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# TM 5-1206

WAR DEPARTMENT TECHNICAL MANUAL

U.S. Dept. of Army

SCRAPER, ROAD,

TOWED-TYPE,

CABLE-OPERATED,

3½-CU YD, LeTOURNEAU

MODEL D



MAINTENANCE INSTRUCTIONS AND PARTS CATALOG

WAR DEPARTMENT • MARCH, 1944





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SCRAPER, ROAD,

TOWED-TYPE,

CABLE-OPERATED,

3½-CU YD, LeTOURNEAU,

MODEL D



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TM 5-1206, Scraper, Road, Towed-Type, Cable-Operated, 3 1/2-Cu. Yd., LeTourneau, Model D, is published for the information and guidance of all concerned.

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The Adjutant General.

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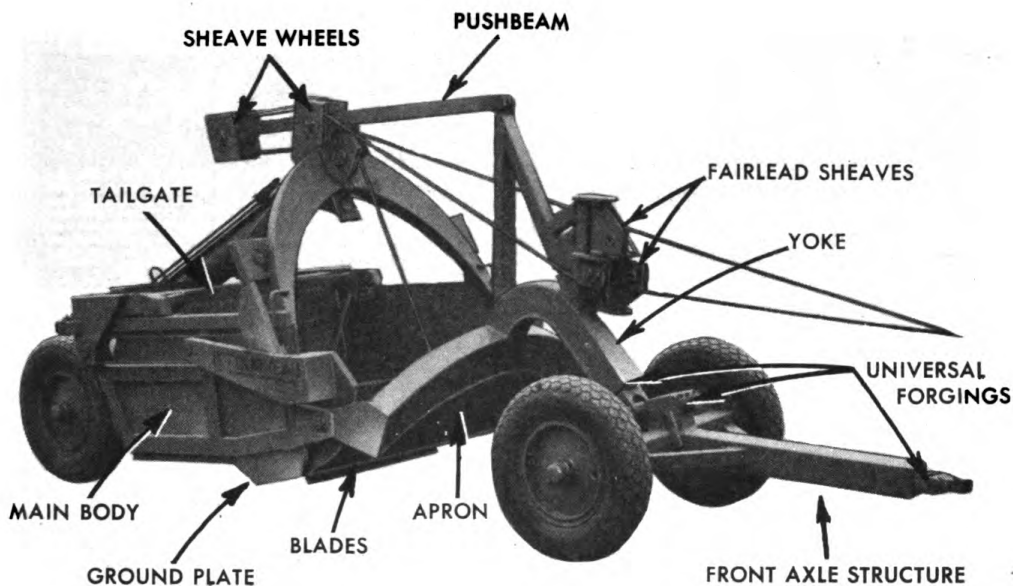
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## THE LeTOURNEAU MODEL D CARRYALL SCRAPER

Designed for use behind the Caterpillar D-4, R-4, or D-6 Tractors, the LeTourneau Model D Carryall Scraper is a self loading, hauling, and spreading unit with a heaped capacity of 4.0 cubic yards. The Scraper is cable controlled by means of the LeTourneau Power Control Unit on the rear of the tractor, placing control of the Scraper in the hands of the tractor operator.

The large, low pressure pneumatic tires used on the Model D Carryall Scraper provide ample flotation. High apron lift permits loading of large boulders and clears all material in unloading. The sliding tailgate provides positive ejection of all material. Sheaves and cables are out of the dirt which gives longer cable life.

The Model D Carryall Scraper is built to stand up under the toughest of job conditions, and if properly operated and maintained, it should give an almost unlimited amount of trouble-free operation.



NAMEPLATE OF LeTOURNEAU MODEL D CARRYALL SCRAPER

## PRINCIPAL PARTS OF CARRYALL SCRAPER

**FRONT AXLE STRUCTURE**—Structure at front of Scraper consisting of tongue and horizontal axle beam.

**YOKE**—The arched member connecting front axle structure with main body structure. Arched construction provides clearance for wheels when turning.

**MAIN BODY STRUCTURE**—Main structure of Scraper, consisting of bowl, into which dirt is loaded; springpipe, which extends at an angle above the bowl and which houses the tailgate return springs; and arched A-frame, which adds rigidity and supports front end of springpipe.

**APRON**—Structure hinged to main body which can be raised and lowered to provide an opening at the front of the bowl through which dirt can enter. Apron holds part of the dirt when bowl is filled.

**TAILGATE**—Structural member which rolls either to the front or to the rear inside the main body structure to eject the dirt and which serves as the rear end of the bowl.

**PUSHBEAM**—The beam which is hinged at the top of the yoke structure and which extends back through the sheave housing at the top of the main body structure. The pushbeam assists in raising and lowering the front of the bowl and blade.

**UNIVERSAL FORGINGS**—Forged parts which are free to turn in steel bushings in the front axle structure and yoke and which, when coupled with another universal forging or hitch block, serve as a universal coupling.

**SHEAVE WHEELS**—Grooved wheels over which cable passes.

**SPIRAL SHEAVE WHEEL**—Spiral reduction wheel at rear of main body to which springpipe cable and spiral sheave-to-tailgate cable are attached, that assists in compressing tailgate return springs when tailgate is pulled ahead, and vice-versa.

**FAIRLEAD SHEAVES**—The two sheave wheels at the front of the yoke which are free to pivot either to the right or left to cause perfect cable alignment when turning.

**BLADES**—The replaceable cutting edges at the front of the main body which, when pulled through the ground causes dirt to be loaded into the Scraper bowl.

**GROUND PLATES**—The replaceable blade-like plates which are welded to the sides of the main body structure at the lower corners to serve as wear strips.



SECT.

# OPERATION SECTION







## OPERATION SECTION

The functions of the Carryall Scraper include the operations of loading, hauling, and unloading or spreading any type of material. The large, low pressure pneumatic tires provide flotation needed for work in sand and other soft materials. A short wheelbase enables this machine to work in confined areas.

The Scraper is cable controlled by means of the Power Control Unit on the rear of the tractor. The Power Control Unit controls the raising and lowering of the bowl to the desired cutting and spreading depth and the raising and lowering of the apron, combined with the forward movement of the tailgate in ejecting the load.

The efficiency of the Model D Carryall Scraper is more dependent on the ability and skill of the operator than on any one other thing. For this reason it is hoped that every operator will recognize the importance of his services, and will operate the Scraper to the best of his ability at all times.

The operating instructions in this book are brief, and are intended only to familiarize the operator with the accepted methods of operation and the procedure to be used in doing the more common types of Scraper work, as practiced by skilled operators with years of experience.

On the following pages will be found not only the recommended operating procedures, but also instructions covering the points of maintenance that can be taken care of by the operator.

## SPECIFICATIONS

<b>MODEL</b> .....	<b>D</b>
For use with tractor model.....	"Caterpillar" D4, R4, D6
<b>CAPACITY</b>	
Struck, cubic yards.....	3.5
Heaped, cubic yards.....	4.0
<b>BOWL</b>	
Height of sides.....	2' 9"
Dimensions of bottom.....	3' x 6'
Type of bottom.....	Double
<b>OVERALL MEASUREMENTS</b>	
Length .....	21' 0"
Width .....	7' 2"
Height, blade on ground.....	7' 6"
<b>CUTTING EDGE</b>	
Length .....	6' 0"
Dimensions:	
Center Section.....	3/4" x 13" x 40"
Each end blade.....	3/4" x 10" x 15 3/4"
Type.....	Reversible, Hard Surfaced
<b>WHEELS</b>	
Axles.....	Stub Type
Tires.....	4 (8.25 x 20) 8 ply
Bearings .....	Tapered Roller
<b>CABLE REQUIREMENTS (Type: 6 x 19 Preformed Tournarope)</b>	
Dump Cable.....	95'
(Furnished in storage reel).....	300'
Hoist Cable.....	65'
Springpipe .....	9 1/2'
Spiral Sheave to Tailgate.....	8'
Apron Lift Cable.....	9'
<b>GENERAL SPECIFICATIONS</b>	
Wheelbase .....	13' 2"
Maximum ground clearance at rear of bowl.....	13"
Maximum ground clearance at front axle.....	16"
Width required for non-stop turn.....	18'
Type of Ejection.....	Forward, Positive, Mechanical
Lift of front apron.....	43"
Maximum depth of spread.....	16"
Maximum depth of cut.....	6"
<b>APPROXIMATE SHIPPING WEIGHT</b>	
7,000 lbs.	4 (8.25 x 20) 8 ply Tires

## SAFETY PRECAUTIONS

As with all heavy equipment, reasonable precautions must be taken when working around the Carryall Scraper. Listed below are safety precautions which should be observed.

1. When changing blades or working underneath the Scraper, always block up under the bowl to prevent it from dropping in event someone should accidentally release the Power Control Unit hoist brake. Likewise, do not work under the apron when in the raised position without first placing blocks between the apron arms and Scraper sides to prevent the apron from dropping.
2. Do not work behind the tailgate when it is pulled forward without first blocking it in the forward position.
3. Keep the hands free from the cable and sheaves while the unit is in operation.
4. Use gloves when handling cable.
5. When traveling down a steep hill, always be ready to drop the blade to the ground to serve as a brake in event the Scraper should start to jack-knife or get out of control.
6. Do not leave Scraper with blade in raised position.
7. Do not use weak, frayed, cable.
8. When replacing springpipe cable or tailgate return springs, use care to avoid being injured in any manner by the springs, which have considerable pressure behind them when under compression.

## PREPARATION FOR INITIAL OPERATION

If the Scraper arrives partially disassembled, it is first necessary to assemble the unit. (Refer to assembling instructions on page 41 in the Repair Section).

After the Scraper has been completely assembled, thread the cable through the sheave housings as outlined in the cable threading diagram on page 25.

Check all points of lubrication to determine if properly lubricated.

Check cable alignment to determine whether it is fouling at any point.

Check tire pressures.

Check universal forgings which connect yoke with tongue. Make sure they are installed with beveled edge to the front and heavy side down, as illustrated on page 47 in the Repair Section.

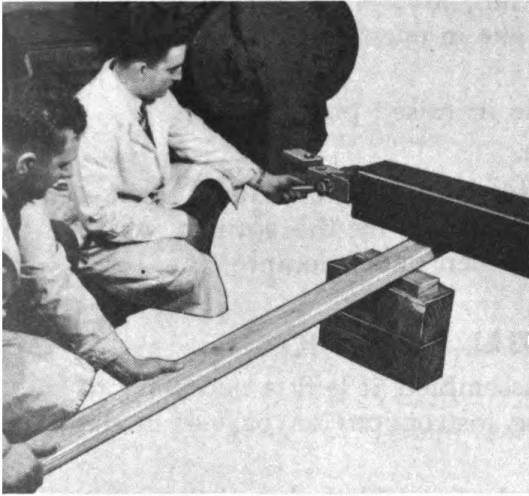
Raise and lower apron and also pull tailgate forward and allow it to return to the rear position, checking for free movement.

When the Scraper has been thoroughly checked and any necessary corrections made, it is ready to be placed in operation.

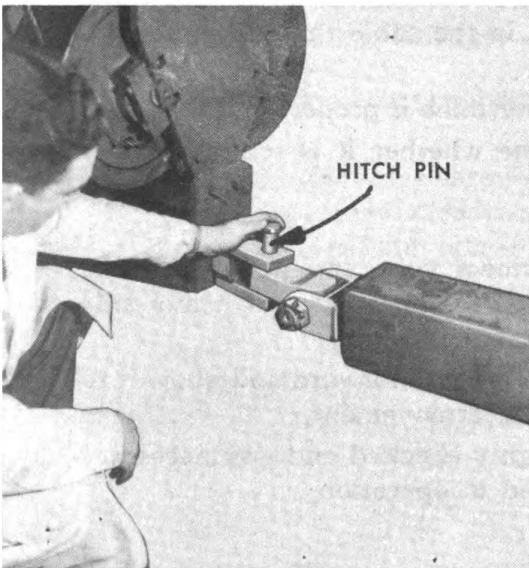
## CONNECTING SCRAPER TO TRACTOR

To connect a Scraper to a tractor, it is usually not necessary to thread the cable through the Scraper, because when uncoupled from the tractor, the cable is usually disconnected from the Power Control Unit on the rear of the tractor and left threaded through the Scraper. If the cable is not threaded through the Scraper, the cable threading instructions on page 24 of the Operation Section should be followed.

With the cable threaded through the Scraper, back the tractor up to the Scraper tongue and thread the hoist cable thru the double deck sheave assembly and onto the Power Control Unit right hand cable drum. (Refer to Power Control Unit Manual.) Likewise, the dump cable should be threaded thru the double deck sheaves and onto the left cable drum. Since the tongue is too heavy to lift by hand, a cable socket is welded to the side of the tongue so that it can be raised mechanically by the Power Control Unit.



Using a pry bar and wooden blocks or other similar methods of hoisting, raise the tongue so that the hitch block is even with the tractor drawbar and back the tractor up, positioning the Scraper hitch block between the jaws of the drawbar.



Then insert the hitch pin.



### CONTROLLING SCRAPER WITH POWER CONTROL UNIT

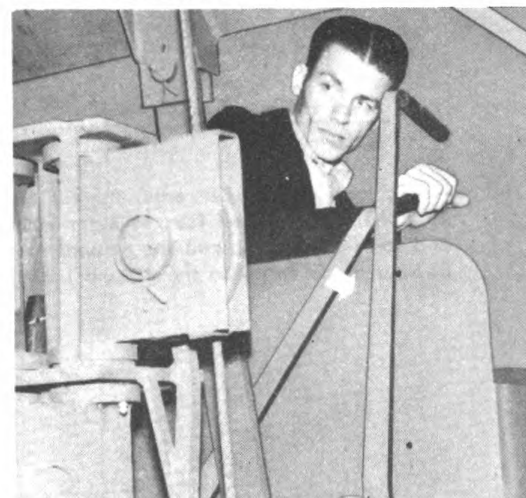
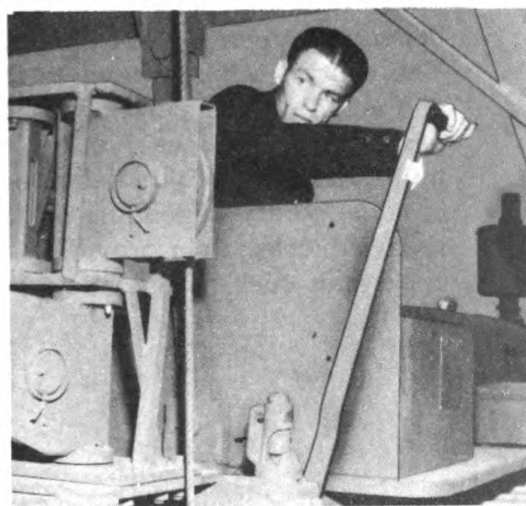
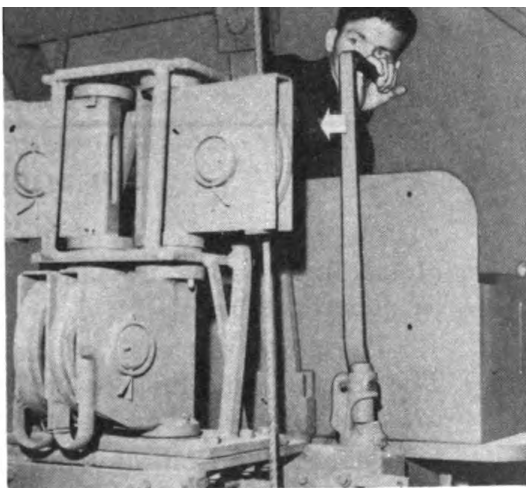
The Scraper is controlled by means of the Power Control Unit on the rear of the tractor.

The right control lever (viewed from Scraper to tractor) controls the raising and lowering of the bowl. Moving the lever toward the center of the tractor (to the left) engages the hoist clutch and raises the Scraper bowl. Returning the lever to neutral position applies the brake to the cable drum and holds the bowl in the raised position.

Moving the right lever away from the center of the tractor (to the right) releases the brake from the cable drum and allows the bowl to lower. Returning the lever to neutral position applies the brake to the cable drum and holds the bowl at the level to which it was lowered.

The left control lever of the Power Control Unit controls the apron and tailgate. Moving the lever toward the center of the tractor (to the right) engages the dump clutch and raises the apron. When the apron is raised to its full height, the tailgate is then pulled forward and the tailgate return springs inside the springpipe are compressed. Returning the control lever to neutral position applies the brake to the cable drum and holds the apron and tailgate in the position desired.

Moving the control lever away from the center of the tractor (to the left) releases the brake from the cable drum, allowing the tailgate return springs to return the tailgate to its original position at the rear of the Scraper bowl, and also permits the apron to lower.

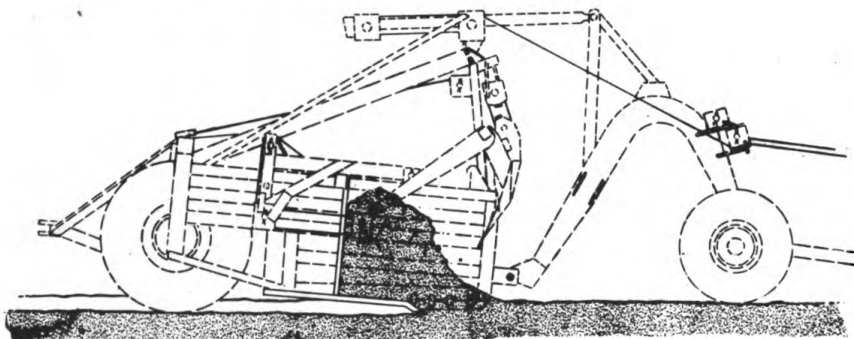


## THE OPERATING CYCLE

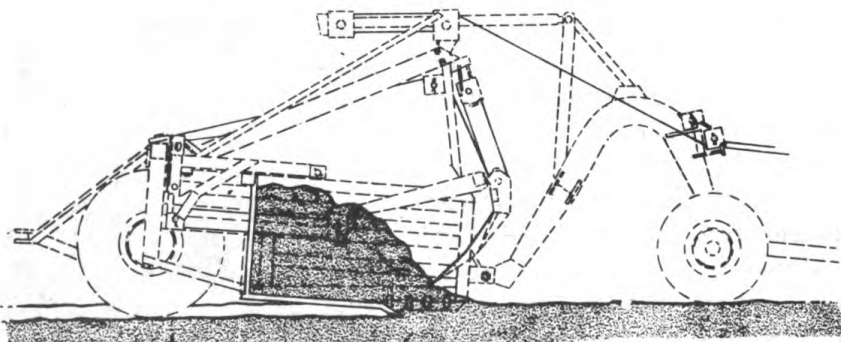
The operating cycle of the Carryall Scraper includes the operations of loading, hauling, unloading or spreading, and returning to the cut, as illustrated below.

The power for each of these operations is supplied by the tractor. The tractor pulls the Scraper blade through the ground when loading, tows the Scraper when traveling, and provides the power for unloading.

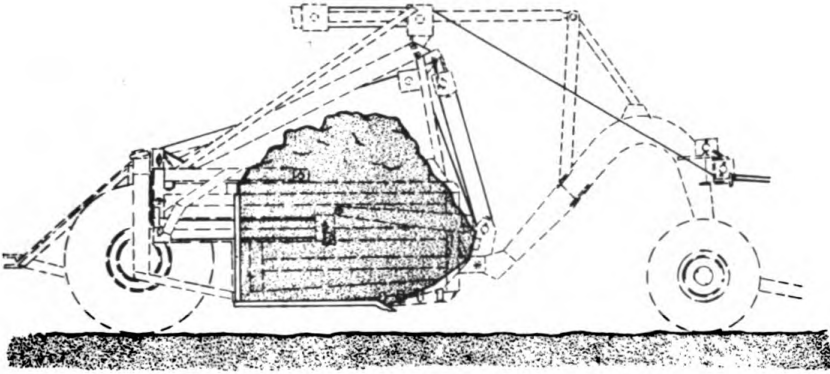
The Power Control Unit, in controlling the working parts of the Scraper, either spools or unspools the cable on or off the cable drums, depending upon the movement of the control levers by the operator. The control cables extend to the various working parts of the Scraper and actuate these parts to perform the necessary functions. The cables pass through sheave blocks at various points on the Scraper. This multiplies the line pull delivered by the Power Control Unit many times at some points, depending on the number of sheave wheels used in the sheave blocks, thus providing the large amount of power needed for operations such as unloading.



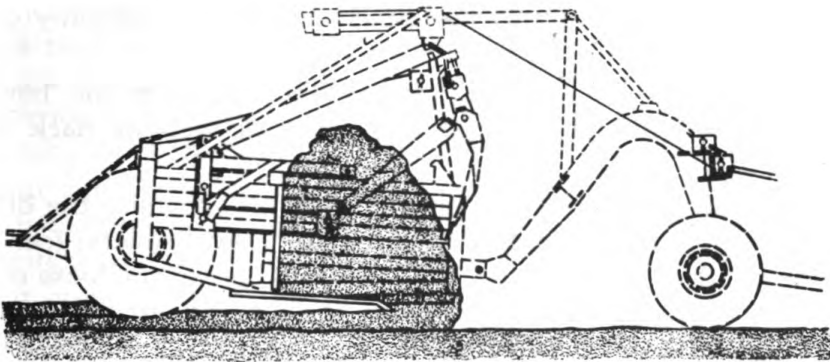
1. To load the scraper, enter the cut with the tailgate at the extreme rear of the bowl and with the apron raised four to eight inches above the cutting edge. Release the hoist brake and lower the blade into the ground to the desired depth. As the tractor pulls forward, the Scraper blade cuts into the ground and the dirt is forced up into the scraper bowl.



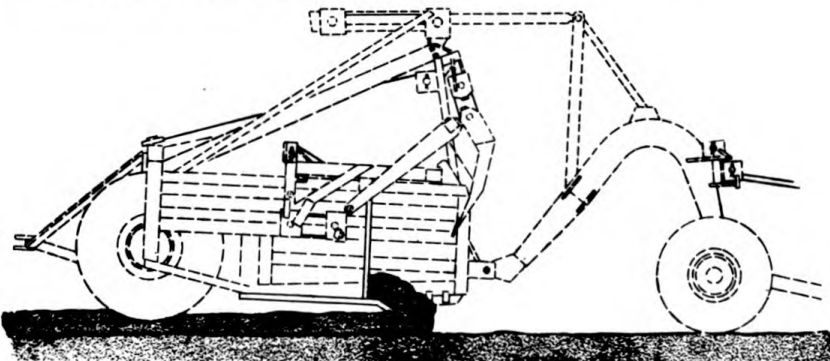
2. As the bowl is being filled, the material will roll back against the tailgate and forward against the apron, thereby assisting in closing the apron. When the bowl is filled, release the Power Control Unit dump brake to close the apron, and at the same time engage the hoist clutch and raise the bowl one or two inches above the surface of the ground.



3. After pulling the Scraper ahead a few feet, spreading the material which was in front of the blade, raise the bowl to the desired traveling position and proceed to the fill, carrying the bowl comparatively close to the ground.



4. Upon arriving at the fill, raise or lower the blade to the desired depth of spread. Raise the apron to its full height by engaging the dump clutch, allowing the dirt to fall out. Shake any sticky material from the back of the apron by releasing the brake, dropping the apron about twelve inches and then immediately engaging the clutch to raise the apron again. Repeat this procedure in sticky material if necessary.



5. After the dirt has fallen out with the apron raised, re-engage the power control unit dump clutch, thereby pulling the tailgate forward to eject the remainder of the load. Pull the tailgate forward approximately 12" at a time and then allow it to return a few inches before pulling it forward again. When the bowl is completely emptied, release the Power Control Unit dump brake, allowing the tailgate return springs inside the springpipe to return the tailgate to its rear position and also lowering the apron about six or eight inches. The Scraper is now in traveling position.

APRON RAISED 6 TO 12 INCHES

TAILGATE AT REAR



OPERATION

LOADING

To load the bowl of the Scraper and fully utilize its capacity, enter the cut with the tailgate in the extreme rear position and with the apron raised approximately 6 to 12 inches.

Move forward and lower the blade into the ground, allowing it to penetrate to the desired depth. Keep the apron low, leaving an opening just large enough for the dirt to enter, but not so low as to cause the dirt to bank up in front of the blade. Loading is normally done in low gear.

As the unit moves forward, loading the dirt into the bowl, the material will fall forward against the apron as well as back against the tailgate.

When the Scraper is loaded, lower the apron and raise the blade an inch or two above the surface of the ground. Travel several feet before raising the blade to a higher position. This will spread the loose material in front of the blade and thereby leave the cut smooth to pull in and out of.

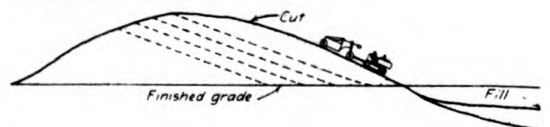
All operators like to obtain as large a load as possible, but in some materials it sometimes takes as much time to get the last yard of dirt as it does to get an average load. On short hauls it is not profitable to take this extra time to get the last yard of dirt. However, on long hauls, it often pays to take the extra time and effort to obtain the added yardage because on long hauls the extra loading time is such a small percentage of the total cycle time.

If possible, arrange the work so that the Scraper can be loaded downhill and in the direction of travel to the fill.

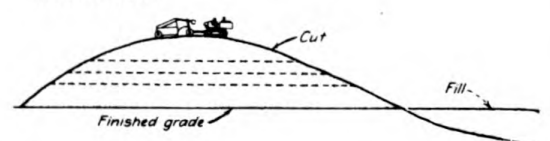
RAISE BLADE 1" OR 2" ABOVE SURFACE OF GROUND



CORRECT



INCORRECT





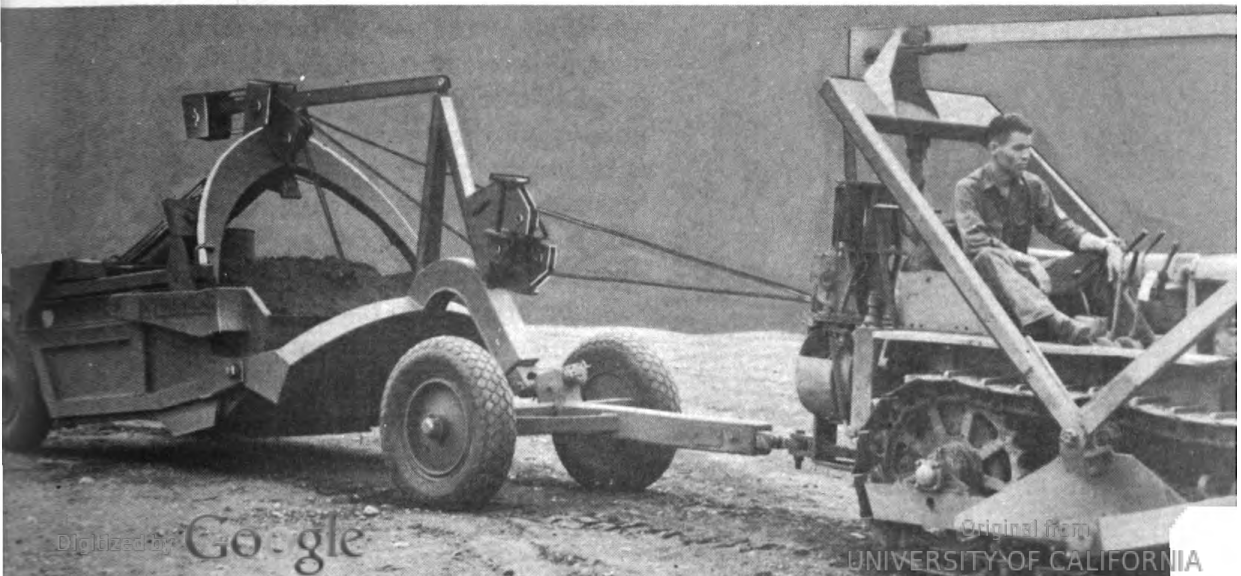
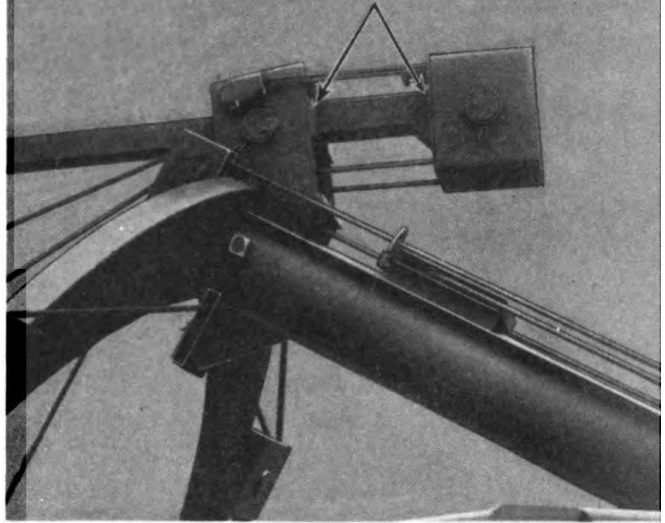
## TRAVELING TO THE FILL

Traveling to the fill with a loaded Scraper is usually done with the tractor in the highest gear possible without over-loading the tractor engine. The bowl of the Scraper should be carried fairly close to the ground, but high enough to clear any objects on the haul road without having to continually raise and lower the bowl. Carrying the bowl close to the ground prevents danger of upsetting the Scraper, particularly when traveling over rough haul roads. It also prevents traveling with the pushbeam stops together which might cause breakage of the hoist cable or upsetting the Scraper when making a short turn to the left. Provide at least 6 inches of clearance between the pushbeam stops at all times when traveling.

When turning sharply on extremely rough ground, the operator should be careful not to cramp the front axle structure beyond reasonable limits, in order to avoid the danger of damaging the tires by bringing them into contact with the yoke.

When there is a choice of two or more routes for traveling from the cut to the fill—one a short steep route that would require traveling in low gear and the other a long gradual incline that would allow traveling in fourth or fifth gear, with each route ending at the same place and taking approximately the same time, the shorter route should normally be taken, even though it requires traveling steep inclines in low gear. The reason for this is that the maintenance cost on tracks, rollers, bearings, etc., is higher while traveling at high speed than at low speed. Several factors should be considered in making the choice, however, such as traveling time, condition of haul roads, wear on equipment, etc.

ALWAYS ALLOW AT LEAST 6"  
CLEARANCE BETWEEN PUSH-  
BEAM STOPS WHEN TRAVELING



## UNLOADING OR SPREADING

Spreading is usually done in the highest gear possible. This, of course, is dependant upon material and conditions.

Upon arriving at the fill with the loaded Scraper, either raise or lower the bowl as is required to give the desired thickness of spread. Then engage the Power Control Unit left clutch, raising the apron to its full height, allowing the dirt in the apron

to fall out. When the apron reaches its full height, disengage the clutch and release the brake, allowing the apron to drop about twelve inches. Then immediately engage the clutch and raise the apron again. If operating in sticky material, it may be necessary to repeat this operation once or twice to dislodge the dirt from the back side of the apron. After the dirt has fallen out of the apron, re-engage the clutch and bring the tailgate forward about twelve inches at a time, letting it move back a few inches after each forward movement, until the bowl is empty. If possible, stop the forward movement of the tailgate just before the tailgate sliding sheave housing above the springpipe reaches its stop block at the rear of the channel in which it slides.

If starting a new spread, the blade should be lowered slightly as the rear wheels come up onto the dirt that is ejected, in order to maintain an even depth of spread.

The operator should be careful not to force the load out too rapidly, as this causes unnecessary strain on the tailgate and cable. Also, it may cause the dirt to stack up in front of the blade, thereby adding additional draft on the tractor. As the tailgate nears its forward position and the load decreases, it is advisable to use less pressure on the control lever, unless the pressure is actually required to pull the tailgate forward. By exerting less pressure as the tailgate nears its forward position, the clutch would slip rather than the cable breaking, in event the tailgate should accidentally be brought so far forward that the tailgate sliding sheave strikes against the stop block at the rear of the channel above the spring-

pipe.

TAILGATE PULLED FORWARD TO EMPTY SCRAPER

WITH SPREAD

pipe. Remember, however, that the clutch should not be allowed to slip during operation unless this extreme forward position is reached, and in this case it is done only to prevent cable breakage. The operator should always disengage the clutch immediately whenever the tailgate sliding sheave strikes the stop block.

When the Scraper is completely emptied, return the tailgate to its rear position and lower the apron. Then raise the bowl to the desired traveling position and return to the cut. The operator should at no time return to the cut with the apron raised and the tailgate in the extreme forward position, because cable breakage would occur when turning or when traveling over unlevel ground.

### RETURNING TO THE CUT

Returning to the cut is usually done in as high a gear as possible.

When returning, the bowl should be carried comparatively close to the ground, but high enough to clear any rocks and obstructions in the path of travel without repeated raising and lowering of the bowl. Carrying the bowl low to the ground prevents up-setting.

Always allow at least 6" clearance between the pushbeam stops. This will prevent cable breakage when traveling over rough, un-level ground and when turning.

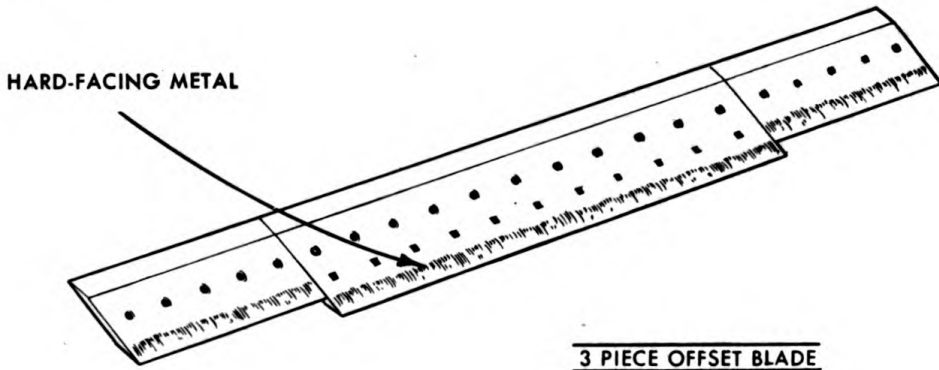
It is sometimes advisable to smooth up the haul road with the empty Scraper by dragging the blade on the ground. With the apron raised and the tailgate within approximately 8" of the extreme forward position, an action similar to that of a 'Dozer or grader is obtained. The tailgate should never be in the extreme forward position during this operation, or cable breakage might occur when traveling over unlevel ground and when turning.



## BLADES

The Scraper is equipped with a 3 piece offset blade as standard. Each of the three sections of blade is self sharpening and is reversible.

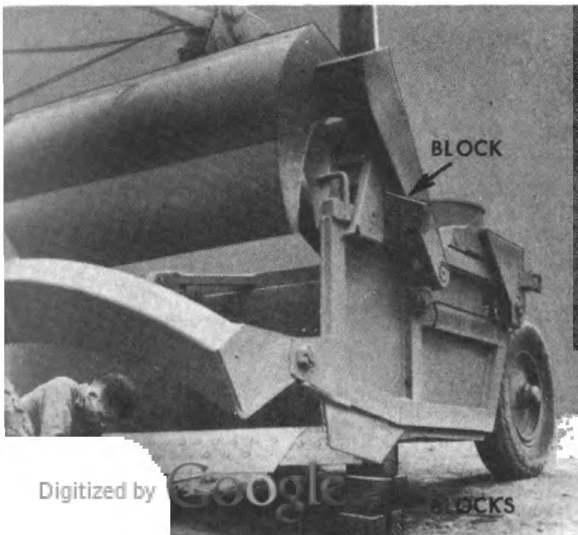
The off-set center section makes possible easier loading. The self sharpening feature is brought about by the hard-facing metal welded along the edges of the blades. With the blades correctly installed, the hard-facing metal along the front edge of the blade is on the top side, as illustrated. Because the softer heel of the blade wears away more rapidly than the hard-faced top side, the blade will grow sharper with use.



By being hard-faced along both edges, the blades are reversible. Therefore, when a blade has become worn along one edge, it can be reversed rather than replaced, and the blades will therefore last approximately twice as long as blades that are non-reversible.

In addition to the 3 piece off-set blade, a one piece straight blade is also available for use on jobs where fine finishing is to be done with the Scraper. This blade also is self-sharpening and reversible. Although finishing can be done with the three piece off-set blade, it can normally be done more efficiently with this straight blade.

## CHANGING BLADES



The Scraper blades should be changed before they wear back into the blade base. When worn back to the point where they should be changed, the procedure below should be followed.

Hoist the Scraper bowl to its full height and place blocks under the bowl to prevent it from dropping in case some one should acci-

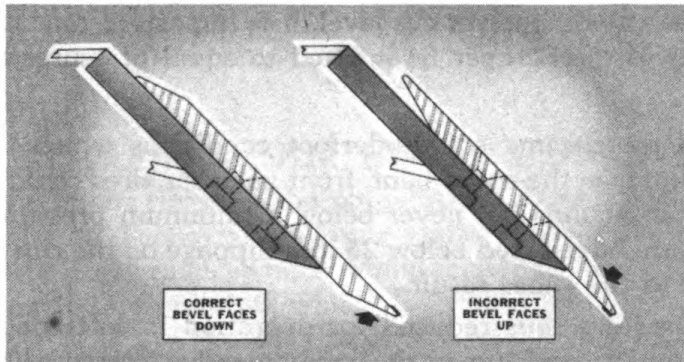


dentally release the power control unit hoist brake. The apron should likewise be raised to its full height and blocks placed between the apron arms and side sheets to keep it from dropping in case the brake on the dump cable is accidentally released. Then, using the blade wrench, remove the bolts that secure the blades to the blade base. If the blades have not already been reversed, they can be used again by turning them over and wearing them along the other edge. If reversing the end blades, it is necessary not only to turn them over but also to move them from one side of the Scraper to the other.

After laying the blades in place, the use of a round drift punch will be very helpful in lining up the holes. Re-install the blade bolts, tightening them down evenly and making sure they are all tight.

When installing new blades instead of reversing worn ones, the same procedure as outlined above should be used.

When installing blades, make sure that they are turned with the beveled edges positioned as illustrated.

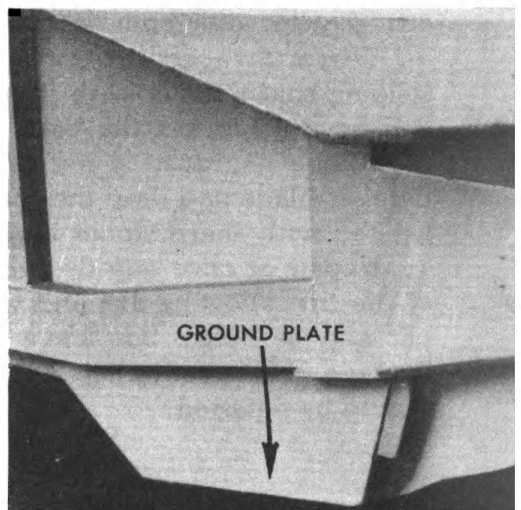


### INSTALLING NEW GROUND PLATES

As a Scraper is used, the ground plates which are welded to the lower front corners of the bowl wear back somewhat, making occasional replacement of the ground plates necessary.

This wear normally occurs more slowly than on Scraper blades, but due to the damage that might occur to the Scraper side sheets if the ground plates were permitted to wear back into the side sheets before installing new ones, periodic inspection of these plates is recommended.

To install new ground plates, cutting and welding is necessary. This therefore would normally be taken care of by maintenance and repair men, rather than operators, and instructions covering the installation of new ground plates will be found on page 40.



## TIRE INFLATION

Keep the tires correctly inflated at all times.

Check tire pressures every eight hours of operation if possible—never when tires are hot. “Bleeding” tires (reducing pressures to recommended levels when they are hot) is not recommended. If done, this would later result in under-inflation when tires cool off, which might be destructful.

The following table gives the recommended pressures for the tires used on the Model D Scrapers:

TIRES		AIR PRESSURE	
<i>Quantity</i>	<i>Size</i>	<i>Front</i>	<i>Rear</i>
4	(8.25 x 20) 8 ply	40 lbs.	45 lbs.

To cause the Scraper to cut level, it is important that the rear tires on both sides of the Scraper be inflated to equal pressures at all times.

In mud or extreme soft underfoot conditions which tend to bog down or immobilize the equipment, front and rear tires could be reduced as much as ten pounds but never below a minimum pressure of 25 lbs. Should pressure be reduced below 25 lbs., slippage on the rim might occur and damage to the tubes result.

If pressures are thus reduced for operation in soft conditions, they should be brought back up to the recommended pressures listed above and kept there as soon as that need is over.

Although 8.25 x 20 - 8 ply tires are supplied as standard, 9.00 x 20 - 8 ply tires may be used for replacement in an emergency if available at depots. The same tire pressures listed above apply to the 9.00 x 20 - 8 ply tires.

## CARE AND MAINTENANCE OF TIRES

Maintenance of roads and patrolling to throw off large boulders, etc., pay big dividends in production and in tire conservation.

Where Scrapers are working in scarified or blasted material, avoid striking sharp stones with front tires, and depend on the Scraper blade and bowl to protect the back tires.

Where a grader is not patrolling regularly, occasionally drop the Scraper blade and drag the road on the return trip, as the road becomes littered with sharp stones and spillage from the Scraper.

Repair at once any deep injuries which penetrate to the cord body of the tire, allowing dirt and water to enter. Single small cuts which do not gap or bulge, but leave only a hair line opening, will cause no damage. However, when a cut shows any sign of a gap or bulge, it should be repaired

### **PREPARATION FOR STORAGE**

When the Scraper is shut down for a long period or put in storage for an indefinite length of time, it is recommended that the procedure below be followed.

Inspect all working parts, and if necessary repair or replace any that are in bad condition.

Clean the Scraper free of all dirt. Paint the Scraper if needed.

Lubricate all points of lubrication.

Lower the blade onto planks or blocks and raise each wheel, placing blocks under axles.

Deflate some of the air from the tires.

For further details, refer to Tentative Technical Manual—"Storage of Engineer Equipment", (latest revisions) as published by Engineer Field Maintenance Office, Maintenance Division, Military Supply, P. O. Box 1679, Columbus, Ohio.

### **PREPARATION FOR EXPORT SHIPMENT**

For instructions covering the preparation of the Scraper for export shipment, refer to Technical Bulletins (latest revisions), published by Engineer Field Maintenance Office, Maintenance Division, Military Supply, P. O. Box 1679, Columbus, Ohio.





# REPAIR SECTION

SECT. 2



## REPAIR AND MAINTENANCE

The instructions on the pages which follow give complete information needed for correctly servicing and repairing the Carryall Scraper. It has been prepared to be of assistance to Maintenance and Repair men in keeping the Scraper running and in good condition.

### CARE OF SCRAPER

Time spent on inspection and care of the Scraper will be many times repaid in long life and trouble-free operation.

The Scraper should be serviced as specified below at the intervals shown:

#### ONCE EVERY 8 HOURS

- Lubricate sheave bearings.
- Lubricate fairlead sheave pivot bearings.
- Lubricate spiral sheave wheel bearings.
- Lubricate tailgate roller bearings.
- Lubricate hinge pins.
- Lubricate universal forgings.
- Check tire pressure.
- Check cables.

#### ONCE EVERY 64 HOURS

- Check wheel bearing adjustment.
- Check universal forging adjustment.

#### ONCE EVERY 128 HOURS

- Check fairlead sheave bearing adjustment.

#### ONCE EVERY 256 HOURS

- Lubricate wheel bearings.
- Lubricate springpipe.

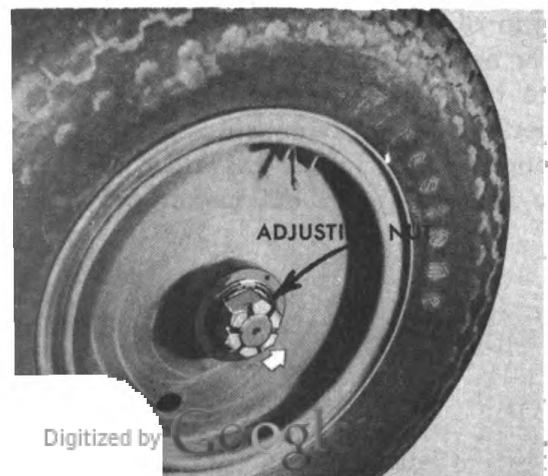
#### WHEN NEEDED

- Lubricate cable.
- Lubricate Pushbeam and Sliding Sheave Channels.

### DISASSEMBLING

When disassembling any part or group of parts of the Scraper to replace a worn part, install new bearings or new sheave wheels, etc., the length of time that is consumed is quite often an important matter, especially if the disassembly results in other equipment being shut down during that period. Therefore, the instructions which follow explain the quickest and easiest method of correctly removing and disassembling each assembly or group of related parts.

TO RAISE FRONT WHEELS  
LOWER BOWL AND BACK UP



## REPAIR

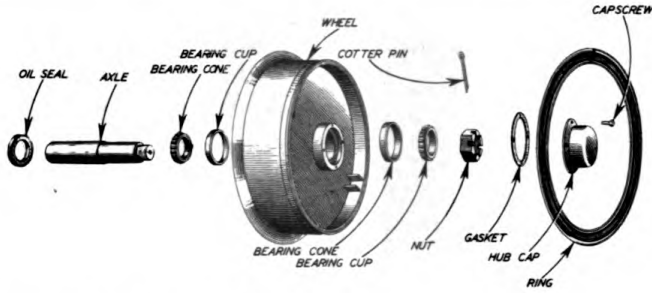
### REMOVING AND DISASSEMBLING WHEELS

**FRONT WHEELS** — To remove the front wheels, first raise the wheels off the ground. To do this, first load the Scraper bowl and lower the blade to the ground. Release the brake from the Power Control Unit hoist drum and back up slowly, thereby raising the front wheels off the ground. When the wheels are raised to the desired height, lock the tractor brakes to hold the wheels in this position. Also place blocks under the axle structure.

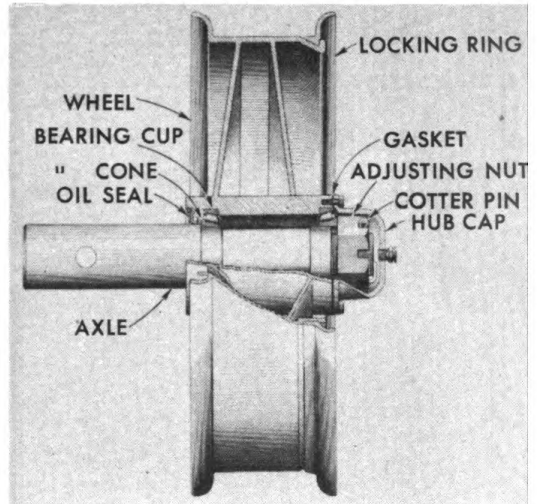
The wheels can be removed and disassembled either with or without the axles removed from the front axle structure. First remove hub cap by removing capscrews.

Remove cotter pin from end of axle.

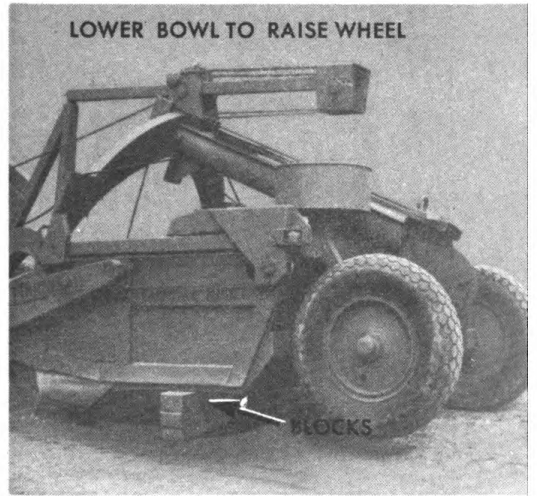
Then remove bearing adjusting nut by backing it off over threads on end of axle.



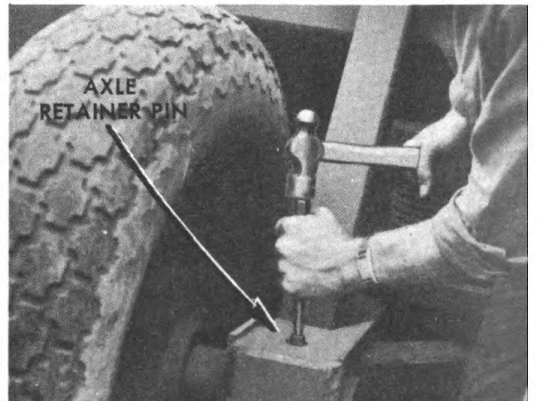
Remove wheel from axle. To do this first remove outer bearing cone. It may be necessary to jar outer bearing loose from axle by striking against back side of wheel (if axle is not removed from front axle structure) or against outer end of axle (if axle is removed from front axle structure). The inner bearing cone can then be pulled off the axle. If the bearings are to be replaced, remove bearing cups from wheel hub.



**REAR WHEELS**—To remove the rear wheels, first raise the wheels off the ground. To do this raise the blade and place a block under the bowl just back of the balance point. Then lower the Scraper bowl. This will tip the front of the Scraper forward, raising the rear wheel.

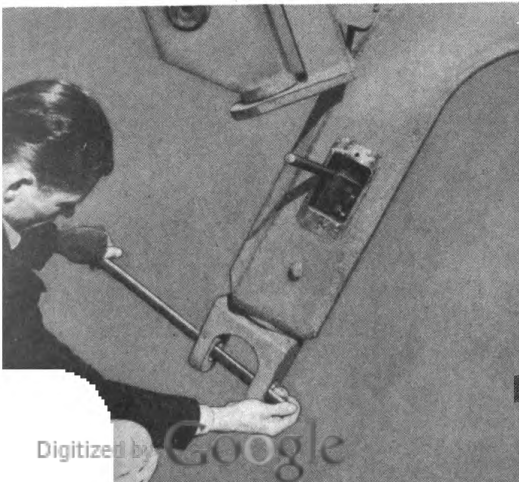
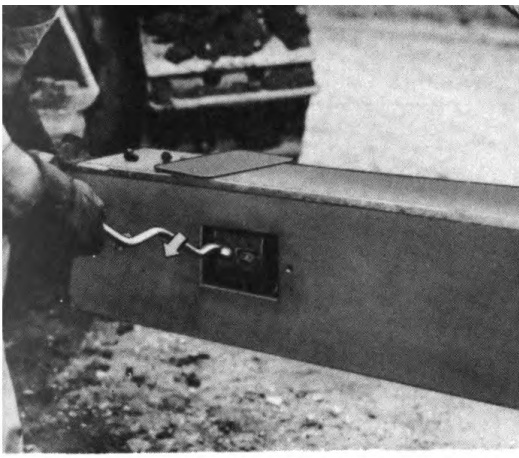


Remove the wheel and axle assembly from the Scraper by removing the cotter pin from the end of the axle retainer pin and driving the pin out as illustrated. Then pull the axle out of the axle housing.



To disassemble the axle from the rear wheels, follow the same procedure as outlined above for disassembling the front wheels.





### Removing Universal Forgings

**DRAWBAR UNIVERSAL FORGING**—To remove the universal forging at the front of the tongue, first remove inspection plate from side of tongue. Then remove cotter pin from the end of the forging and loosen adjusting nut clamp bolt.

Insert a chisel in slot in adjusting nut to keep the nut from turning. Insert a bar through hitch block and turn forging counter-clockwise until forging is turned out of the adjusting nut. Then pull forging out of end of tongue. Remove adjusting nut from inspection hole.

### AXLE UNIVERSAL FORGING

—To remove the universal forging from the housing at the rear of the tongue, first remove cotter pin from end of forging, release adjusting nut clamp bolts, and turn adjusting nut off end of forging. Then remove bolt which connects tongue forging with yoke forging. In doing this, it is necessary to connect a hoist chain around top of yoke and raise yoke only enough to relieve the bolt of weight. After removing bolt, pull universal forging out of housing.

### YOKE UNIVERSAL FORGING

—To remove the yoke forging, first remove the bolt connecting the yoke forging with the axle forging as outlined above. Raise the front of the yoke high enough to free the yoke forging from the axle forging. Then remove the inspection plate from the side of the yoke, loosen the adjusting nut capscrews and remove the cotter pin, and then remove the forging in the same manner as outlined above for removing the drawbar universal forging.

### Removing Sheave Wheels, Bearings, Pins, Etc.

To remove the sheave wheels, bearings, pins, etc., first remove cotter pin from end of the sheave pin, pull sheave pin out the side of the sheave housing and then remove sheave wheel from sheave housing.

Then remove dust seals from hub of sheave wheel and slide sheave bearing out of hub.

### Removing Tailgate Rollers, Bearings, Pins, Etc.

To remove the tailgate rollers, bearings, pins, etc., first remove cotter pin or lock pin from end of roller pin. Pull roller pin out of the roller housing and remove roller.

Then remove dust seals from hub of roller and slide bearing out of hub.

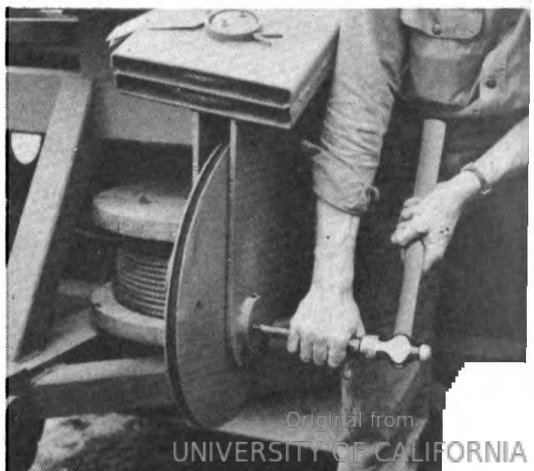
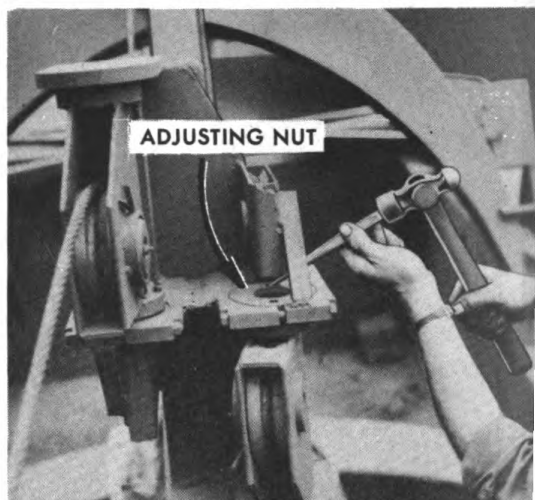
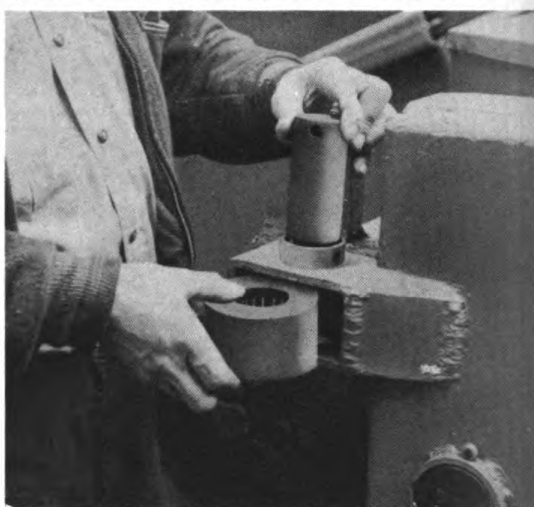
Before removing the large rollers at the rear of the tailgate, it is first necessary to pull the tailgate ahead to the point where the rollers line up with the round holes in the sides of Scraper provided for the purpose of removing these rollers.

### Removing Fairlead Sheave Housings and Bearings

To remove either of the fairlead sheave housings, first release the clamp bolt and remove the adjusting nut from the bracket in which the sheave housing pivots. Then remove the housing from the bracket by raising (or lowering) and tilting it in the bracket. The bearing cones can then be removed from the sheave housing and the bearing cups removed from the bracket and adjusting nut.

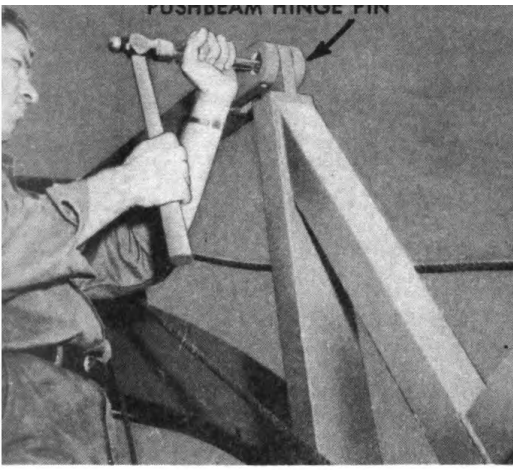
### Removing Spiral Sheave Wheel

To remove the spiral sheave wheel from the rear of the Scraper first remove the cable from the wheel. Then remove the cotter pin from the end of the sheave pin and drive the sheave pin out as illustrated and lift the sheave wheel out of the housing.



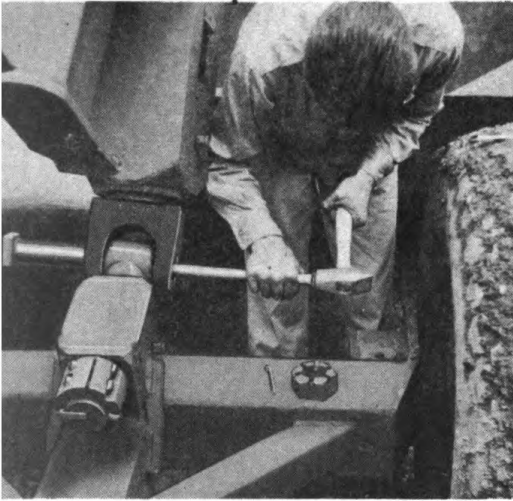
### Removing Pushbeam

To remove the pushbeam first lower the Scraper onto blocks. Remove hoist cable from pushbeam and then remove pushbeam hinge pin by first removing cotter pin and then driving pin out of pushbeam. The pushbeam is now free to be removed from the Scraper by sliding it to the rear through the upper sheave housing at the top of the arched "A" frame.



### Removing Front Axle Structure (Tongue)

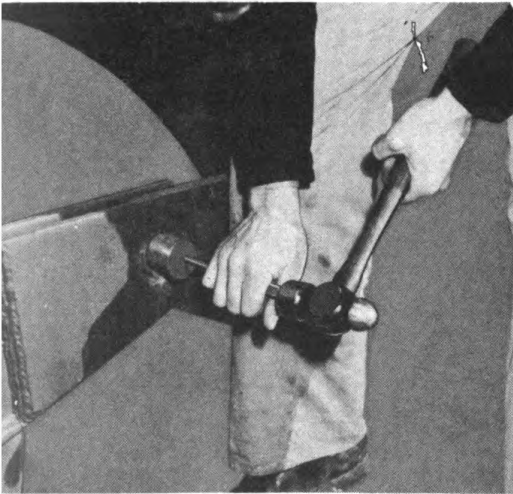
To remove the front axle structure, lower the bowl onto blocks. Remove cotter pin and castellated nut from end of bolt which connects yoke with front axle structure. Connect a hoist chain around upper part of yoke and raise front of yoke only enough to free bolt. Then drive bolt out of universal forgings. Move the front axle structure away from yoke and lower front of yoke onto blocks.



### Removing Yoke Structure

To remove the yoke structure from the Scraper, remove front axle structure and pushbeam. Also raise apron enough to clear head of yoke hinge pin and block apron in this position.

Connect a hoist chain around the upper arch of the yoke and raise yoke only enough to remove weight from yoke hinge pins. Remove cotter pins and castellated nuts from end of hinge pins and then remove pins. Then remove yoke from main body structure with a hoist.



### Removing Apron

To remove the apron, first remove the apron cable, and then wrap a hoist chain around the front of each apron arm. Then remove the apron hinge pins by first removing the lock pin from the end of each pin and then either pulling or driving out the hinge pins. The apron is now free to be hoisted out of the Scraper.



### Removing Tailgate Return Springs From Springpipe

When removing the tailgate return springs from inside the springpipe, it is first necessary to compress the springs by placing a 5' 6" block against the spring pull plate and the "A" frame at the top of the yoke, as was done in replacing the springpipe cable. (See page 26 of the Operation Section). Also remove safety bolt. Remove from the spiral sheave the cable wedge that secures the springpipe cable to the spiral sheave wheel. Then, with the Scraper bowl lowered, the 5' 6" block in place, and the dead end cable wedge removed from the spiral sheave wheel, gradually raise the Scraper bowl, thereby permitting all of the spring tension to be released. The springs can then be removed from the upper end of the springpipe.

### Removing Tailgate

Tailgates in Carryall Scrapers are very seldom removed. However, this can be done, as is outlined below.

To remove the tailgate, first disconnect the spiral sheave-to-tailgate cable at the cable wedge on the rear of the tailgate. In doing this, it is necessary to relieve the cable of tension by pulling tailgate forward a short distance and then inserting an 18" wood block between safety bolt and spring pull plate in upper end of springpipe as was done in replacing spiral sheave-to-tailgate cable, outlined on page 27. Then release the Power Control Unit brake for the dump cable, moving the control lever into lock-out position. Due to the block being inserted in the upper end of the springpipe, the springs can not return the tailgate to the rear, so it is necessary to roll or pry it a short distance to the rear, using a bar. The spiral sheave-to-tailgate cable can then be disconnected from the back side of the tailgate.

Pull the tailgate forward to the position where the large rollers at the rear of the tailgate are in line with the corresponding holes in the sides of the Scraper. Then remove these large tailgate rollers and pins. Pull the tailgate to the front of the bowl and then remove the cable wedges which secure the cable to both sides of the tailgate. Tie hoist chains to both sides of the tailgate, straddling the springpipe. Then hoist the tailgate up under the springpipe as high as possible, and while hoisted, move the left side of the tailgate to the rear and the right side forward. Block up tailgate in this position and untie hoist chain from right side of tailgate. Now pass hoist chain under springpipe and again hook chain to right side of tailgate, leaving some slack in chain so that when tailgate is hoisted, the left side is hoisted first. Now hoist tailgate out of body, continuing to turn tailgate sideways while hoisting.



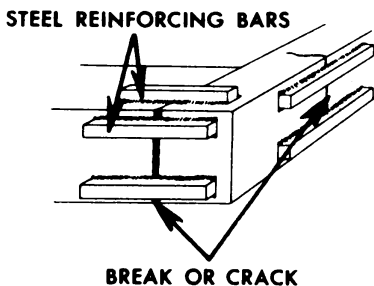
## INSPECTION OF PARTS FOR REPLACEMENT AND REPAIR

Other than inspection and replacement of worn sheaves, rollers, bearings, universal forgings, hitch blocks, oil seals, pins and other parts, practically the only type of repairs ever required on LeTourneau Carryall Scrapers are welding repairs.

If any welded member of a Carryall Scraper should crack or start to break through severe abuse, the Scraper should be stopped immediately and the crack welded up and reinforced before the damage becomes serious.

Only alloy steel should be used in reinforcing LeTourneau Scrapers and coated arc electrodes used in welding

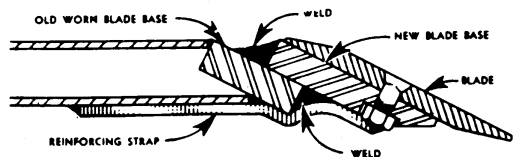
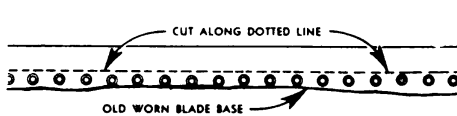
To correctly repair a break in a weld or a crack appearing on a box-beam, first "V" out the old weld or crack and re-weld, filling the V'd out section with weld metal, flush with the surface of the boxbeam. Then reinforce the point of failure by placing steel reinforcing bars across the break or crack as illustrated, welding them along both sides but leaving both ends unwelded.



If, after a long period of operation, the blade base should become worn back through the bolt holes as a result of neglect to change the blades, a new blade base can be installed without difficulty if the procedure below is followed.

First, cut the worn blade base from one end to the other along the top edges of the bolt holes, as illustrated.

After having trimmed the old blade base, the new blade base may be laid on top of the old one, with the top edge flush with the scraper bottom. Clamp it in position with "C" clamps. Then weld it to the old blade base along both the top and the bottom edges, as illustrated.



Install new blade base reinforcing ribs between the old ones, letting them extend down onto the new blade base. It will be necessary to heat and bend the new reinforcing ribs to make them fit down around the old blade base and up against the new one.

When the original ground plates wear back to the point where they must be replaced, new ground plates must be welded over the worn ones, in the original position. Weld along the top outside edge and bottom inside edge of the replacement ground plates. When replacement ground plates have been worn back, they must be cut off before new ones are welded in place.



## RE-ASSEMBLING

The instructions for re-assembling a Carryall Scraper are the reverse of those for disassembling.

When re-assembling, keep all bearings and working parts free of dirt, grit, or other foreign matter. Do not replace bearing cups without also replacing bearing cones, and vice-versa.

Soak in oil any oil seals in which the leather has become dry and hard before installing. Also, rub oil seal leathers with some smooth round object such as a hammer handle. This will cause the leathers to be properly seated when installed on the axle. It also makes possible quick and easy installation. When installing oil seals in place, use uniform pressure all around to avoid distorting and breaking the seal cage. *The wheel hub oil seals should be installed with leather cupped outward, away from the grease chamber.*

Dust seals are straight on one side and beveled on the other. When installing dust seals in sheave wheel hubs or in tailgate rollers, make sure the seals are turned so that the bevel faces the side of the sheave from which the pin is inserted. Avoid pushing the pin against the straight side of the leather during installation, because such action would probably injure the leather.

During assembly, make all adjustments as outlined on pages 43 thru 47 of the Repair Section.

Lubricate all points of lubrication before placing the Scraper in operation. (Refer to instructions on page 24.)

When connecting axle universal forging with yoke universal forging, make sure beveled side of yoke forging faces the front and that thick side of axle forging is on bottom. (See illustration at bottom of page 47.)

## LUBRICATION

For lubrication instructions, refer to page 21.

## TIRE INFLATION

For tire inflation instructions, refer to page 30.

## CHANGING BLADES

Refer to instructions for changing blades on page 28.

## CHANGING GROUND PLATES

Refer to instructions for installing new ground plates on page 29.

## REMOVING AND INSTALLING TIRES

To remove the tires from the Model D Carryall Scraper, it is not absolutely necessary that the wheels first be removed. However, due to the comparatively large size and weight of the tires and the ease with which the wheels and axles can be removed, it is usually advisable to remove the wheels before changing the tires. (For instructions covering the removal of the wheels and axles from the Scraper, refer to Disassembly Instructions on pages 34 and 35.)

To remove a tire, first let all the air out of the tire. Insert a small pry bar or similar tool below slot in the side ring and then pry the side ring up out of groove in wheel rim. The ring can now be removed.

If available, place a round valve cap on the valve stem. Push the valve stem through the rim, into the tire. Then insert a bar between the tire and tire retainer ring on the side of the tire opposite the side ring that was removed, and pry the tire off the wheel.

Before re-installing a tire on the wheel, inspect the wheel rim for rust. If rust is present, remove the rust with a wire brush, and if time permits, paint the rim and allow it to dry.

To install a tire, reverse the procedure described above for removing a tire. Be careful not to pinch the inner tube with the bar. Insert only enough air in the inner tube to hold it in place. Be sure the valve stem is in the center of the hole in the rim before installing the side ring. Then install the side ring in position, making sure it is properly seated in the groove in the wheel rim. Inflate the tire to the correct pressure. (Refer to tire inflation instructions on page 30.)

## TIRE REPAIR AND MAINTENANCE

### (a) Tire Boots

A boot should be used only to get a little additional service from a tire beyond repair.

### (b) Slow Leaks

Obviously, slow leaks cause underinflation. It is not sufficient to inflate the tire every day to the proper pressure after slow leak loss. Whenever a loss of as much as 5 pounds in 24 hours is discovered, the cause of the leak should be determined and corrected immediately. Defective valves should be replaced at once. Except in emergency, tires should be inflated only when they are at atmospheric temperature.

### (c) Valve Caps

A valve without a cap picks up sand, gravel, dirt and water. This is easily avoided. Keep valve caps on all valves.

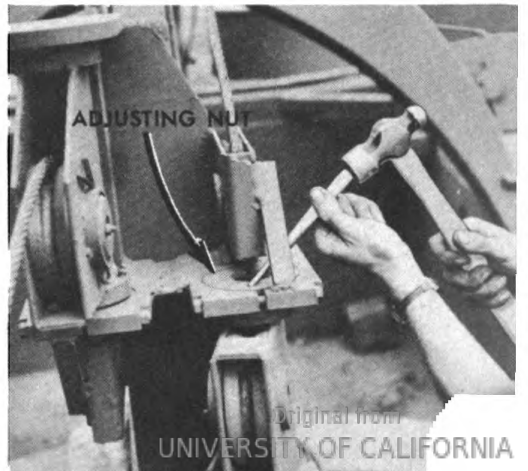
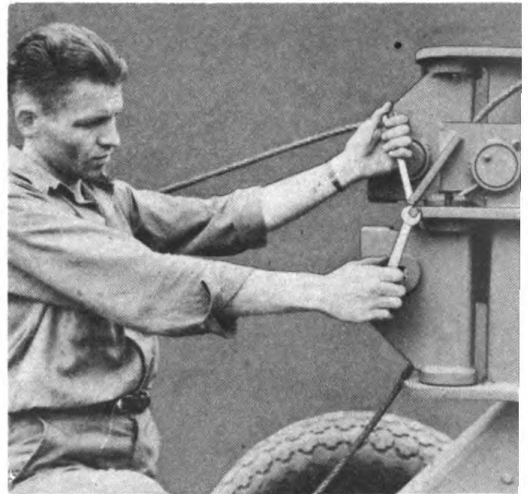
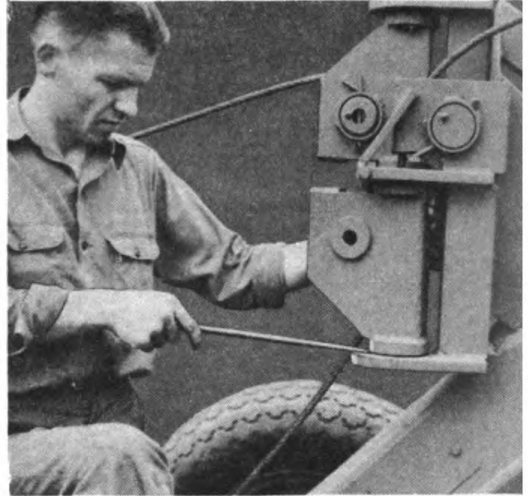
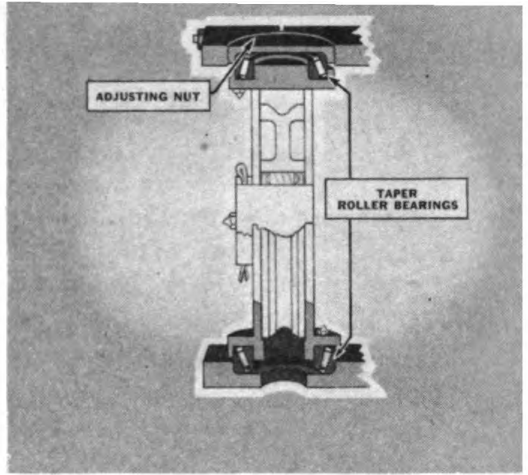
## FAIRLEAD SHEAVE HOUSING BEARING ADJUSTMENT

Check the fairlead sheave housing bearings for looseness every 128 hours of operation.

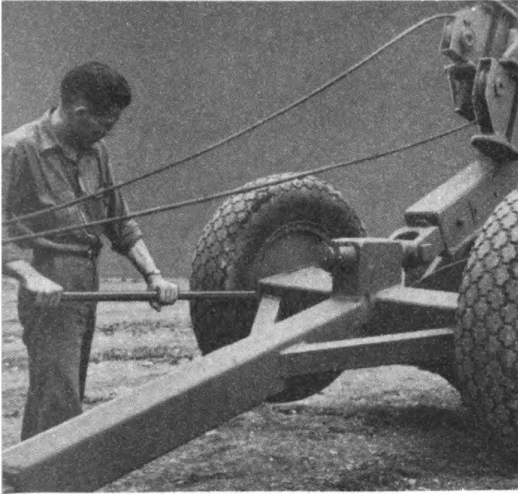
To check the adjustment, insert a pry bar between the bottom of the sheave housing and the bracket in which it is held. Then, by prying up and down with the bar, detect any end movement of the housing in the bracket. If end movement is noticeable, an adjustment should be made.

To make the adjustment, first loosen the clamp bolt from the sheave bracket.

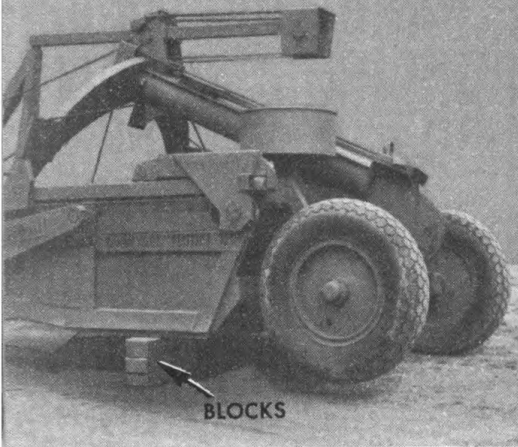
Turn the adjusting nut at the upper end of the housing in a clockwise direction until all up and down movement of the sheave housing in the bracket is eliminated and until a slight drag is felt when turning the sheave housing to either side by hand. Lock the adjustment by tightening the clamp bolt.



LOWER BOWL AND BACK UP  
TO RAISE FRONT WHEELS



LOWER BOWL TO RAISE WHEEL



## REPAIR

### WHEEL BEARING ADJUSTMENT

#### Checking Adjustment

Check the wheel bearings for looseness every 64 hours of operation.

**FRONT WHEELS**—To check the front wheel bearings, first raise the wheels off the ground. To do this, load the Scraper bowl and lower the blade to the ground. Release the brake from the Power Control Unit hoist drum and then back up slowly, thereby raising the front wheels off the ground. When the wheels are raised to the desired height, lock the tractor brake to hold the wheels in this position.

Insert a pry bar between the wheel and body structure. Pry back and forth with the bar, noticing any movement of the wheel on the axle. If there is perceptible movement, the bearings are loose and an adjustment should be made, as outlined on the following page.

**REAR WHEELS**—To check the rear wheel bearings, first raise the wheels off the ground. To raise either wheel, raise the bowl and place a block under the bowl just back of the balance point. Then lower the Scraper bowl. This will tip the front of the Scraper forward, raising the rear wheel.

Insert a pry bar between the wheel and body structure. Pry back and forth with the bar, noticing any movement of the wheel on the axle. If there is perceptible movement, the bearings are loose and an adjustment should be made, as outlined on the following page.

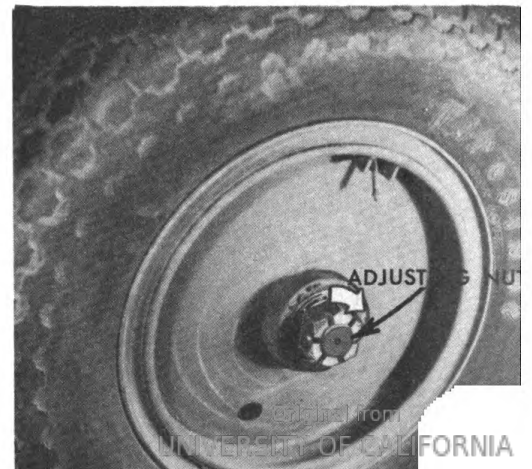
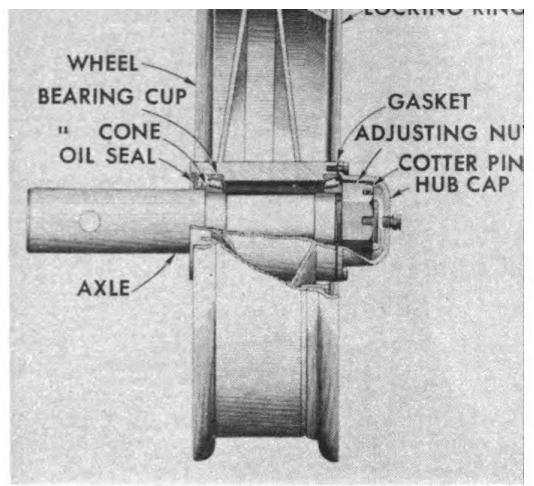
## MAKING ADJUSTMENT

To adjust either the front or rear wheel bearings proceed as follows:

First remove the hub caps by removing the capscrews.

Then remove the cotter pin from the end of the axle.

Start the wheel rotating slowly. While rotating, turn adjusting nut in a clockwise direction until wheel binds heavily. Then relieve binding by backing off adjusting nut  $\frac{1}{8}$  turn minimum and not more than  $\frac{1}{4}$  turn. Lock adjustment by re-inserting cotter pin. Check adjustment by rotating wheel, making certain that it is free rolling without end play. If adjustment is correct, re-install hub cap.





## UNIVERSAL FORGING ADJUSTMENT

Check the three universal forgings for end play every 64 hours of operation.

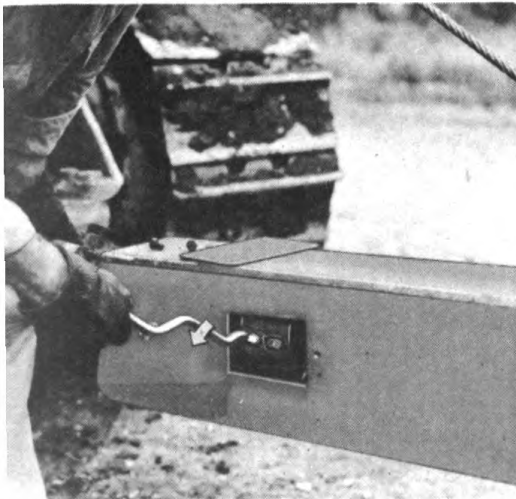
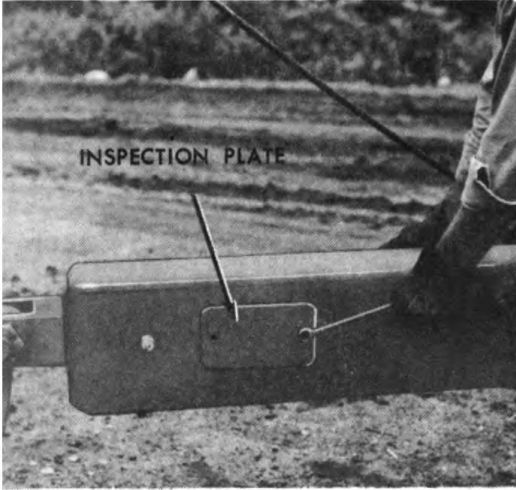
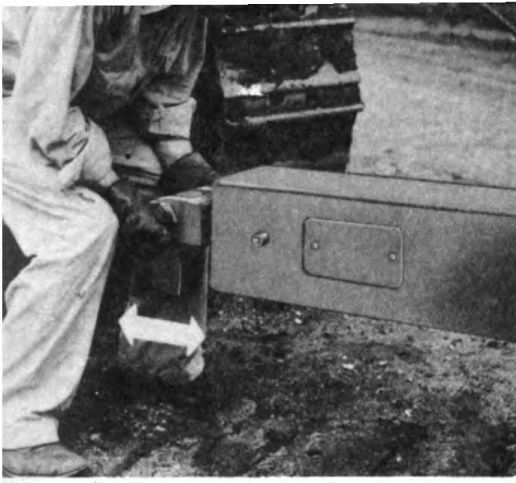
The procedures for checking and making the adjustment on each of the forgings are as follows:

**DRAWBAR UNIVERSAL FORGING**—If Scraper is disconnected from tractor, check end play by moving forging back and forth by hand. If Scraper is hitched to tractor, drive tractor forward and backward while watching forging for end movement. If end movement is found, an adjustment should be made.

To make adjustment, first remove inspection plate from side of tongue by removing capscrews. (Tongue disconnected from tractor and supported off the ground by a jack or block.)

Remove cotter pin from end of forging and loosen adjusting nut clamp bolts.

Insert a chisel in slot in adjusting nut to keep nut from turning. Then insert a bar through hitch block and turn forging in a clockwise direction until all end play has been eliminated with forging still left free to turn. Lock the adjustment by re-installing cotter pin and tightening adjusting nut clamp bolts. Then re-install inspection plate.



**AXLE UNIVERSAL FORGING**

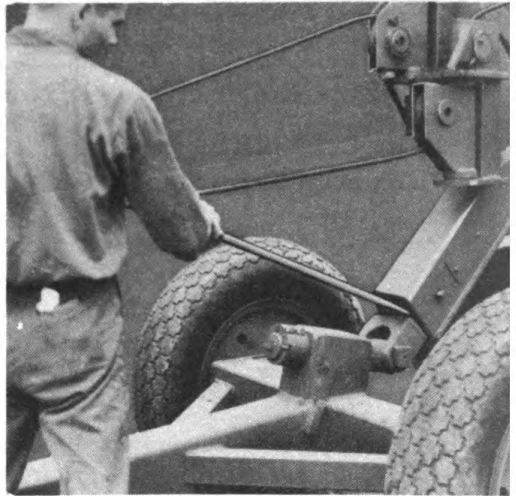
Check universal forging on top of front axle structure for end play by driving tractor forward and backward while watching forging for end movement in housing. If end movement is found, an adjustment should be made. To make adjustment, remove cotter pin and loosen adjusting nut clamp bolts. Then turn adjusting nut clockwise until all end play has been eliminated with forging still left free to turn. Lock adjustment by re-inserting cotter pin and tightening adjusting nut clamp bolts.

**YOKE UNIVERSAL FORGING**

To check yoke universal forging for looseness, first lower Scraper blade to ground and then insert a pry bar between forging and bottom of yoke and pry up and down with pry bar. If noticeable end movement of forging is found, an adjustment should be made.

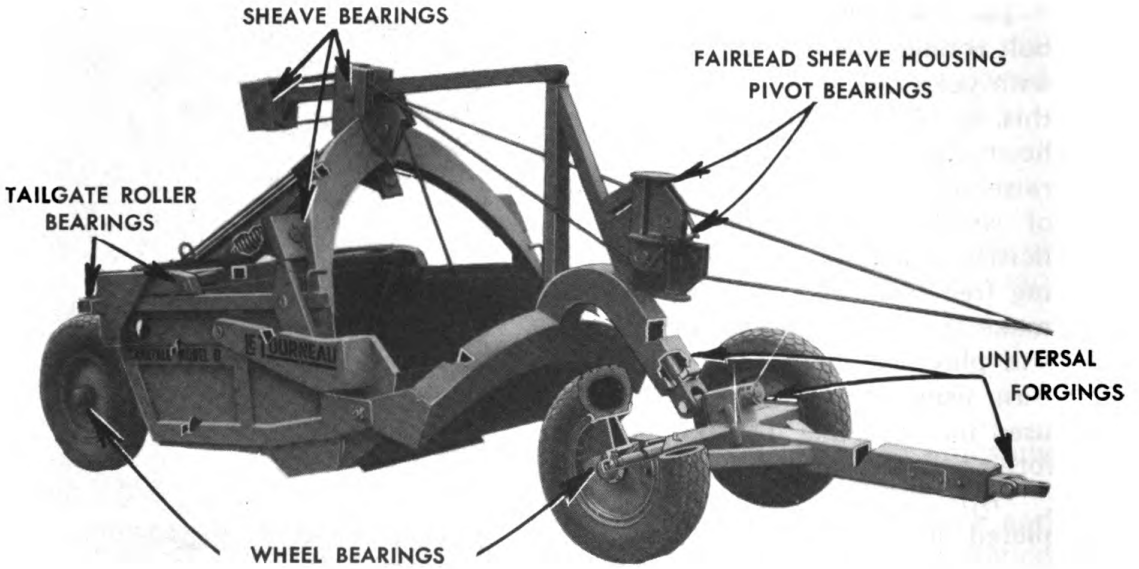
To make adjustment, first remove bolt connecting axle universal forging with yoke universal forging. In doing this, it is first necessary to wrap a hoist chain around top of yoke and raise yoke only enough to relieve bolt of weight. Then remove bolt and hoist yoke, enough to raise yoke forging free from axle forging, and then make the adjustment, eliminating all end play but leaving forging free to turn, using the same procedure as is used for adjusting drawbar universal forging described on opposite page.

After adjustment has been completed, lower the yoke and re-insert the bolt connecting the axle forging and yoke forging. **IMPORTANT**—In installing the bolt, make certain thick side of axle forging is on bottom and that beveled side of yoke forging faces the front. Otherwise the forgings may bind when traveling across ditches or at other times when axle structure and yoke are at extreme angles, possibly resulting in damage to forgings, tongue or yoke.



**TABLE OF CLEARANCES AND TOLERANCES OF BEARINGS AND ADJUSTABLE PARTS**

POINT OF ADJUSTMENT	CORRECT ADJUSTMENT	ALLOWABLE TOLERANCE
Wheel Bearings	.000"	.008" loose to .008" tight
Fairlead Sheave Housing Pivot Bearings	.001" tight	.000" to .002" tight
Sheave Bearings	Non-adjustable	.....
Tailgate Roller Bearings	Non-adjustable	.....
Universal Forgings	Free turning without end play	.....



# TROUBLE SHOOTER'S GUIDE

## EXCESSIVE CABLE BREAKAGE

CAUSE	REMEDY
<i>Dump cable too short</i> causing tailgate arms to strike structural members on top of side sheets before tailgate sliding sheave strikes stop block, possibly resulting in bottom of tailgate kicking up.	Correctly adjust or replace cable. (Refer to cable threading instructions on Page 24).
<i>Dump cable too long</i> , preventing tailgate from coming forward far enough to eject all the load.	Correctly adjust or replace cable. (Refer to cable threading instructions on Page 24).
<i>Apron lift cable too short</i> , causing apron to strike arched A-Frame when in raised position.	Correctly adjust or replace apron lift cable. (Refer to cable threading instructions on Page 24).
<i>Failure of operator to release Power Control Unit clutch when pushbeam stops or tailgate sliding sheave stops are brought together.</i>	Promptly release Power Control Unit clutch when pushbeam stops or tailgate stops have been pulled together.
<i>Traveling over unlevel ground or turning with either the pushbeam stops or tailgate sliding sheave stops together.</i>	Allow clearance at these points when traveling. (Refer to instructions on Pages 9 and 11).

## BEARING FAILURES

CAUSE	REMEDY
<i>Bearings improperly lubricated.</i>	Lubricate at specified intervals and with recommended lubricants. (Refer to Page 21).
<i>Bearings incorrectly adjusted.</i>	Correctly adjust bearings. (Refer to Pages 43 thru 45).
<i>Oil seals or dust seals failed</i> , permitting dirt or other foreign matter to enter bearings.	Replace oil seals or dust seals.

## SCRAPER CUTTING LOWER ON ONE SIDE THAN ON OTHER

CAUSE	REMEDY
<i>Unequal air pressures in rear tires.</i>	Check air pressures and inflate to equal pressures. (Refer to Page 30).
<i>The use of tires of unequal diameters on rear of Scraper</i> , such as a new tire on one side and worn tire on other, or a larger size tire on one side than on other.	Install tires having equal diameters.

For troubles related to the functions of structural parts, such as failure of the tailgate to return to its rear position, check for points of binding, incorrect spring tension resulting from the spiral sheave wheel being improperly timed, etc.





# PARTS CATALOG

## WARNING

SPARE PARTS can be supplied promptly and accurately only if positively identified by correct part number and correct part name.

FURNISH THIS INFORMATION ON ALL REQUISITIONS. WITHOUT FAIL, on all requisitions, give name of machine, name of manufacturer, model or size, manufacturer's serial number of each machine and subassemblies attached to machine, and components and accessories for which spare parts are required.

List spare parts for only one make or kind of machine on each requisition.

Requisitions must be double spaced to provide room for office notations when necessary.

SECT.



***PARTS CATALOG***

***FOR***

***SCRAPER, ROAD,***

***TOWED -TYPE,***

***CABLE -OPERATED,***

***3 1/2 CU. YD. LETOURNEAU***

***MODEL D***

★

On this page is shown a sample spare parts requisition on QMC Form No. 400 which conforms to the latest revisions. The marginal notes give instructions for preparing a requisition for spare parts for Engineer equipment.

The revised QMC Form 400 has new column headings. Until new forms are available use the present form and type or write in corrections in column headings as shown below.

Under revised heading "Nomenclature" and "Unit" list the article and the unit (ea for each; lb for pound; etc.). Under heading "Maximum or Authorized Level" list the authorized organizational allowances or depot stock levels given in ENG 7 and ENG 8 of the ASF

Engineer Supply Catalog (superseding Part III, Corps of Engineers Supply Catalog). The total number on hand for each item is listed under "On Hand". In column headed "Due In" enter the total quantity previously requisitioned but not delivered. Column headed "Required" is to be changed to read "Quantity Desired" and column headed "Approved" is to read "Remarks." For "Initial" and "Replenishment" requisitions, the sum of "Quantity Desired", "Due In", and "On Hand" should equal "Maximum or Authorized Level."

(Additional details on this subject are covered in ENG I of the ASF Engineer Supply Catalog which incorporates information formerly contained in Section AA-1, Part III, Engineer Supply Catalog.)

State PERIOD designation by use of one of the following terms:

- (1) "INITIAL"—first requisition of authorized allowances.
- (2) "REPLENISHMENT"—subsequent requisitions to maintain authorized allowances.
- (3) "SPECIAL"—requisitions for necessary repairs not covered by allowances.

Type "SPARE PARTS" in upper right hand corner of requisition.

Address requisitions to Engineer Field Maintenance Office, P. O. Box 1679, Columbus, Ohio (except for spare parts for searchlights and barrage balloons which are addressed to Schenectady, N. Y. or Ogden, Utah ASF depots).

Give complete shipping instructions. Special instructions for packing, marking, routing, etc., should be given at bottom of requisition.

State proper nomenclature of machine, also make, model, machine serial number and U. S. A. registration number.

Prepare a separate requisition for each different machine.

State basis or authority and date delivery is required, immediately below description of machine.

Double space between items.

Group parts required under group headings as shown in manufacturers' parts catalogs (Technical Manuals).

State OCE stock numbers, manufacturers' parts numbers and nomenclature accurately and completely. Do not use abbreviations.

SPARE PARTS

WAR DEPARTMENT  
G. M. C. Form No. 400  
(Revised 19 Aug. 1943)

**REQUISITION**

To: Engineer Field Maintenance Officer No. of Sheets 1 Sheet No. 1  
P. O. Box 1679, Columbus, Ohio

Requisition No. E-905-444 Date 10 January, 1944 Period Replenishment

SHIP TO Engineer Property Officer, FORT LEWIS, WASHINGTON

MARKED FOR: Supply Officer, 150th Regt. Regiment, FORT LEWIS, WASHINGTON

Requisitioned By (show Signature, Rank, Organization, Destination. If different from "SHIP TO" include address):  
*Robert E. Roe*  
 Robert E. Roe  
 Major, G. E.  
 Engineer Property Officer

Approved For the Commanding Officer:  
*John E. Doe*  
 John E. Doe  
 Col., G. E.  
 Executive Officer

OCE STOCK NO.	NOMENCLATURE AND UNIT	AUTH. OF MAX. LEVEL	ON HAND	DUE IN	QUANTITY	
					ON HAND	REQUIRED
PARTS FOR SCRAPER, ROAD, TOWED-TYPE, CABLE OPERATED, 3-1/2 CU. YD. MODEL D						
BASIS: To replenish second echelon set						
DELIVERY: By 5 February 1944						
MAIN BODY GROUP						
C-1915	SPRING	EA 4	3	0		1
E-3770	BLADE	EA 6	3	0		3
E-825	SHEAVE	EA 1	0	0		1
YOKE GROUP						
E-3892	HOUSING	EA 2	0	0		2
0-3868	FORGING	EA 4	2	0		2
E-225	BEARING	EA 2	0	0		2
E-826	PIN	EA 2	1	0		1
L-323	OIL SEAL	EA 4	2	0		2

\*Nonexpendable items such as tools must be accounted for, when requisitioned, by a statement that they have been placed on REPORT OF SURVEY or STATEMENT OF CHARGES.

Emergency requisitions sent by telephone, teletype, cablegram, telegraph or radio must be confirmed immediately with requisition marked: "Confirming (state identifying data)."

# PREPARATION OF REQUISITIONS

A Sample requisition in the correct form for submission by the Engineer Property Officer is shown on the opposite page.

## THIS SHALL BE FOLLOWED IN MAKING OUT REQUISITIONS.

In order to eliminate duplication of work, Property Officers may authorize organizations to prepare requisitions in final form, leaving requisition number space blank for completion by Property Officer.

## THE FOLLOWING RULES WILL BE OBSERVED CAREFULLY IN PREPARING REQUISITIONS FOR SPARE PARTS:

- a. Prepare a separate requisition for each different machine.
- b. Type "SPARE PARTS" in upper right hand corner of requisition form.
- c. State PERIOD designation by use of one of the following terms:
  - (1) "INITIAL"—first requisition of authorized allowances.
  - (2) "REPLENISHMENT"—subsequent requisitions to maintain authorized allowances.
  - (3) "SPECIAL"—requisitions for necessary repairs not covered by allowances.
- d. Give complete shipping instructions.
- e. State proper nomenclature of machine, and make, model, serial number and registration number.
- f. State basis or authority, and date delivery is required, immediately below description of machine.
- g. Group parts required under group headings as shown in manufacturers' parts catalogs.
- h. State manufacturers' parts numbers and nomenclature descriptions accurately and completely. Do not use abbreviations.
- i. Double space between items.
- j. Emergency requisitions sent by telephone, telegraph, or radio must always be confirmed immediately with requisition marked: "Confirming (state identifying data)".
- k. Nonexpendable items must be accounted for.



## DUMP CABLE

E-1223 1/2x6x19=300' Spool  
1/2x6x19=95' Required

## HOIST CABLE

E-1218 1/2x6x19=65' Long

## SLIDING SHEAVE TO APRON

E-5287 1/2x6x19=8 1/2' Long

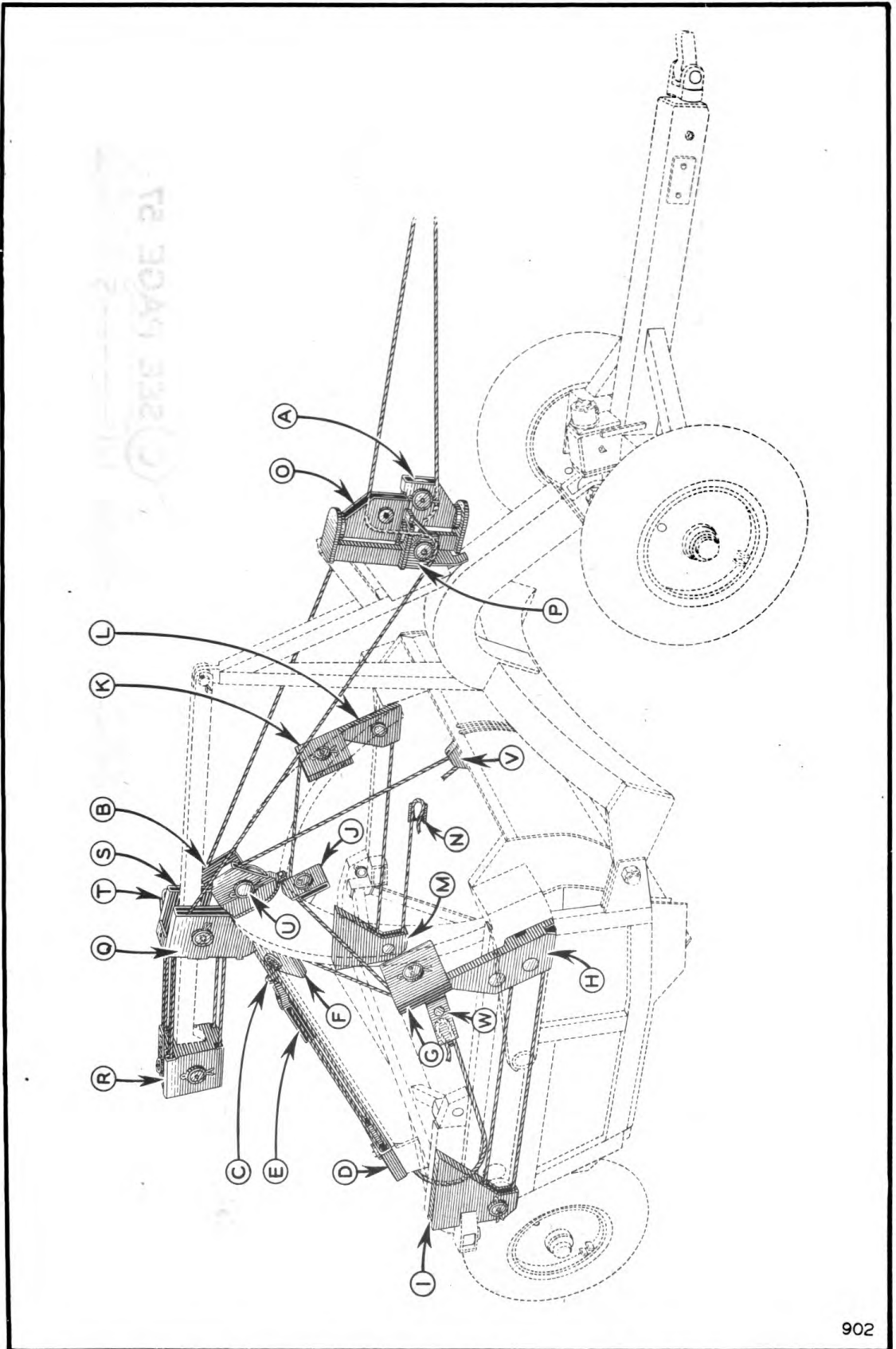
## TAILGATE TO SPIRAL SHEAVE

R-1801 1/2x6x19=8' Long

## SPIRAL SHEAVE TO SPRINGPIPE

R-7191 1/2x6x19=9 1/2' Long

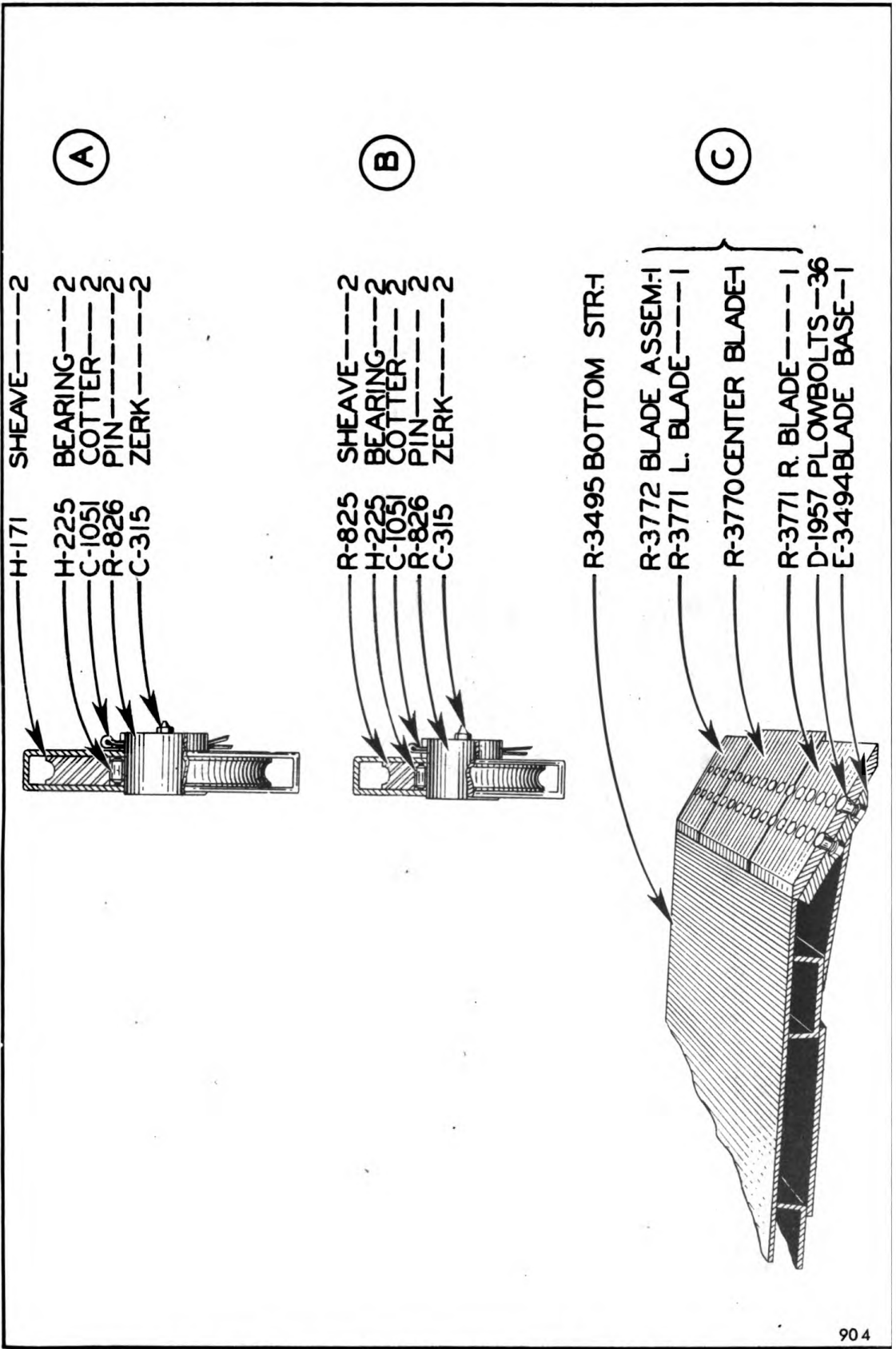
## CABLE LENGTHS



902

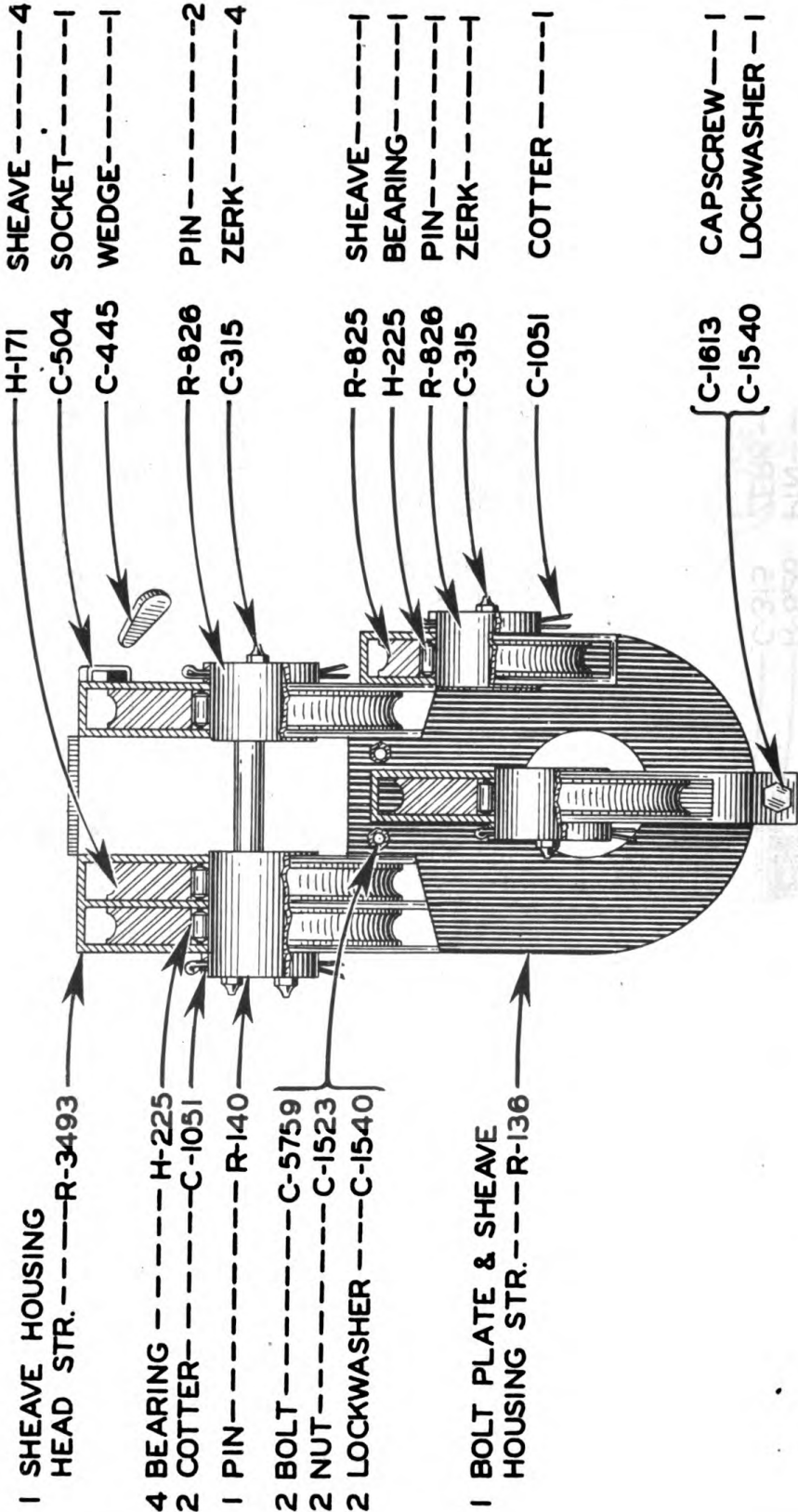
CABLE THREADING DIAGRAM





MAIN BODY SUB ASSEMBLIES

(D)



MAIN BODY SUB ASSEMBLY

905



(E)

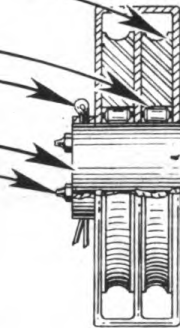
- | WEDGE ---- C-445
- | SOCKET ---- C-504
- | ZERK ---- C-315
- | PIN ---- R-826
- | KEY ---- C-1051
- | SHEAVE ---- H-171
- | HOUSING ---- R-835



- | BEARING -- H-225

(F)

- 4 SHEAVE ---- H-171
- 4 BEARING -- H-225
- 2 COTTER -- C-1051
- 2 PIN ---- R-140
- 4 ZERK ---- C-315

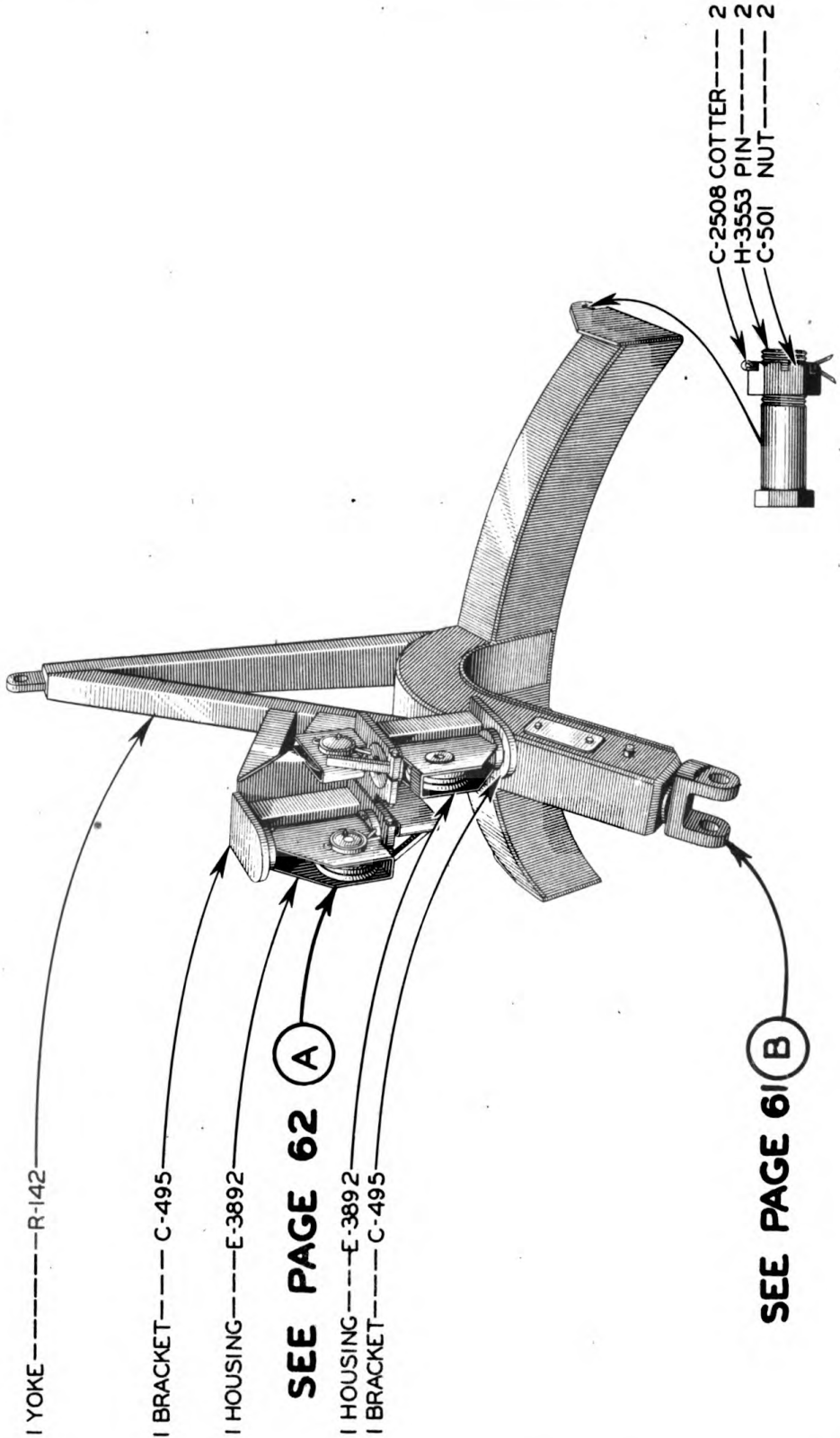


(G)

- 3 SHEAVE ---- R-825
- 3 BEARING -- H-225
- 3 PIN ---- R-139
- 3 ZERK ---- C-315
- 3 COTTER -- D-1032



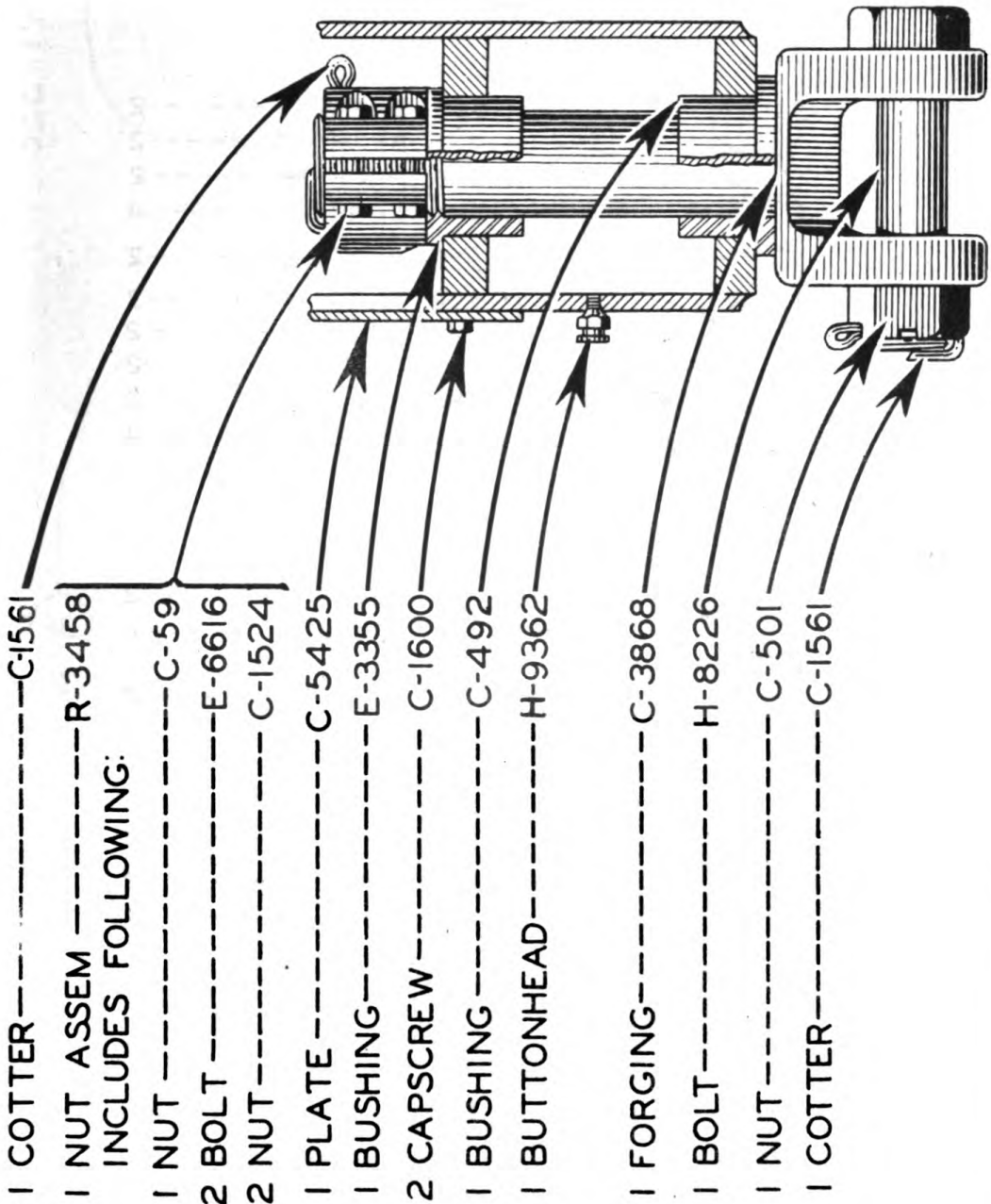
MAIN BODY SUB ASSEMBLIES



CANTILEVER YOKE GROUP

907

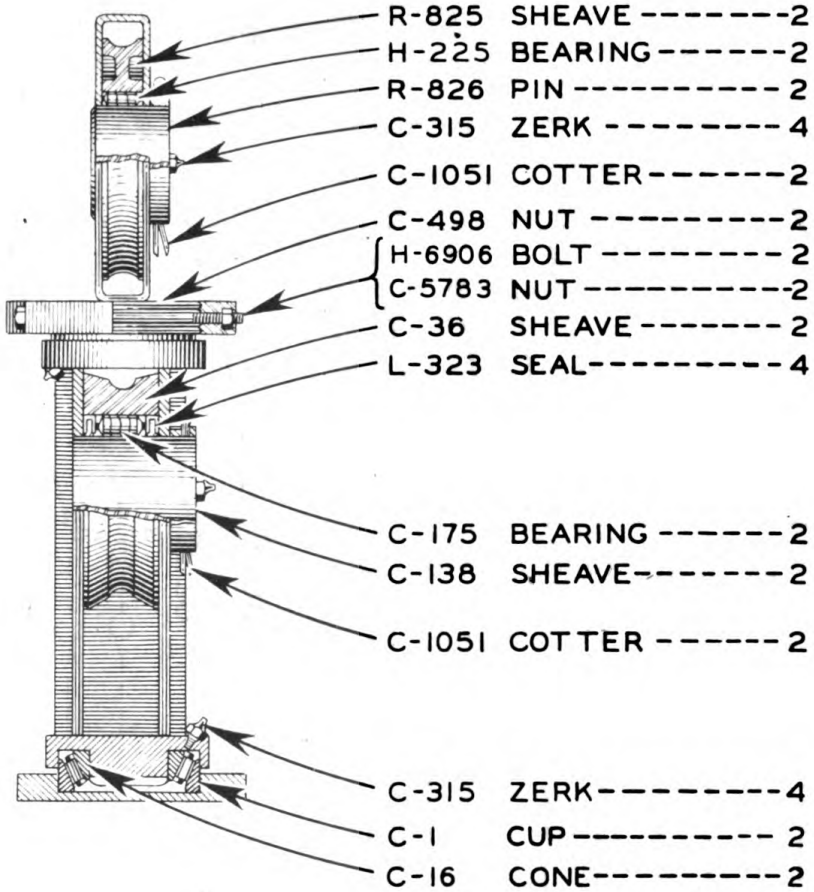
(B)



- 1 COTTER-----C-1561
- 1 NUT ASSEM -----R-3458
- INCLUDES FOLLOWING:
- 1 NUT -----C-59
- 2 BOLT -----E-6616
- 2 NUT ----- C-1524
- 1 PLATE -----C-5425
- 1 BUSHING -----E-3355
- 2 CAPSCREW ----- C-1600
- 1 BUSHING -----C-492
- 1 BUTTONHEAD-----H-9362
- 1 FORGING-----C-3868
- 1 BOLT-----H-8226
- 1 NUT-----C-501
- 1 COTTER-----C-1561

YOKE SUB ASSEMBLY

(A)



YOKE SUB ASSEMBLY

SEE PAGE 64

B

A

SEE PAGE 64

A

SEE PAGE 64

1 TAILGATE-- R-126

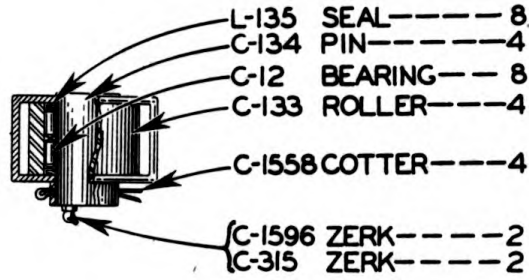
C

SEE PAGE 64

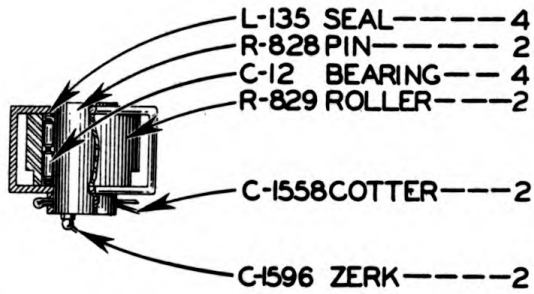
- C-2508 COTTER --- 2
- R-138 PIN --- 1
- R-137 HINGE --- 1
- C-445 WEDGE --- 1



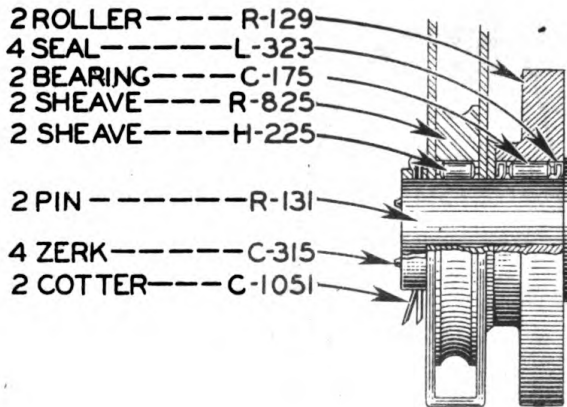
TAILGATE GROUP



(A)



(B)

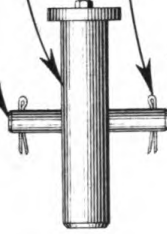


(C)

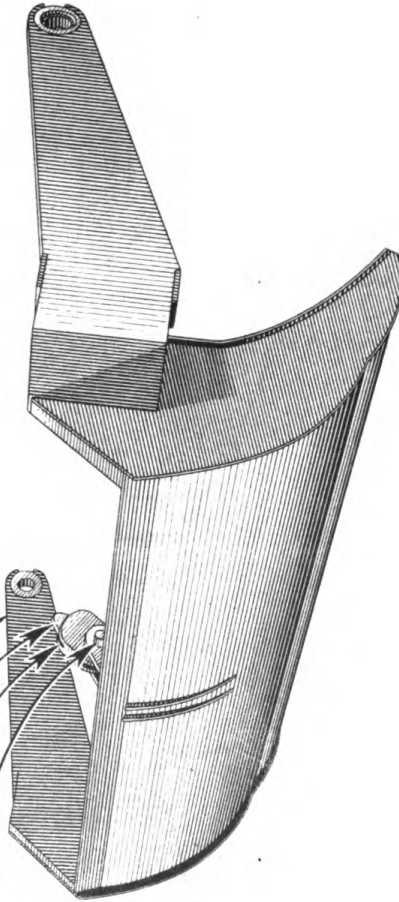
TAILGATE SUB ASSEMBLIES



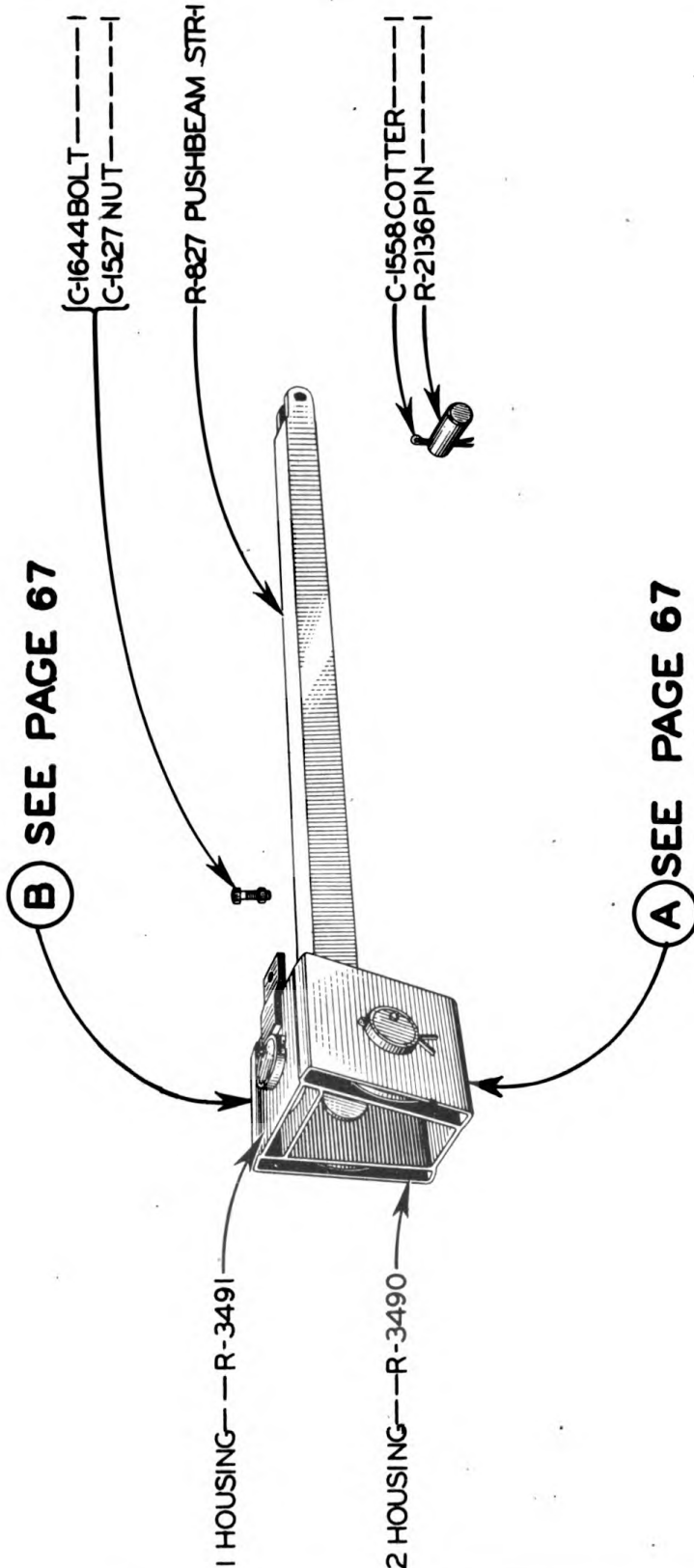
- R-133 PIN-----2
- R-132 PIN-----2
- C-315 ZERK-----2
- R-1057 COTTER-----4



- 1 APRON-----R-128
- 1 WEDGE-----H-3443
- 1 HINGE-----H-3442
- 1 PIN-----F-7261

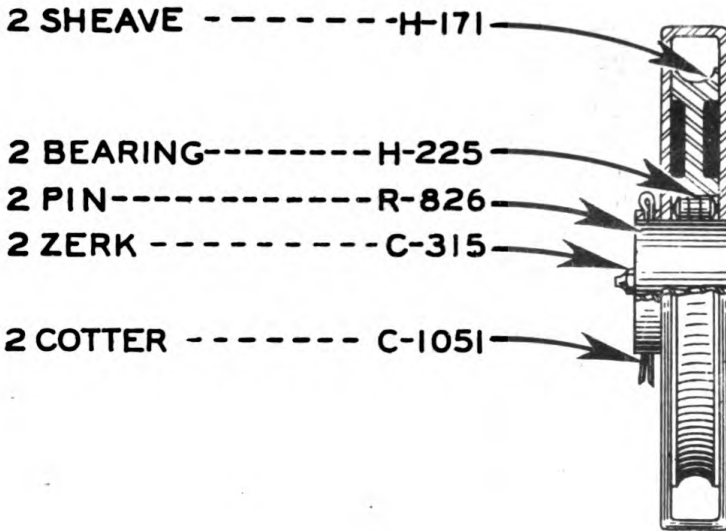


APRON GROUP

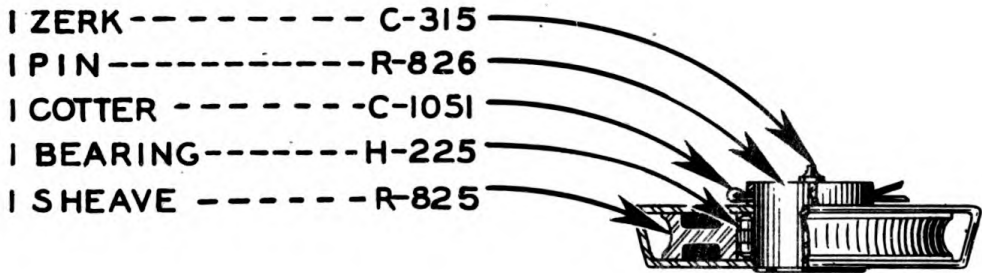


PUSHBEAM GROUP

(A)



(B)



PUSHBEAM SUB ASSEMBLY

**B** SEE PAGE 70

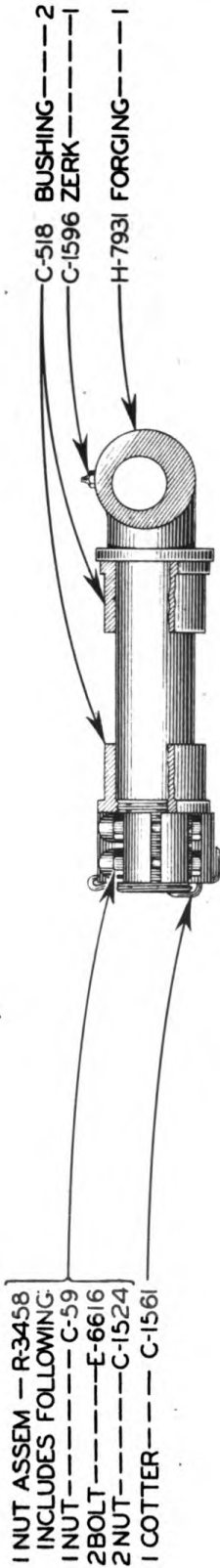
SEE PAGE 69 **A**

H-9362 BUTTONHEAD --- 2  
R-1802 FRONT AXLE --- 1  
R-1803 PIN --- 2  
C-1518 COTTER --- 4

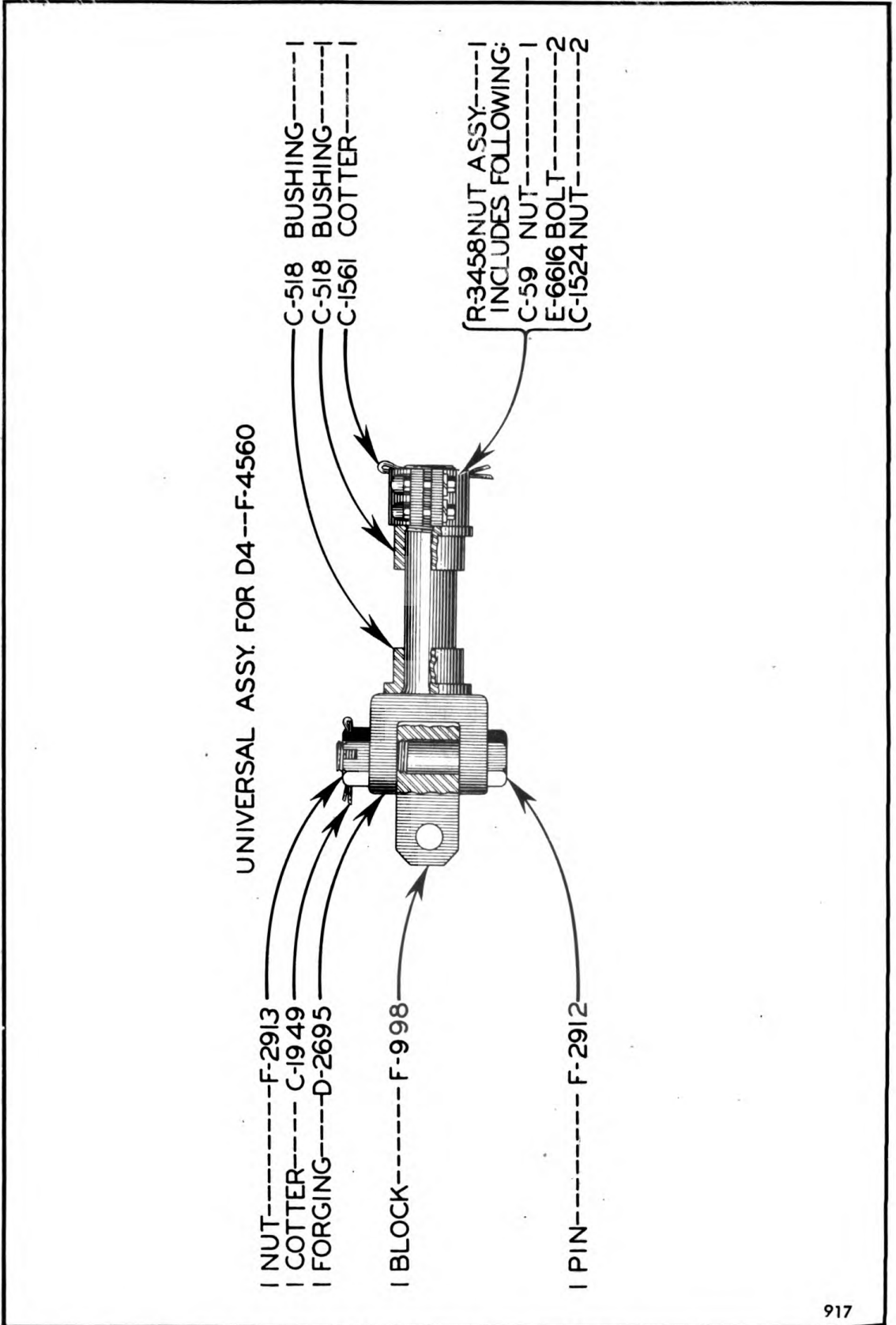
1 COVER PLATE-C-5425  
2 CAPSCREW --- C-1600

**FRONT AXLE GROUP**

(A)



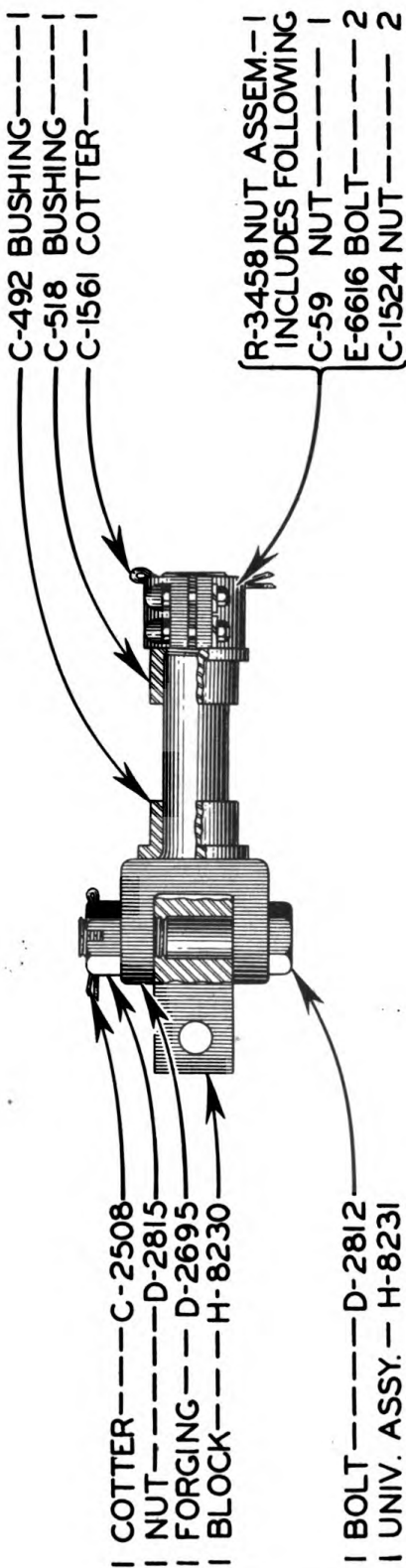
FRONT AXLE SUB ASSEMBLY



UNIVERSAL ASSEMBLY

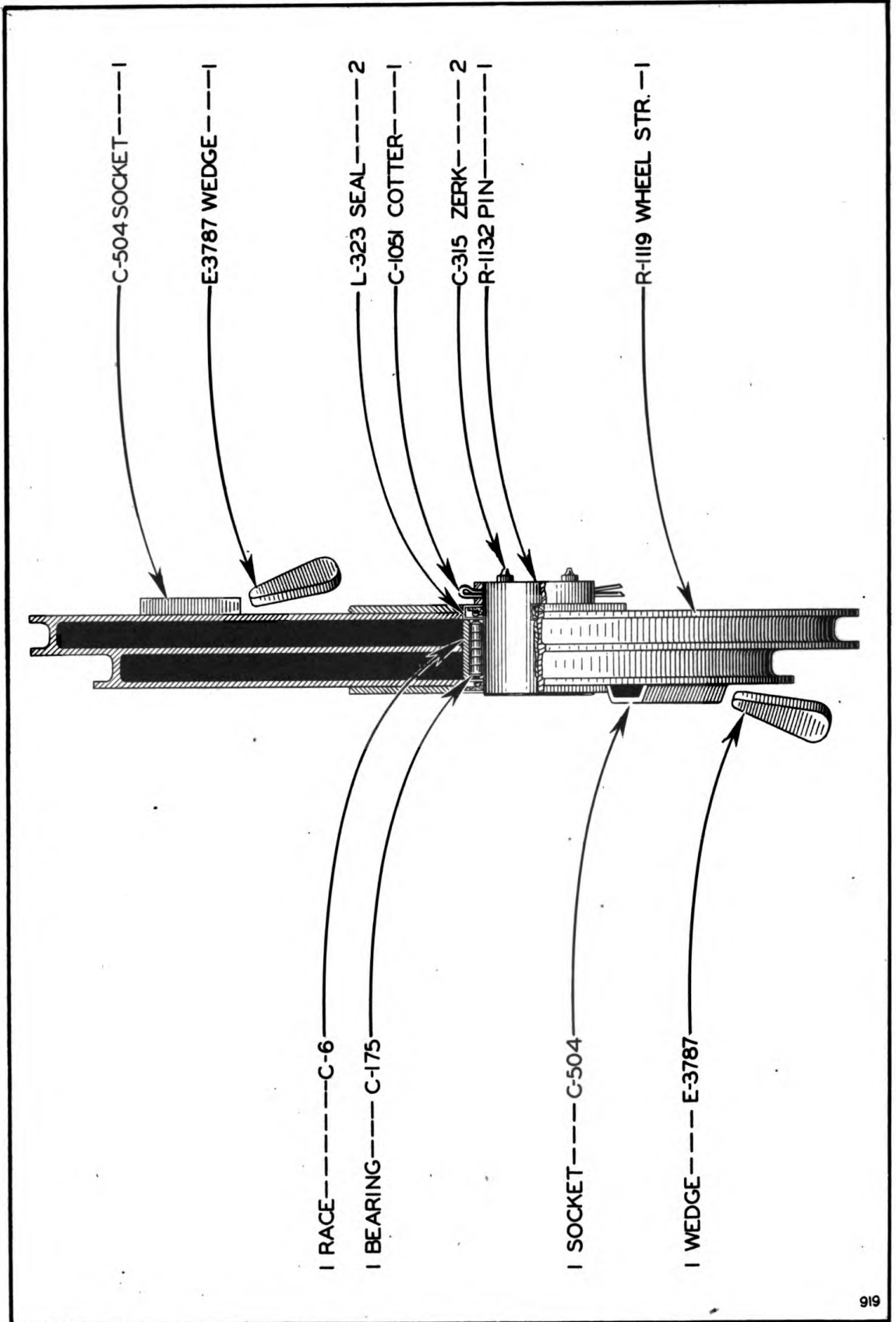


(B)



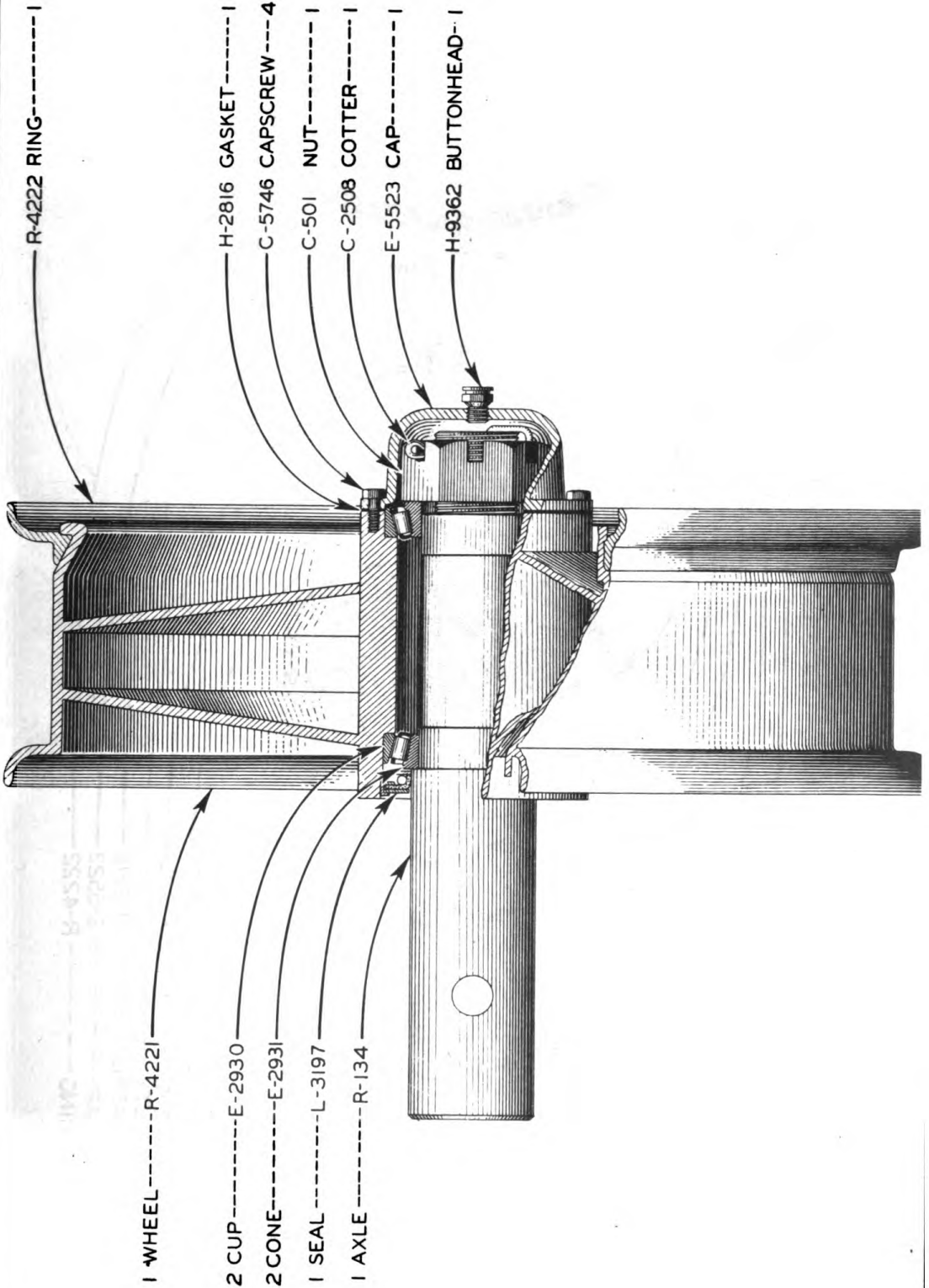
D6 & D7 UNIVERSAL ASSEMBLY

OPTIONAL UNIVERSAL ASSY.



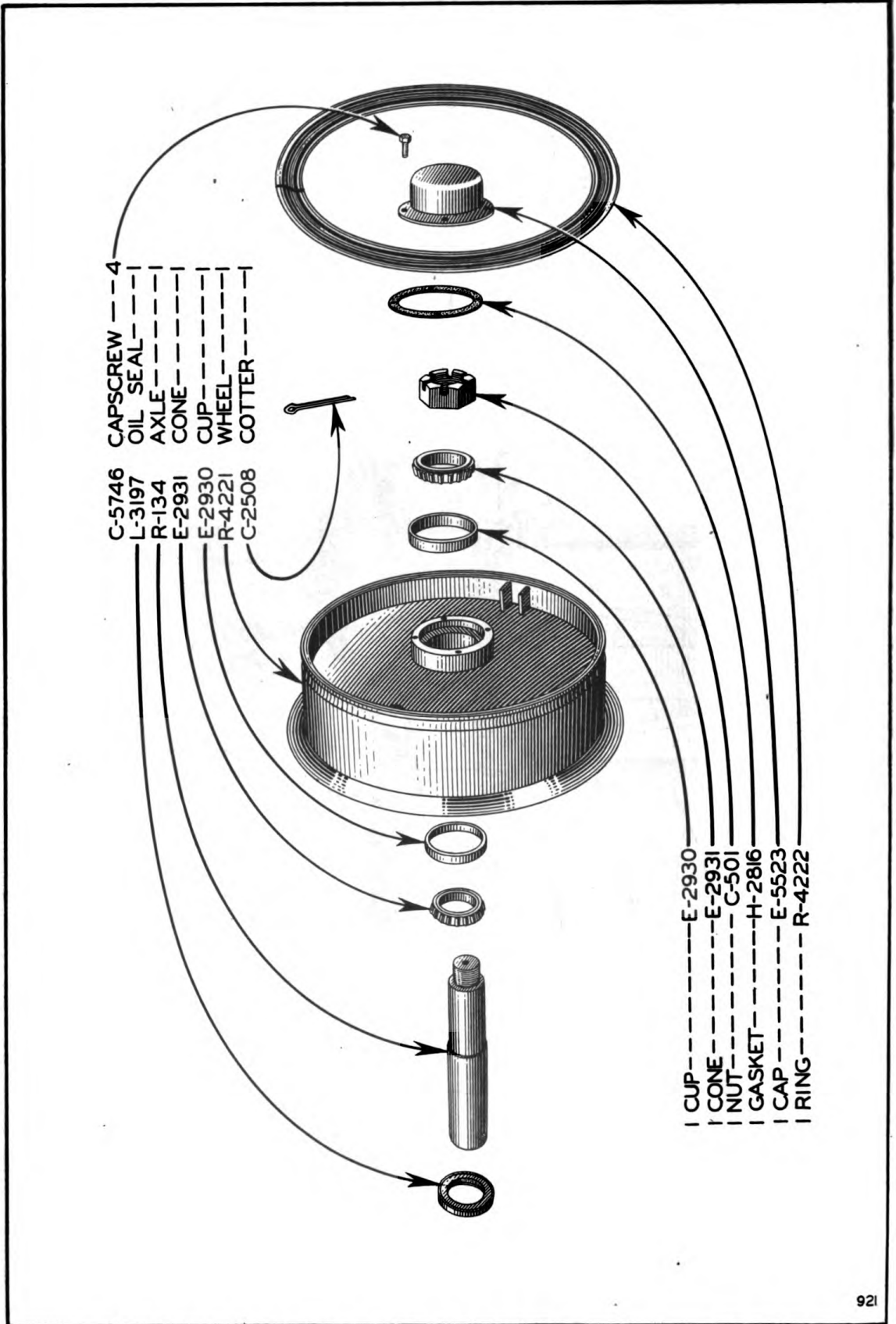
SPIRAL SHEAVE ASSEMBLY

TWO ASSEMBLIES REQUIRED



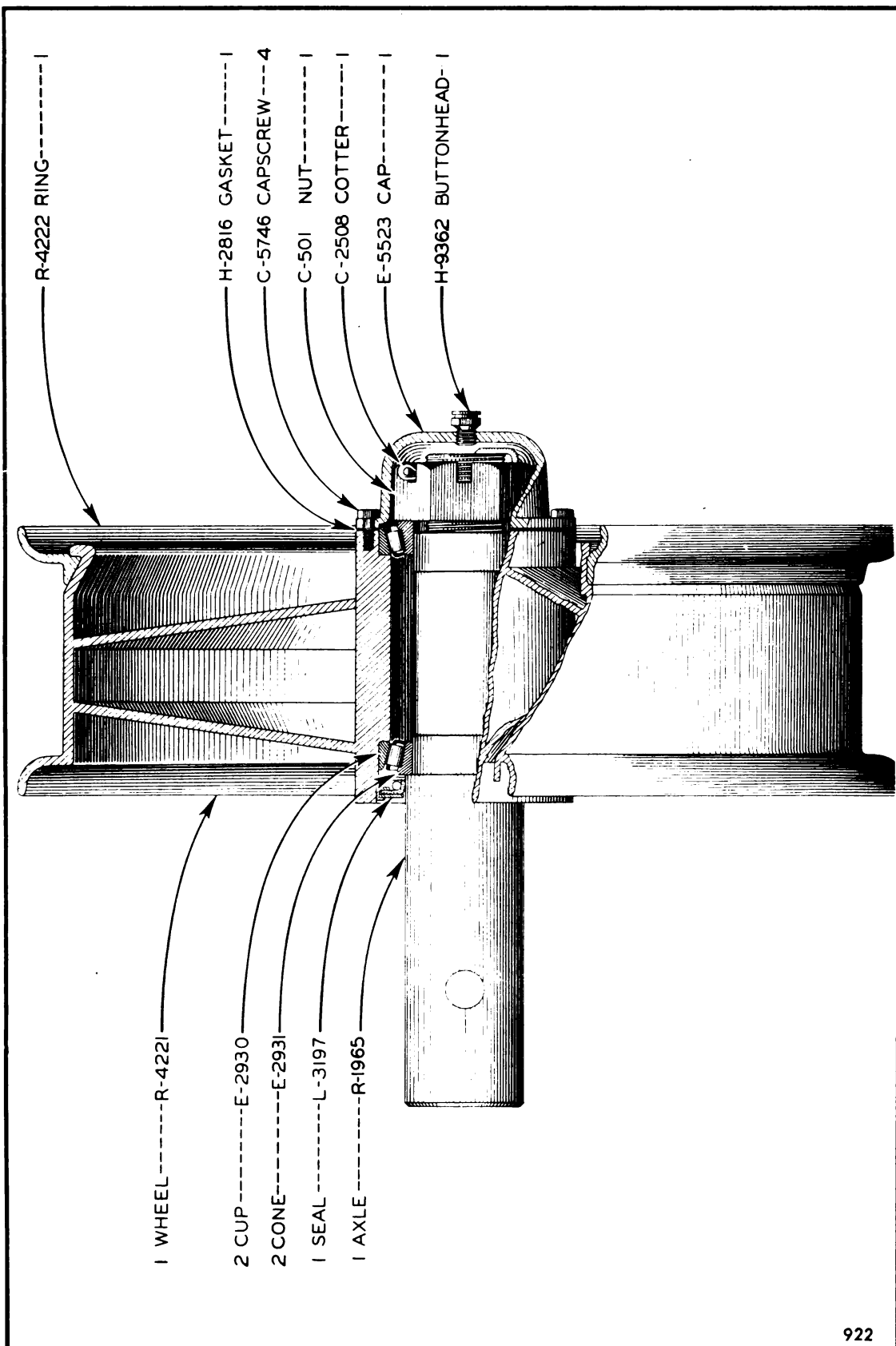
7.50 X 20 SINGLE FRONT WHEEL

920



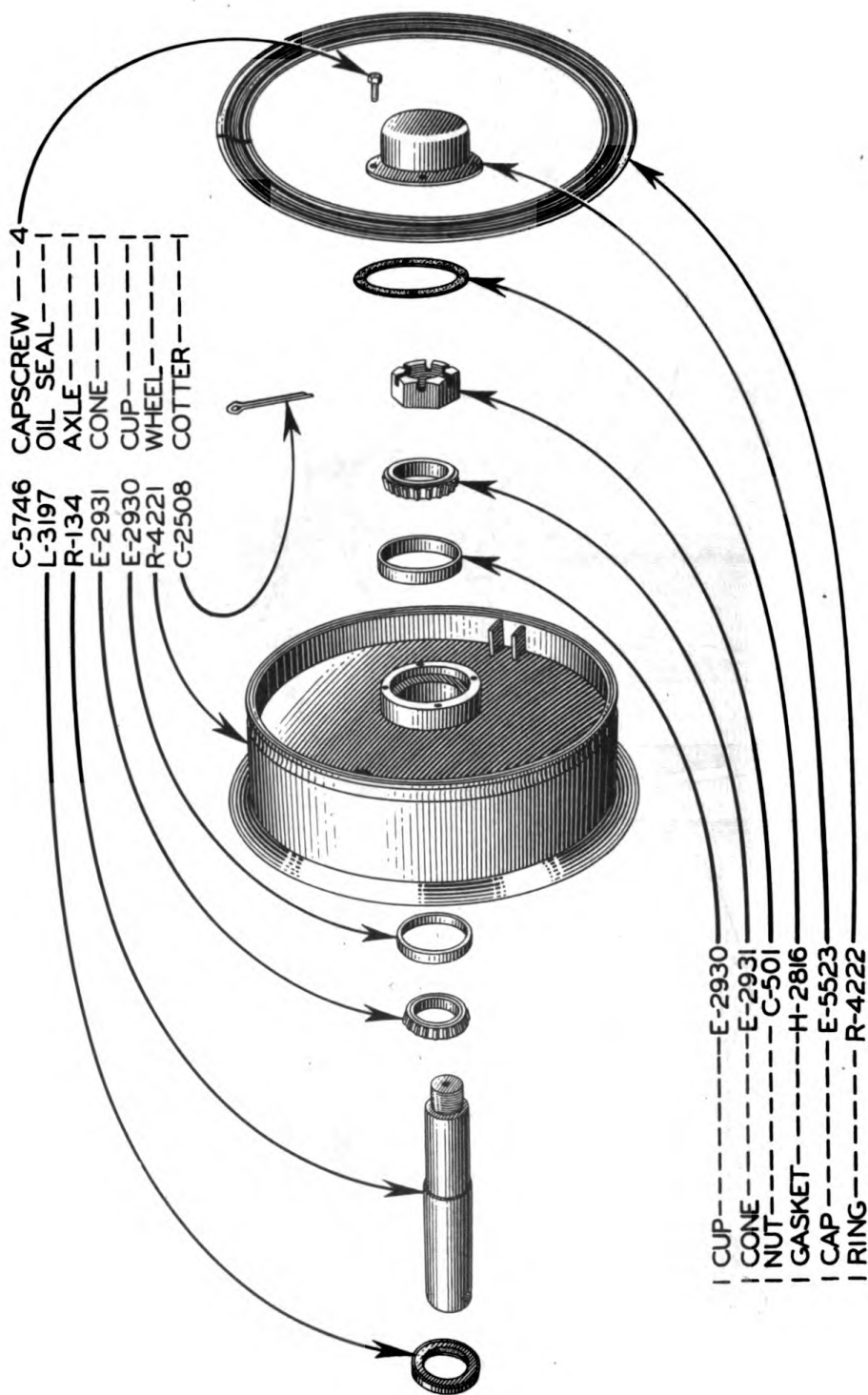
8.25 X 20 SGL. FRONT WHEEL-EXPLODED

TWO ASSEMBLIES REQUIRED



- 1 WHEEL-----R-4221
- 2 CUP-----E-2930
- 2 CONE-----E-2931
- 1 SEAL-----L-3197
- 1 AXLE-----R-1965
- R-4222 RING-----1
- H-2816 GASKET-----1
- C-5746 CAPSCREW-----4
- C-501 NUT-----1
- C-2508 COTTER-----1
- E-5523 CAP-----1
- H-9362 BUTTONHEAD-----1

7.50 X 20 SINGLE REAR WHEEL



8.25 X 20 SGL. REAR WHEEL-EXPLODED



THE TIRES FURNISHED ON THIS CARRYALL ARE 8.25 x 20-8 PLY TIRES, USING TR-75A TUBE VALVE STEM. IN AN EMERGENCY, 9.00 x 20-8 PLY TIRES MAY BE USED FOR REPLACEMENT IF AVAILABLE IN DEPOTS.

PART No.	DESCRIPTION	PAGE	QTY.	WEIGHT		PRICE EACH
				Lbs.	Oz.	
C-1	CUP, BEARING .....	62	2	..	12	\$1.20
C-6	RACE, BEARING .....	72	1	..	8	3.29
C-12	BEARING, STRAIGHT.....	64	12	..	8	1.78
C-16	CONE, TAPERED BEARING.....	62	2	..	14	1.90
C-36	SHEAVE WHEEL.....	62	2	7	..	4.03
C-59	NUT, UNIVERSAL .....	61,69,70,71	4	4	7	5.41
C-133	ROLLER, SIDE THRUST.....	64	4	4	4	2.96
C-134	PIN, THRUST ROLLER.....	64	4	3	8	2.09
C-138	SHEAVE PIN, SINGLE.....	62	2	6	..	2.65
C-175	BEARING, STRAIGHT .....	62,64,72	5	1	8	2.38
C-315	ZERK .....	57,58,59,62	39	..	..	.06
C-445	WEDGE, SMALL CABLE.....	56,58,59,63	4	..	8	.38
C-492	BUSHING, UNIVERSAL.....	61,71	2	6	..	6.15
C-495	BRACKET, SWIVEL SHEAVE.....	60	2	27	..	8.60
C-498	NUT, BEARING ADJUSTING.....	62	2	2	..	3.30
C-501	NUT, UNIVERSAL .....	60,61,73	7	1	14	1.05
C-504	SOCKET, SMALL CABLE.....	56,58,59,72	6	1	4	.68
C-518	BUSHING, UNIVERSAL.....	69,70,71	5	4	4	6.11
C-1051	COTTER KEY, 3/8" x 5".....	57,58,59,	20	..	4	.06
C-1414	PLATE, SPRING PULL.....	56	1	30	..	8.38
C-1518	COTTER KEY, 1/4" x 2".....	68	4	..	..	.01
C-1523	NUT, HEX NC 1/2".....	58	2	..	..	.03
C-1524	NUT, HEX NF 1/2".....	61,69,70,71	8	..	..	.03
C-1527	NUT, HEX NC 3/4".....	66	1	..	..	.05
C-1529	NUT, HEX NC 7/8".....	56	4	..	..	.08
C-1533	NUT, HEX NC 1 1/4".....	56	1	..	14	.23
C-1540	LOCKWASHER, 1/2".....	58	3	..	..	.01
C-1545	LOCKWASHER, 1 1/4".....	56	1	..	..	.13
C-1552	LOCKWASHER, 7/8".....	56	4	..	..	.01
C-1558	COTTER KEY, 3/8" x 3 1/2".....	64,66	7	..	..	.05
C-1561	COTTER KEY, 1/2" x 5".....	61,69,70,71	5	..	8	.11
C-1596	ZERK .....	64,69	5	..	..	.10
C-1600	CAPSCREW, NC 3/8" x 1/2".....	61,68	4	..	..	.03
C-1613	CAPSCREW, 1/2" x 1 1/4" NC.....	58	1	..	..	.06
C-1644	BOLT, 3/4" x 2" NC.....	66	1	..	6	.17
C-1915	SPRING, TAILGATE RETURN.....	56	3	50	..	13.50
C-1949	COTTER KEY, 1/4" x 3".....	70	1	..	..	.01
C-2068	WASHER .....	56	1	1	..	.38
C-2283	WEDGE, CABLE.....	56	1	..	12	.38
C-2508	COTTER KEY, 5/16" x 3".....	60,63,71,73,	9	..	..	.01
C-3868	FORGING, UNIVERSAL.....	74,75,76	1	53	..	30.10
C-4509	WING BOLT, CABLE SPOOL.....	56	2	3	4	1.13
C-5425	PLATE, INSPECTION.....	61,68	2	2	8	.56
C-5746	CAPSCREW, 1/4" x 3/4" NC.....	73,74,75,76	16	..	..	.02
C-5759	BOLT, 1/2" x 5" NC.....	58	2	..	.4	.17
C-5783	NUT, 7/16" NC HEX.....	62	2	..	..	.03
C-5797	BOLT, 1 1/4" x 1 1/2" MACHINE.....	56	1	7	..	1.16
D-1032	COTTER KEY, 5/16" x 5".....	59	3	..	4	.05
D-1957	PLOWBOLTS, 7/8" x 2 1/4".....	57	36	..	8	.16
D-2695	FORGING, UNIVERSAL.....	70,71	2	40	..	29.96
D-2812	BOLT, UNIVERSAL.....	71	1	4	12	2.07
D-2815	NUT, CASTELLATED NF 1 3/8".....	71	1	1	..	.68

SPARE PARTS & PRICE LIST

PART No.	DESCRIPTION	PAGE	QTY.	WEIGHT		PRICE EACH
				Lbs.	Oz.	
E-1218	HOIST CABLE.....	54	1	33	..	12.53
E-1223	DUMP CABLE.....	54	1	175	..	
E-2930	CUP, TAPERED BEARING.....	73,74,75,76	8	..	8	1.54
E-2931	CONE, TAPERED BEARING.....	73,74,75,76	8	1	..	2.68
E-3355	BUSHING, UNIVERSAL.....	61	1	4	8	6.11
E-3787	WEDGE, CABLE.....	72	2	..	12	.53
E-3892	HOUSING, SWIVEL SHEAVE.....	60	2	16	8	9.91
E-5287	SHEAVE, SLIDING TO APRON.....	54	1	4	..	1.63
E-5523	CAP, HUB.....	73,74,75,76	4	2	8	2.01
E-6616	BOLT, 1/2" x 3" NF.....	61,69,70,71	8	..	..	.10
F-998	BLOCK, UNIVERSAL.....	70	1	11	8	4.94
F-2912	PIN, UNIVERSAL.....	70	1	4	10	2.07
F-2913	NUT, 1 1/8" CASTELLATED.....	70	1	..	10	.66
F-7261	PIN, APRON LIFT.....	65	1	2	..	1.30
H-171	SHEAVE WHEEL, 9 1/2" THIN.....	57,58,59,67	13	8	8	4.01
H-225	BEARING.....	57,58,59, 62,64,67	24	1	4	2.38
H-2816	GASKET.....	73,74,75,76	4	..	..	.15
H-3442	HINGED HONDO.....	65	1	7	..	3.80
H-3443	WEDGE, CABLE.....	65	1	2	..	.85
H-3553	PIN, HINGE.....	60	2	4	..	2.50
H-6906	BOLT, 7/16" x 5 1/2" NF.....	62	2	..	6	.11
H-7931	FORGING, UNIVERSAL.....	69	1	39	..	20.40
H-8226	BOLT.....	61	1	9	..	4.73
H-8230	BLOCK, HITCH.....	71	1	17	4	8.45
H-8231	UNIVERSAL ASSEMBLY.....	71	1	67	..	41.20
H-9362	BUTTONHEAD GREASE FITTING.....	61,68,73, 74,75,76	7	..	4	.33
L-135	SEAL, DUST.....	64	12	..	1	.30
L-323	SEAL, DUST.....	62,64,72	10	..	2	.50
L-3197	SEAL, OIL.....	73,74,75,76	4	..	8	1.26
R-126	TAILGATE STRUCTURE.....	63	1	710	..	227.00
R-128	APRON STRUCTURE.....	65	1	620	..	173.40
R-129	ROLLER, TAILGATE.....	64	2	20	..	12.50
R-131	PIN, TAILGATE ROLLER.....	64	2	8	8	5.60
R-132	PIN, APRON HINGE.....	65	2	5	8	4.95
R-133	PIN, APRON HINGE LOCK.....	65	2	..	8	.82
R-134	AXEL, STUB.....	73,74	1	30	..	10.55
R-136	BOLT PLATE AND SHEAVE HOUSING STRUCTURE.....	58	1	27	..	14.70
R-137	HINGED HONDO.....	63	1	4	8	1.90
R-138	PIN, HONDO HINGED.....	63	1	1	2	.64
R-139	PIN, SHEAVE.....	59	3	2	2	1.95
R-140	PIN, DOUBLE SHEAVE.....	58,59	3	6	10	4.97
R-142	YOKE STRUCTURE.....	60	1	740	..	259.75
R-825	SHEAVE WHEEL.....	57,58,59, 62,64,67	11	6	..	5.05
R-826	PIN, SINGLE SHEAVE.....	57,58,59, 62,67	14	4	4	3.70
R-827	PUSHBEAM STRUCTURE.....	66	1	140	..	51.75
R-828	PIN, FRONT ROLLER.....	64	2	3	4	1.98
R-829	ROLLER, SIDE THRUST.....	64	2	4	..	2.90
R-835	HOUSING, SLIDING SHEAVE.....	59	1	18	..	7.45
R-1057	COTTER.....	65	4	..	..	.01
R-1119	WHEEL STRUCTURE.....	72	1	70	..	33.75
R-1132	PIN, SPIRAL SHEAVE.....	72	1	6	..	3.95
R-1801	TAILGATE TO SPIRAL SHEAVE.....	54	1	4	..	1.44
R-1802	FRONT AXLE STRUCTURE.....	68	1	370	..	153.30
R-1803	PIN, AXLE LOCK.....	68	2	1	8	.93

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## SPARE PARTS &amp; PRICE LIST

PART No.	DESCRIPTION	PAGE	QTY.	WEIGHT		PRICE EACH
				Lbs.	Oz.	
R-1965	AXLE, STUB .....	75,76	2	30	..	10.55
R-2136	PIN, HINGE .....	66	1	1	8	.99
R-3458	NUT ASSEMBLY, UNIVERSAL .....	61,69,70,71	4	7	..	5.41
R-3490	HOUSING, PUSHBEAM SHEAVE .....	66	2	16	8	5.20
R-3491	HOUSING, PUSHBEAM SHEAVE .....	66	1	9	8	4.25
R-3493	SHEAVE HOUSING HEAD STRUCTURE .....	58	1	47	..	21.25
R-3494	BLADE BASE .....	57	1	175	..	40.35
R-3495	BOTTOM STRUCTURE .....	57	1	700	..	197.50
R-3770	BLADE, CENTER .....	57	1	92	..	16.30
R-3771	BLADE, END .....	57	2	28	..	4.70
R-3772	BLADE ASSEMBLY .....	57	1	148	..	25.70
R-4210	CABLE BOX .....	56	1	20	..	6.80
R-4211	COVER, CABLE REEL BOX .....	56	1	10	10	1.69
R-4221	WHEEL STRUCTURE .....	73,74,75,76	4	95	..	30.88
R-4222	RING, LOCKING .....	73,74,75,76	4	11	..	3.73
R-7008	BODY STRUCTURE .....	56	1	2350	..	706.00
R-7191	SPIRAL SHEAVE TO SPRINGPIPE CABLE .....	54	1	4	..	1.71

SPARE PARTS & PRICE LIST

PART No.	DESCRIPTION	PAGE	QTY.	WEIGHT		PRICE EACH
				Lbs.	Oz.	
R-144	YOKE ASSEMBLY (Includes Following):.....	60,61,62	1	915	..	384.00
R-142	YOKE STRUCTURE.....		1			
C-3868	FORGING, FEMALE UNIVERSAL.....		1			
C-59	NUT, UNIVERSAL.....		1			
C-1561	COTTER PIN.....		1			
E-6616	BOLT, MACHINE 1/2" x 5".....		2			
C-1524	NUTS, 1/2" NF HEX.....		2			
H-8226	PIN, UNIVERSAL.....		1			
C-501	NUT, CASTELLATED, 1 7/8" NF.....		1			
C-2508	PIN, 5/16" x 3" COTTER.....		1			
H-9362	FITTING, 3/8" BUTTONHEAD GREASE.....		1			
C-5425	PLATE, INSPECTION.....		1			
C-1600	CAPSCREWS, 3/8" x 1/2" NC.....		2			
E-3892	SWIVEL SHEAVE HOUSING STRUCTURE.....		2			
C-36	WHEELS, WIDE SHEAVE.....		2			
C-175	ROLLER BEARINGS.....		2			
L-323	OIL SEALS.....		4			
C-138	PIN, SHEAVE.....		2			
C-315	ZERK FITTINGS.....		8			
C1051	COTTER PIN.....		4			
C-1	CUP, BEARING.....		4			
C-16	CONE, BEARING.....		4			
H-6906	BOLTS, 7/16" x 5 1/2" NF.....		2			
C-5783	NUTS, 7/16" NF HEX.....		2			
C-498	NUTS, BEARING ADJUSTING.....		2			
R-825	WHEEL, SHEAVE.....		2			
H-225	ROLLER BEARING.....		2			
R-826	PIN, SHEAVE.....		2			
R-148	TAILGATE ASSEMBLY (Includes Following):.....	63,64	1	850	..	342.00
R-126	TAILGATE STRUCTURE.....		1			
C-133	ROLLERS, THRUST.....		4			
C-12	BEARINGS, ROLLER.....		12			
L-135	SEALS, DUST.....		12			
C-134	SEALS, DUST.....		4			
C-1558	PIN, COTTER, 3/8" x 3 1/2".....		6			
C-315	ZERK FITTINGS.....		6			
R-829	ROLLER.....		2			
R-828	PIN.....		2			
C-1596	ZERK FITTINGS.....		4			
R-129	ROLLER.....		2			
C-175	ROLLER BEARINGS.....		2			
L-323	SEALS, OIL.....		2			
R-825	WHEEL, SHEAVE.....		2			
H-225	BEARINGS, ROLLER.....		2			
R-131	PIN.....		2			
C-1051	COTTER, 3/8" x 5".....		2			
R-137	HINGED HONDO STRUCTURE.....		1			
R-138	PIN, HINGE.....		1			
C-2508	PIN, COTTER 5/16" x 3".....		2			
C-445	CABLE WEDGE.....		1			
H-8231	UNIVERSAL ASSEMBLY (For new D6 & D7) In- cludes Following):.....	71	1	67	..	41.20
H-8230	HITCH BLOCK.....		1			
D-2695	FORGING.....		1			
D-2815	NUT.....		1			
C-2508	COTTER PIN.....		1			
D-2812	BOLT.....		1			

## LIST OF ASSEMBLIES

PART No.	DESCRIPTION	PAGE	QTY.	WEIGHT Lbs. Oz.	PRICE EACH
R-145	PUSHBEAM ASSEMBLY (Includes Following):.....	66,67	1	185 ..	84.00
R-827	PUSHBEAM STRUCTURE.....		1		
R-2136	PIN, HINGE.....		1		
C-1558	PIN, COTTER 3/8" x 3 1/2".....		1		
C-1644	CAPSCREW, 3/4" x 2" NC.....		1		
C-1527	NUT, 3/4" NC HEX.....		1		
R-825	WHEEL, SHEAVE.....		1		
H-225	BEARINGS, ROLLER.....		3		
R-826	PIN, SHEAVE.....		3		
C-315	ZERK FITTING.....		3		
C-1051	PIN, COTTER.....		3		
H-171	WHEELS, SHEAVE.....		2		
R-7190	SPIRAL SHEAVE ASSEMBLY (Includes Following):..	72	1	83 ..	45.40
R-1119	SPIRAL SHEAVE STRUCTURE.....		1		
C-445	WEDGE, CABLE.....		1		
C-175	BEARING, ROLLER.....		1		
C-6	RACE.....		1		
L-323	SEALS, OIL.....		2		
R-1132	PIN, SHEAVE.....		1		
C-315	ZERK FITTINGS.....		1		
C-1051	PIN, SHEAVE.....		1		
E-3787	WEDGE, CABLE.....		1		
F-4560	UNIVERSAL ASSEMBLY (Includes Following):....	70	1	60 ..	37.66
D-2695	FORGING.....		1		
F-998	BLOCK.....		1		
F-2912	PIN.....		1		
F-2913	NUT.....		1		
C-1949	COTTER.....		1		
R-3832	FRONT SINGLE WHEEL ASSEMBLY (Includes Fol- lowing):.....	73,74	2	145 ..	58.50
R-4221	WHEEL STRUCTURE, FRONT SINGLE.....		2		
R-134	AXLE.....		2		
C-501	AXLE NUT.....		2		
C-2508	PIN, COTTER.....		2		
E-5523	CAP, HUB.....		2		
C-5746	CAPSCREWS, 1/4" x 3/4" NC.....		8		
H-9362	BUTTONHEAD GREASE FITTING.....		2		
H-2816	GASKET.....		2		
E-2930	CUP, BEARING.....		4		
E-2931	CONE, BEARING.....		4		
L-3197	SEAL, OIL.....		2		
R-4222	RING, LOCKING.....		2		
R-3833	REAR SINGLE WHEEL ASSEMBLY (Includes Fol- lowing):.....	75,76	2	145 ..	58.50
R-4221	SINGLE WHEEL STRUCTURE.....		2		
R-1965	AXLE.....		2		
R-501	AXLE NUT.....		2		
C-2508	PIN, COTTER.....		2		
E-5523	CAP, NUB.....		2		
H-2816	GASKET.....		2		
C-5746	CAPSCREW, 1/4" x 3/4" NC.....		8		
H-9362	BUTTONHEAD GREASE FITTING.....		2		
E-2930	CAP, BEARING.....		4		
E-2931	CONE, BEARING.....		4		
L-3197	SEAL, OIL.....		2		
R-4222	RING, LOCKING.....		2		

LIST OF ASSEMBLIES













