75013	Wiring harness for switch console including light and horn	1
75114	Wiring harness for turn signal and stop light	1
75231	Battery jumper #4 wire, 8" long	5
76001	Charging plug (T plug) 20 amp., 2 prong	1
76002	Charging plug, 30 amp., 3 prong	1
76011	Charging receptacle (Tplug) 20 amp., 2 prong	1
76012	Charging receptacle, 30 amp., 3 prong	1
77010	6 Volt 170 or 180 A.H. battery	6
77031	6 Volt 190 A.H. battery	6
77042	6 Volt 217 A.H. battery	6
77200	Hydrometer	1
77201	Battery filler	1
77202	Battery breakdown meter	1
78010	Secondary fuse and holder inline type	1
79720	Diode for charger (35 amp. or less)	2
79801	Timer 24 hour electric	1
79811	Transistor pack, 36 volt charger	1
79823	Fuse, Buss type 20 amp. (for inline fuse holder)	1
79820	Fuse, screw type, 30 amp. (for charger)	1

BODY & TRIM PARTS

PART	DESCRIPTION	QUANTITY
50226	¼" battery rod 15-¼" plus bend	3
50460	Strap, rear axle spacer (3-1/8" long)	2
90140-B	Seat backrest, full (specify black or white)	1
90140-C	Seat cushion, full (specify black or white)	1
90141-C	Seat cushion, individual, (specify black or white) (used with switch console)	2
90416	Deckboard 1/2" plywood metal covered (37 x 41) for Model "M" - four passenger	1
90419	Deckboard ½" plywood - metal covered (17 x 41) for Model "M" - six passenger	1
90435	Deckboard 3/4" plywood (41 x 77½) for Model "B"	1
90540	Stake side - side gate hook	6
90543	1½" x 3/4" channel stake 17" long	6
90544	2" x 1" stake pocket	6
90800	Windshield, safety glass (19½" x 35½")	1
90850	Rear Window, safety glass (12" x 32")	1
90903	Side curtains less steel frame for cab	1 pair
90913R	Side curtain frame less #91802 hinges right side	1
90913L	Side curtain frame less #91802 hinges left side	1
90950	Steel bolt on safety glass windshield frame	1
91000	Fiberglass cab **without** window glass (white)	1
91021	Tubular top frame for four wheel Model "M" and three wheel Model "M" afte 1965 model	1
91101	Surrey top cover with fringe for four wheel Model "M" and three wheel Model "M" after 1965.	1
91802	Hinge side curtain door frame	4
92000	Chrome wheel cover 8" for 400 x 8 and 500 x 8 wheel	2 or 4
92201	4 x 8 mirror	1
92202	Mirror bracket	1
94010	Aluminum floor mat edge trim (16" long)	2
94201	Taylor-Dunn emblem	1
94301	Taylor-Dunn decal	1
94304	Switch console name plate	1

PART	DESCRIPTION	QUANTITY
94305	Forward/reverse switch plate	1
94371	Serial number plate (please state serial number)	1
94420	Chesterton spray flex for timing chain (14 oz. Can)	-
97312	Latch swivel type for curtain doors	2
98002	Floor mat, set for Model "M"	1 set
98200	Rubber brake pedal pad	1
98253	Rubber accelerator pedal pad	1
98311	Window channel for front window (107" long)	1
98313	Window channel for rear cab window (85" long)	1



TOL. FRAC.± DEC.±	PART NO. 2CC SERIES	WIRING DIAGRAM MODEL B	FIGURE 2
SCALE	REVISED DATE		
DRAWN BY			
DATE			

TAYLOR DUNN MFG. CO
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Anaheim, Calif.

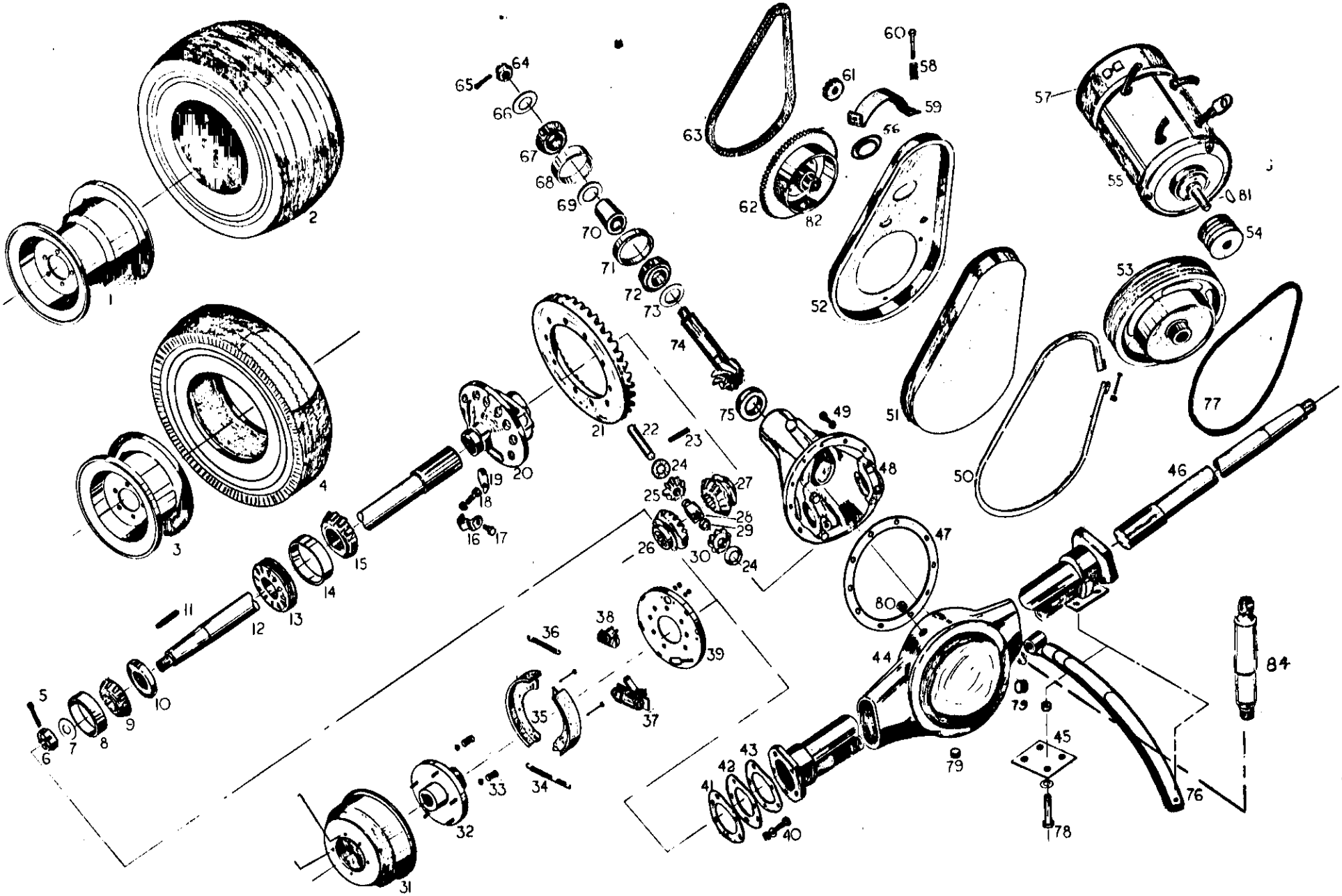

FIG. 3-3

FIG. 3-3

TOL. FRAC.± DEC.±	PART NO. 300 SERIES	CHAIN AND BELT DRIVES REAR AXLE 1965 TO 1970 MODELS	FIGURE 3	TAYLOR DUNN MFG. CO. 2114 West Ball Rd. Anaheim, Calif.
SCALE	REVISED DATE 200 SERIES			
DRAWN BY				
DATE 6-29-67				

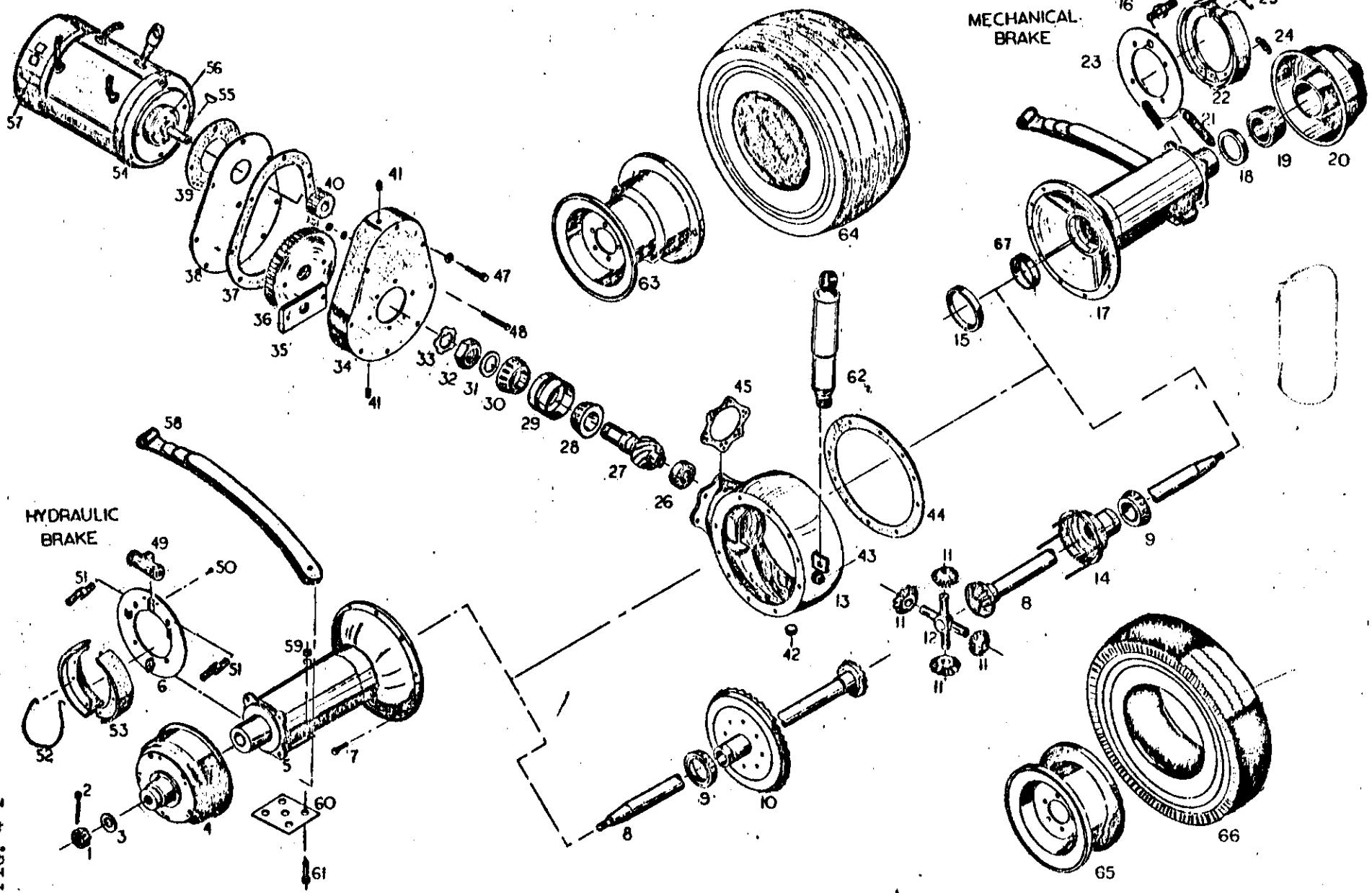

FIG. 4-2

FIG. 4-2

TOL. FRAC.± DEC.±	PART NO. 200 SERIES	GEAR DRIVE REAR AXLE 1965 TO 1970 MODELS	FIGURE 4.
SCALE	REVISED DATE		
DRAWN BY			
DATE 4-26-76			

TAYLOR DUNN MFG. CO.
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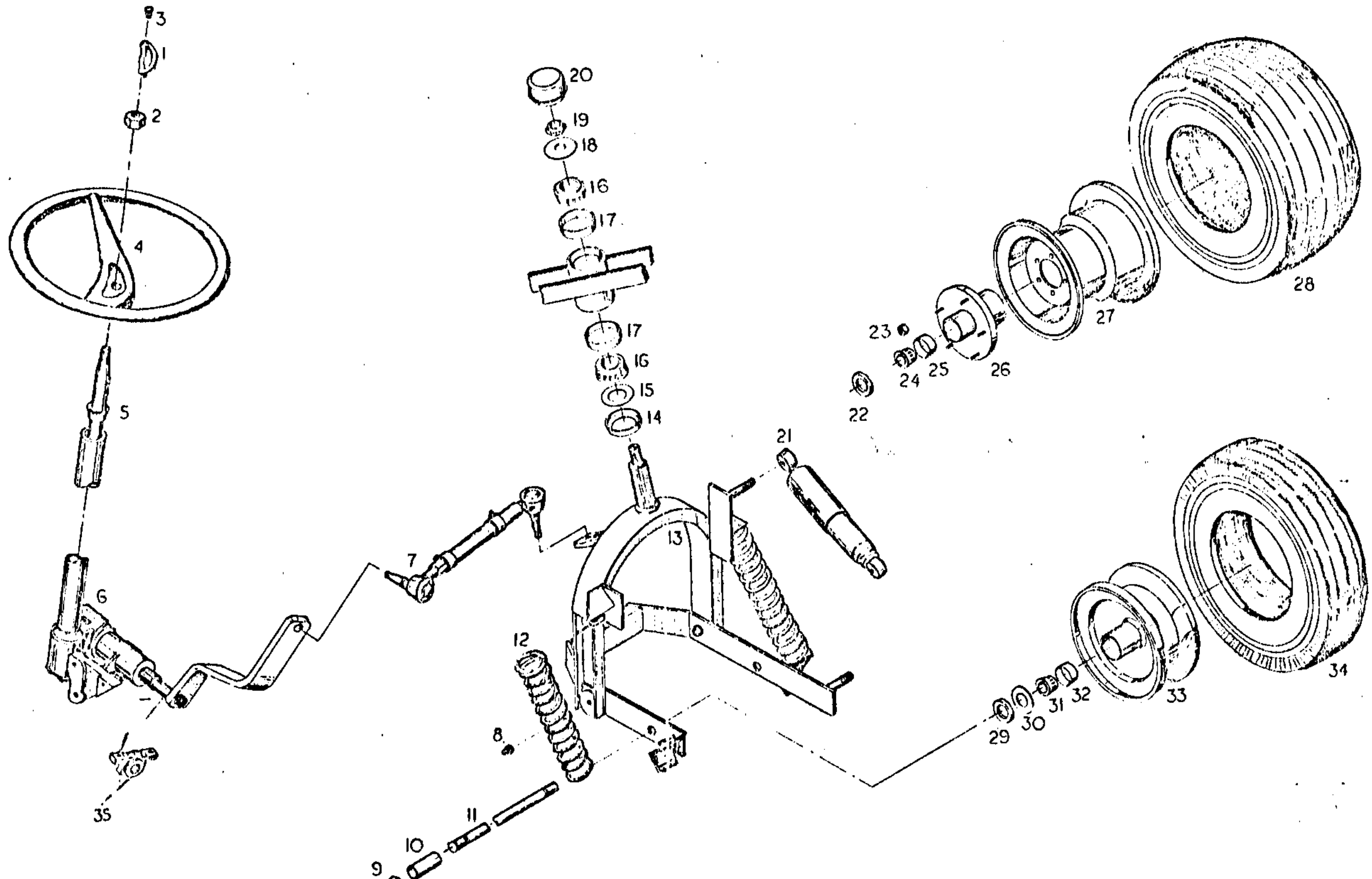
Anaheim, Calif.

FIG. 5-3



TOL. FRAC. ± DEC. ±	PART NO. 200 SERIES	FRONT STEERING AND FORK (AFTER SERIAL NO 4824) [illegible] MODELS	FIGURE 5	TAYLOR DUNN MFG. CO. 2114 West Ball Rd. Anaheim, Calif.
SCALE	REVISED DATE			
DRAWN BY				
DATE [illegible]-14-67				

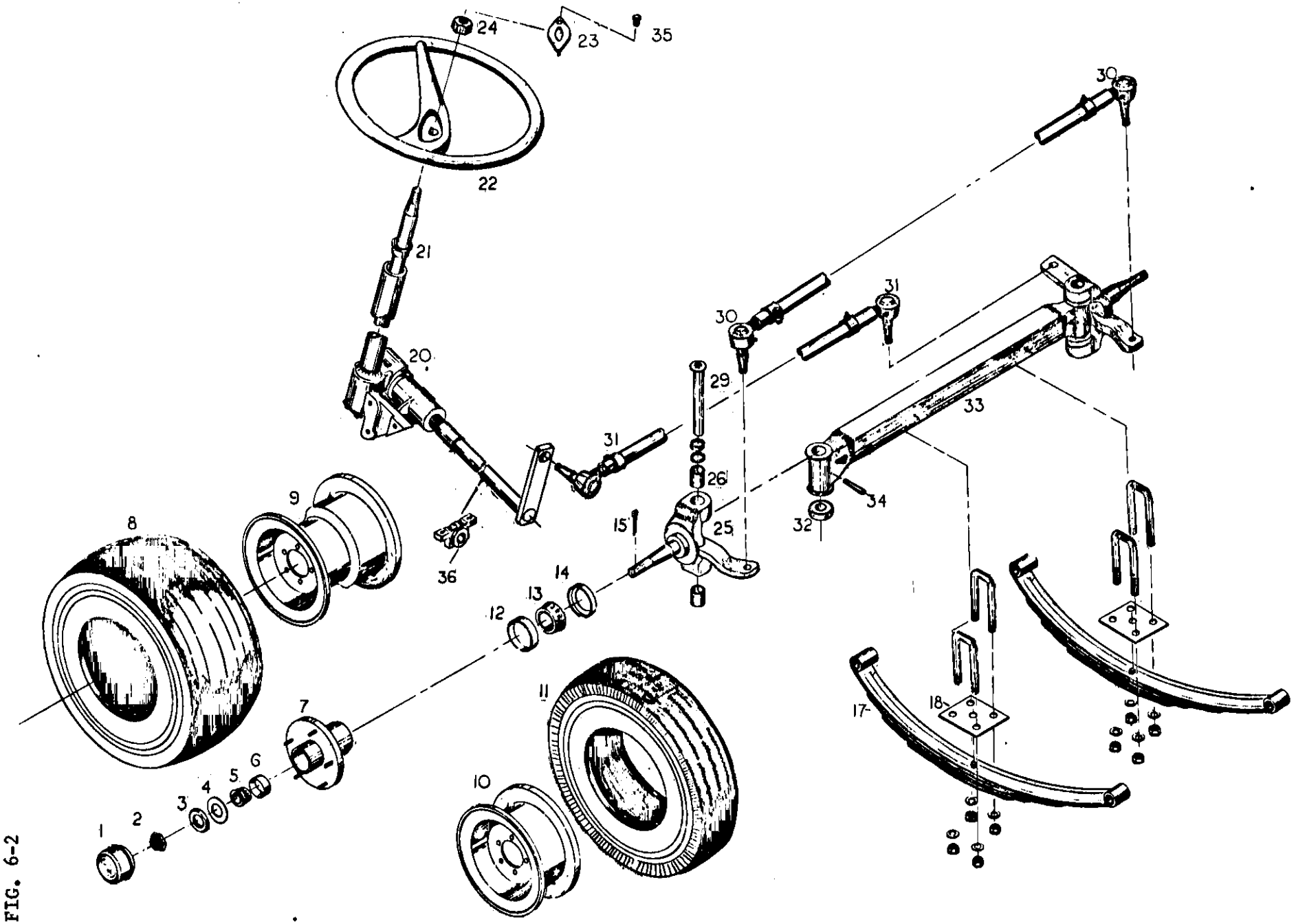


FIG. 6-2

TOL. FRAC.± DEC.±	PART NO. 200 SERIES	FOUR WHEEL FRONT AXLE AND STEERING (AFTER SERIAL NO 4548) 1964 TO 1969 MODELS	FIGURE 6
SCALE	REVISED DATE		
DRAWN BY			
DATE 9-14-67			

TAYLOR DUNN MFG. CO
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Anaheim, Calif.

FIG. 6-2

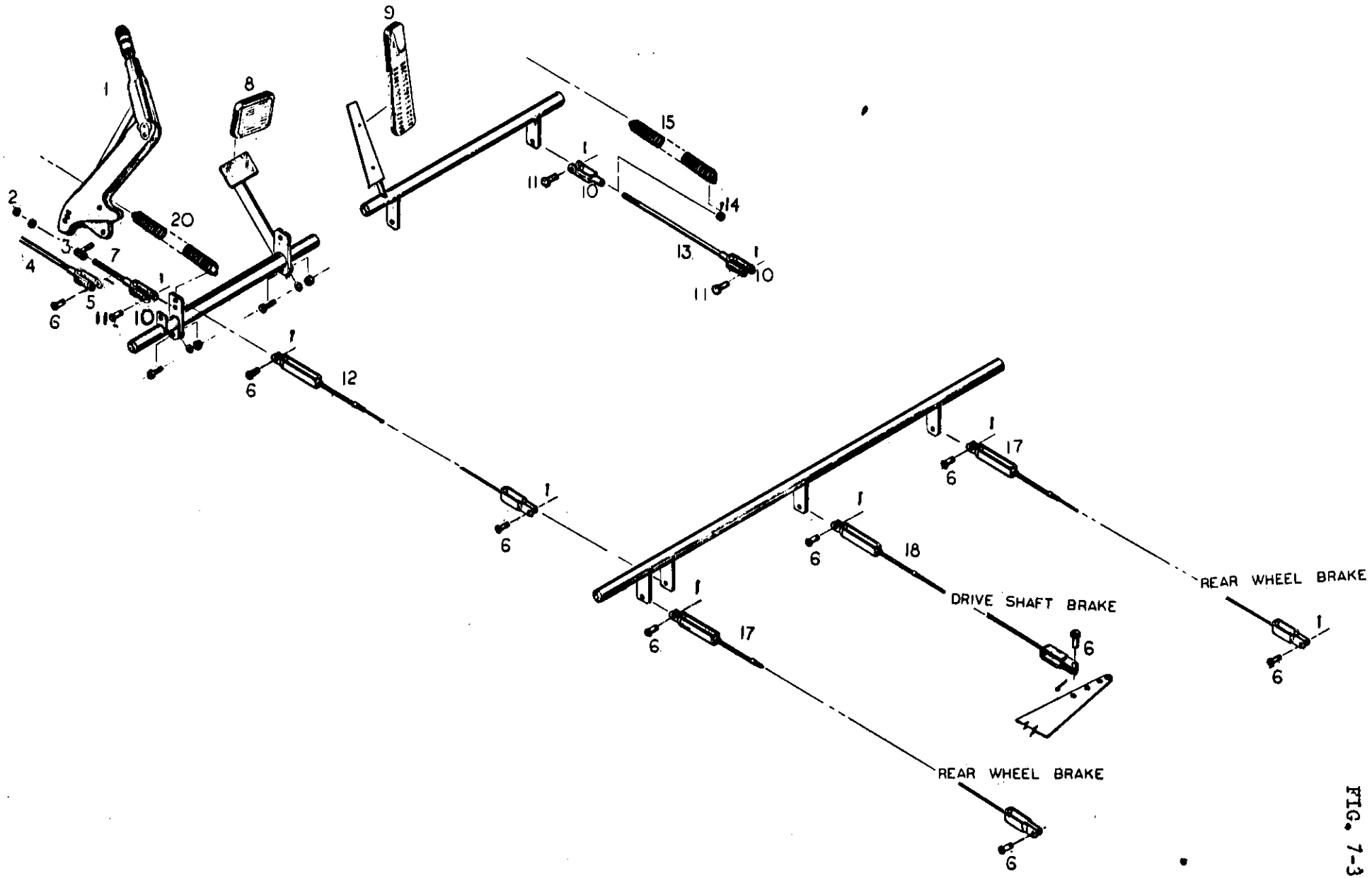

FIG. 7-3

TOL. FRAC.± DEC.±	PART NO. 200 SERIES
SCALE	REVISED DATE
DRAWN BY	
DATE 9-14-67	

CONTROL LINKAGE
THREE WHEEL
1964 TO 1969 MODELS

FIGURE 7

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Anaheim, Calif.

FIG. 7-3

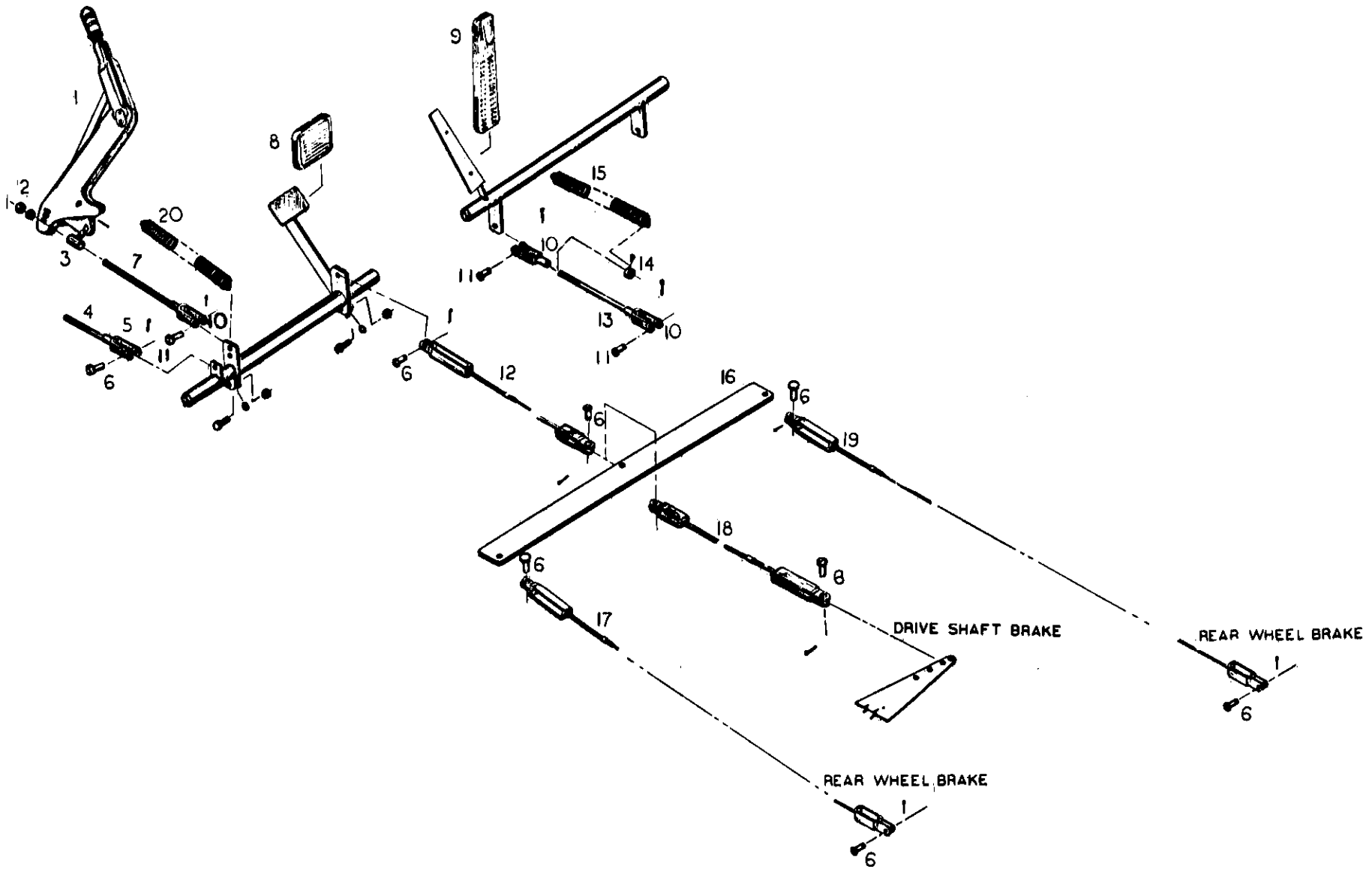

FIG. 8-1

FIG. 8-1

TOL. FRAC. ± DEC. ±	PART NO. 200 SERIES	CONTROL LINKAGE FOUR WHEEL 1964 TO 1969 MODELS	FIGURE 8	TAYLOR DUNN MFG. CO. 2114 West Ball Rd. Anaheim, Calif.
SCALE	REVISED DATE			
DRAWN BY				
DATE 9-14-67				

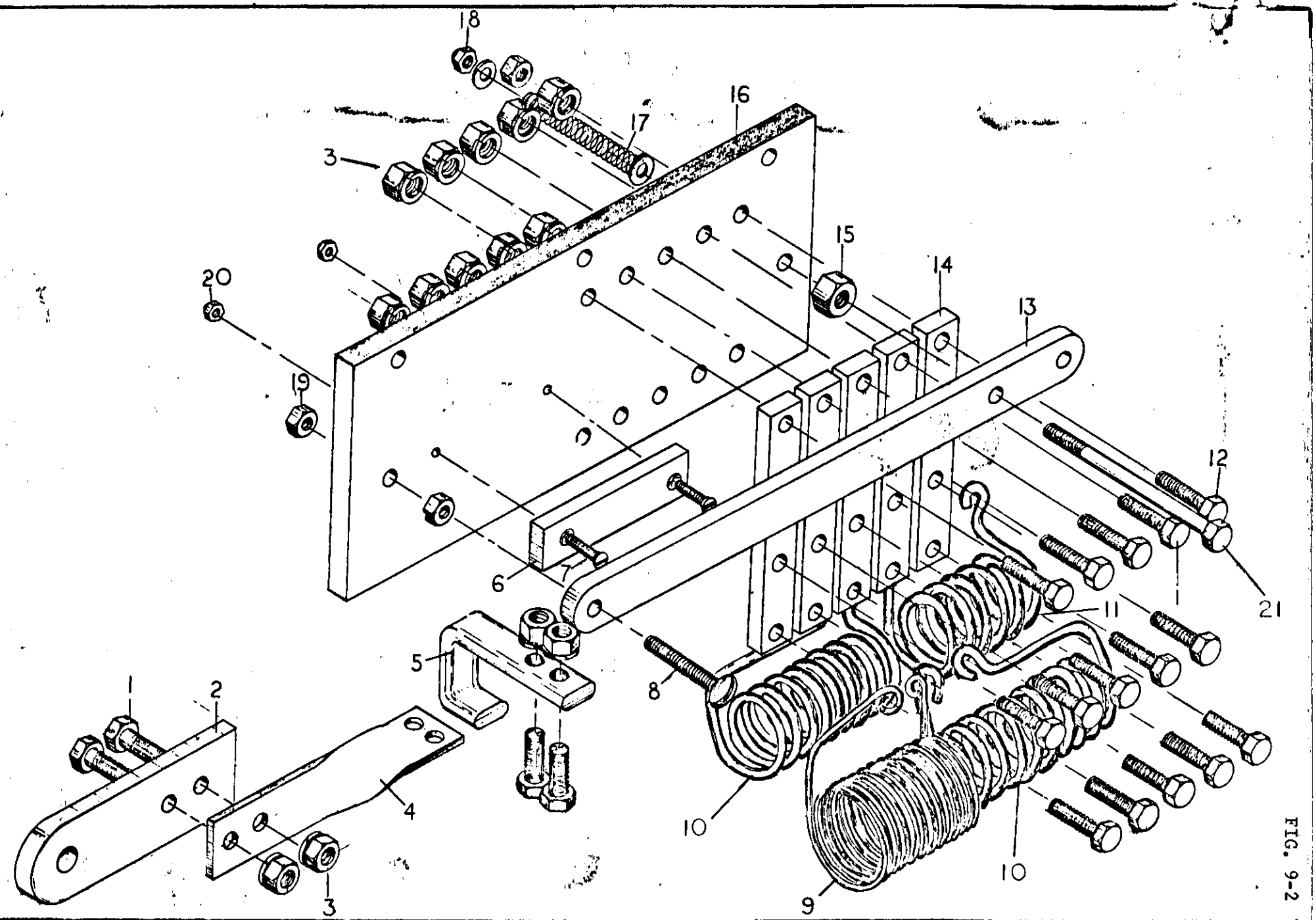

FIG. 9-2

FIG. 9-2

TOL. FRAC.± DEC.±	PART NO. 300 SERIES	SPEED CONTROL RHEOSTAT 1965 TO 1970 MODELS	FIGURE 9
SCALE	REVISED DATE 200 SERIES		
DRAWN BY	400 "		
DATE 6-28-67			

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Anaheim, Calif.

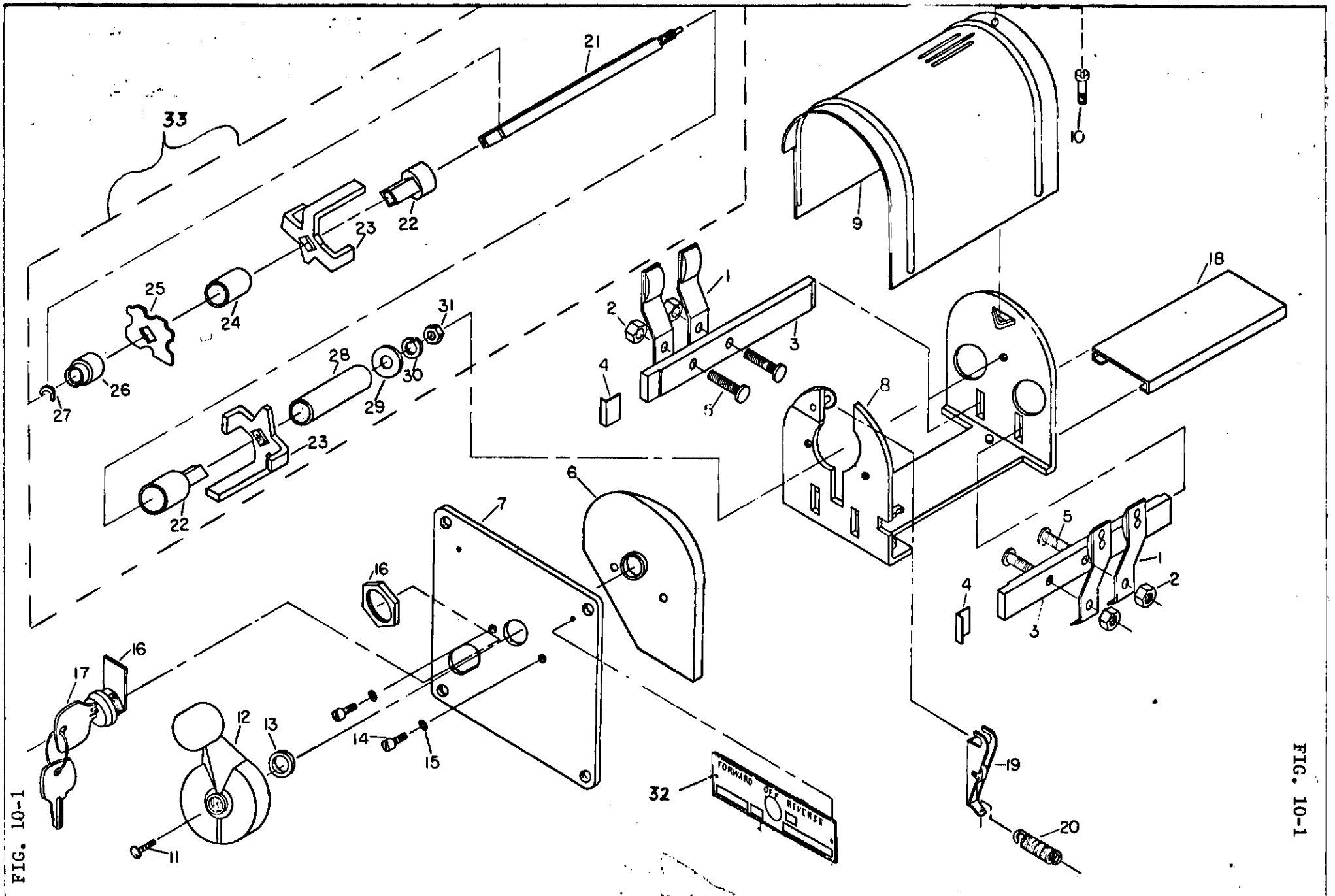

FIG. 10-1

TOL. FRAC.± DEC.±	PART NO. 71-040-00	FORWARD - REVERSE SWITCH	FIGURE
SCALE NONE	REVISED DATE	PART NO. 71-040-00	10
DRAWN BY [illegible]			
DATE MAY 21, 1964			

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Anaheim, Calif.

FIG. 10-1

NO.	DESCRIPTION	LENGTH	QUAN.

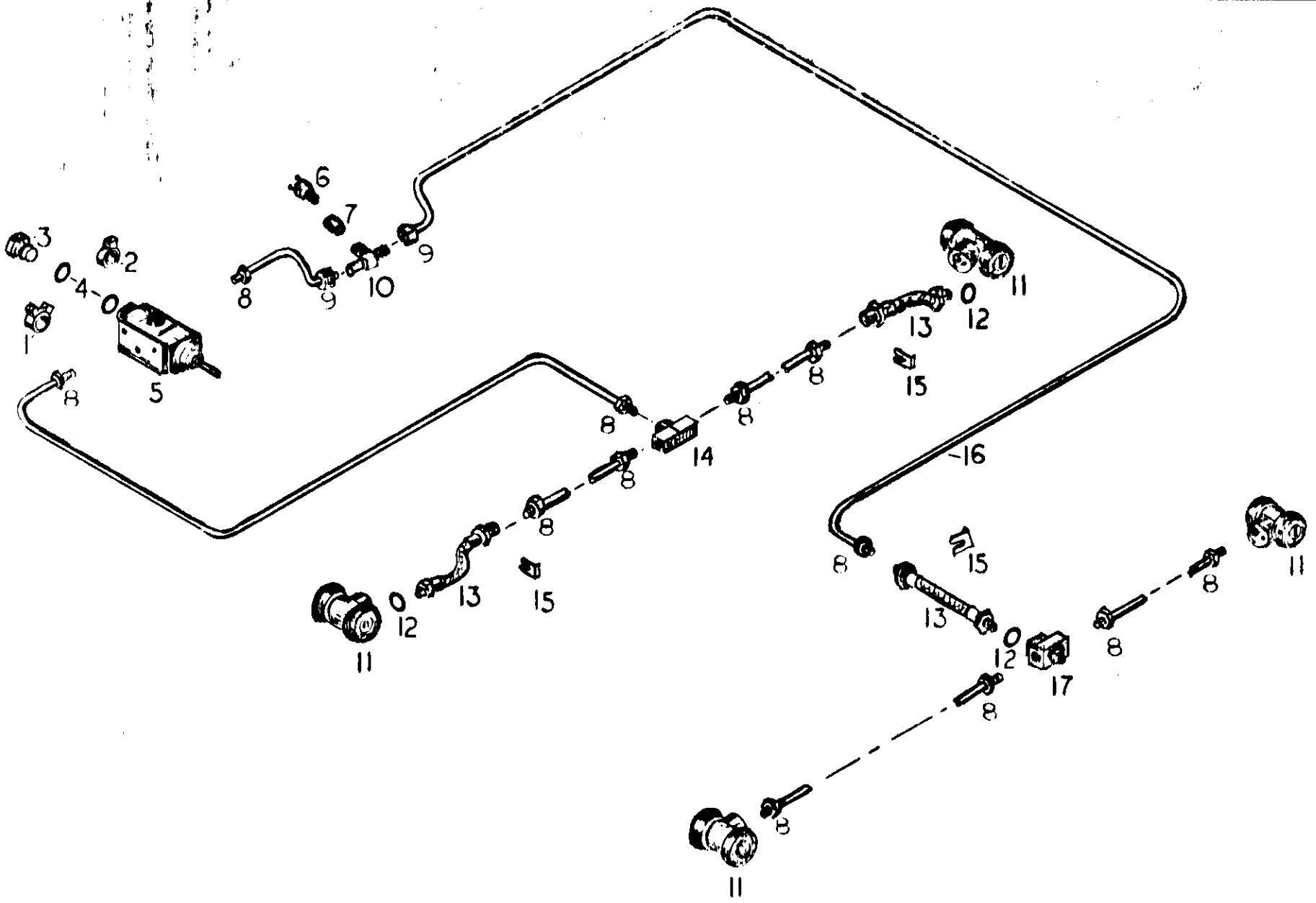

FIG. 11-1

FIG. 11-1

TOL. FRAC.± DEC.±	PART NO.	HYDRAULIC SYSTEM 2 & 4 WHEEL	FIGURE 11
SCALE none	REVISED DATE		
DRAWN BY Turner	200 SERIES		
DATE 9-8-65	300 SERIES		

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Anaheim, Calif.

SECTION J8
PAGE 1

MAINTENANCE PROCEDURES

BATTERIES

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

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

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

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	Water OK or Low	Gravity Before Charge	Gravity After Charge	Date	Water OK or Low	Gravity Before Charge	Gravity After Charge	Date	Water OK or Low	Gravity Before Charge	Gravity After Charge	Date	Water OK or Low	Gravity Before Charge	Gravity After Charge
1	1																
	2																
	3																
2	1																
	2																
	3																
3	1																
	2																
	3																
4	1																
	2																
	3																
5	1																
	2																
	3																
6	1																
	2																
	3																

1. CAUTION: Batteries emit explosive gases. During normal operation the concentration of these gases is rarely sufficient to be considered dangerous unless flame or sparks occur in the battery compartment close to the vent holes in the battery caps. It is important that this not be allowed to occur at 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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PAGE 3

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PAGE 4

BATTERIES AND CHARGER

T D PART NO.	DESCRIPTION	QTY. REQ.
74-005-00	Charge Indicator (12 Volt - Push to Test)	1
74-015-00	Plug In Charge Indicator (36 Volt)	1
75-231-00	Battery Jumper #6 Wire (8" Long)	5
75-234-00	Battery Jumper #6 Wire (16½" Long)	1
75-240-00	3 Prong Plug and Cord (For Lift-Out and Roll-Out Battery Boxes)	1
75-241-00	3 Prong Receptacle for Plug and Cord	1
76-002-00	Charging Plug, 30 Amp, 3 Prong	1
76-012-00	Charging Receptacle, 30 Amp, 3 Prong	1
76-020-00	Charging Receptacle and Plug, Anderson Type SB #6313 - 175 Amp	1 or 3
77-010-00	6 Volt, 170 A.H. Battery	6
77-031-00	6 Volt, 190 A.H. Battery	6
77-042-00	6 Volt, 217 A.H. Battery	6
77-048-00	6 Volt, 250 A.H. Battery	6
77-200-00	Hydrometer	1
77-201-00	Battery Filler	1
77-202-00	Battery Breakdown Meter	1
77-903-00	Battery Hold Down Stop (Roll Out Battery Box) Model B	1 or 2
77-904-00	Battery Hold Down Channel (Roll Out Battery Box) Model B	1 or 2
77-965-00	Battery Box Dolly (For Roll Out Battery Box) Model B	1 or 2
77-968-00	Battery Box Only (Lift Out for 170 A.H. or 217 A.H.) Model B	1 or 2
77-969-00	Battery Box Only (Lift Out for 250 A.H. Batteries) Model B	1 or 2
77-970-00	Battery Box Only (Roll Out for 170 A.H., 217 A.H. & 250 A.H.) Model B	1 or 2
79-320-00	Charger, 36 Volt, 20 Amp, Type A (Portable) 115 Volt	
79-321-00	Charger, 36 Volt, 20 Amp, Type A (Built In) 115 Volt	
79-330-00	Charger, 36 Volt, 30 Amp, Type T (Portable) 115 Volt	
79-336-00	Charger, 36 Volt, 30 Amp, Type T (Built In) 115 Volt	
79-335-00	Charger, 36 Volt, 35 Amp (Industrial) 115/230 Volt	
79-345-00	Charger, 36 Volt, 45 Amp (Portable) 115 Volt	
79-355-00	Charger, 36 Volt, 50 Amp (Industrial) 115/230 Volt	
79-375-00	Charger, 36 Volt, 75 Amp (Industrial) 230/460 Volt	
79-337-00	Charger, 36 Volt, 30 AMP, Type T, 115 Volt, Built in with Seperate Control Console	1

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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

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 achieved by using this method. Protection from overcharging is provided by the voltage sensing device.

INSTALLATION

Portable models may be set on any suitable working surface so that there is access to the control panel. There should be at least six inches of clearance on each side and two inches on the top to allow free flow of air for cooling. Do not expose the charger to rain or other adverse weather conditions. There must be a separately fused, three-wire, single phase, 115 volt, 15 ampere power receptacle within reach of the A-C input cord of the charger. If the A-C input voltage at your location varies from the nominal 115 volts, it will be necessary to adjust the charger for proper operation. A Low-Med-High switch on the charger is designed to make the necessary adjustment convenient. This switch is located on the front panel of all portable models and on the charger portion of the built-in models with separate control console.

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

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

OPERATING INSTRUCTIONS

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

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

CHARGING TIME CHART (A Series)

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

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	½
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 AC plug from power source.
   5.2 Check the two output fuses to insure they are good. Inspect the fuse holders for damage or a blackened appearance. (If the fuse holder is blackened, it indicates oxidation and should be replaced).
   5.3 Remove both output fuses. Check for continuity from the output side of both fuse holders to the positive side of the DC plug, connecting continuity indicator first in one direction and then the other of each. The indicator should show an open in one direction and continuity in the other. Continuity in both directions or no continuity in either direction indicates a bad diode. Replace the diode connected to that fuse holder.
   5.4 Check for continuity between the input side of one fuse holder and the input side of the other. If no continuity exists, the transformer secondary is open. Replace the transformer.
   5.5 Check for continuity across the two terminals of the meter. If no continuity exists, the meter is open. Replace the meter.
   5.6 If all indications to this point are normal, test the entire DC output circuitry for continuity by progressing from the DC output prong to the negative DC output prong in incremental test sections, checking each connection for open circuits and poor connections.

AC-LINE FUSES BLOW

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

OUTPUT FUSES BLOW

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

TIMER DOES NOT TURN UNIT OFF

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

VOLTAGE SENSING UNIT ADJUSTMENT PROCEDURE ("T SERIES)

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

10. The unit is assembled on a small panel inside the charger cabinet (see item 23, exploded diagram . Each unit has been carefully adjusted at the factory to actuate at the proper voltage; however, if it is desired to change the actuation voltage point, the following procedure should be followed:
    10.1 Connect the charger to a battery which is <u>known</u> to be fully charged.
    10.2 Observing polarity, connect the voltmeter across the battery terms.
    10.3 Turn the charger <u>on</u>. 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.

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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-clockwies to lower voltage.

10.5 Turn the ON and OFF, as necessary, to raise and lower battery voltage, while repeating steps 10.3 and 10.4 until the desired actuation point is achieved.

IMPORTANT FACTS ON BATTERIES AND CHARGERS

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

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

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

WARNING - HAZARD OF EXPLOSIVE GAS MIXTURE

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

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INSPECTION OF BATTERIES AND ASSOCIATED CIRCUITS

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

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

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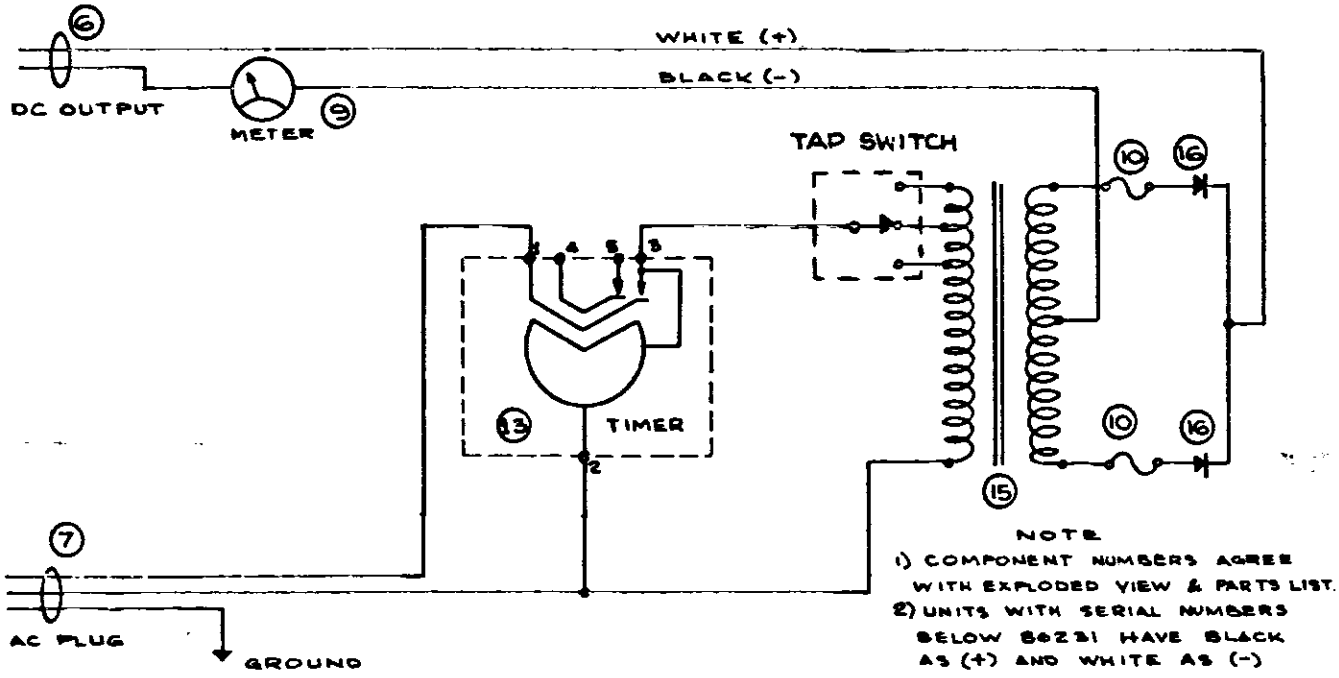
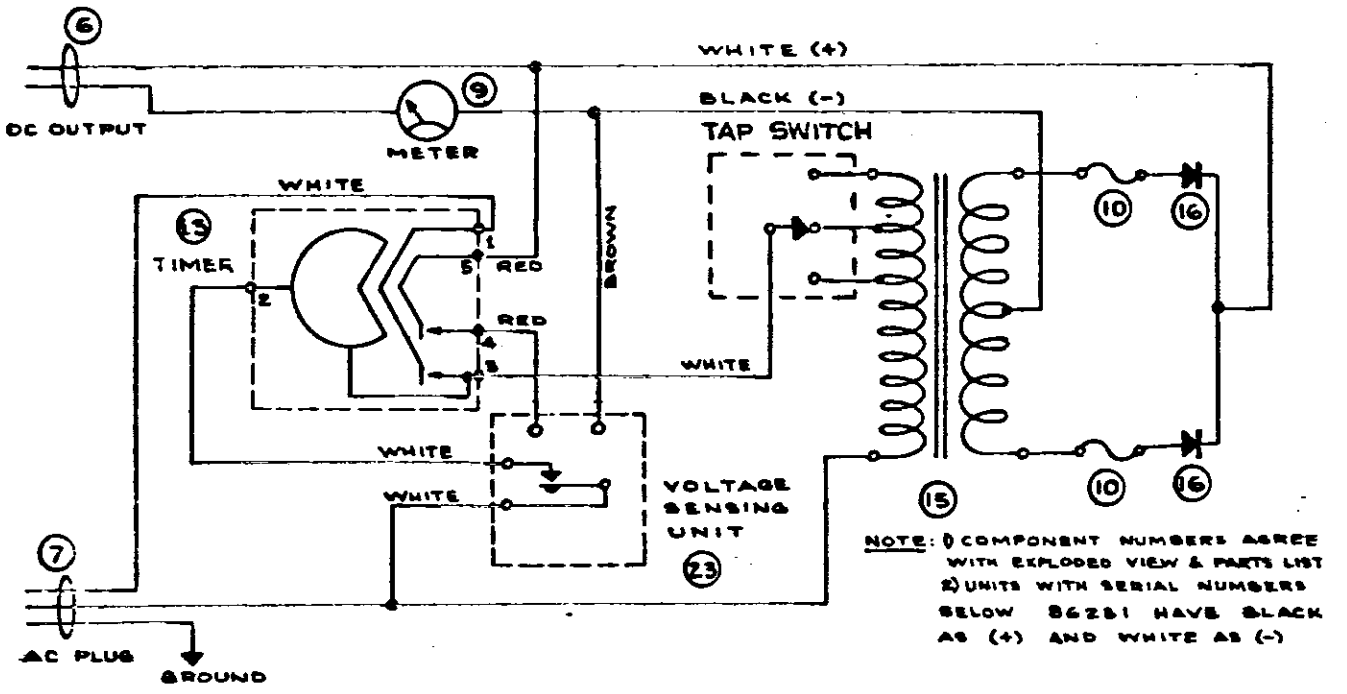
CIRCUIT DIAGRAMS

SERIES "A" & "T" CHARGERS



CHRISTIE SERIES "A" BATTERY CHARGERS



CHRISTIE SERIES "T" BATTERY CHARGERS

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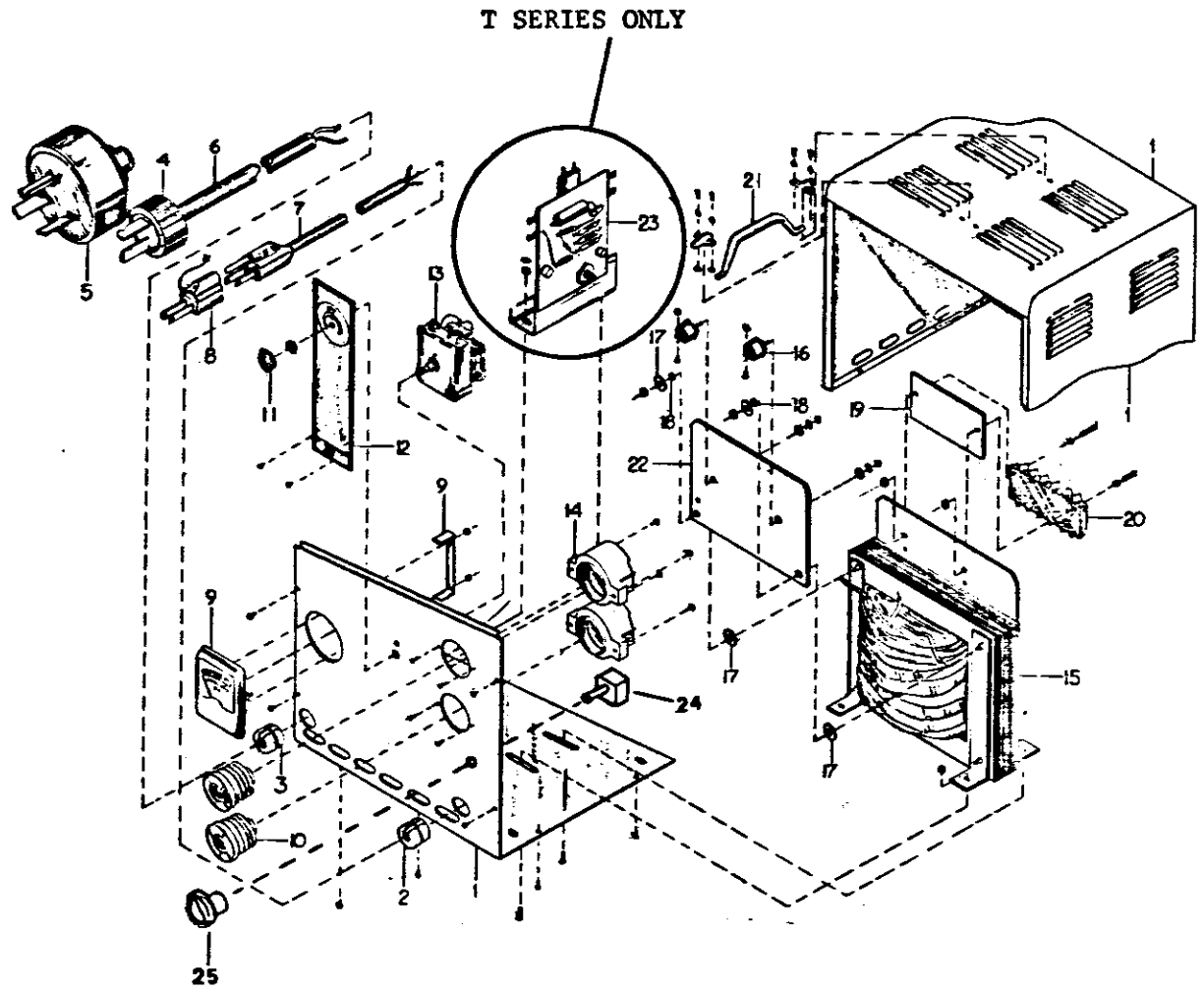
PART IDENTIFICATION

SERIES "A" & "T" CHARGERS

EXPLODED DIAGRAM



Portable Cabinet Shown.

I.D. Numbers of Internal Componentesare 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
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 (0 to 50 volts) and setting the AC tap lead to the transformer terminal which gives the desired DC output voltage as indicated below. Move the tap connection to the right to increase the DC output voltage. Move the tap connection to the left to decrease the DC output voltage.

DC OUTPUT VOLTAGE SETTING CHART

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.

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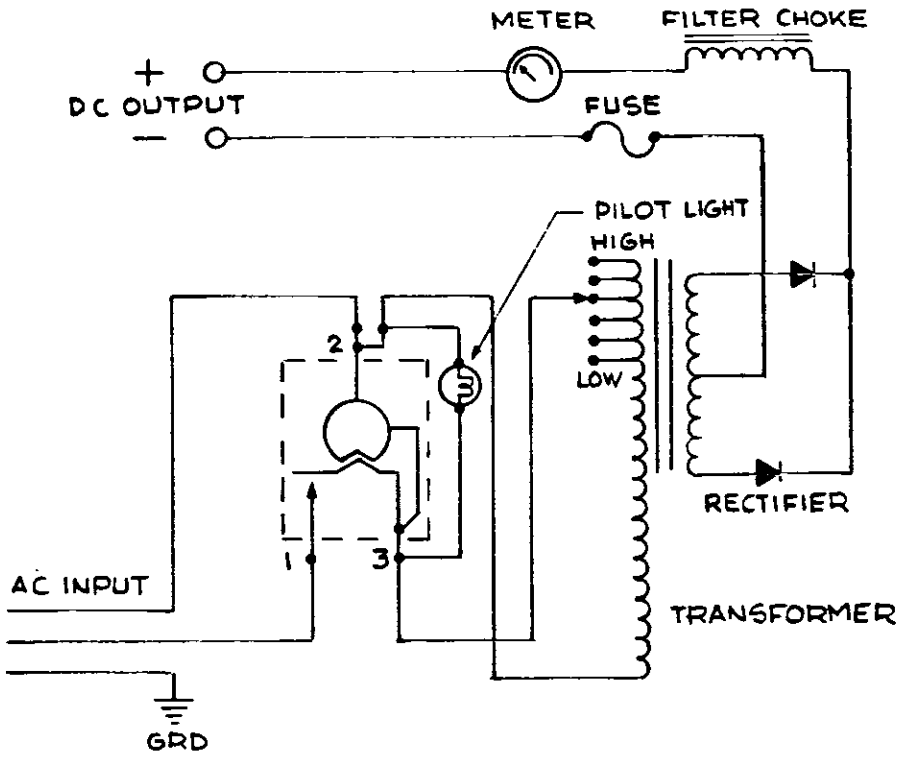
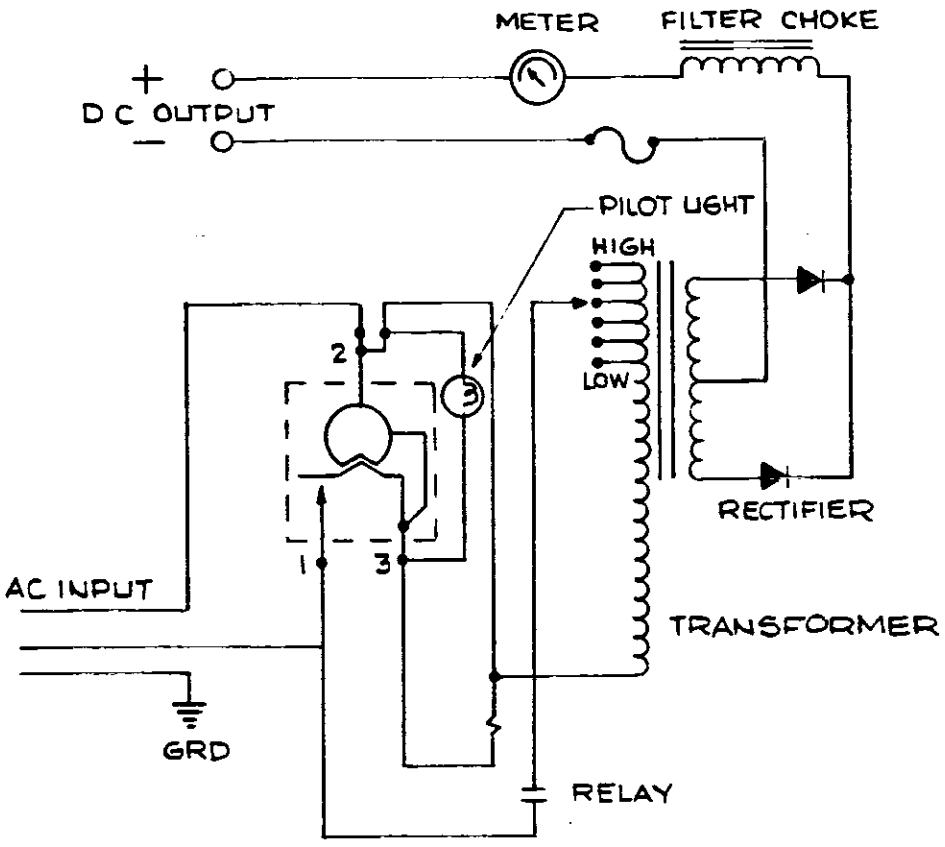
CIRCUIT DIAGRAM

MODELS 2445 & 3645 CHARGERS



MODEL 2445



MODEL 3645

TAYLOR - DUNN