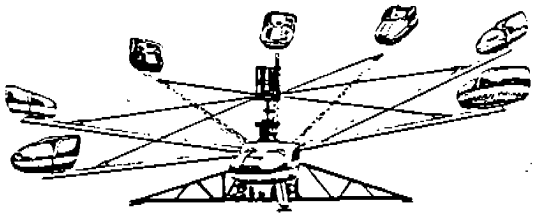


Octopus

(8 arm-8 car)

EYERLY INC.

P.O. BOX 12155
2050 TURNER RD. S.E.
SALEM, OREGON 97309

TOLL FREE OUTSIDE OREGON
(800) 547-9156
(503) 399-7706 FOR AFTER
HOURS AND WEEKENDS

Price L

MFG: EYERLY
NAME: SPIDER/*Octopus*
TYPE: NON-KIDDIE

MFG: EYERLY
NAME: OCTOPUS/*Spider*
TYPE: NON-KIDDIE

Complete 8 arm - 8 car operating unit with fiberglass cars, fluorescent lighting, illuminated center ornament, 3Ø, 208V, 15 HP electric driving power, lighting and power controls at remote operator stand, rigid mechanical clutch/brake linkage, car covers, erection and maintenance tools, operation manual and parts book, and selected spare parts.

$52,950.00

OPTIONAL EQUIPMENT

Flexible clutch/brake linkage	337.00
Hydro sheave	612.00
Gas power	†
Fence**	2,325.00
Service wire***	†

**Fence 42" high consists of 30-89" long sections, 2-54¾" short sections and 35 jacks.

***See specification sheets and specify required length.

†Quotation upon application.

Warranty: The Warranties of the Manufacturer are limited and are fully set out in each sales agreement.

ELECTRICAL AND WIRING SPECIFICATIONS:
Conformance to State and local electrical codes is the responsibility of the purchaser. Each ride is delivered to factory specifications unless ordered with deletions and/or extra cost additions and modifications.

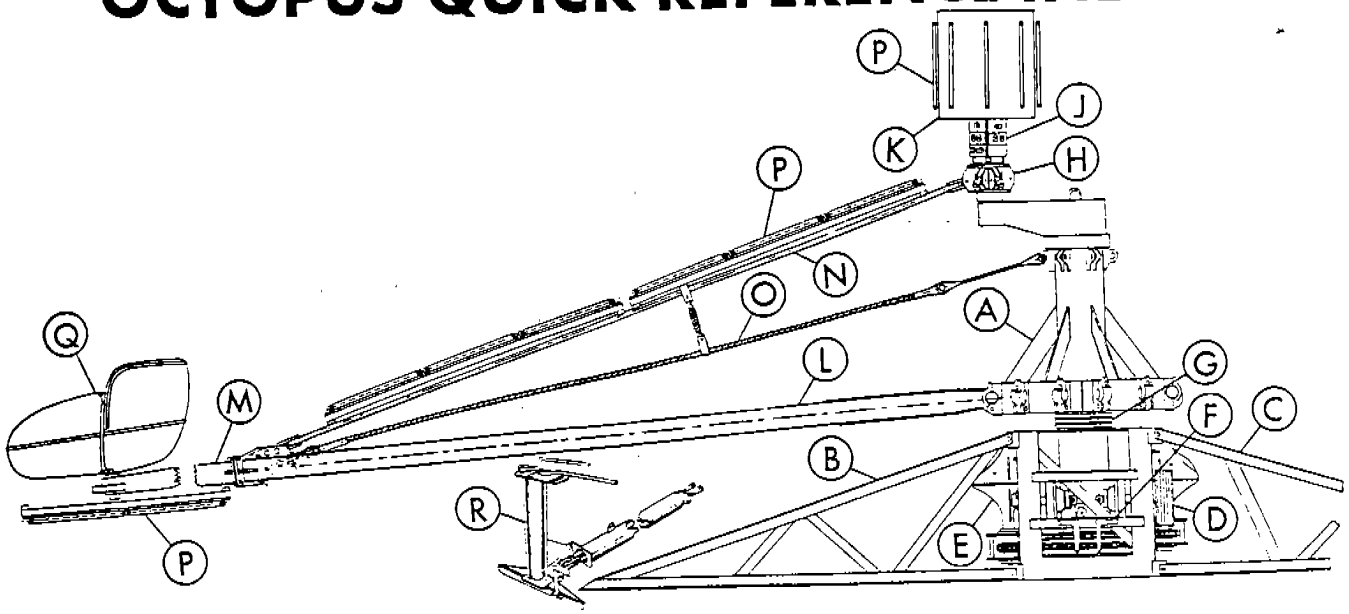
Specifications subject to change without notice.
Prices subject to change without notice.
Prices F.O.B. Factory, Salem, Oregon. U.S.A.

Prices effective October 2, 1978

10/78/A Printed in U.S.A.

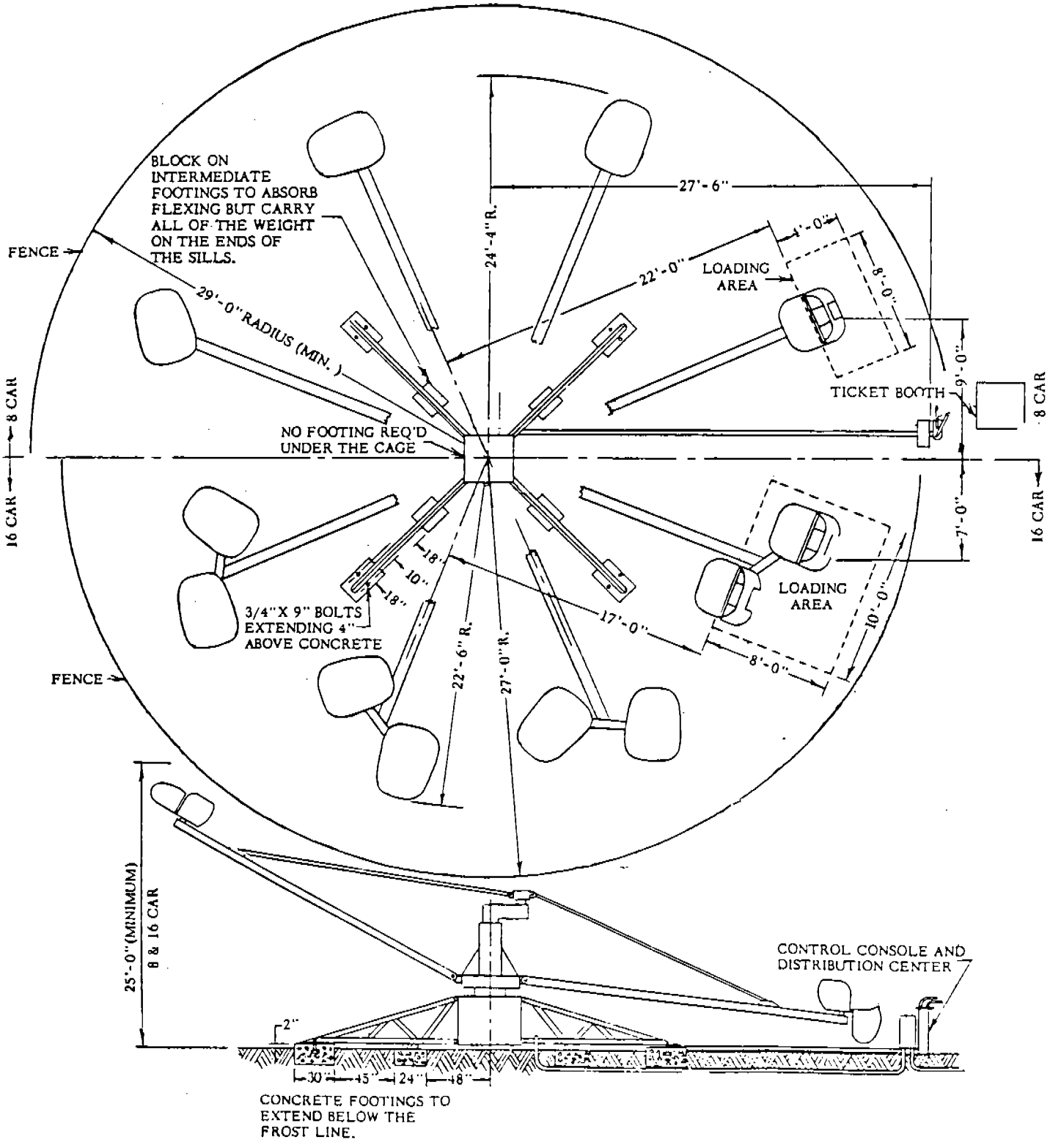
Everly AIRCRAFT CO. SALEM, ORE.

OCTOPUS QUICK REFERENCE INDEX



"Everly" AIRCRAFT CO. SALEM, ORE.

OCTOPUS BASE PLAN
(8 CAR & 16 CAR)



EYERLY AIRCRAFT CO. SALEM, ORE.

OCTOPUS POWER REQUIREMENTS

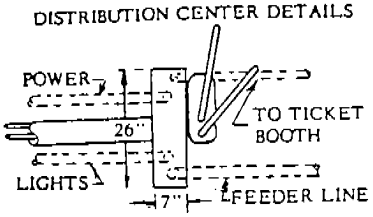
(8 CAR & 16 CAR)

POWER REQUIREMENTS

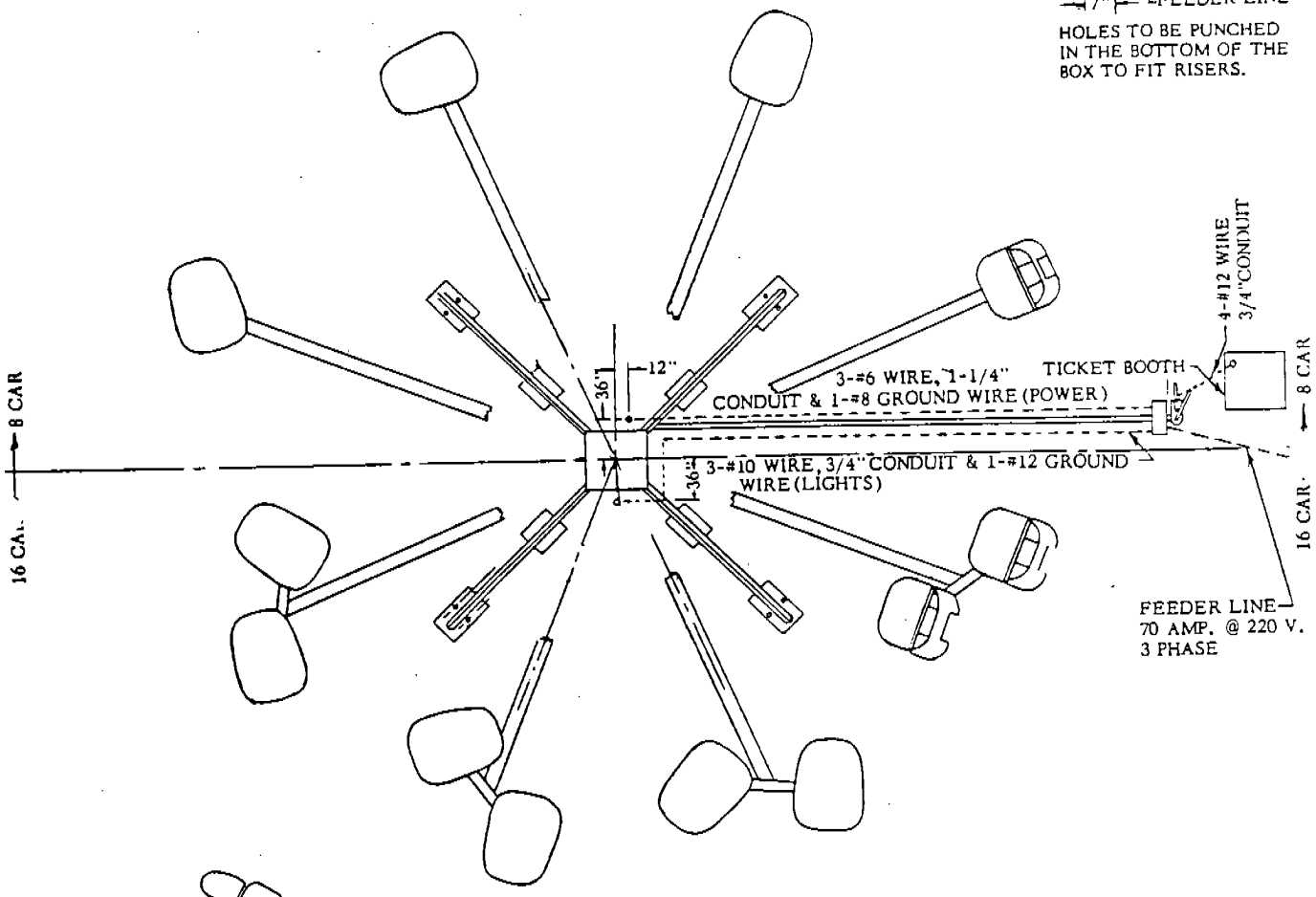
MOTOR-ONE 15 H. P. 3 PHASE, 60 CYCLE 40 AMP. @ 220 VOLTS, 1800 RPM

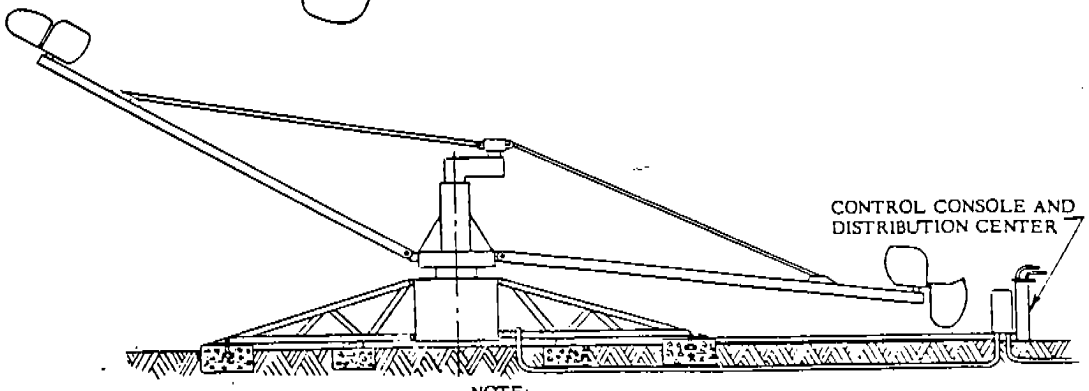
LIGHTS- 72- 20 WATT FLUORESCENT TUBES @ 0.55 AMPS EACH- INCLUDES TOP ORNAMENT.

DISTRIBUTION CENTER DETAILS



HOLES TO BE PUNCHED IN THE BOTTOM OF THE BOX TO FIT RISERS.



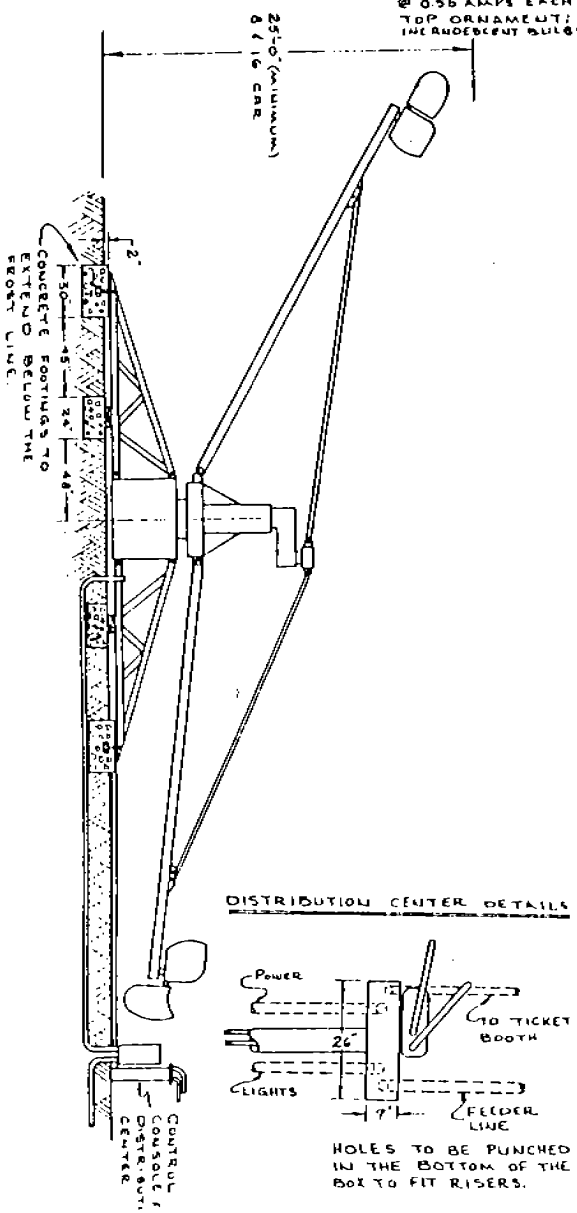


NOTE:
STANDARD EQUIPMENT INCLUDES POWER AND LIGHT WIRING IN CONDUIT ATTACHED TO THE CONTROL TUBE FROM DISTRIBUTION CENTER TO CAGE. ALTERNATE UNDERGROUND INSTALLATION IS SHOWN ABOVE.

POWER REQUIREMENTS:

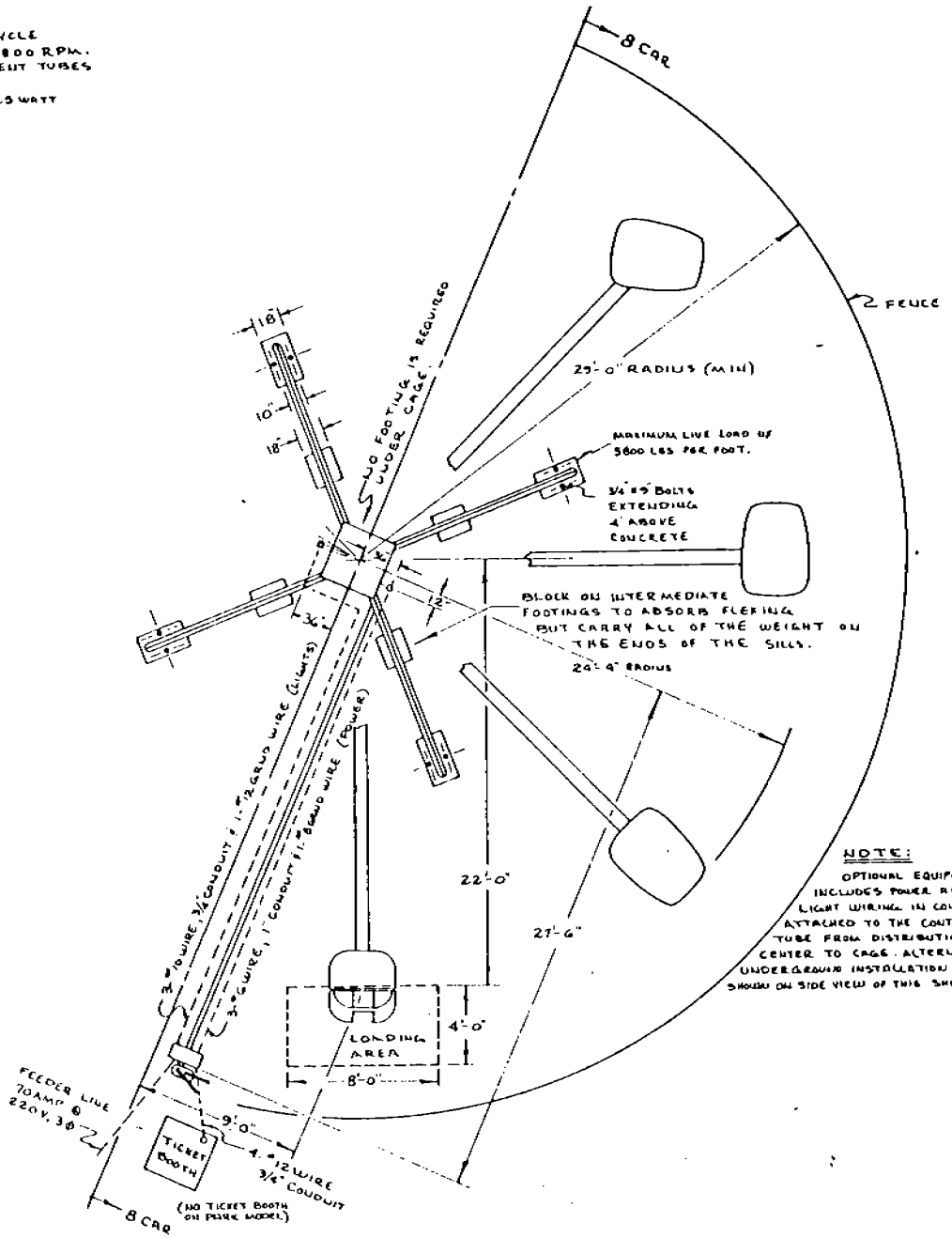
MOTOR - ONE 15 H.P., 3PH, 60 CYCLE 42 AMP @ 220 VOLTS, 1800 R.P.M.

LIGHTS - 64 - 20 WATT FLUORESCENT TUBES @ 0.55 AMPS EACH - TOP ORNAMENT; 32 - 25 WATT INCANDESCENT BULBS.



DISTRIBUTION CENTER DETAILS

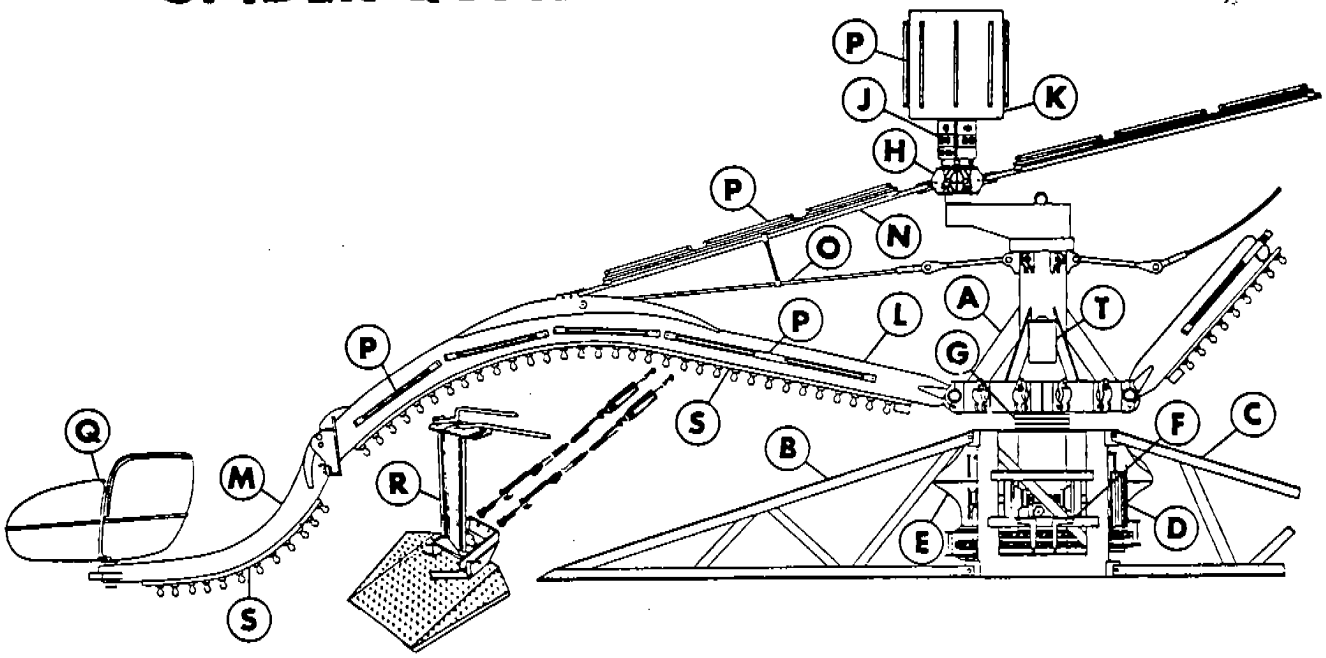
HOLES TO BE PUNCHED IN THE BOTTOM OF THE BOX TO FIT RISERS.



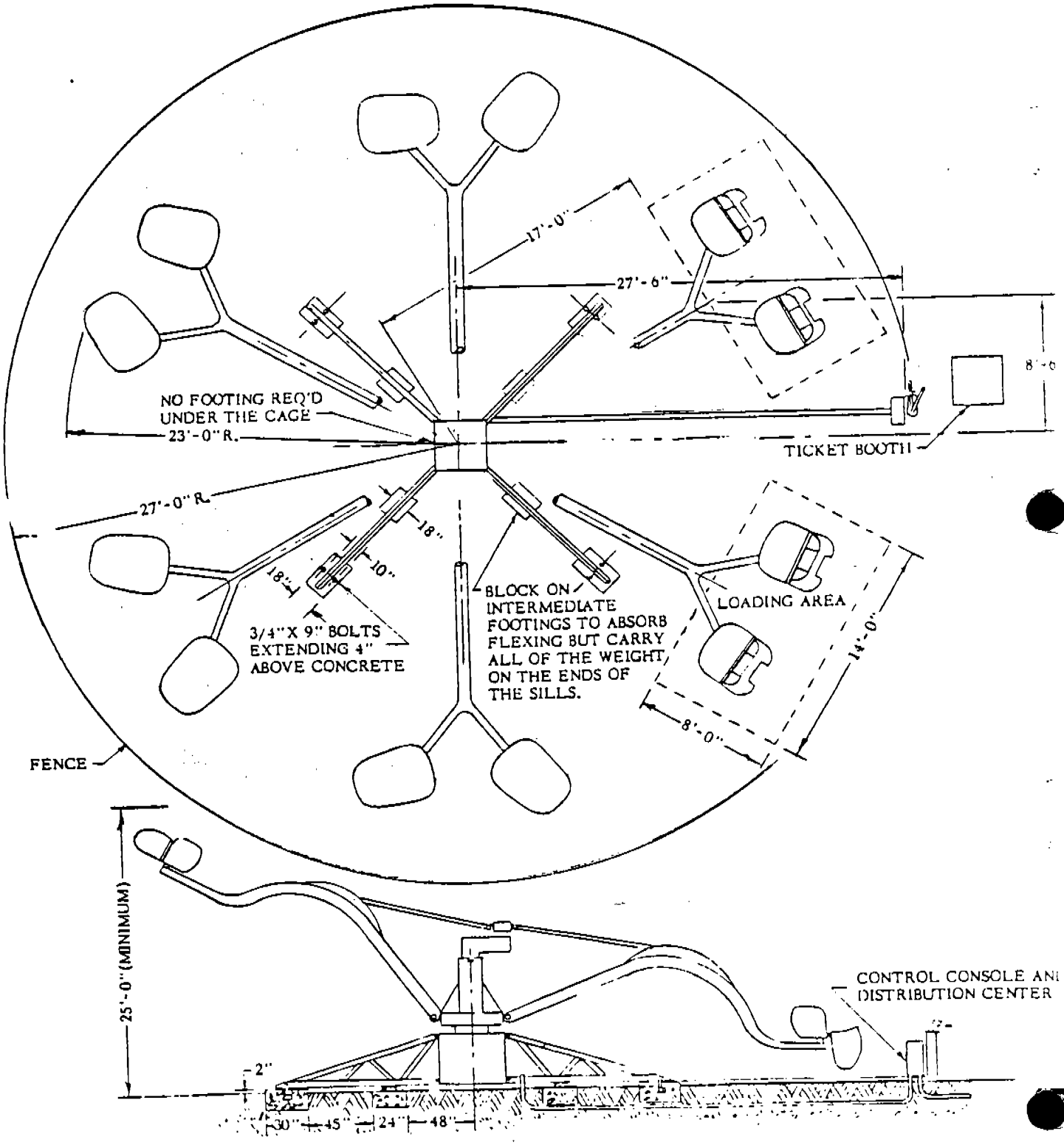
NOTE:

OPTIONAL EQUIPMENT INCLUDES POWER AND LIGHT WIRING IN CONDUIT ATTACHED TO THE CONTROL TUBE FROM DISTRIBUTION CENTER TO CAGE. ALTERNATE UNDERGROUND INSTALLATION IS SHOWN ON SIDE VIEW OF THIS SHEET.

SPIDER QUICK REFERENCE INDEX



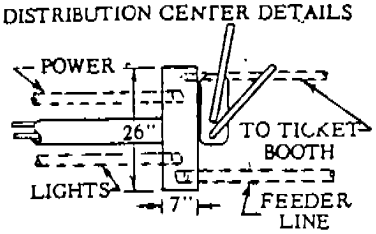
SPIDER BASE PLAN



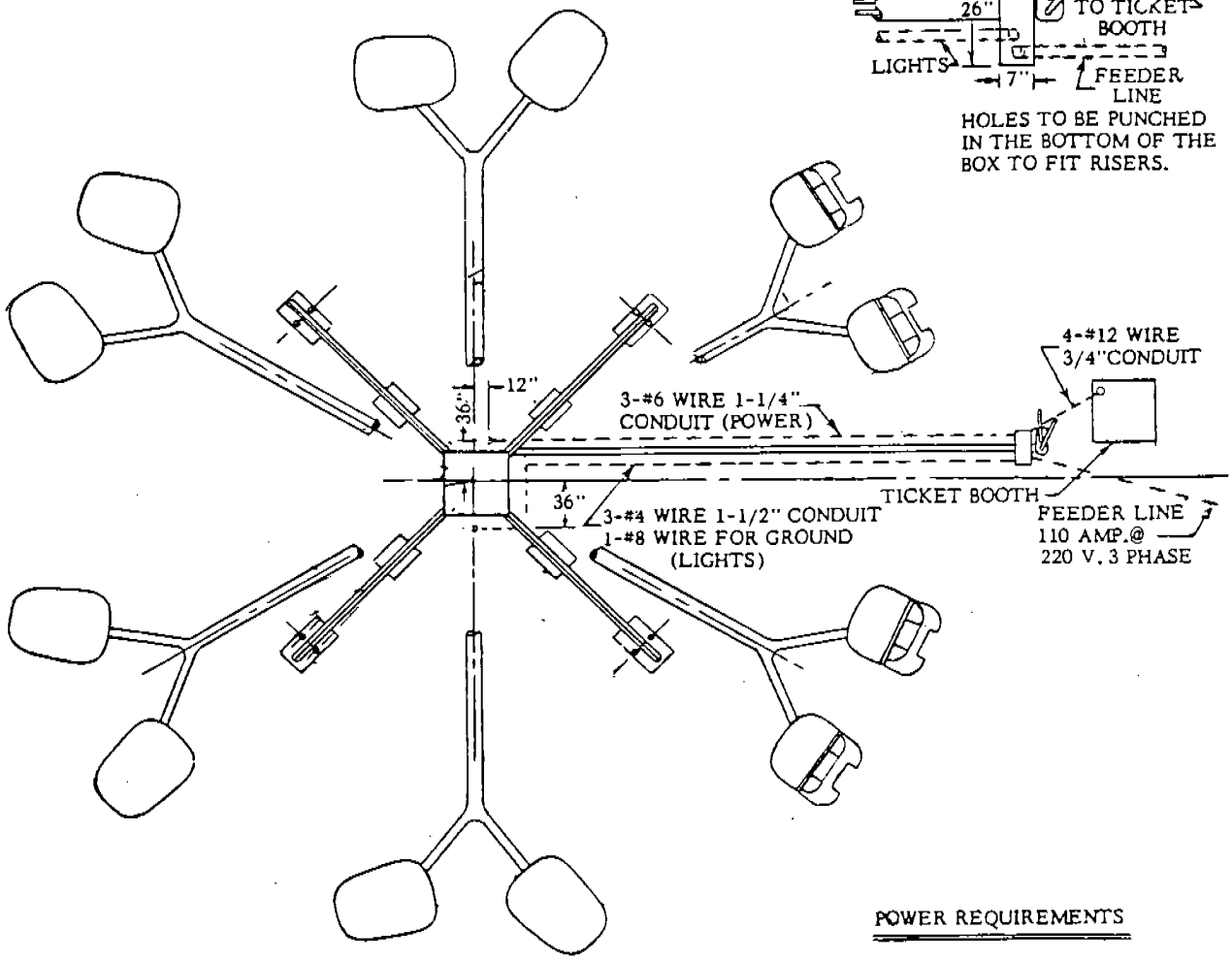
CONCRETE FOOTINGS TO
EXTEND BELOW T
FROST LINE.

SPIDER POWER REQUIREMENTS

DISTRIBUTION CENTER DETAILS



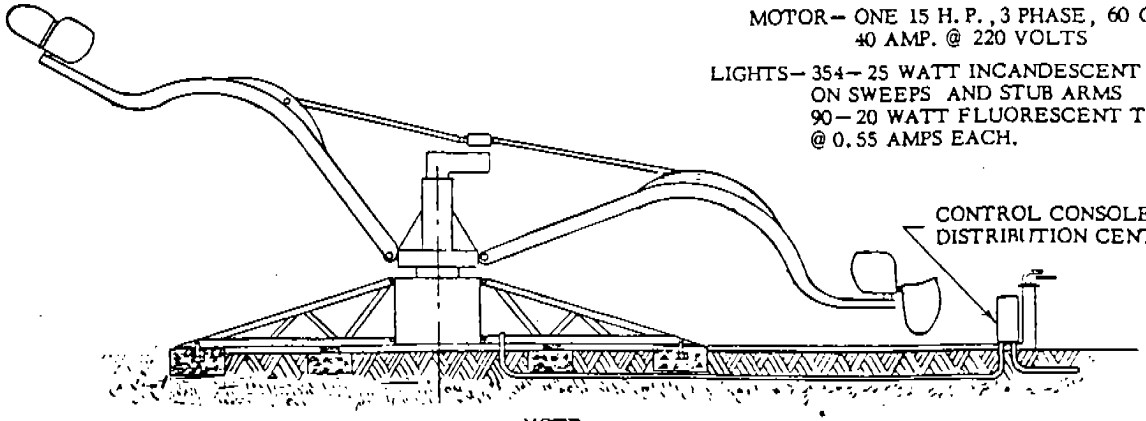
HOLES TO BE PUNCHED IN THE BOTTOM OF THE BOX TO FIT RISERS.



POWER REQUIREMENTS

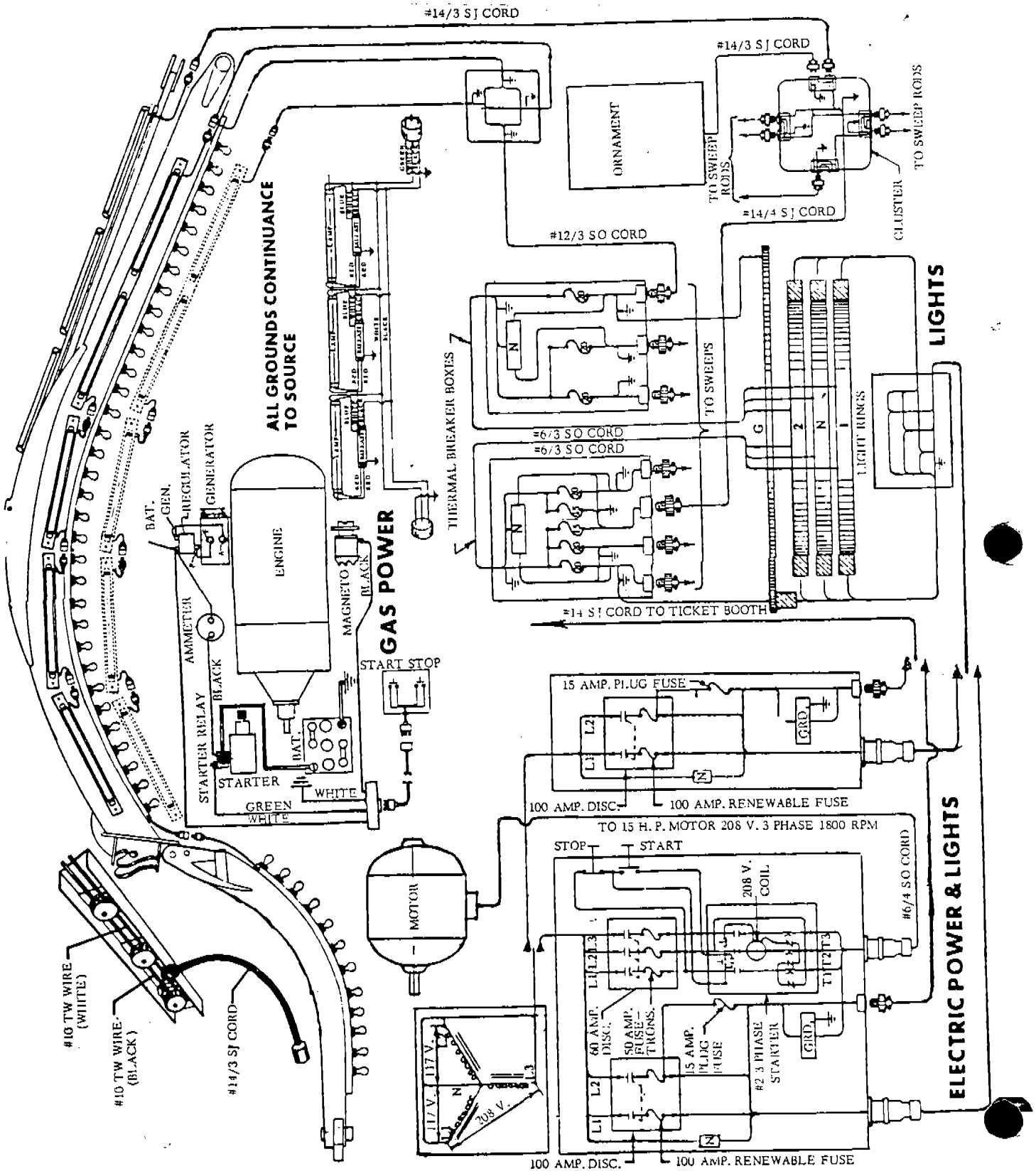
MOTOR— ONE 15 H. P., 3 PHASE, 60 CYCLE
40 AMP. @ 220 VOLTS

LIGHTS— 354— 25 WATT INCANDESCENT BULBS
ON SWEEPS AND STUB ARMS
90— 20 WATT FLUORESCENT TUBES
@ 0.55 AMPS EACH.

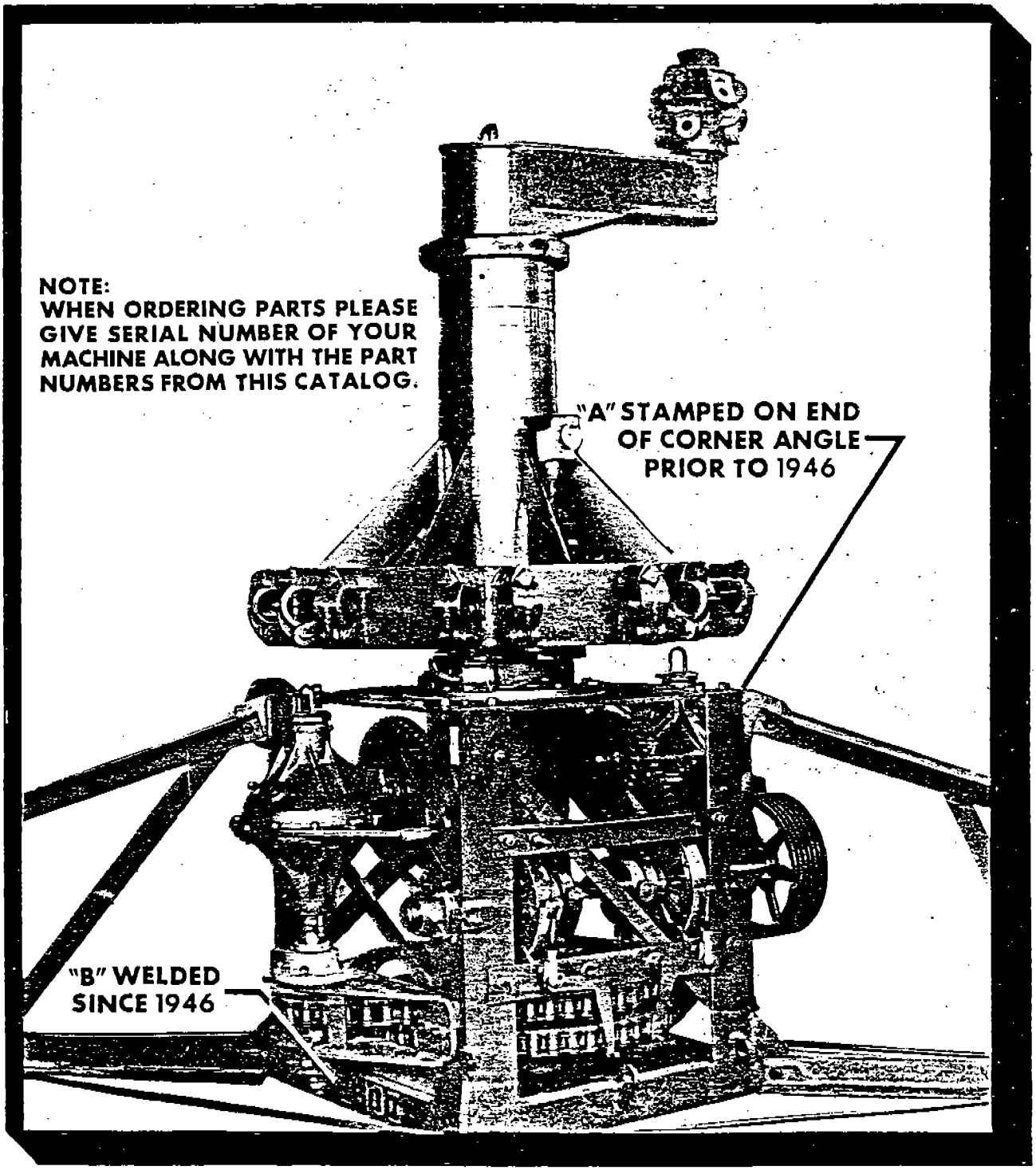


NOTE:
STANDARD EQUIPMENT INCLUDES POWER AND LIGHT WIRING IN CONDUIT ATTACHED TO THE CONTROL TUBE FROM DISTRIBUTION CENTER TO CAGE. ALTERNATE UNDERGROUND INSTALLATION IS SHOWN ABOVE.

SPIDER WIRING DIAGRAM



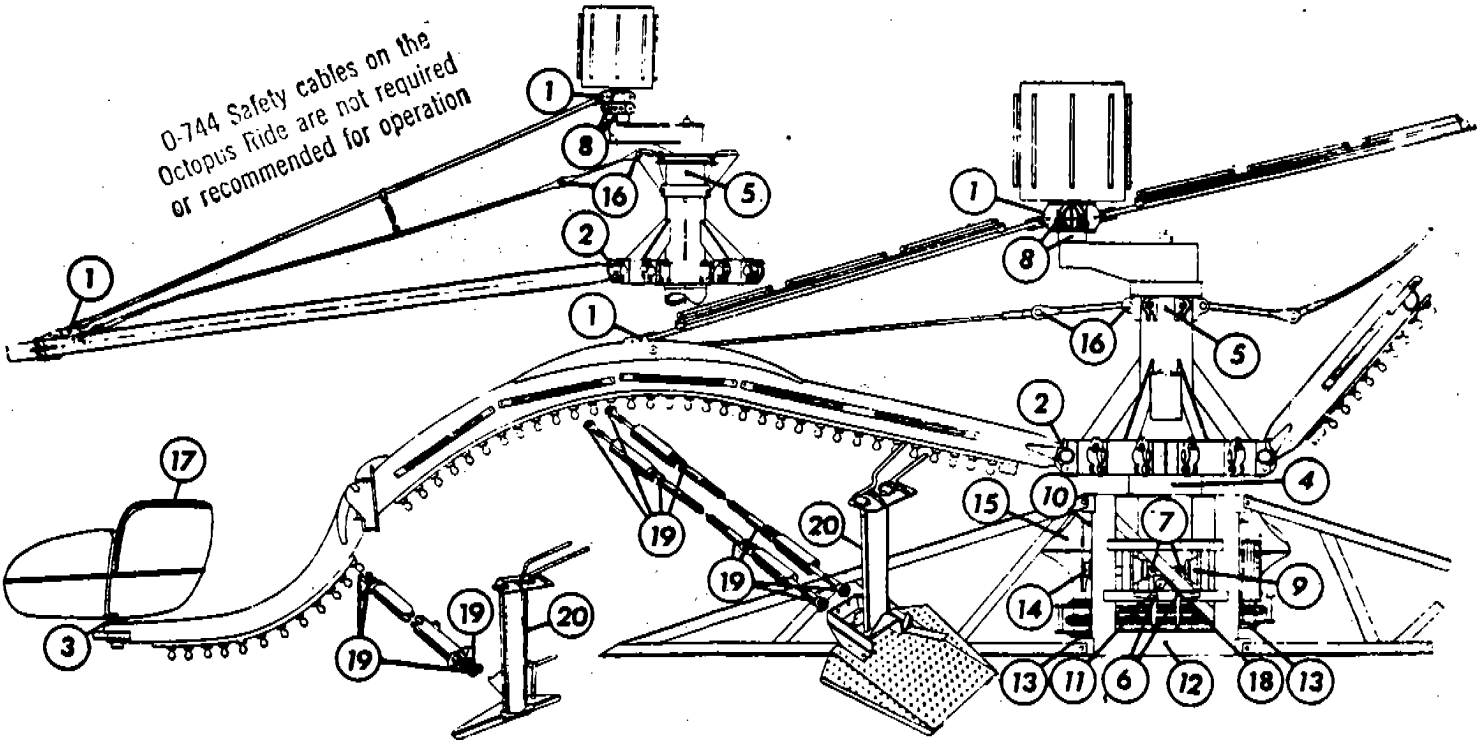
LOCATION OF SERIAL NUMBERS



MACHINES BUILT PRIOR TO 1946 HAVE SERIAL NUMBERS 2000 TO 2120 AND 3000 TO 3012. THE SERIAL NUMBER IS STAMPED ON THE END OF A CORNER ANGLE OF THE CAGE. SEE ("A")

MACHINES BUILT DURING AND AFTER 1946 HAVE SERIAL NUMBERS 2500-UP AND 3500-UP. THE SERIAL NUMBER IS WELDED ON THE BOTTOM CHANNEL OF THE CAGE. SEE ("B")

LUBRICATION INSTRUCTIONS



NO.	NAME OF PART	TYPE OF BEARING	*
1	SWIVEL BLOCKS	BRONZE	(A)
2	HINGE BUSHINGS	BRONZE	(A)
3	CAR SPINDLE BUSHINGS	NYLON OR BRONZE	(A)
4	SPLIT HUB BUSHING	BRONZE	(A)
5	ECCENTRIC TUBE BUSHING	BRONZE	(A)
6	CLUTCH THROW-OUT BUSHINGS	BRONZE	(A)
7	CLUTCH SHIFTER RING BEARING	ANTI-FRICTION	(A)
8	ECCENTRIC HUB BEARINGS	ANTI-FRICTION	(B)
9	CLUTCH BOWL BEARINGS	ANTI-FRICTION	(B)
10	GEAR CASE UPPER BEARING	ANTI-FRICTION	(A)

NO.	NAME OF PART	TYPE OF BEARING	*
11	BASE BEARING (Upper)	ANTI-FRICTION	(A)
12	BASE BEARING (Lower)	ANTI-FRICTION	(A)
13	DRIVE SHAFT BEARINGS	ANTI-FRICTION	(C)
14	COUNTERSHAFT BEARINGS	ANTI-FRICTION	(C)
15	GEAR CASE	ANTI-FRICTION	(D)
16	SAFETY CABLE ASSEMBLY	STEEL	(A)
17	CAR	STEEL	(E)
18	CLUTCH ROLLERS & SHAFT	STEEL	(E)
19	ROD ENDS	STEEL	(B)
20	CONTROL STAND	STEEL	(E)

***LUBRICATION INTERVAL: THE ABOVE TABLE OF LUBRICATION INTERVALS REFER TO AVERAGE OPERATING CONDITIONS WITH GREASE SEALS INTACT**

(A) DAILY OR EVERY EIGHT HOURS DURING HEAVY OPERATIONS.** KEEP LIGHT RINGS CLEAN AND FREE OF CONTAMINANTS SUCH AS GREASE, OIL ETC.

(B) LIGHTLY EVERY TWO WEEKS.**

(C) EVERY THREE MONTHS.**

(D) CHECK EVERY MONTH. CHANGE EVERY YEAR. USE E. P. 90 GEAR LUBE.

(E) KEEP ALL MOVING PARTS OILED DAILY.

NOTES:
** USE A MULTI-PURPOSE WATER RESISTANT GREASE WITH AN ACCEPTED EXTREME PRESSURE ADDATIVE SUCH AS CHEVRON R. P. M. MOLYGREASE NO. 1 OR MOBIL GREASE SPECIAL IN ALL PRESSURE FITTINGS.

CHANGE OIL IN HYDRO-SHEAVE EVERY 4000 HOURS OR ONCE A YEAR. USE 10W ABOVE 10 DEGREE F. & 5W BELOW 10 DEGREE F. OIL IS TO BE HEAVY DUTY TO MEET A. P. I. SERVICES CLASS M. S.

LUBRICATE DRIVE CHAINS EVERY TWO WEEKS WITH AN APPROVED LUBRICANT SUCH AS ROTANIUM POWER-LUBE NO. 91665, CHEVRON PINION GREASE MS OR EQUIVALENT.

WHEN GREASING SWIVEL BLOCKS, RAISE THE SWEEPS TO RELIEVE PIN PRESSURE AND ENABLE THE LUBRICANT TO COMPLETELY SURROUND THE SWIVEL PIN.

REFER TO THE ALLIS-CHALMERS OPERATING & MAINTENANCE MANUAL FOR SERVICE OF G-138 GAS ENGINE.

CLUTCH ADJUSTMENTS

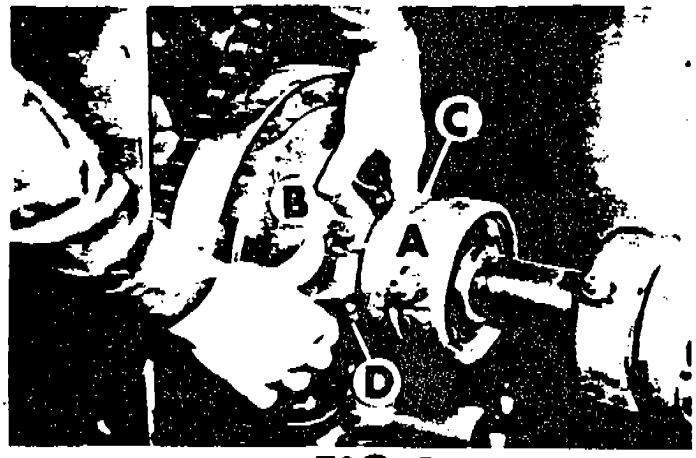


FIG. 1

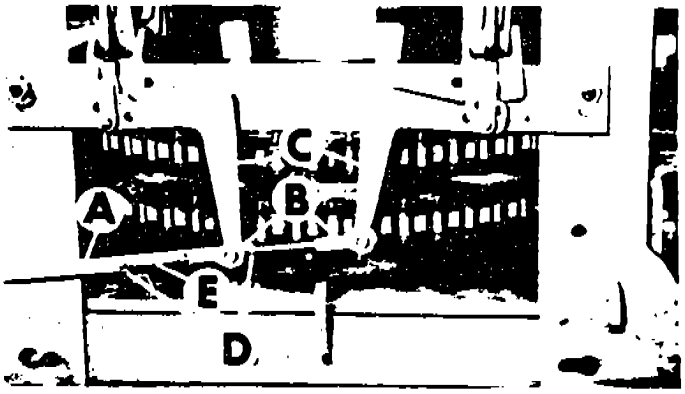


FIG. 2

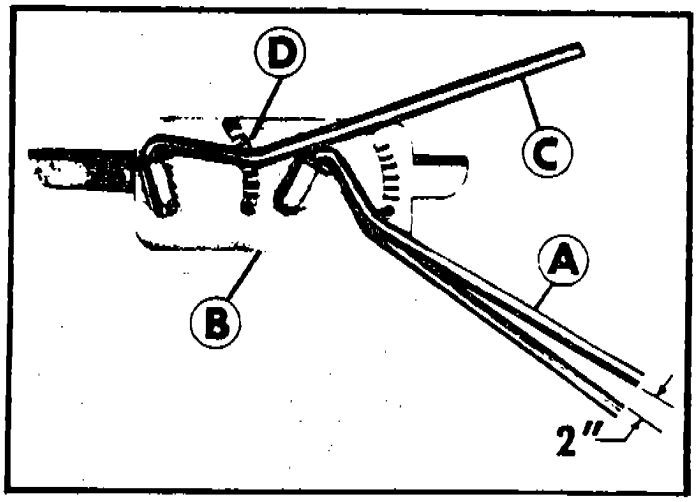


FIG. 3

The clutches are adjusted by depressing the lock lever (A) as shown in Fig. 1, and rotating the clutch finger assembly (B) in a clockwise direction, facing the clutch, to tighten and in a counter-clockwise direction to loosen. They should be adjusted to where it requires some leverage to engage them and should feel and hear a definate snap as the rollers engage the recess in the cam. Be sure the lock lever (A) drops into the slot when adjustment is completed.

The clutch control rods (A) Fig. 2 are adjusted by removing the clutch control rod ends (B) from the levers (C) and, with the control handle (A) Fig. 3, on the control stand (B) in a position about two inches from the extreme back position as shown in Fig. 3 and with the clutch engaged, release the lock nuts (D) Fig. 2, adjust the clutch control rod end studs (E) in or out until the rod ends (B) align with the pins on lever (C). Complete the adjustment by mounting the rod ends (B) on the pins on levers (C) inserting the cotter keys and tightening lock nuts (D).

BRAKE ADJUSTMENTS

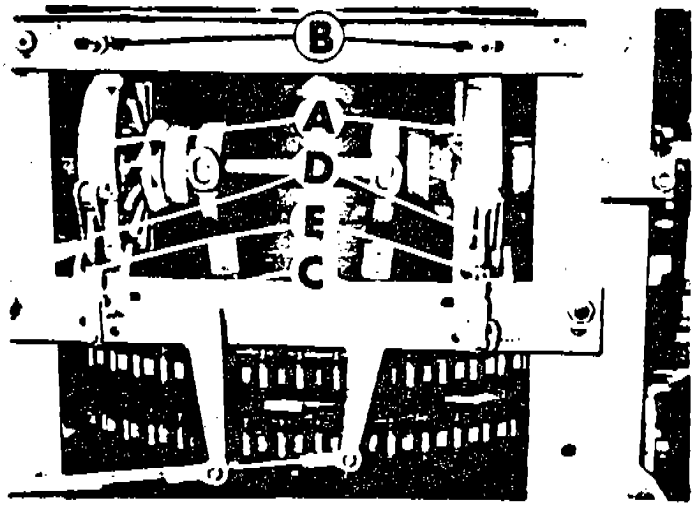


FIG. 4

The brakes (A) Fig. 4 are adjusted by means of the nuts (B). The adjustment should be such that, with the control handle (C) Fig. 3 in the center segment of ratchet (D), the brakes are set. As the brakes wear and no further adjustment can be made with nuts (B), further adjustment may be made by disconnecting clevis (C) Fig. 4 and unscrewing it on brake rod (D). However, when this adjustment is employed, never go beyond the point where less than four or five threads of the brake rod (D) are engaged in the clevis (C). When the adjustment is completed, be sure to tighten lock nut (E). Replace the brake lining on the band before the rivets score the drum.

LUBRICATION INSTRUCTIONS

REFER TO PAGE 6 FIGURES 1, 2, 3 & 4

REF. NO.	NAME OF PART	TYPE OF BEARING	WHEN TO GREASE
1	MAIN SPINDLE BUSHING	BRONZE	A
2	RETAINER PLATE THRUST WASHER & HUB OUTER BEARING	BRONZE & ANTI-FRICTION	A
3	CRANK ARM BUSHING	BRONZE	A
4	PILLOW BLOCK BUSHINGS	BRONZE	A
5	COUNTERSHAFT BEARINGS	ANTI-FRICTION	B
6	CONNECTING ROD BEARINGS	ANTI-FRICTION	B
7	CAR SPINDLE BEARINGS	ANTI-FRICTION	C
8	MOTOR BEARINGS	ANTI-FRICTION	E
9	GEAR REDUCTION CASE	ANTI-FRICTION	D

(A) DAILY OR EVERY EIGHT HOURS DURING HEAVY OPERATION.

(B) EVERY TWO WEEKS.

(C) EVERY THREE MONTHS.

(D) CHECK EVERY MONTH. CHANGE EVERY YEAR USING TEXACO REGAL OIL F-R & O.

(E) PURGE AND REPACK ONCE YEARLY

KEEP LIGHT RINGS CLEAN AND LUBRICATE WITH VASELINE DAILY. LUBRICATE CAR REVOLVING CABLE WITH TEXCLAD #2

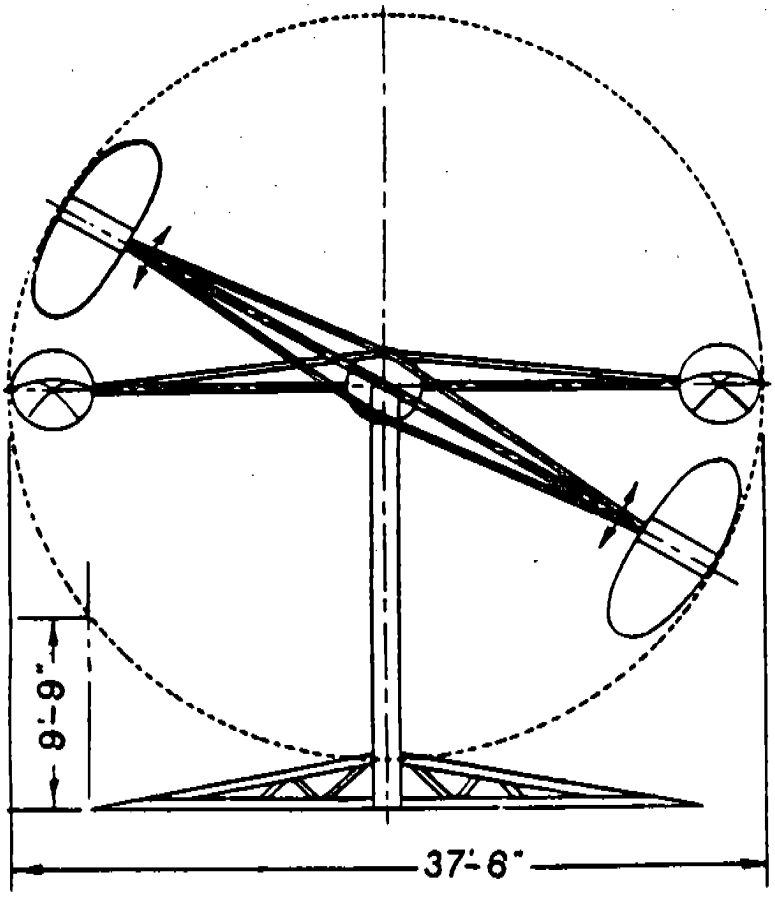
USE TEXACO REGAL STARFAK NO. 2 OR SIMILAR GREASE IN ALL PRESSURE GUN FITTINGS. KEEP ALL MOVING PARTS OF THE CARS OILED.

LUBRICATE CHAINS EVERY TWO WEEKS WITH TEXACO CRATER NO. 00 IN COLD WEATHER OR TEXACO CRATER NO. 1 IN HOT WEATHER. BEST RESULTS ARE OBTAINED WHEN LUBRICANT IS HEATED. DIP OR APPLY WITH A BRUSH.

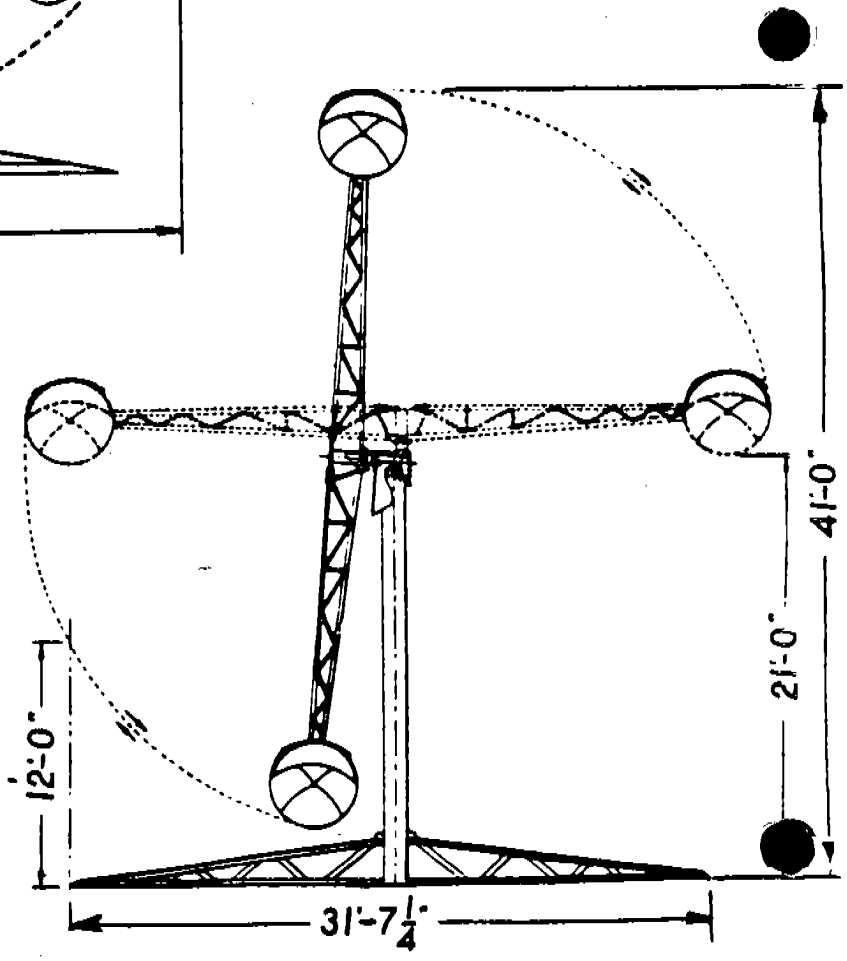
CAUTION: EXCESSIVE LUBRICATION OF SEALED BEARINGS WILL RESULT IN DAMAGED SEALS.

NOTE: THE ABOVE FREQUENCY OF GREASING THE BEARINGS IS FOR AVERAGE OPERATING CONDITIONS WITH SEALS INTACT.

SPACE REQUIREMENTS



FRONT VIEW



SIDE VIEW

ASSEMBLY INSTRUCTIONS

Locate driving cage assembly, centered in proper relation to diagram and operating dimensions, with clutch countershaft parallel to and on right side of operator's control stand when facing cage.

Level top cage plate (approximate) by wedging under cage corners. Then, attach mud sills by inserting part No. O-26, universal taper pins. These pins must be safeties by inserting steel cotter keys, or equivalent recognized industrial fastening device. in the holes provided.

Assemble mud sill tie rods in position and tighten uniformly, taking care that the mud sills are all in radial alignment with the corners of the center cage when all the rods are tight. Note that one mud sill has the front web set back further than the others. Place this sill on the corner of the cage at which the belt pulley is located.

Block the sills at the outer ends so as to distribute the weight as evenly as possible. Loose blocking may also be used at the center of the sills. It is usually desired to check the level of the machine at this stage and make any adjustments that might be required to stabilize the machine when in operation. The leveling is only necessary to insure proper clearance between the arms and the ground. On sloping ground, it will sometimes be necessary to set the machine off level to give the proper clearance. This condition will not affect the operation of the ride, providing it does not exceed three degrees.

Connect the clutch and brake controls, being careful to attach the proper rod to the proper control, in such a manner that, when the control levers are pushed forward, the brakes are applied.

Place the engine in position. Mount the belts on the pulleys and adjust the belt tension with the turnbuckles which attach to the ears on the base of the cage and the engine base rail. When an electric motor is used, pin the mount angles to the ears on the base of the cage and attach the turnbuckle to the fitting on the corner post of the cage and one bolt in the end bell of the motor. Adjust the belt tension with the turnbuckle. At this stage, a trial run is desirable to determine whether or not the brakes and clutches are properly adjusted, The arms may now be attached to the hinge column. First, open the hinges so as to accommodate the arms. After cleaning and oiling, place the hinge pin bushings on the pins with the grease hole toward the outer end of the arm and insert into the hinge. Replace hinge pillow block bolts and tighten. Rotate the eccentric crank until it is pointing directly toward the arm and attach the support rod. Make certain that all attaching pins are safeties with steel cotter keys, or equivalent recognized industrial fastening device. With the support rod in place, rotate the eccentric so the arm clears the truck. Using the rotation clutch, swing the arm until the next set of pillow blocks line up with the next arm. Install this arm and continue this procedure until all arms are in place. Cars may be placed in position as individual sweeps are assembled, or added after sweep assembly is completed. All bushing and bearing surfaces should be cleaned and lubricated prior to mounting the cars in position and care exercised to determine proper seating of the seat spindle in the sweep. A spring lockwasher, or double nut, should be used to properly safety the seat spindle holding nut.

Place the center plug-in assembly on top of the eccentric crank spindle hub and secure it with the set screws provided. Attach the light stringers to the support rods and plug in at the center receptacle. The stringer with the large plug goes on the upper end of the rod. The heavy wire runs from the center pole plug, out one arm and back up one rod, to the plug-in assembly.

The hinge bolts and the bolts holding the two large sprockets must be tight at all times. Also, the clamping bolts in the split hub, which holds the lower sprocket, must always be tight.

OPERATION

The speed of the hinge column should be from 6 to 7 R. P. M. It is desirable to stay well within these speeds, since it has been determined through considerable experience, to give the best results. Speed in excess of 7 R. P. M. is considered detrimental to the machine. The rotation should turn in a counter clock-wise direction. This is important in that it effects the operation of the brakes. By turning the machine in a clock-wise direction, the brakes become self-energizing and are very easily locked. Such a condition might cause serious damage to the machine.

The clutches and brakes should always be operated with care, being careful not to over-strain the machine by too quickly applying either of them. The machine should always be loaded so as to balance it as closely as possible. For instance, if two cars only are loaded, load them opposite. If three cars are to be loaded, load car No. 1, No. 4 and No. 6 and so on. This will insure smoother operation and will eliminate excessive stresses on the machine parts.

SPACE REQUIREMENTS

Diameter of circular fence enclosure (16 car)	54 Ft.
Diameter of circular fence enclosure (8 car)	58 Ft.
Diameter of machine with cars on (16 car)	45 Ft.
Diameter of machine with cars on (8 car)	48 Ft. -8"
Vertical clearance	25 Ft.

CLUTCH ADJUSTMENTS

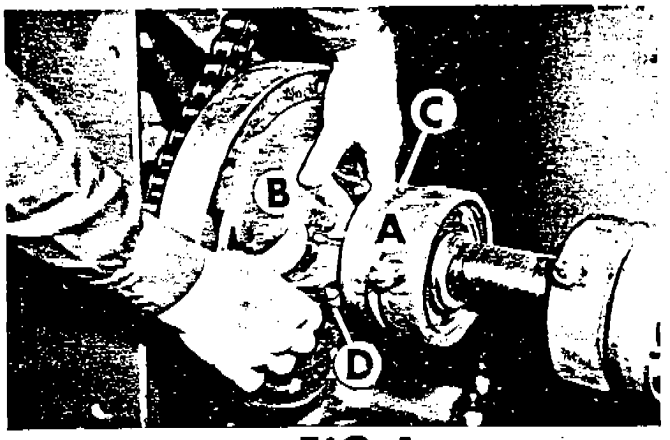


FIG. 1

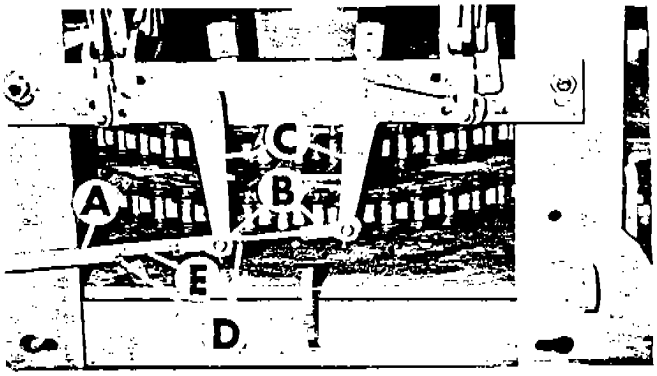


FIG. 2

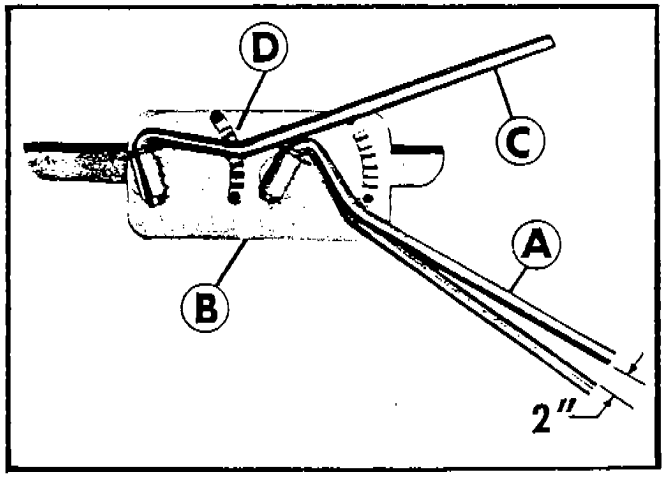


FIG. 3

The clutches are adjusted by depressing the lock lever (A) as shown in Fig. 1, and rotating the clutch finger assembly (B) in a clockwise direction, facing the clutch, to tighten and in a counter-clockwise direction to loosen. They should be adjusted to where it requires some leverage to engage them and should feel and hear a definate snap as the rollers engage the recess in the cam. Be sure the lock lever (A) drops into the slot when adjustment is completed.

The clutch control rods (A) Fig. 2 are adjusted by removing the clutch control rod ends (B) from the levers (C) and, with the control handle (A) Fig. 3, on the control stand (B) in a position about two inches from the extreme back position as shown in Fig. 3 and with the clutch engaged, release the lock nuts (D) Fig. 2, adjust the clutch control rod end studs (E) in or out until the rod ends (B) align with the pins on lever (C). Complete the adjustment by mounting the rod ends (B) on the pins on levers (C) inserting the cotter keys and tightening lock nuts (D).

BRAKE ADJUSTMENTS

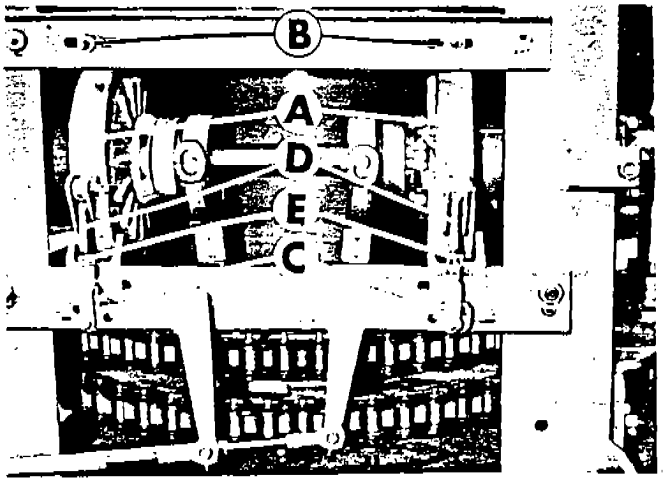


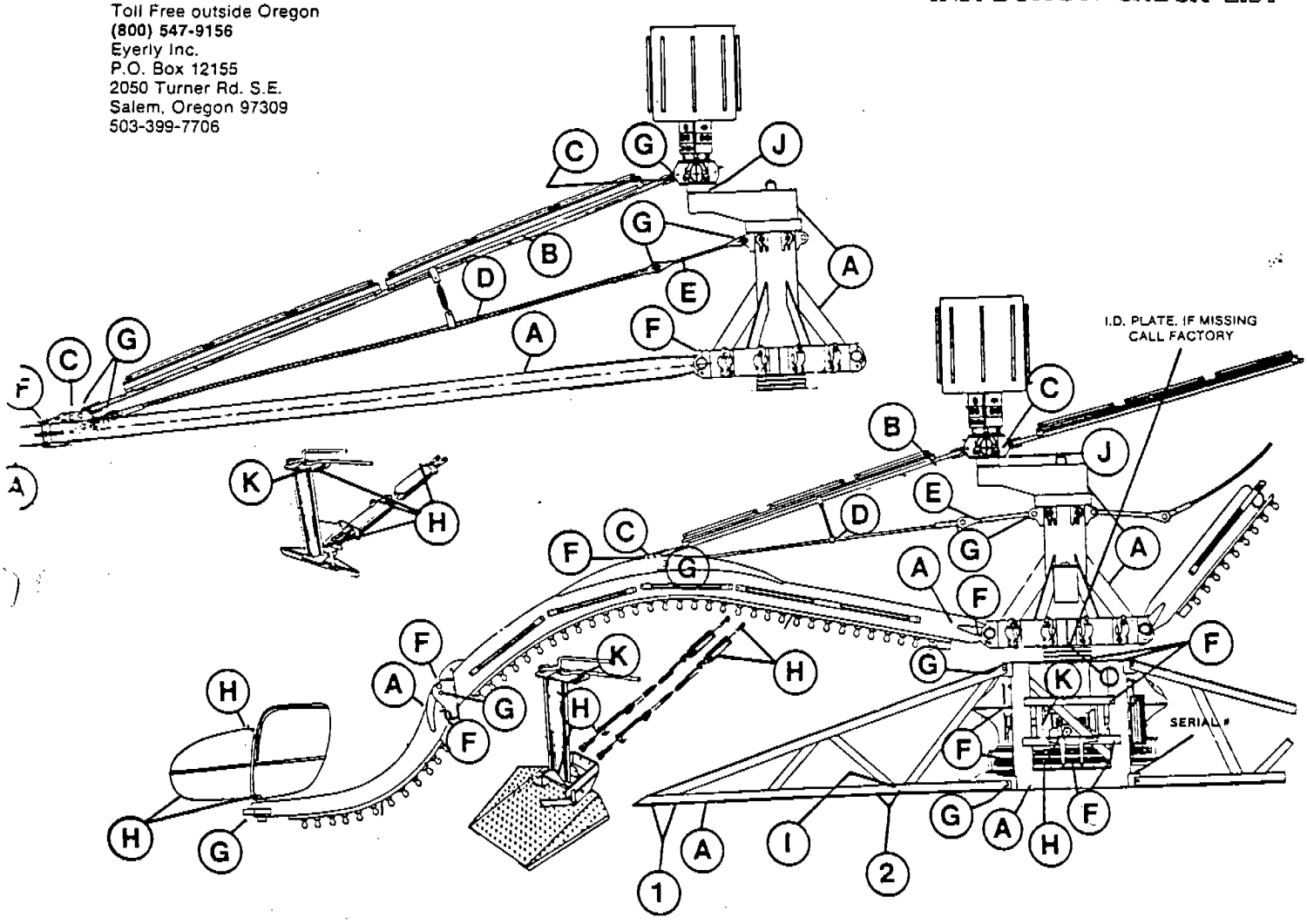
FIG. 4

The brakes (A) Fig. 4 are adjusted by means of the nuts (B). The adjustment should be such that, with the control handle (C) Fig. 3 in the center segment of ratchet (D), the brakes are set. As the brakes wear and no further adjustment can be made with nuts (B), further adjustment may be made by disconnecting clevis (C) Fig. 4 and unscrewing it on brake rod (D). However, when this adjustment is employed, never go beyond the point where less than four or five threads of the brake rod (D) are engaged in the clevis (C). When the adjustment is completed, be sure to tighten lock nut (E). Replace the brake lining on the band before the rivets score the drum.

OCTOPUS-SPIDER

INSPECTION CHECK LIST

SALES & SERVICE
Toll Free outside Oregon
(800) 547-9156
Eyerly Inc.
P.O. Box 12155
2050 Turner Rd. S.E.
Salem, Oregon 97309
503-399-7706



A. Inspect for weld cracks, structural damage.

B. Check support rod, if bent replace rod. (See Spider Bulletin #0-41-76). Inspect pin hole and pin rotating retainer. Replace retainer if pin can rotate.

C. Check swivel block, mono ball for movement:
1. Swivel block should be replaced if wear exceeds 1/16" (.0625).
2. Mono ball bolt should be removed, inspected and replaced along with adapter if worn.

D. Check safety cable for condition; broken strands—corrosion; adjustments. Cable should not bear weight of arm when extended. Attaching points should move freely (if cable has been stretched—replace. Factory specifications center line of hole to end of thread 89½" plus ½" minus ¼").
Check safety cable link for twist—replace (also means cable stretched).

E. Check bolts for condition and tightness. If movement is detectable, or bolts damaged, replace or tighten. Check condition of pillow block and block pin, if loose or block damaged—replace.

G. Check pins and fastener. Do not use hair pins in mudsill pins—pins rotate and push keep out. Inspect for hole enlargement and repair.

H. Check for wear in bushing, linkage and joints and hinges.

I. Check condition of tie rod for wear due to contct with bearing lock collar, etc.

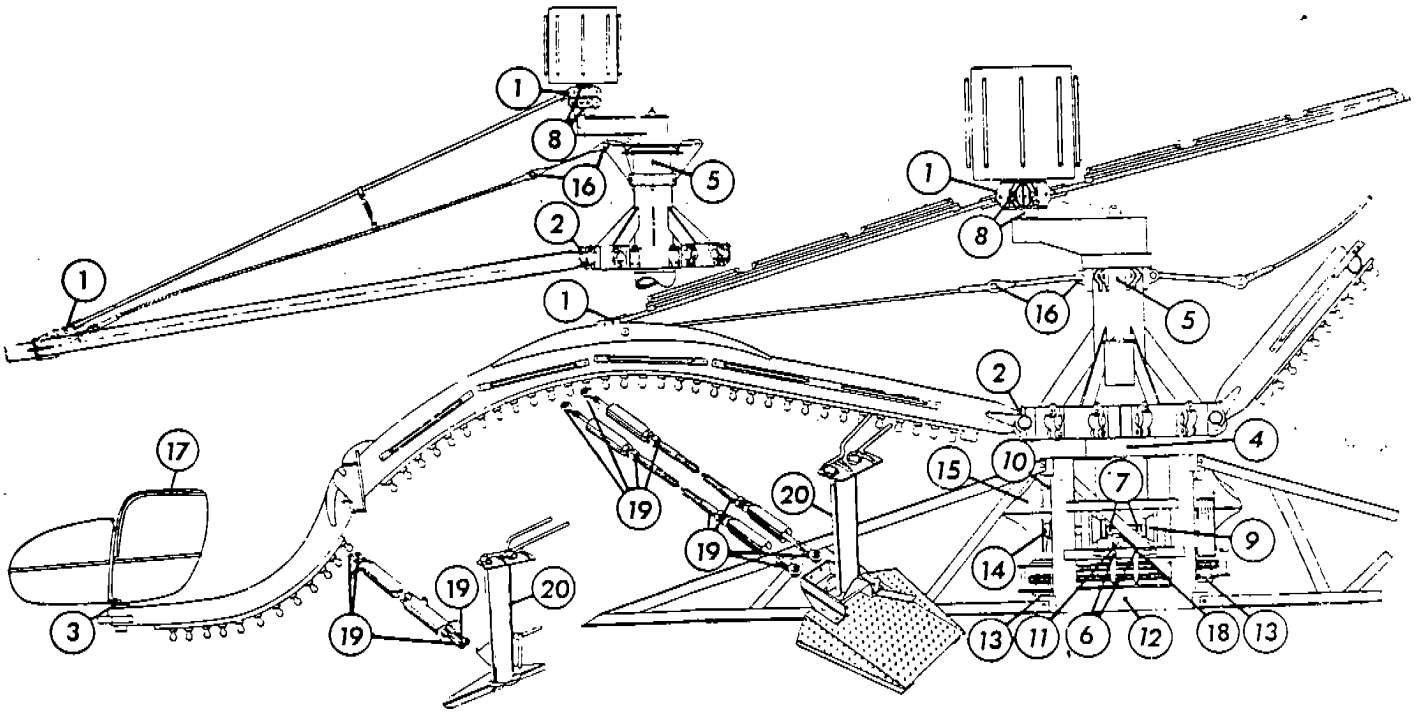
J. Check Eccentric Hub for play and rough bearings. Tighten or replace as necessary.

K. Check ratchet for condition and control handle lug—check condition of brakes.

L. General Information:
Maximum weight per car 400 lbs. Maximum RPM is 7ccw.
Blocking:
Ride center must be floated at all times, evenly distrubute weight on outer end of mudsill at area indicated by 1(one). Quarter blocking located at 2(two) should be finger tight and checked often to prevent weight from transferring to quarter blocks due to settling of outer blocks. **NOTE:** Blocking should be 2 x 6 or better.

NOVEMBER 1977 PRINTED IN U.S.A.

LUBRICATION INSTRUCTIONS



NO.	NAME OF PART	TYPE OF BEARING	*
1	SWIVEL BLOCKS	BRONZE	(A)
2	HINGE BUSHINGS	BRONZE	(A)
3	CAR SPINDLE BUSHINGS	NYLON OR BRONZE	(A)
4	SPLIT HUB BUSHING	BRONZE	(A)
5	ECCENTRIC TUBE BUSHING	BRONZE	(A)
6	CLUTCH THROW-OUT BUSHINGS	BRONZE	(A)
7	CLUTCH SHIFTER RING BEARING	ANTI-FRICTION	(A)
8	ECCENTRIC HUB BEARINGS	ANTI-FRICTION	(B)
9	CLUTCH BOWL BEARINGS	ANTI-FRICTION	(B)
10	GEAR CASE UPPER BEARING	ANTI-FRICTION	(A)

NO.	NAME OF PART	TYPE OF BEARING	*
11	BASE BEARING (Upper)	ANTI-FRICTION	(A)
12	BASE BEARING (Lower)	ANTI-FRICTION	(A)
13	DRIVE SHAFT BEARINGS	ANTI-FRICTION	(C)
14	COUNTERSHAFT BEARINGS	ANTI-FRICTION	(C)
15	GEAR CASE	ANTI-FRICTION	(D)
16	SAFETY CABLE ASSEMBLY	STEEL	(A)
17	CAR	STEEL	(E)
18	CLUTCH ROLLERS & SHAFT	STEEL	(E)
19	ROD ENDS	STEEL	(B)
20	CONTROL STAND	STEEL	(E)

***LUBRICATION INTERVAL: THE ABOVE TABLE OF LUBRICATION INTERVALS REFER TO AVERAGE OPERATING CONDITIONS WITH GREASE SEALS INTACT**

(A) DAILY OR EVERY EIGHT HOURS DURING HEAVY OPERATIONS.**

(B) LIGHTLY EVERY TWO WEEKS.**

(C) EVERY THREE MONTHS.**

(D) CHECK EVERY MONTH. CHANGE EVERY YEAR. USE E. P. 90 GEAR LUBE.

(E) KEEP ALL MOVING PARTS OILED DAILY.

NOTES:
** USE A MULTI-PURPOSE WATER RESISTANT GREASE WITH AN ACCEPTED EXTREME PRESSURE ADDATIVE SUCH AS CHEVRON R. P. M. MOLYGREASE NO. 1 OR MOBIL GREASE SPECIAL IN ALL PRESSURE FITTINGS.

KEEP LIGHT RINGS CLEAN AND FREE OF CONTAMINANTS SUCH AS GREASE, OIL ETC.

CHANGE OIL IN HYDRO-SHEAVE EVERY 4000 HOURS OR ONCE A YEAR. USE 10W ABOVE 10 DEGREE F. & 5W BELOW 10 DEGREE F. OIL IS TO BE HEAVY DUTY TO MEET A. P. I. SERVICES CLASS M. S.

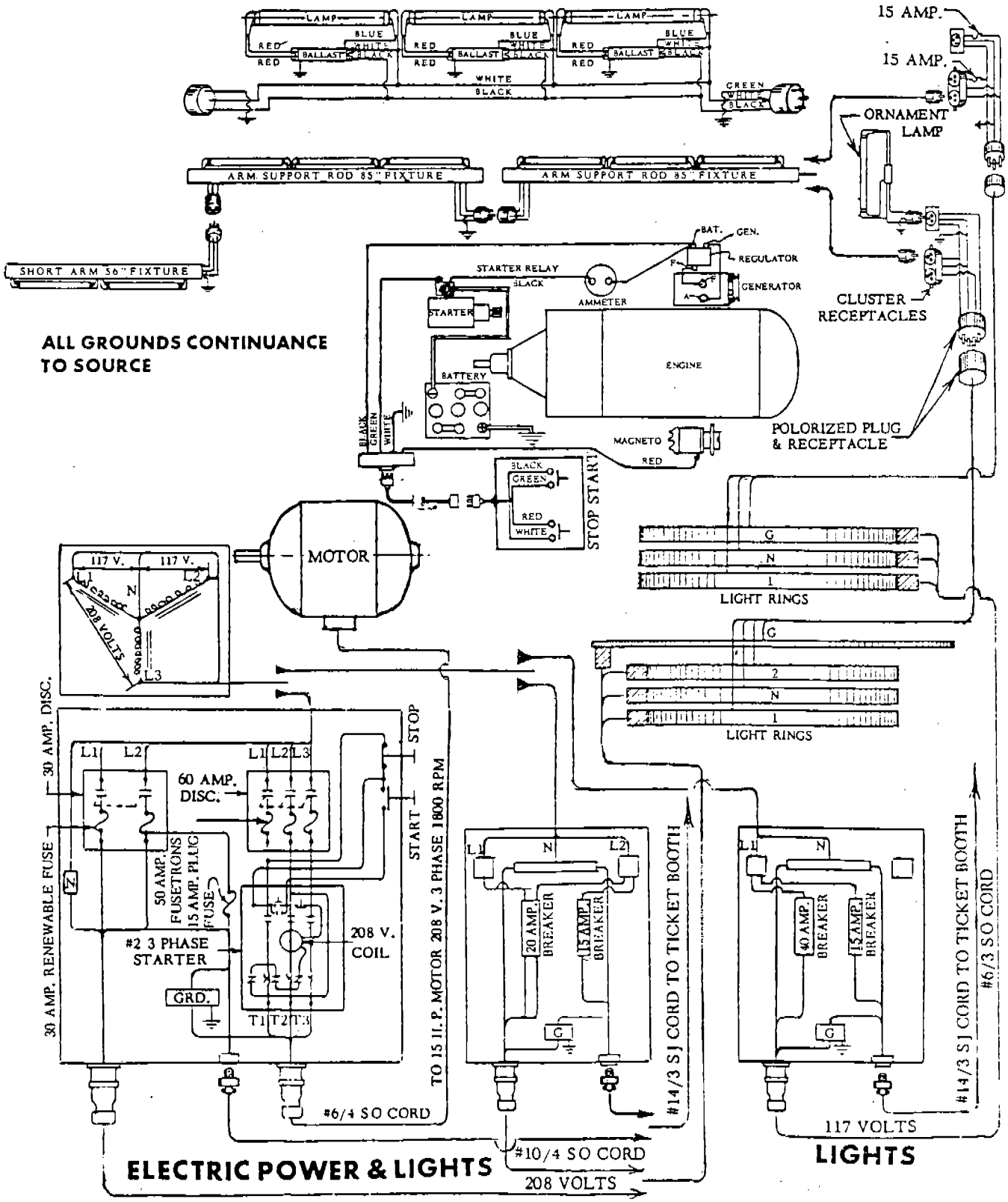
LUBRICATE DRIVE CHAINS EVERY TWO WEEKS WITH AN APPROVED LUBRICANT SUCH AS ROTANIUM POWER-LUBE NO. 91665, CHEVRON PINION GREASE MS OR EQUIVALENT.

WHEN GREASING SWIVEL BLOCKS, RAISE THE SWEEPS TO RELIEVE PIN PRESSURE AND ENABLE THE LUBRICANT TO COMPLETELY SURROUND THE SWIVEL PIN.

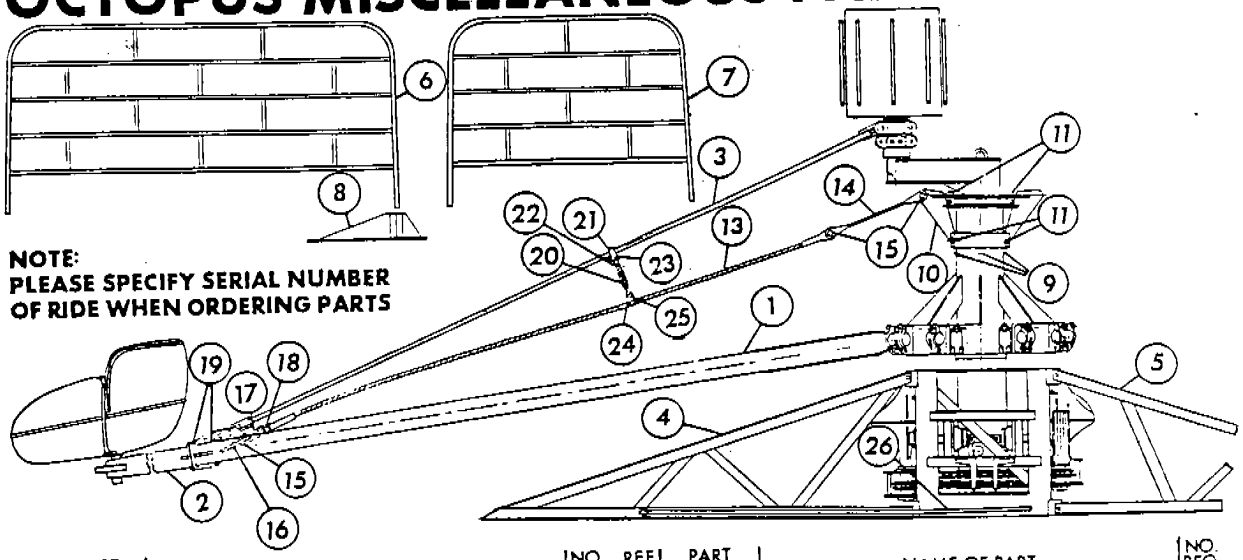
REFER TO THE ALLIS-CHALMERS OPERATING & MAINTENANCE MANUAL FOR SERVICE OF G-138 GAS ENGINE.

Everly AIRCRAFT CO. SALEM, ORE.

OCTOPUS WIRING DIAGRAM



OCTOPUS MISCELLANEOUS PARTS & TOOLS



NOTE:
PLEASE SPECIFY SERIAL NUMBER OF RIDE WHEN ORDERING PARTS

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	O-529	CORTEN SWEEP (16 Ft. 2 Pc.)	1
	O-337	WEB SWEEP (16 Ft. 2 Pc.)	
	O-643	WEB SWEEP (20 Ft. 1 Pc.) (8 Car)	
2	O-515	CORTEN STUB ARM (8 Car)	1
	O-909	WEB STUB ARM (8 Car)	
	O-516	CORTEN CROSS ARM (16 Car)	
	O-908	WEB CROSS ARM (16 Car)	
3	O-393	SWEEP SUPPORT ROD (1-1/4")	1
4	O-162	MUD SILL	3
5	O-161	MUD SILL (Drive Sheave Corner)	1
6	*O-877	FENCE (Long)	30
7	*O-878	FENCE (Short)	2
8	*O-879	FENCE JACK	35
9		SAFETY CABLE COLLAR SUPPORT (1/2"X 1/2"X 2-1/2" Welded to Column)	4
10	O-886	SAFETY CABLE COLLAR ASSEMBLY	1
11		CAP SCREW (3/4"X 2-1/4"NF W/Nut & Lockwasher)	6
13	O-744	SAFETY CABLE (7/8"X 14 Ft.)	1
14	O-660	SAFETY CABLE CONNECTING LINK	1

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
15	O-25	SAFETY CABLE PIN (W/ Cotter Key)	3
16	O-659	SAFETY CABLE ANCHOR PLATE (16 Ft. Sweep)	1
	O-897	SAFETY CABLE ANCHOR PLATE (20 Ft. Sweep)	
		CAP SCREW (3/4"X 2"NF W/Nut & Lockwasher)	2
17	O-661	SAFETY CABLE CLEVIS	1
18	RR-258	LOCK NUT (1-1/2" NC)	1
19		CAP SCREW (3/4"X 2-1/4" NF W/Nut) (Grade 8)	4
20	P-451	SAFETY CABLE SPRING	1
21	O-647	SUPPORT ROD SPRING CLAMP	1
22		No. 2/0 CHAIN LINK	1
23		CAP SCREW (1/4"X 1-3/4" NF W/Nut & LOCKWASHER)	1
24	O-648	SAFETY CABLE SPRING CLAMP	1
25		CAP SCREW (1/4"X 1-1/2" NF W/Nut & LOCKWASHER)	1
26	O-628	MUD SILL TIE ROD ASSEMBLY (7/8")	8
—	*O-616	PARTS BOX	1
—	*E-210	LIGHT STRINGER CRATE	1

— Not Illustrated.

Note: The number in the "NO. REQ." Column, Pertaining to the Sweeps, indicates the number of parts required for one Sweep.

*Optional Equipment, not considered as part of basic Operating Unit.

TOOL KIT

1 - PILLOW BLOCK BAR	1 - 6" SCREW DRIVER	1 - 1-1/8" SPUD WRENCH	
1 - 8" CRESCENT WRENCH	1 - 7" DIAGONALS	1 - OIL CAN	
1 - 12" CRESCENT WRENCH	1 - 8" PLIERS	6 - ALLEN WRENCHES 1/8" - 5/32" - 3/16" - 1/4" - 5/16" - 3/8"	
1 - 16" CRESCENT WRENCH	1 - 3/4" DRIFT PUNCH		
1 - 3 Lb. HAMMER	1 - 1-1/2"X 1-7/16" BOX WRENCH	1 - PRY BAR	1 - GREASE GUN

CHAIN ADJUSTMENTS

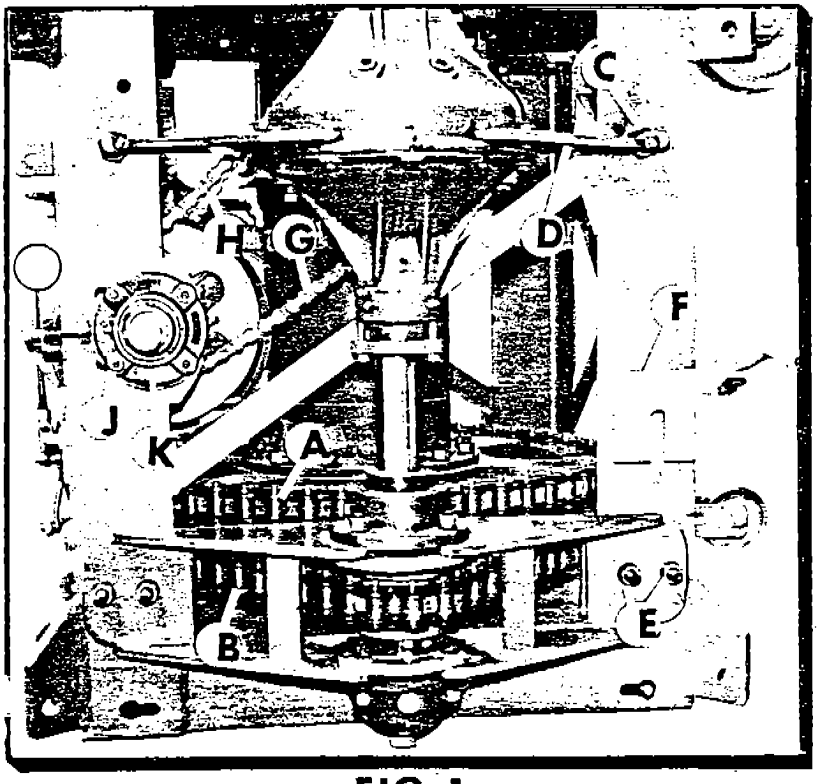


FIG. 1

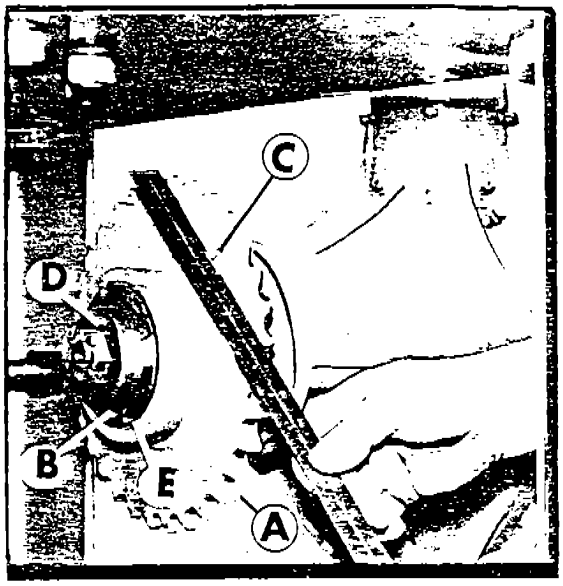


FIG. 3

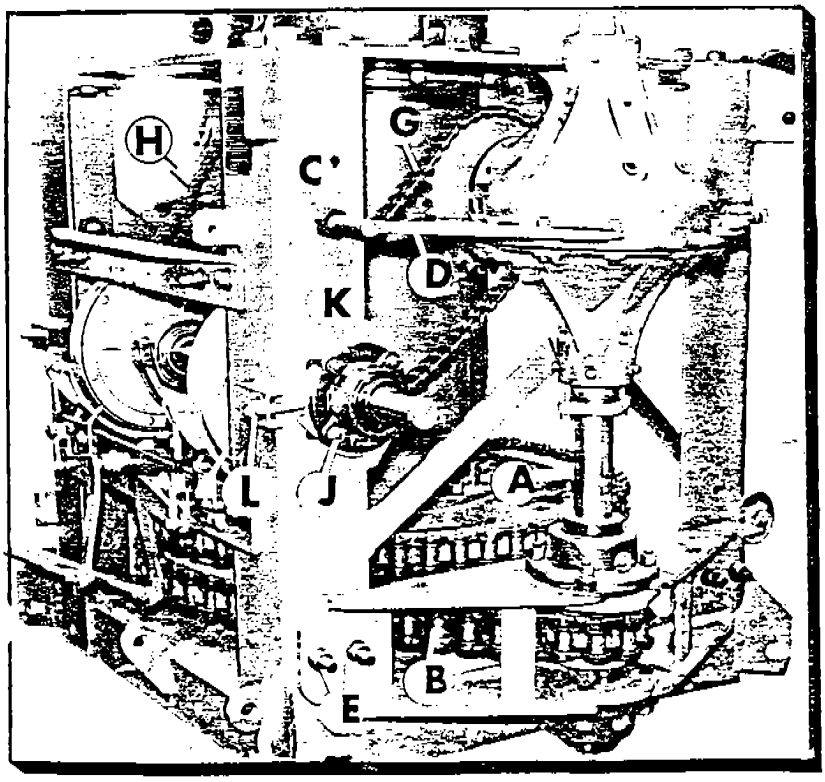


FIG. 2

Chains (A) & (B) Figs. 1 & 2 are adjusted by loosening the nuts (C) on the studs of the gear housing bracket (D) and the nuts on the same studs that are on the inside of the corner angles. Then loosen the nuts (E) on all four gear drive support bracket bolts. Pry the bracket (D) away from the corner angles and insert the proper number of spacers (F) Fig. 1 to remove all slack in the chain and then tighten nuts (E). Adjust and tighten nuts (C) until the driving sprocket is in horizontal alignment with the driven sprocket, or in vertical alignment with the corner angles.

Driving sprocket (A) Fig. 3 is aligned with driven sprocket by loosening taper-lock bushing (B) and aligning the sprockets by means of the straight edge (C). When alignment is completed, lock taper-lock bushing (B) to hub (D) by means of set screws (E).

To adjust chains (G) & (h) loosen the nuts (J) on both countershaft bearings (K) and tighten chains by means of nuts (L). They are properly adjusted when they can be depressed 3/4" with one finger midway between sprockets. When adjustment is completed, tighten nuts (J).

COUNTERSHAFT SPROCKET ALIGNMENT
(FOR BOLTED DRIVEN SPROCKET (A) FIG. 3)

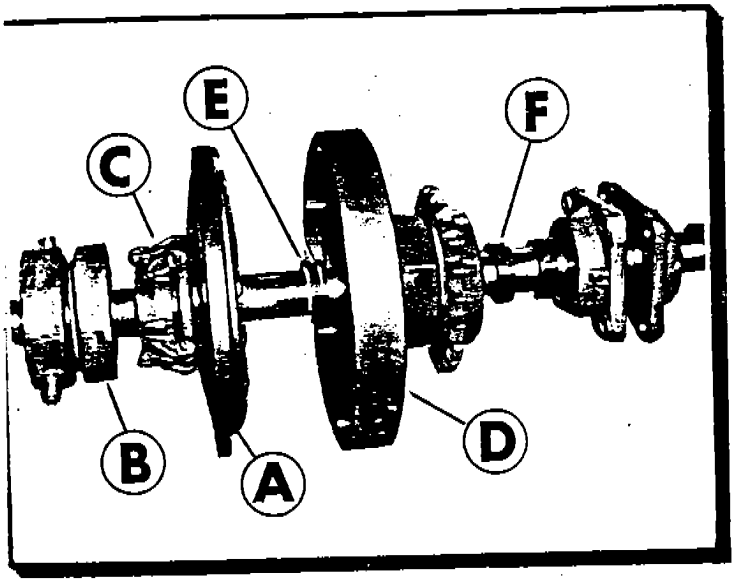


FIG. 1

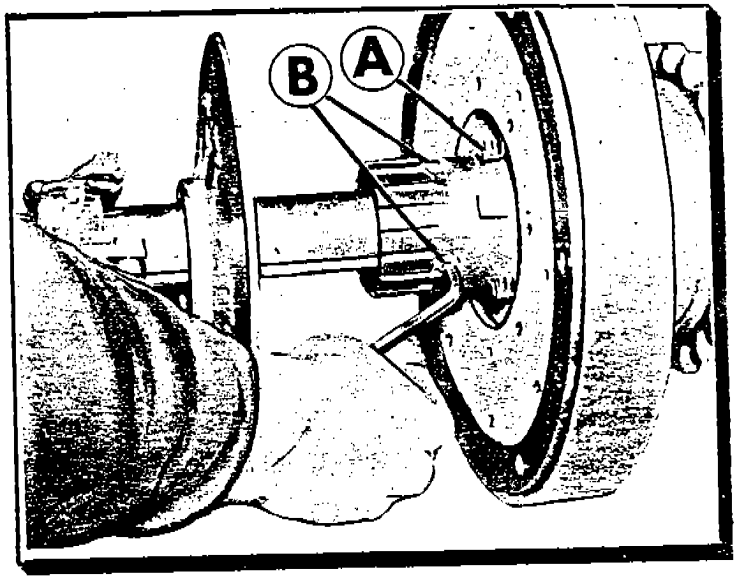


FIG. 2

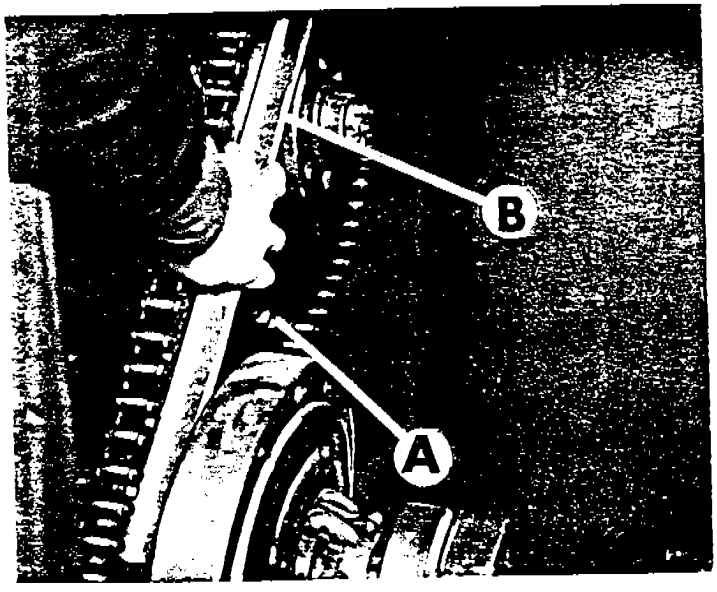


FIG. 3

The alignment of this sprocket is accomplished by moving the clutch on the countershaft. To do this, it is necessary to loosen the set screws which secure the clutch body (A) Fig. 1 to the countershaft. First, slide the shifter assembly (B) Fig. 1 away from the clutch body and remove the finger assembly (C) by unscrewing it from the clutch body. Next, loosen the set screws, see Fig. 2, and slide the clutch body away from the clutch bowl (D) so the inside locking collar (E) Fig. 1 may be removed. This inside collar was not used on some of the early models. The inner and outer collars (E) and (F) Fig. 1 are removed by releasing the set screws and rotating them with a spanner wrench, or with a punch inserted in the hole in the collar.

The clutch bowl may now be moved on the countershaft and aligned with the driven sprocket (A) Fig. 3 by use of a straight edge (B) Fig. 3.

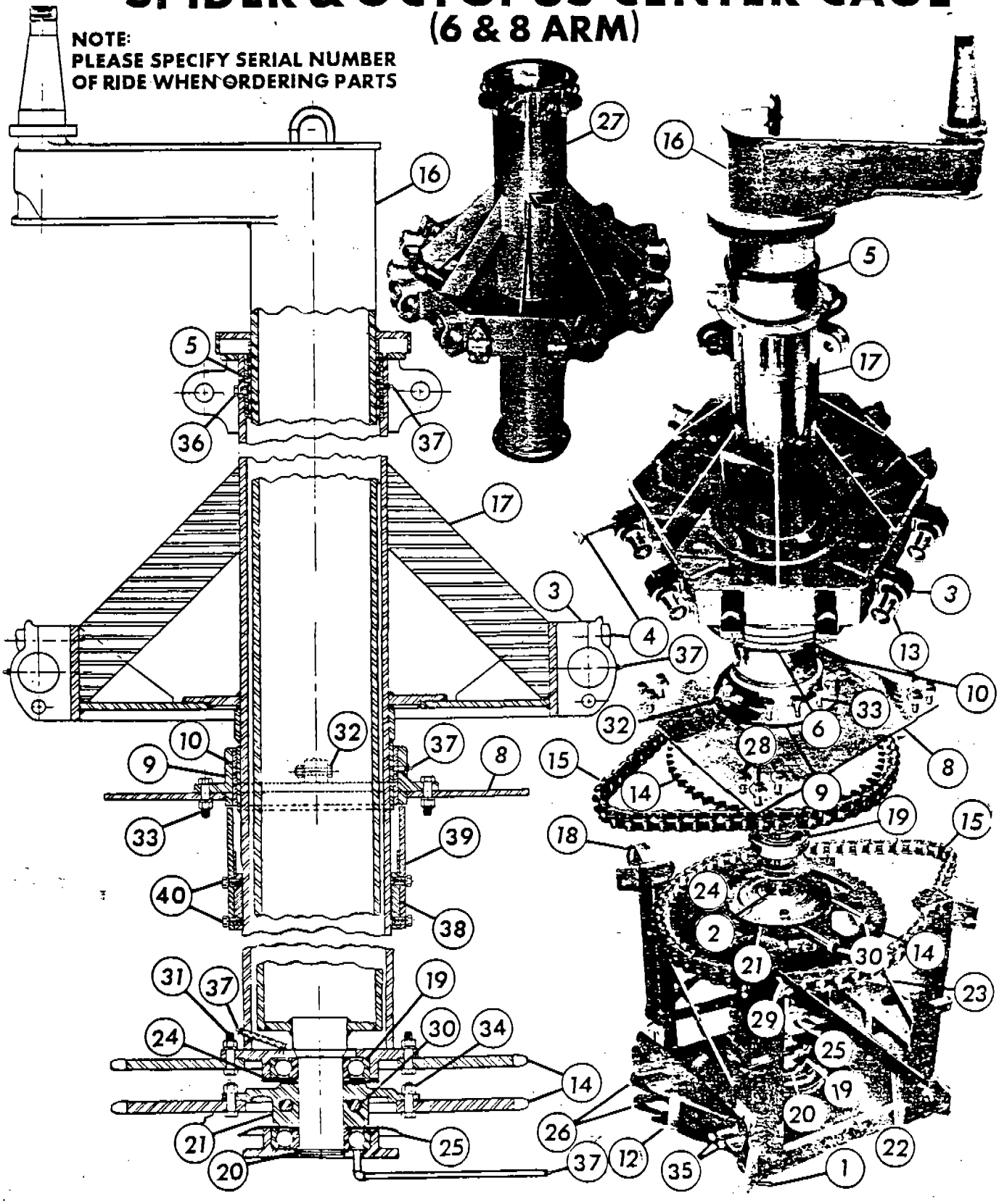
When alignment is completed, replace the locking collars by rotating them on the ends of the bearings until they are tight and securing them with the set screws.

Check the springs (A) Fig. 2 for tension and make sure they are all in place. Re-assemble the clutch body (A) Fig. 1 and secure it to the countershaft by tightening the two set screws (B) Fig. 2. Replace the finger asse. and adjust as per instructions outlined in "CLUTCH ADJUSTMENT"

EYERLY AIRCRAFT CO. SALEM, ORE.

SPIDER & OCTOPUS CENTER CAGE
(6 & 8 ARM)

NOTE:
PLEASE SPECIFY SERIAL NUMBER OF RIDE WHEN ORDERING PARTS



Everly AIRCRAFT CO. SALEM, ORE.

SPIDER & OCTOPUS CENTER CAGE
(6 & 8 ARM)

REF NO.	PART NO.	NAME OF PART	NO. REQ. 6 ARM	NO. REQ. 8 ARM
1	O-26	TAPERED PIN	8	8
2	O-28	ECCENTRIC HUB KEY	2	2
3	O-31	HINGE PILLOW BLOCK	12	16
4	O-32	BOLT (1"X 5-1/2" NC W/Nut) (Grade 8)	12	16
5	O-37	ECCENTRIC TUBE BUSHING	1	1
6	E-50	LIGHT RING ASSEMBLY	1	1
7	O-400	CAGE ASSEMBLY (Less Bearings)	1	1
8	O-63	UPPER CAGE PLATE	1	1
9	O-75A	SPLIT HUB	1	1
10	O-75B	SPLIT HUB BUSHING (W/Seals)	1	1
*	O-75	SPLIT HUB ASSEMBLY	1	1
11	O-461	GEAR DRIVE SUPPORT SPACER		
12	O-133	GEAR DRIVE SUPPORT BRACKET	2	2
13	O-151	HINGE PILLOW BLOCK BUSHING	12	16
14	O-166	54 TOOTH SPROCKET	2	2
15	O-166B	54 TOOTH SPROCKET CHAIN (#160 X 10 Ft. Long)	2	2
*		#160 ROLLER LINK		
*		#160 CONNECTING LINK		
*		#160 1/2 LINK		
16	O-436	ECCENTRIC TUBE	1	1
17	O-681	HINGE SUPPORT TUBE (Spider) (6 Arm)	1	1
18	O-290	CAGE ROLLER (Large)	2	2
*	O-291	CAGE ROLLER PIN (Large)	2	2
*	O-83	CAGE ROLLER PIN (Small)	2	2
*	O-82	CAGE ROLLER (Small)	2	2
19	O-307	ECCENTRIC TUBE BEARING	2	2
20	O-308	ECCENTRIC TUBE BEARING LOCK RING	1	1
21	O-372	ECCENTRIC TUBE HUB	1	1
22	O-394	CAGE BRACE (Front)	1	1
23	O-395	CAGE BRACE (R. H.)	1	1
24	O-396	ECCENTRIC TUBE GREASE PLATE	1	1
25	O-397	ECCENTRIC TUBE BEARING SHIELD	1	1
26	O-517	BEARING BRACKET REINFORCEMENT	4	4
27	O-362	HINGE SUPPORT TUBE (Octopus) (8 Arm)	1	1
28		CAP SCREW (3/4"X 3-1/4" NF W/Flat Washer, Nut & Lockwasher)	12	12
29		CAP SCREW (3/4"X 2" NF W/Nut & Lockwasher)	4	4
30	O-360	STUD (1-1/8"X 8" NF W/Nuts)	2	2
31		CAP SCREW (3/4"X 3-1/2" NF W/Nut & Lockwasher)	12	12
32		CAP SCREW (5/8"X 2-3/4" NF W/Nut & Lockwasher)	2	2
33		CAP SCREW (3/4"X 2-3/4" NF W/Nut & Lockwasher)	14	14
34		CAP SCREW (3/4"X 2-3/4" NF W/Nut & Lockwasher)	12	12
35		CAP SCREW (3/4"X 3" NF W/Nut & Lockwasher)	8	8
36	O-37A	CAP SCREW (3/8"X 1" NF Modified)	4	4
37		ZERK FITTING (1/8" NPT Straight)	19	23
38	O-598	COLUMN RETAINING PLATE	2	2
39	O-599	COLUMN RETAINING BAR	2	2
40		CAP SCREW (3/4"X 1-1/4" NF W/Lockwasher)	4	4

* Not Illustrated.

GEAR DRIVE ASSEMBLY

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	O-97	UPPER HOUSING BELL	1
2	O-114	PINION PILOT BEARING	1
3	O-117	PILOT BEARING RETAINER	1
*	O-97A	PILOT BEARING RETAINER RIVET (1/4"X 1-1/4")	2
4	O-120	PINION GEAR (6 Tooth)	1
*	O-120C	PINION GEAR KEY (3/8"X 3/8"X X 1-7/8')	1
5	O-113B	PINION BEARING CONE	2
6	O-113	PINION BEARING CUP	2
7	O-111	PINION SLEEVE	1
8	O-540	PINION SLEEVE "O" RING	1
9	O-113A	PINION BEARING WASHER	1
10	O-115	PINION BEARING NUT	2
11	O-116	PINION BEARING NUT LOCKWASHER	1
12	O-358	PINION COVER PLATE	1
13	O-539	OIL SEAL	1
14	O-606	GEAR DRIVE DRIVEN SPROCKET (32 Tooth)	1
15	O-600A	PINION TAPERED HUB BUSHING, KEY & SET SCREWS (#3020 2-15/16"Bore)	1
16	O-600	PINION TAPERED HUB (Plain)	1
17	O-120A	PINION GEAR NUT	1
18	O-112	DRIVE SHAFT BEARING CUP	2
19	O-112A	DRIVE SHAFT BEARING CONE	2
20	O-536	RING GEAR (40 Tooth W/Rivets)	1
*	O-536A	RING GEAR RIVET (7/16"X 1-3/4")	12
21	O-371A	DRIVE SHAFT (Right, Long)	1
*	O-371	DRIVE SHAFT (Left, Short)	1
22	O-402	LOWER HOUSING BELL	1
23	O-103	HOUSING GASKET	1
24	O-402C	RING GEAR THRUST BLOCK	1
25	O-402D	RING GEAR THRUST BLOCK PIN	1
26	O-528	PACKING (3 Rings)	1
27	O-508	PACKING GLAND	1
*	O-512	PACKING GLAND STUD (W/2 Nuts NC)	2
28	O-320	DRIVE SHAFT FLANGED BEARING	2
29	O-496	DRIVING SPROCKET (9 Tooth)	1
*	O-404	DRIVING SPROCKET GIB KEY	2
30	O-163	HOUSING BRACKET	2
31	O-107	HOUSING BRACKET STUD	2
32		GEAR DRIVE ADJUSTING NUT (1"NC)	4
33	O-100	PACKING RETAINER RING	1
34	**O-402A	LOWER HOUSING BELL GREASE SEAL	1
35	**O-402B	LOWER HOUSING BELL LOCK RING	1
36	O-365	GEAR DRIVE DRIVEN SPROCKET (32 Tooth)	1
37	O-403	GEAR DRIVE DRIVEN SPROCKET TAPERED HUB	1
38	O-125	GEAR DRIVE DRIVEN SPROCKET (48 Tooth)	1
39	O-607	GEAR DRIVE DRIVEN SPROCKET (48 Tooth)	1
40		PINION COVER PLATE CAP SCREW (9/16"X 1-1/4" NC W/Lockwasher)	6
41		HOUSING CAP SCREW (Long) (5/8"X 2-3/4" NF W/Nut & Lockwasher)	8
		HOUSING CAP SCREW (Short) (5/8"X 2-1/4" NF W/Nut & Lockwasher)	3
42		DRIVE SHAFT BEARING CAP SCREW (Long) (5/8"X 2-3/4" NF W/Nut & Lockwasher)	2
		DRIVE SHAFT BEARING CAP SCREW (Short) (5/8"X 2-1/4" NF W/Nut & Lockwasher	2
43		SPROCKET CAP SCREW (3/8"X 1-1/2" NF W/Nut & Lockwasher)	6
44		PINION GEAR NUT COTTER KEY (1/8"X 2")	1
45		ZERK FITTING (1/8" NPT Straight)	2

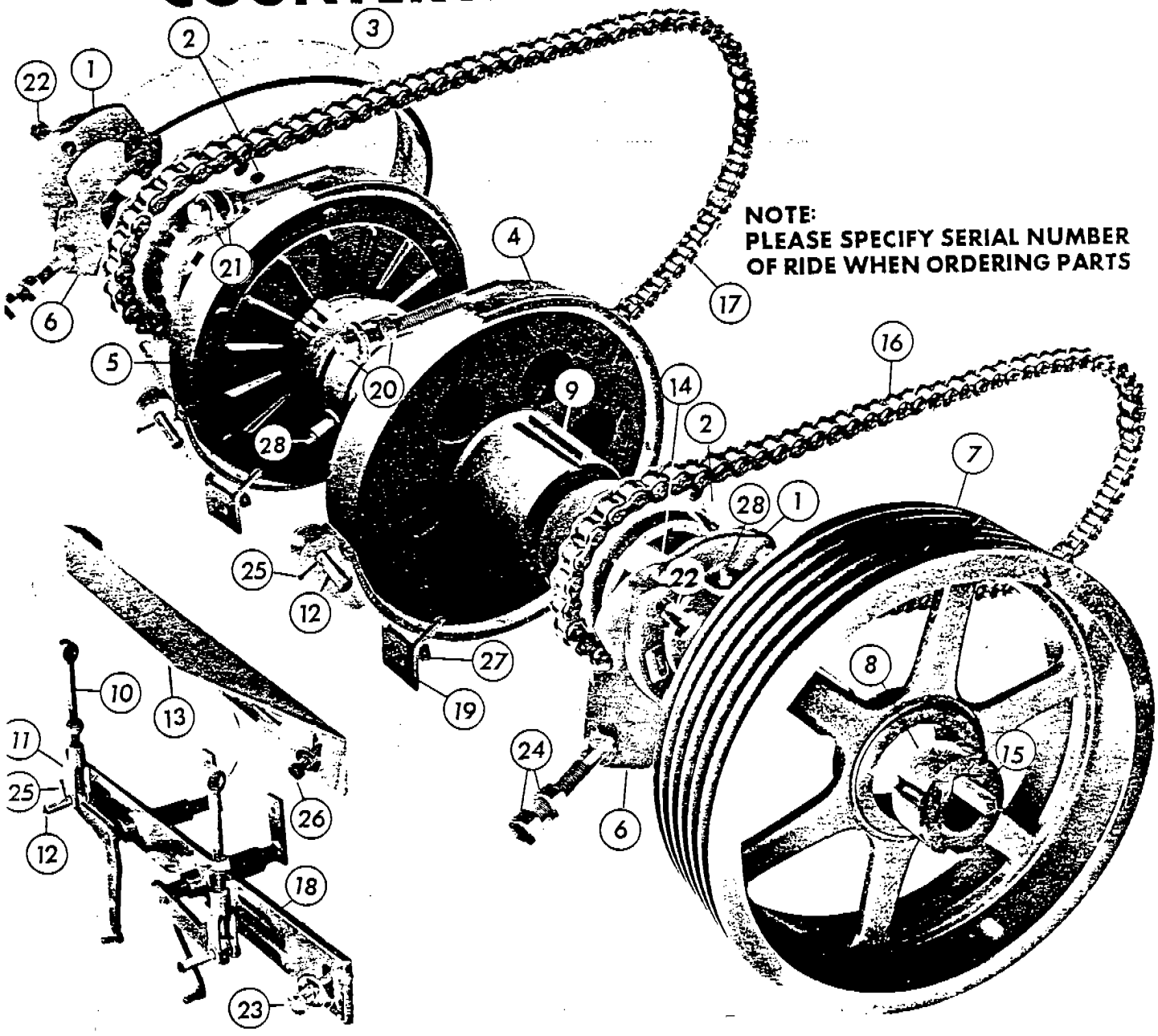
* Not Illustrated.

NOTE: The number in the "No. Req." column indicates the number of parts required for one assembly.

** For use on all machines up to and including Serial No. 2694 except machines that have been converted.

Everly AIRCRAFT CO. SALEM, ORE.

COUNTERSHAFT ASSEMBLY



NOTE:
PLEASE SPECIFY SERIAL NUMBER OF RIDE WHEN ORDERING PARTS

COUNTERSHAFT ASSEMBLY

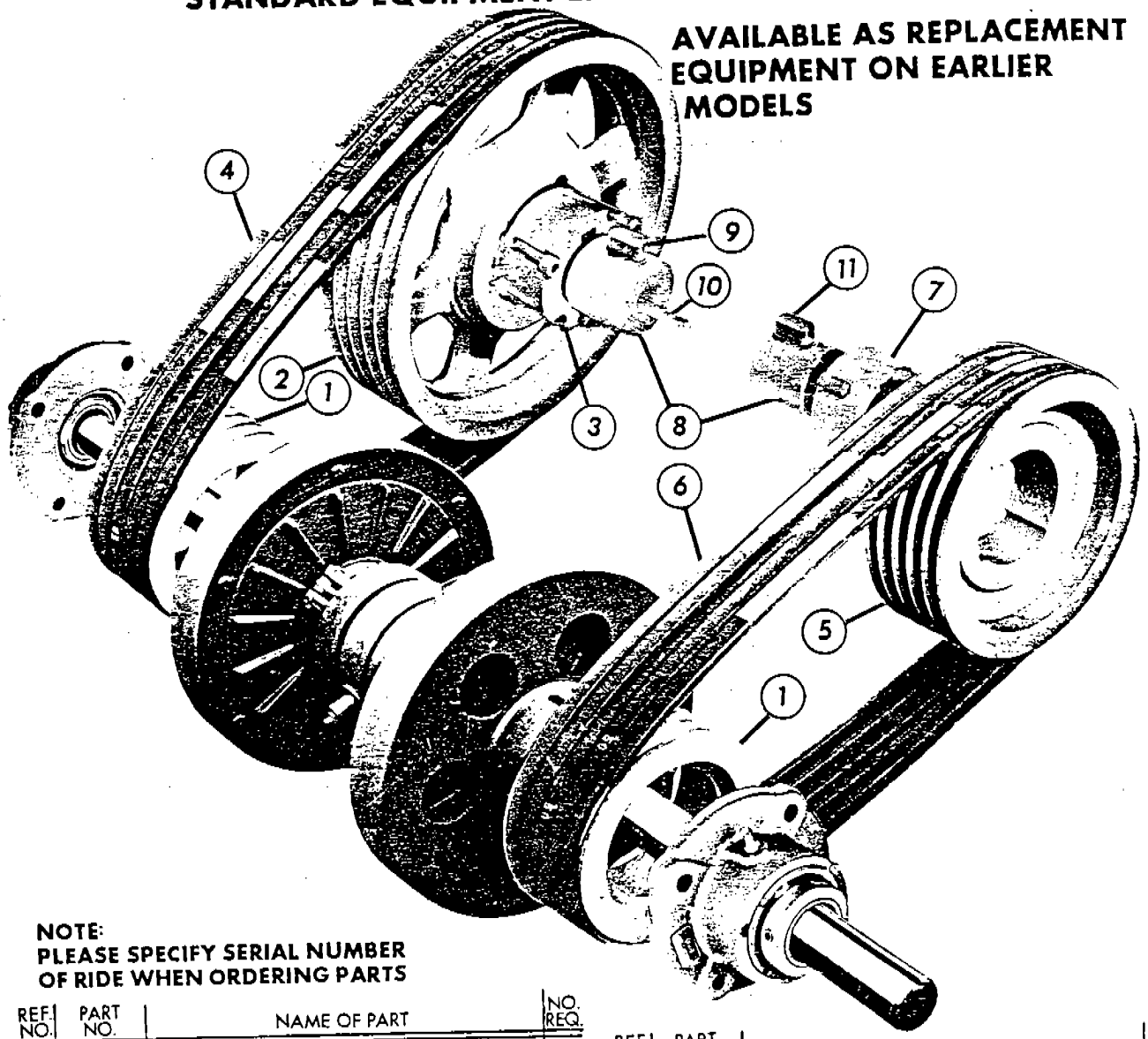
REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	O-324	COUNTERSHAFT BEARING (1-3/4" Bore)	2
2	O-253	CLUTCH HUB SPROCKET	2
3	O-295B	BRAKE BAND LINING (1/4"X 2"X 33-3/4" W/Rivets) (5-6)	2
4	O-295	BRAKE BAND (W/Lining)	2
5	O-605	CLUTCH ASSEMBLY (Less Sprocket or Sheave)	2
*	O-141	CLUTCH KEY (3/8"X 3/8"X 7-1/2")	2
6	O-513	CHAIN TIGHTENER PLATE	2
7	O-138	COUNTERSHAFT PULLEY (6B 15.4)	1
8	O-525	COUNTERSHAFT PULLEY BUSHING (2517 1-3/4" Bore)	1
9	O-254	SPROCKET KEY (3/8"X 3/8" X 2-7/8")	2
10	O-293	BRAKE ROD (W/Nut)	2
11	O-294	BRAKE ROD CLEVIS (1/2"SAE Female)	2
12	O-294A	BRAKE ROD CLEVIS PIN (1/2"X 1-1/2")	2
13	O-342	BRAKE BAND SUPPORT ANGLE	1
14	O-134	COUNTERSHAFT	1
15	O-142	COUNTERSHAFT PULLEY KEY (3/8"X 3/8"X 4")	1
16	O-246	NO. 80 ROLLER CHAIN (Eccentric) (4 Ft. 10 In. Long)	1
17	O-246A	NO. 80 ROLLER CHAIN (Rotation) (5 Ft. 6 In. Long)	1
*		NO. 80 ROLLER CHAIN ROLLER LINK	
*		NO. 80 ROLLER CHAIN PIN LINK	
*		NO. 80 ROLLER CHAIN OFF-SET LINK	
18	O-299	CLUTCH THROW-OUT ASSEMBLY	1
19	O-277	BRAKE BAND GUIDE	2
20		BRAKE BAND NUT (1/2" NF)	4
21		BRAKE BAND WASHER (1/2" Flat)	4
22		CAP SCREW (Countershaft Bearing) (1/2"X 2-1/4" NF)	8
23		CAP SCREW (Clutch Throw-out Assembly) (3/4"X 2" NF W/Nut, Flat Washer & Lockwasher)	2
24		NUT (Chain Tightener Plate) (5/8" NF)	4
25		COTTER KEY (Clevis Pin) (3/32"X 1")	4
26		CAP SCREW (Brake Band Support Angle (1/2"X 2" NF W/Nut, Flat Washer & Lockwasher)	2
27		NUT (Brake Band Guide) (1/2" NF)	
28		ZERK FITTING (1/8" NPT Straight)	6

* Not Illustrated.

COUNTERSHAFT ASSEMBLY "V" BELT DRIVE

STANDARD EQUIPMENT EFFECTIVE 1967 MODELS

AVAILABLE AS REPLACEMENT EQUIPMENT ON EARLIER MODELS



NOTE:
PLEASE SPECIFY SERIAL NUMBER OF RIDE WHEN ORDERING PARTS

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	O-637	CLUTCH HUB SHEAVE (5V 7.1)(Special)	2
*	O-254	SHEAVE KEY (3/8"X 3/8" X 2-7/8")	2
*		ZERK FITTING (67 Degree 1/4" SAE)	2
2	O-636	ROTATION SHEAVE (W/Bushing) (5V 16.0) (Special)	1
3	O-636A	ROTATION SHEAVE BUSHING (3535) (2-15/16" Bore) (Special)	1
4	O-644	ROTATION "V" BELTS (5V 710) (Matched Set of 5)	1
5	O-638	ECCENTRIC SHEAVE (W/Bushing) (5V 10.3)	1

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
6	O-645	ECCENTRIC "V" BELTS (5V 630) (Matched Set of 5)	1
7	O-600A	ECCENTRIC SHEAVE BUSHING (3020) 2-15/16" Bore)	1
8	O-600	PINION TAPERED HUB	2
9	O-600B	ROTATION HUB KEY (3/4"X 3/4"X 1-3/4")	1
10	O-120C	PINION GEAR KEY (3/8"X 3/8"X 2")	2
11	O-600C	ECCENTRIC HUB KEY (3/4"X 5/8"X 1-3/4")	1

* Not Illustrated.

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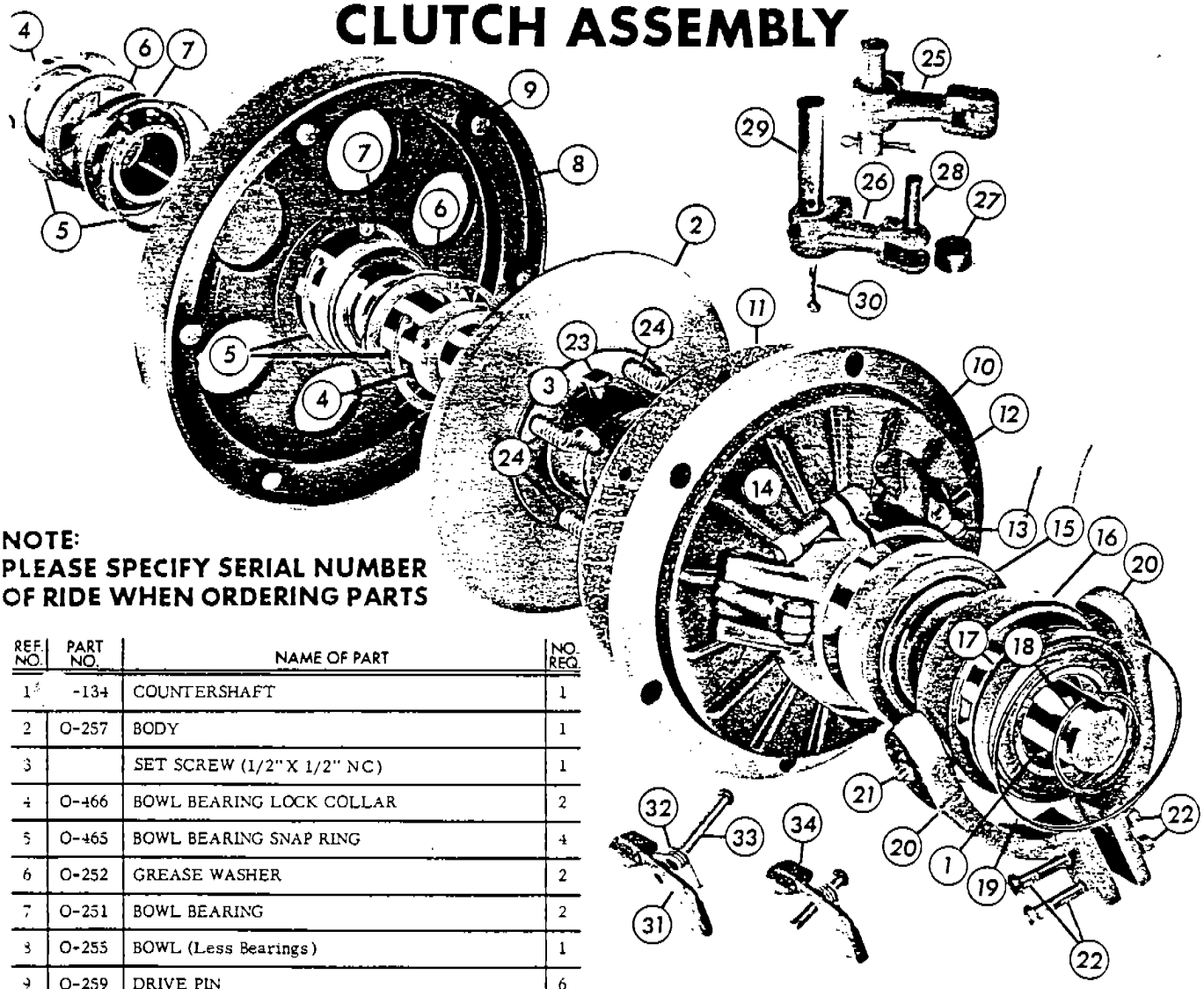
CLUTCH ASSEMBLY



NOTE:
PLEASE SPECIFY SERIAL NUMBER OF RIDE WHEN ORDERING PARTS

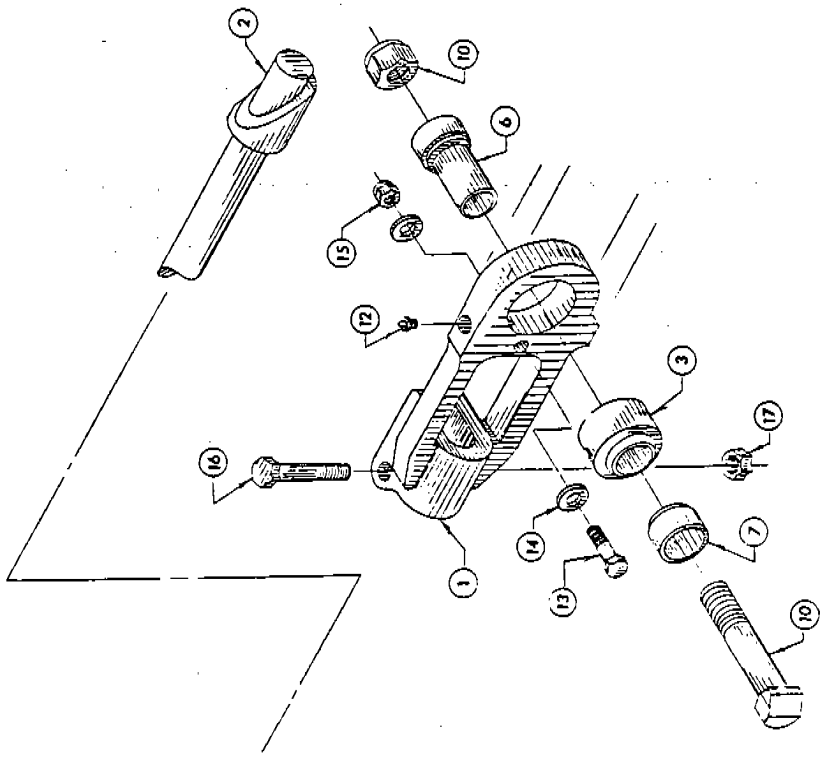
REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	-134	COUNTERSHAFT	1
2	O-257	BODY	1
3		SET SCREW (1/2" X 1/2" NC)	1
4	O-466	BOWL BEARING LOCK COLLAR	2
5	O-465	BOWL BEARING SNAP RING	4
6	O-252	GREASE WASHER	2
7	O-251	BOWL BEARING	2
8	O-255	BOWL (Less Bearings)	1
9	O-259	DRIVE PIN	6
10	O-260	DISC (W/Lining)	1
11	O-258	CLUTCH LINING (With Rivets) (5-8)	
12	O-261	PLATE	1
13	O-268	ADJUSTER ASSEMBLY	1
14		CAP SCREW (5/16" X 3/4" NF) (Allen Head)	1
15	O-266	CAM	1
16	O-271	SHIFTER RING	1
17	O-272	SHIFTER RING BEARING	1
18	O-274	LOCK RING (Small)	1
19	O-273	LOCK RING (Large)	1
20	O-270	SHIFTER YOKE (Pair)	1
21		ZERK FITTING (1/8" NPT Straight)	2
22		CAP SCREW (3/8" X 1-1/2" NF, W/Locknut)	2

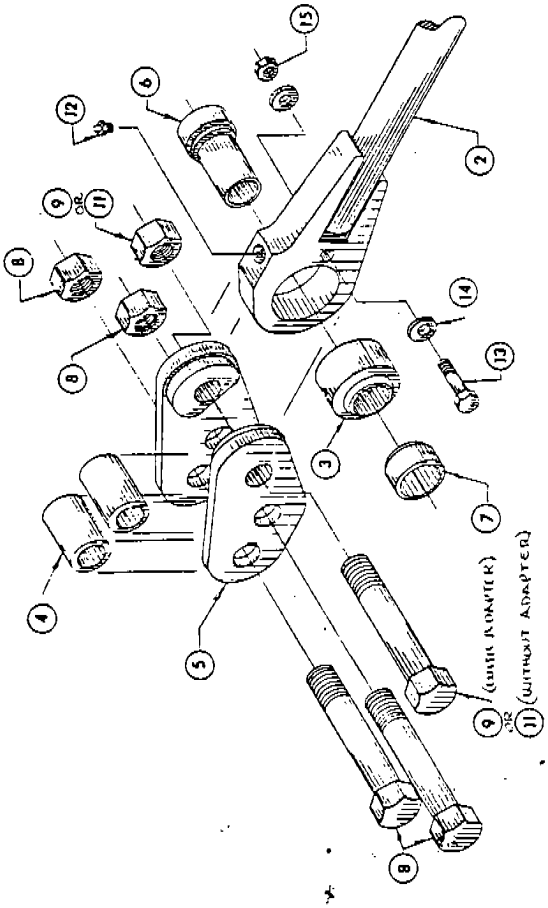
REF. NO.	PART NO.	NAME OF PART	NO. REQ.
23	O-257A	TIT KEY	1
24	O-256	RELEASE SPRING	4
25	O-262	ROLLER LEVER ASSEMBLY	3
26	O-262A	ROLLER LEVER	3
27	O-265	ROLLER	3
28	O-264	ROLLER PIN	3
29	O-263	ROLLER LEVER PIN	3
30		COTTER KEY (3/32" X 3/4")	3
* 31	O-267A	LOCK LEVER	1
* 32	O-267B	LOCK LEVER SPRING	1
* 33	O-267C	LOCK LEVER PIN	1
* 34	O-267	LOCK LEVER ASSEMBLY	1

* Old Style Adjuster for Lock Lever Adjuster.

SUPPORT ROD ASSEMBLY

(Self Aligning Bushing)



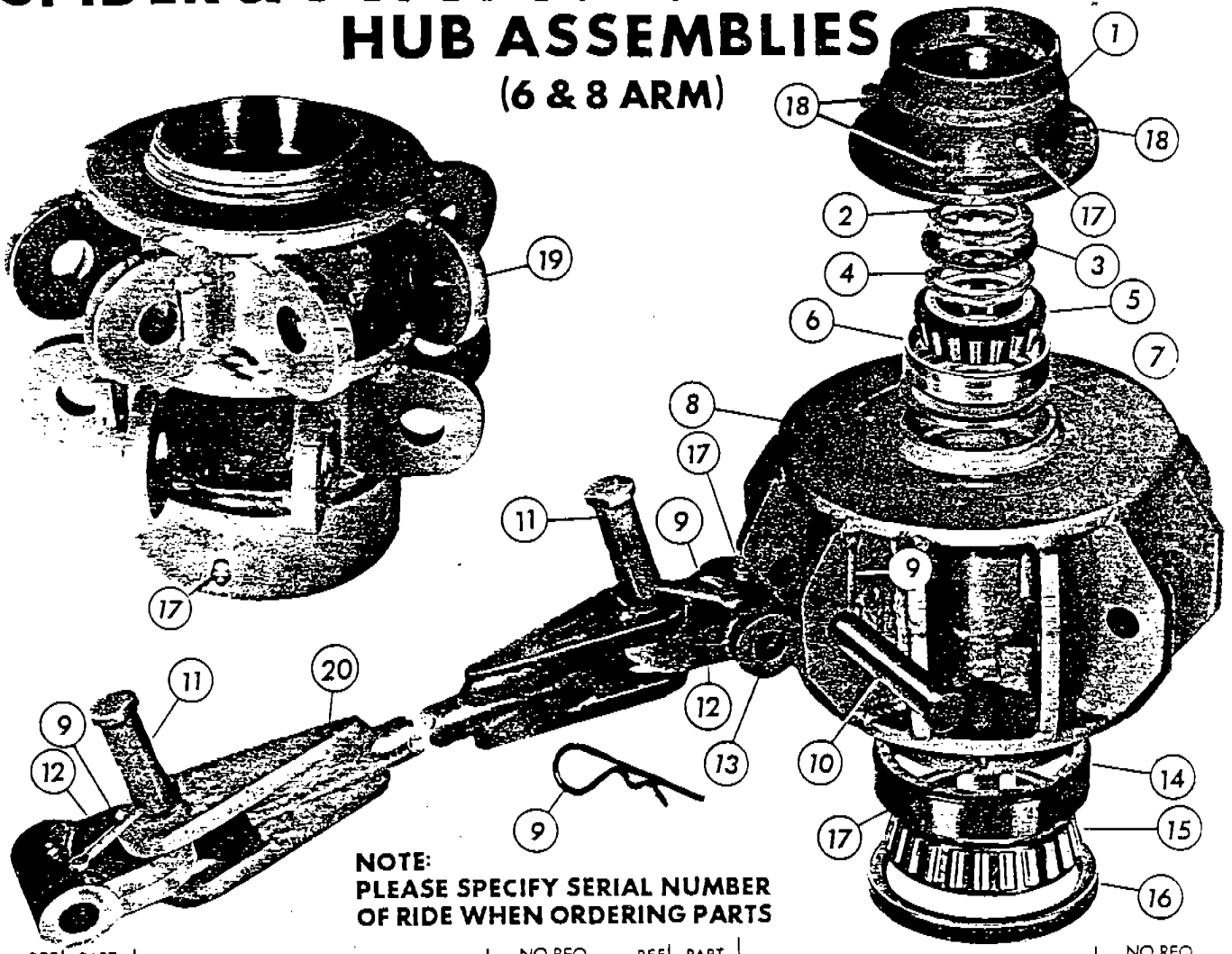


ITEM*	PART NO.	NAME OF PART	NO. REQ'D
1	0-834	SUPPORT ROD END ASSY—INNER	1
2	0-933	SUPPORT ROD ASSY. (SPIDER)	1
	0-956	SUPPORT ROD ASSY. OCTUPUS	
3	0-938	SELF ALIGNING BUSHING	2
*4	0-934	SPACER, SWEEP CRESCENT	2
*5	0-935-A	ADAPTER PLATE, SUPPORT ROD RH & CH	1 Ea.
6	0-936	SWEEP BUSHING ADAPTER	2
7	0-937	SWEEP BUSHING SPACER	2
*8	0-939	ADPT. PLATE BOLT & LOCKNUT GRD. 5 1"x5/8" spec.	2
*9	0-939	ADAPTER PLATE BOLT AND LOCKNUT GRADE 8	1
10	0-940	SPINDLE HUB BOLT AND LOCKNUT GRADE 8	1
*11	0-959	SWEEP CRESCENT BOLT AND LOCKNUT GRADE 8	1
12	—	1/4-28 NF STRAIGHT ZERK	2
13	—	5/16-24 NF BOLT x 1 3/4" LONG	2
14	—	5/16" FLAT WASHER	4
15	—	5/16-24 NF LOCKNUT	2
16	—	3/8-11 NC BOLT x 3 1/4" LONG	1
17	—	3/8-11 NC HEX NUT	1
18			
19			
20			
21			
22			

*Option to bronze swivel block type crescent only.

SPIDER & OCTOPUS ECCENTRIC SPINDLE HUB ASSEMBLIES

(6 & 8 ARM)



NOTE:
PLEASE SPECIFY SERIAL NUMBER OF RIDE WHEN ORDERING PARTS

REF. NO.	PART NO.	NAME OF PART	NO. REQ. 6 ARM	NO. REQ. 8 ARM
1	O-381	ECCENTRIC SPINDLE HUB CAP	1	1
2	O-5	ECCENTRIC SPINDLE NUT (Outer)	1	1
3	O-4	ECCENTRIC SPINDLE NUT LOCKWASHER	1	1
4	O-3	ECCENTRIC SPINDLE NUT (Inner)	1	1
5	O-7	ECCENTRIC SPINDLE BEARING CONE (Upper)	1	1
6	O-6	ECCENTRIC SPINDLE BEARING CUP (UPPER)	1	1
7	O-383	ECCENTRIC SPINDLE GREASE PLATE	1	1
8	O-650	ECCENTRIC SPINDLE HUB (6 Arm)	1	
9		COTTER KEY (1/4" X 2")	24	32
	O-26A	HAIRPIN SAFETY KEY (1/4") (Optional)	*	*
10	O-24	SWIVEL BLOCK PIN (Long)	12	16
11	O-25	SWIVEL BLOCK PIN (Short)	12	16
12	O-23	SWIVEL BLOCK	12	16
13	O-537	SWIVEL BLOCK SPACER WASHER		
14	O-380A	ECCENTRIC SPINDLE BEARING CUP (Lower)	1	1
15	O-380B	ECCENTRIC SPINDLE BEARING CONE (Lower)	1	1
16	O-380C	ECCENTRIC SPINDLE GREASE SEAL	1	1
17		ZERK FITTING (1/8" NPT Straight)	14	18
18		CAP SCREW (3/8" X 1" NC W/Lockwasher)	4	4
19	O-380	ECCENTRIC SPINDLE HUB (8 Arm)		1
20	O-393	SWEEP SUPPORT ROD (Octopus)		8
	O-624	SWEEP SUPPORT ROD (Spider)	6	

* SPECIFY NO. REQUIRED. DO NOT USE IN O-25 PINS.

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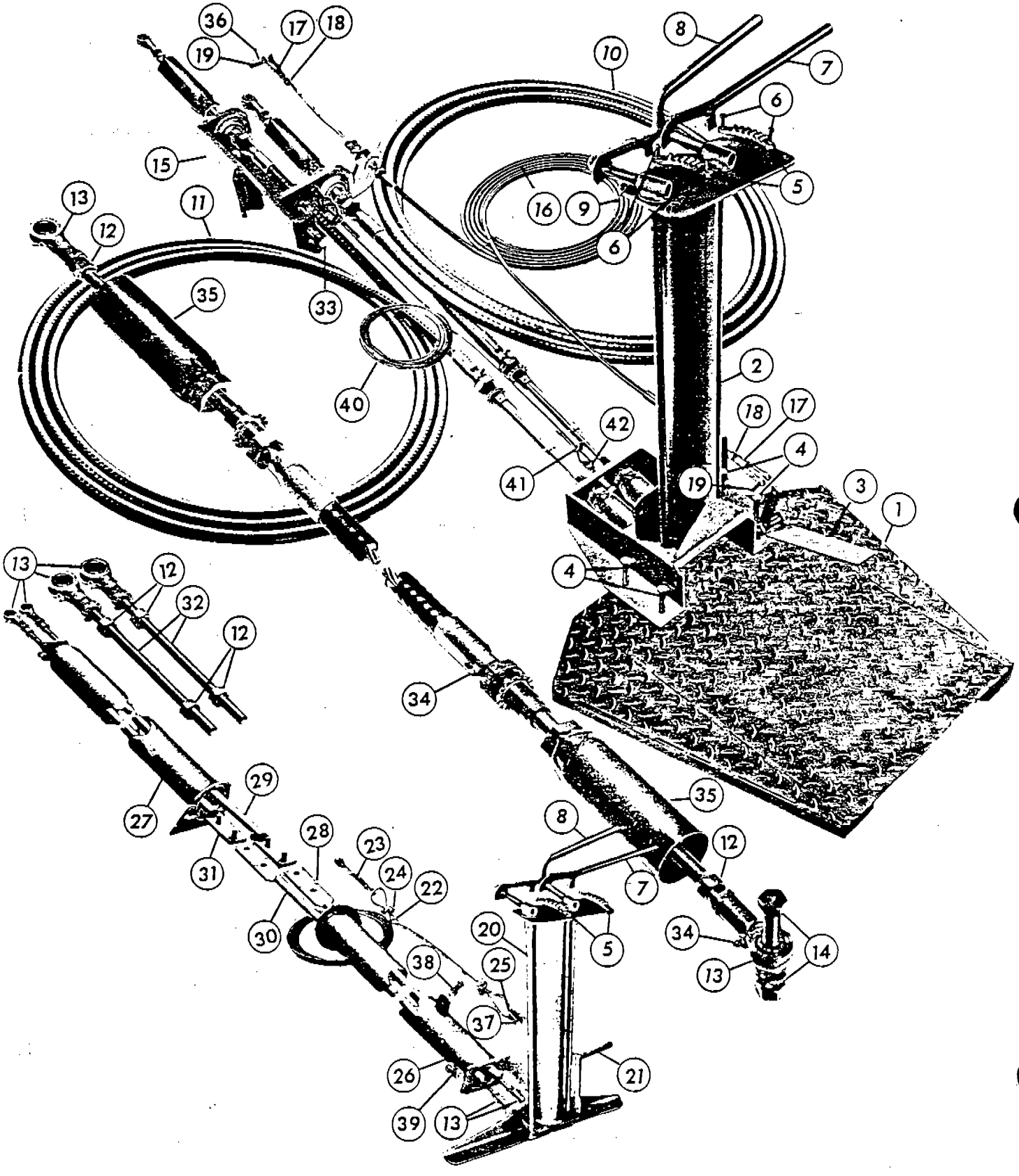
CONTROL STAND ASSEMBLIES



CONTROL STAND ASSEMBLIES

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	O-745	CONTROL STAND BASE ONLY	1
2	O-755	CONTROL STAND (Bare)	1
3	O-774	THROTTLE CONTROL PEDAL (Gas)	1
4		CAP SCREW ASSEMBLY (1/2"X 2-1/4"NF W/Lockwasher & Nut)	4
5	O-153	RATCHET SEGMENT	2
6		CAP SCREW ASSEMBLY (5/16" X 3/4" NC W/Lockwasher)	4
7	O-192	CONTROL HANDLE (Rotation)	1
8	O-191	CONTROL HANDLE (Eccentric)	1
9		COTTER KEY (3/16"X 1-1/2")	2
10	O-765	FLEX CONTROL CABLE (Rotation-Short)	1
11	O-764	FLEX CONTROL CABLE (Eccentric-Long)	1
12		NUT (1/2" NF)	4or6
13	O-551	ROD END (1/2" Female)	4
14		CAP SCREW ASSEMBLY (1/2"X 1-1/2" NF W/Lockwasher & Nut)	2
15	O-713	CONTROL CABLE BRACKET	1
16	O-766	FLEX THROTTLE CABLE (Gas)	1
17	W-155A	CLEVIS (5/16"NF) (Gas)	2
18		NUT (5/16"NF) (Gas)	2
19	W-155B	CLEVIS PIN (5/16"X 1") Gas)	2
20	O-463	CONTROL STAND (Bare)	1
21	F-58	THROTTLE PEDAL (Gas)	1
22	O-550	THROTTLE CABLE ASSEMBLY (3/16"X 29 Ft.)	1

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
23		TURNBUCKLE (1/4")	1
24		CABLE CLAMP (3/16")	2
25		COLD SHUT (1/4")	1
26	O-416	CONTROL TUBE (Outer)	1
27	O-303	CONTROL TUBE (Inner)	1
28	O-547	CLUTCH CONTROL ROD (Outer-Short) (Rotation)	1
29	O-547A	CLUTCH CONTROL ROD (Inner-Short) (Rotation)	1
30	O-546	CLUTCH CONTROL ROD (Outer-Long) (Eccentric)	1
31	O-546A	CLUTCH CONTROL ROD (Inner-Long) (Eccentric)	1
32	O-551A	CLUTCH CONTROL ROD END STUD	2
33		CAP SCREW (1/2"X 1-1/2"NF W/Lockwasher & Nut)	1
34		ZERK FITTING (1/4"NF Straight)	4or8
35	O-824	TRAVEL LIMITER	4
36		COTTER KEY (1/16"X 3/4")	2
37		CAP SCREW (1/4"X 1-1/4"NF W/Lockwasher & Nut)	1
38		CAP SCREW (1/4"X 1" NF W/Lockwasher & Nut	1
39		CAP SCREW (3/8" X 1-1/4" NF W/Lockwasher & Nut)	2
40	O-873	LIMITING CABLE (3/16"X 27 Ft.)	1
41		CABLE CLAMP (3/16")	2
42	O-688	EYE BOLT (5/16" NC)	2

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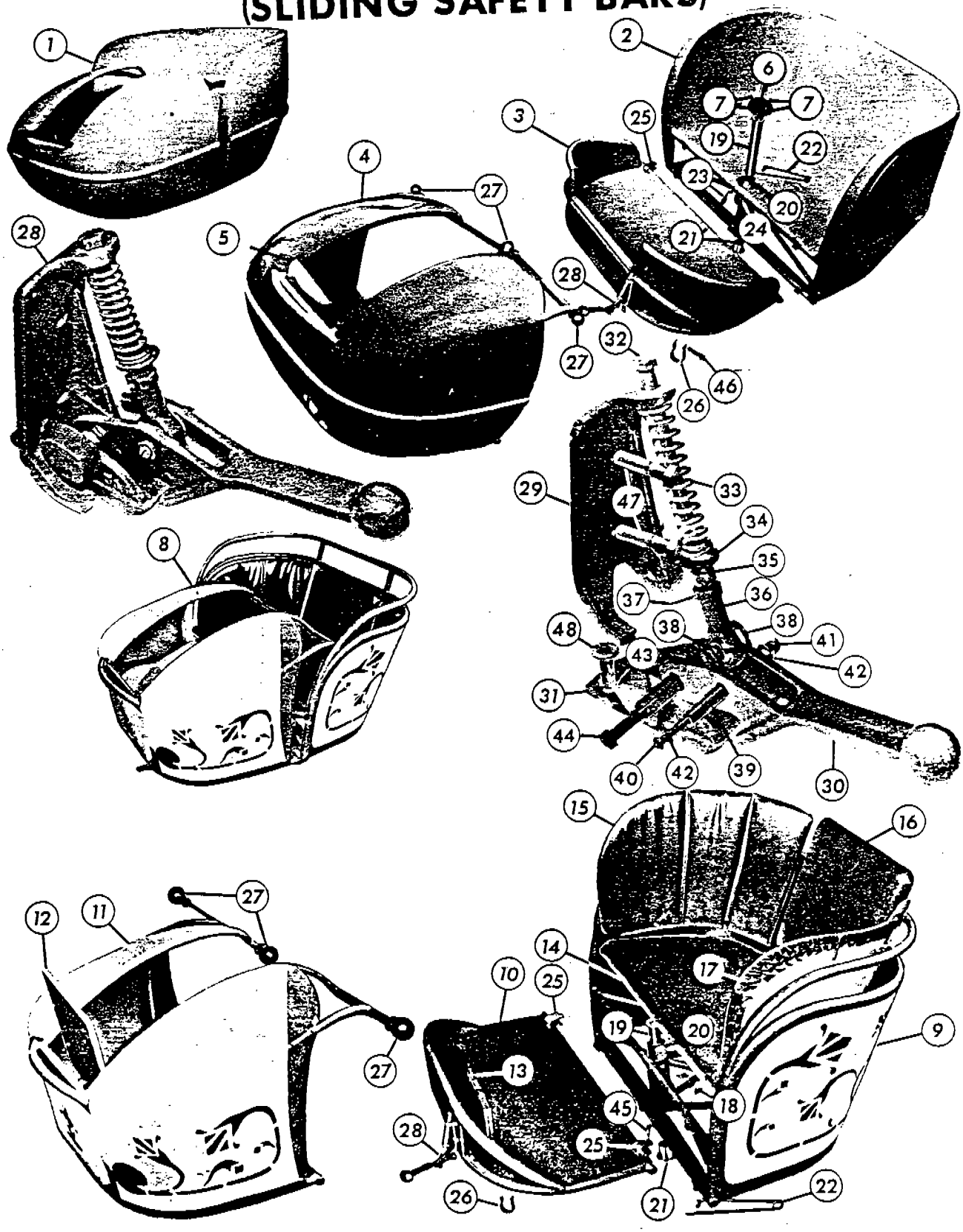
METAL OR FIBERGLASS CAR ASSEMBLY
(SLIDING SAFETY BARS)



CONTROL STAND ASSEMBLIES

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	O-745	CONTROL STAND BASE ONLY	1
2	O-755	CONTROL STAND (Bare)	1
3	O-774	THROTTLE CONTROL PEDAL (Gas)	1
4		CAP SCREW ASSEMBLY (1/2"X 2-1/4"NF W/Lockwasher & Nut)	4
5	O-153	RATCHET SEGMENT	2
6		CAP SCREW ASSEMBLY (5/16" X 3/4" NC W/Lockwasher)	4
7	O-192	CONTROL HANDLE (Rotation)	1
8	O-191	CONTROL HANDLE (Eccentric)	1
9		COTTER KEY (3/16"X 1-1/2")	2
10	O-765	FLEX CONTROL CABLE (Rotation-Short)	1
11	O-764	FLEX CONTROL CABLE (Eccentric-Long)	1
12		NUT (1/2" NF)	4or6
13	O-551	ROD END (1/2" Female)	4
14		CAP SCREW ASSEMBLY (1/2"X 1-1/2" NF W/Lockwasher & Nut)	2
15	O-713	CONTROL CABLE BRACKET	1
16	O-766	FLEX THROTTLE CABLE (Gas)	1
17	W-155A	CLEVIS (5/16"NF) (Gas)	2
18		NUT (5/16"NF) (Gas)	2
19	W-155B	CLEVIS PIN (5/16"X 1") Gas)	2
20	O-463	CONTROL STAND (Bare)	1
21	F-58	THROTTLE PEDAL (Gas)	1
22	O-550	THROTTLE CABLE ASSEMBLY (3/16"X 29 Ft.)	1

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
23		TURNBUCKLE (1/4")	1
24		CABLE CLAMP (3/16")	2
25		COLD SHUT (1/4")	1
26	O-416	CONTROL TUBE (Outer)	1
27	O-303	CONTROL TUBE (Inner)	1
28	O-547	CLUTCH CONTROL ROD (Outer-Short) (Rotation)	1
29	O-547A	CLUTCH CONTROL ROD (Inner-Short) (Rotation)	1
30	O-546	CLUTCH CONTROL ROD (Outer-Long) (Eccentric)	1
31	O-546A	CLUTCH CONTROL ROD (Inner-Long) (Eccentric)	1
32	O-551A	CLUTCH CONTROL ROD END STUD	2
33		CAP SCREW (1/2"X 1-1/2"NF W/Lockwasher & Nut)	1
34		ZERK FITTING (1/4"NF Straight)	4or8
35	O-824	TRAVEL LIMITER	4
36		COTTER KEY (1/16"X 3/4")	2
37		CAP SCREW (1/4"X 1-1/4"NF W/Lockwasher & Nut)	1
38		CAP SCREW (1/4"X 1" NF W/Lockwasher & Nut	1
39		CAP SCREW (3/8" X 1-1/4" NF W/Lockwasher & Nut)	2
40	O-873	LIMITING CABLE (3/16"X 27 Ft.)	1
41		CABLE CLAMP (3/16")	2
42	O-688	EYE BOLT (5/16" NC)	2

METAL OR FIBERGLASS CAR ASSEMBLY
(SLIDING SAFETY BARS)

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	O-652	FIBERGLASS CAR ASSEMBLY	
2	O-653	FIBERGLASS BACK SECTION	1
*		ZERK FITTING (67-1/2 Degree 1/8" NPT) (Upper Spindle Bushing)	1
*		ZERK FITTING (Straight 1/8" NPT) (Lower Spindle Bushing)	1
3	O-654	FIBERGLASS STEP SECTION	1
4	O-655	FIBERGLASS NOSE SECTION W/Sliding Safety Bars)	1
5	O-650	FIBERGLASS STEP LINER	1
6	O-653A	FIBERGLASS SPINDLE COVER PLATE	1
7		COVER PLATE SCREW (#7 X 1/2")	4
8	O-604	METAL CAR ASSEMBLY	
9	O-389	METAL BACK SECTION (Less Upholstery)	1
10	O-544	METAL STEP SECTION	1
11	O-390	METAL NOSE SECTION (Sliding Safety Bars)	1
12	O-390A	NOSE BOARD	1
13	O-544A	STEP BOARD	1
14	O-178	SEAT UPHOLSTERY	1
15	O-175	LEFT SIDE UPHOLSTERY	1
16	O-177	BACK CENTER UPHOLSTERY	1
17	O-176	RIGHT SIDE UPHOLSTERY	1
18	O-179	UPHOLSTERY CLAMP	2
*		ELEVATOR BOLT (5/16" X 1-1/2" NC) Upholstery Clamp)	2
19	O-631	CAR SPINDLE	1
*		**CAP SCREW (3/8" X 3-1/2" NF W/Flat Washer & Lock Nut) (Car Spindle)	1
20	O-387	SPINDLE BUSHING (Upper) (Nylon)	1
	O-150	SPINDLE BUSHING (Upper) (Bronze)	
21	O-388	SPINDLE BUSHING (Lower) (Nylon)	1
	O-149	SPINDLE BUSHING (Lower) (Bronze)	
22	O-682	CAR SPINDLE KEY	1
23	O-656	SPINDLE RETAINER	1
24		CAP SCREW (Spindle Retainer) (5/16" X 1" NF W/Lock Nut)	1
25	O-183	HINGE CLAMP	5
26	O-603	SAFETY CLAMP	1
27	O-189	RUBBER BALL	4
28	O-851	NOSE LATCH ASSEMBLY	1
29	O-862	HINGE PLATE	1
30	O-860	LOCK LEVER	1
31	O-861	CATCH PLATE	1
32		CAP SCREW (3/8" X 3-3/4" NF)	1
33	O-187	SPRING	1
34		FLAT WASHER (3/8")	1
35		NUT (3/8" N F)	
36	O-788	ROD END (3/8" R. H.)	1
37		ROLL PIN (3/32" X 3/4")	1
38		WASHER (3/8" SAE)	2
39		ROLL PIN (3/8" X 1-1/4")	1
40		MACHINE SCREW (10-32 X 1-3/4")	1
41		LOCK NUT (10-32)	1
42		BRASS WASHER (#10L)	2
43		ROLL PIN (1/2" X 1-1/4")	1
44		CAP SCREW (5/16" X 1-3/4" NF W/ Lock Nut)	1
45		CAP SCREW (5/16" X 1-3/4" NC W/Nut & Lockwasher) (Hinge Clamp)	5
46		CAP SCREW (1/4" X 2-1/2" NF W/Lock Nut) (Safety Clamp)	1
47		CAP SCREW (3/8" X 1-1/4" NF W/Lock Nut) (Hinge Plate)	2
48		CAP SCREW (Flat Head Socket) (5/16" X 1" W/Lock Nut) (Catch Plate)	1
		CAP SCREW (Flat Head Socket) (5/16" X 1-1/4" W/Lock Nut) (Catch Plate)	1

* Not Illustrated.

** Used When Ride is in a Permanent Location.
NOTE: The Number in the "No. Req." Column Indicates the Number of Parts for One Car.

FIBERGLASS CAR ASSEMBLY

(SWING-OUT SAFETY BARS)

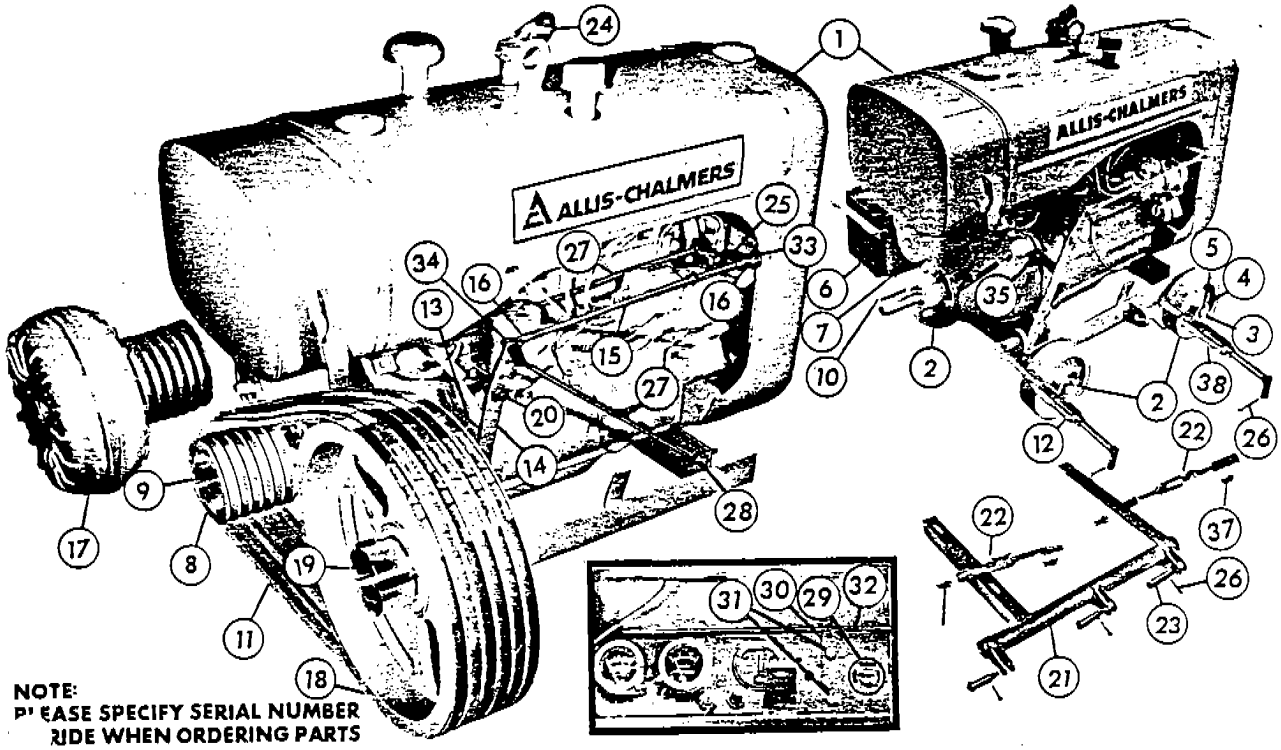
REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	O-653	FIBERGLASS BACK SECTION	1
*		ZERK FITTING (67-1/2 Degree 1/8" NPT) (Upper Spindle Bushing)	1
*		ZERK FITTING (Straight 1/8" NPT) (Lower Spindle Bushing)	1
2	O-881	FIBERGLASS NOSE SECTION (W/Swing-out Bars)	1
3	O-882	FIBERGLASS TRAY SECTION	1
4	O-687	TRAY SECTION HINGE CLAMP	2
5	O-685	SPRING LINK	2
6	O-704	SPRING	2
7	O-688	SPRING TIGHTENER	2
8	O-183	HINGE CLAMP	3
9	O-387	SPINDLE BUSHING (Upper) (Nylon)	1
	O-150	SPINDLE BUSHING (Upper) (Bronze)	
10	O-388	SPINDLE BUSHING (Lower) (Nylon)	1
	O-149	SPINDLE BUSHING (Lower) (Bronze)	
11	O-631	CAR SPINDLE	1
*		**CAP SCREW (3/8"X 3-1/2" NF W/Flat Washer and Locknut)	1
12	O-653A	SPINDLE COVER PLATE	1
13		COVER PLATE SCREW (#7 X 1/2" Mach. Screw)	4
14	O-682	SPINDLE SAFETY KEY	1
15	O-656	SPINDLE RETAINER	1
16	O-603	SAFETY CLAMP	1
17	O-851	NOSE LATCH ASSEMBLY	1
18	O-862	HINGE PLATE	1
19	O-860	LOCK LEVER	1
20	O-861	CATCH PLATE	1
21		CAP SCREW (3/8"X 3-3/4" NF)	1
22	O-187	SPRING	1
23		FLAT WASHER (3/8")	1
*		NUT (3/8" NF)	1
25	O-788	ROD END (3/8" R.H. Thd.)	3
26		ROLL PIN (3/32"X 3/4")	1
27		WASHER (3/8" SAE)	2
28		ROLL PIN (3/8"X 1-1/4")	1
29		MACHINE SCREW (10-32 X 1-3/4")	1
30		LOCK NUT (10-32)	1
31		BRASS WASHER (10L)	2
32		ROLL PIN (1/2"X 1-1/4")	1
33		CAP SCREW (5/16"X 1-3/4" NF W/Lockwasher)	1
34	O-699	SAFETY BAR BEARING (Upper R.H.)	1
35	O-700	SAFETY BAR BEARING (Upper L.H.)	1
36	O-701	SAFETY BAR BEARING (Lower R.H.)	1
37	O-702	SAFETY BAR BEARING (Lower L.H.)	1
38	O-787	SAFETY BAR CONTROL ROD	2
39		CAP SCREW (5/16"X 3/4" NF W/Lock Nut)	8
40	O-789	ROD END (3/8" L.H.)	2
41		JAM NUT (3/8" R.H. Thd.) (Rod End)	2
42		JAM NUT (3/8" L.H. Thd.) (Rod End)	2
43		CAP SCREW (3/8"X 1-1/4" NF W/Nut & Lockwashre) (Rod End)	4
44	O-697	SAFETY BAR (R.H.)	1
45	O-698	SAFETY BAR (L.H.)	1
46	O-880	FIBERGLASS CAR ASSEMBLY	
47		CAP SCREW (5/16"X 2-3/4" Socket Head NF W/Nut & Lockwasher) (Tray Section Hinge Clamp)	2
48		CAP SCREW (3/8"X 1-1/2" NF W/Lock Nut (Spring Link)	2
49		CAP SCREW (5/16"X 1-3/4" NF W/Nut & Lockwasher) (Hinge Clamp)	3
50		CAP SCREW (1/4"X 2-1/2" NF W/Lock Nut) (Safety Clamp)	
51		CAP SCREW (Flat Head Socket) (5/16"X 1" W/Lock Nut) (Catch Plate)	1
		CAP SCREW (Flat Head Socket) (5/16"X 1-1/4" W/Lock Nut) (Catch Plate)	1
52	O-872	STEP PLATE (W/4 10-32 X 1-1/2" Flat Head Steel Machine Screws W/Lock Nut & Flat Washer)	2
53		CAP SCREW (3/8"X 1-1/4" NF W/Lock Nut) (Hinge Plate)	2
54		CAP SCREW (5/16"X 1" NF W/Lock Nut) (Spindle Retainer)	1

* Not Illustrated. ** Used when the Ride is in a Permanent Location.

NOTE: The Number in the "No. Req." Column Indicates the Number of Parts Required for One Ride.

EVERLY AIRCRAFT CO. SALEM, ORE.

GAS ENGINE DRIVE ASSEMBLY



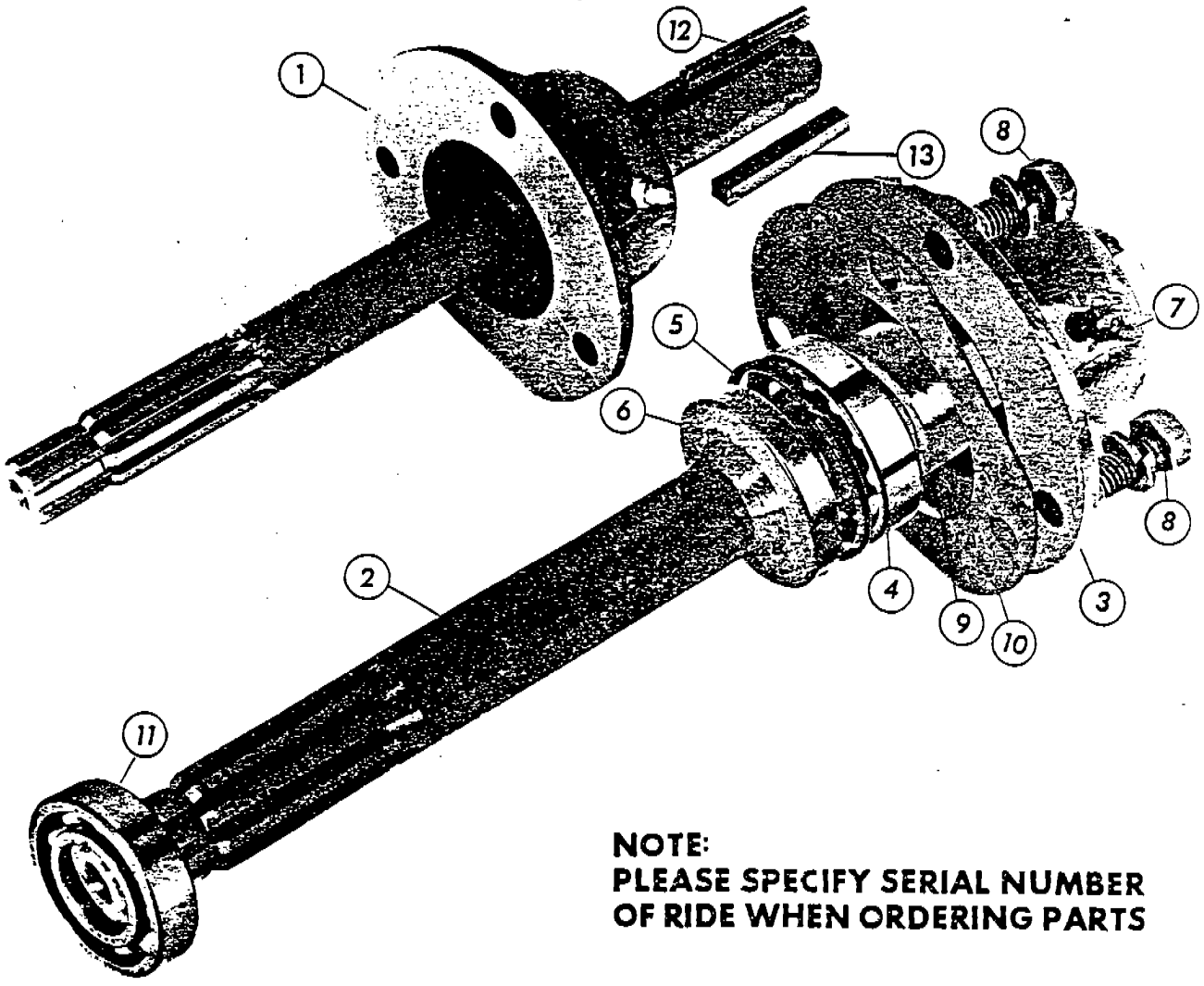
NOTE:
PLEASE SPECIFY SERIAL NUMBER RIDE WHEN ORDERING PARTS

REF NO.	PART NO.	NAME OF PART	NO. REQ.
1		GASOLINE ENGINE (Allis-Chalmers G-138)	1
2	O-290	WHEEL	4
3	O-424A	AXLE	2
4		FLAT WASHER (1")	8
5		COTTER KEY (1/4" X 2")	4
6	W-234	BATTERY (12 Volt)	1
7	W-147	BATTERY BOX W/CLAMP	1
8	O-554	DRIVE SHEAVE (W/Bushing, 6B5.4 for G-138 Engine)	1
9	O-554A	DRIVE SHEAVE BUSHING (2517 1-3/8" Bore) (Spec.)	1
10	O-552	DRIVE SHAFT KEY (3/8" X 3/8" X 3-1/4") (Use with O-554)	1
	PR-765	HYDRO-SHEAVE KEY (3/8" X 3/16" X 2-3/8") (Use with O-780)	
11	O-139	"V" BELT (B112 Matched Set of 6)	1
12	F-65	TURNBUCKLE (Long)	1
13	O-527	THROTTLE LEVER BRACKET	1
14	O-782	THROTTLE LEVER	1
15	O-526A	THROTTLE ROD	1
16	L-427	ROD END (5/16")	2
17	O-780	HYDRO-SHEAVE W/SHEAVE (See Hydro-Sheave Assembly for Parts)	1
18	O-138	COUNTERSHAFT SHEAVE (W/Bushing, 6B15.4)	1
19	O-525	COUNTERSHAFT SHEAVE BUSHING (2517 1-3/4" Bore)	1
20		CAP SCREW (1/2" X 2" NF W/Flat Washer & Lock Nut) (Special)	1

REF NO.	PART NO.	NAME OF PART	NO. REQ.
20		CAP SCREW (1/2" X 2" NF W/Flat Washer & Lock Nut) (Special)	1
21	O-783	GAS ENGINE MOUNT: PERMANENT	1
22	O-721	TURNBUCKLE	2
23	O-26	UNIVERSAL TAPER PIN (1")	3
24	PR-676	EXHAUST WEATHERHEAD	1
25	L-424	GOVERNOR LEVER (Altered)	1
26		COTTER KEY (1/4" X 2")	3or4
27	RR-511	SPRING	2
28		EYEBOLT W/NUT (3/16")	2
29	E-286	RECEPTACLE (B-71420 FR)	1
30	E-357	MOUNTING PLATE	1
31		CAP SCREW (1/4" X 3/4" NF W/Lockwasher & Nut)	2
32	E-270	RECEPTACLE AND PLATE ASSEMBLY	1
33		CAP SCREW (5/16" X 1" NF W/Lockwasher)	1
34		CAP SCREW (5/16" X 1-1/4" NF W/Lockwasher & Nut)	1
35		CAP SCREW (1/2" X 2-1/4" NF W/Lockwasher & Nut)	1
36		CAP SCREW (1/2" X 1-3/4" NF W/Lockwasher & Nut)	2
37		CAP SCREW (1/2" X 2" NF W/Lockwasher & Nut)	2
38	F-65A	TURNBUCKLE (Short)	1
*	W-234A	BATTERY CABLE (Long)	1
*	W-234B	BATTERY CABLE (Short)	1

* Not Illustrated.

CLUTCH SHAFT ASSEMBLY



NOTE:
PLEASE SPECIFY SERIAL NUMBER OF RIDE WHEN ORDERING PARTS

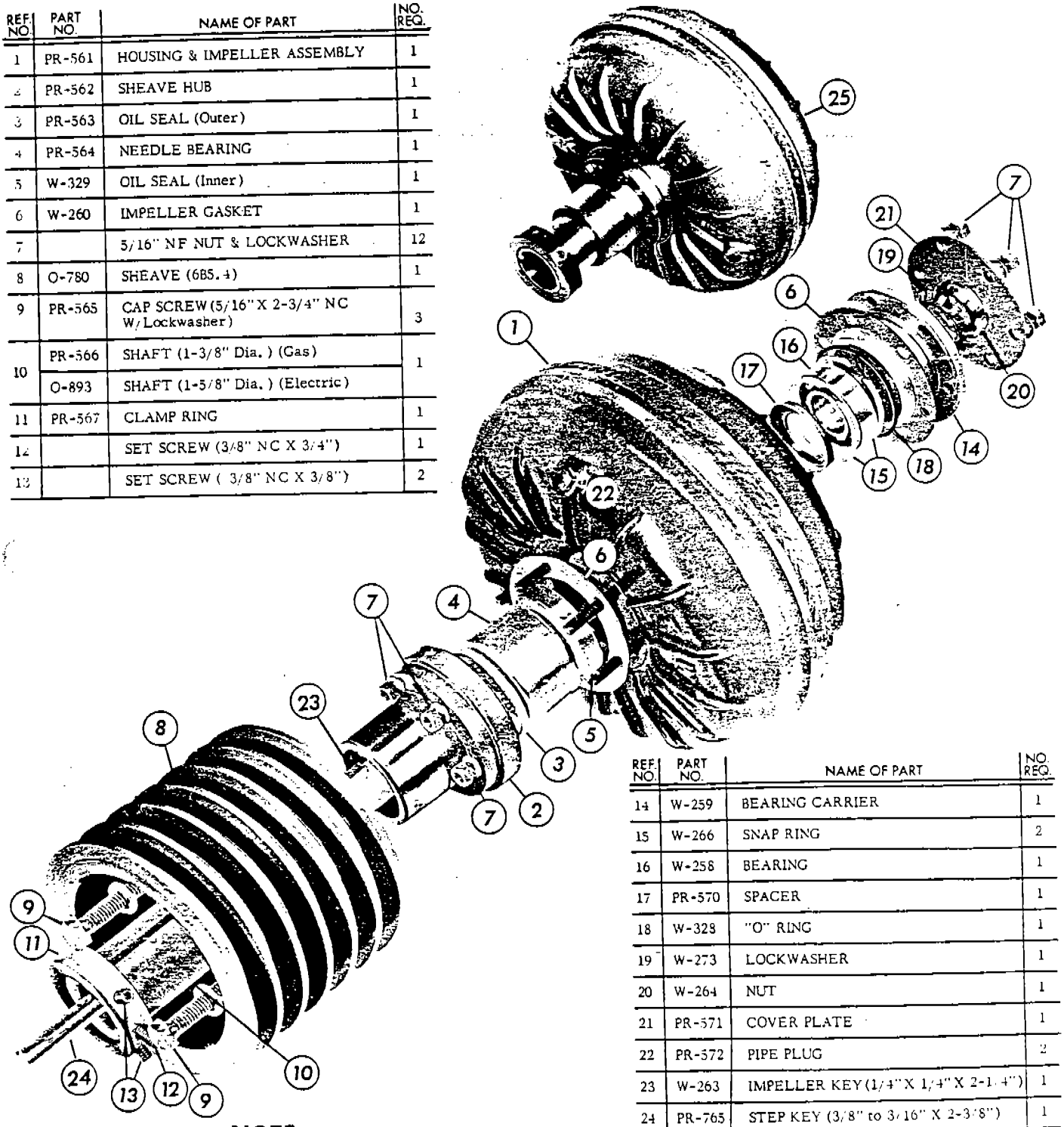
REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	L-472	CLUTCH SHAFT ASSEMBLY	1
2	L-476F	CLUTCH SHAFT	1
3	L-476	BEARING HOUSING	1
4	W-241	BEARING (Outer)	1
5	L-476D	BEARING SNAP RING	1
6	L-476E	BEARING OIL SEAL	1
7		ZERK FITTING (67-1/2 Degree 1/8"NPT)	1
8		CAP SCREW (1/2"X 1-1/4" NC W/Lockwasher)	3

REF. NO.	PART NO.	NAME OF PART	REF. NO.
9	L-476G	SPACER SLEEVE	1
10	L-476A	BEARING HOUSING GASKET	1
11	L-476H	PILOT BEARING	1
12	PR-765	CLUTCH SHAFT STEP KEY (3/8"X 3/16"X 2-3/8") (Used with O-780 Hydro-Sheave)	1
13	O-552	CLUTCH SHAFT KEY (Std.) (3/8"X 3/8"X 3-1/4" (Used with O-554 Drive Sheave)	1

Everfly AIRCRAFT CO. SALEM, ORE.

HYDRO-SHEAVE ASSEMBLY

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	PR-561	HOUSING & IMPELLER ASSEMBLY	1
2	PR-562	SHEAVE HUB	1
3	PR-563	OIL SEAL (Outer)	1
4	PR-564	NEEDLE BEARING	1
5	W-329	OIL SEAL (Inner)	1
6	W-260	IMPELLER GASKET	1
7		5/16" NF NUT & LOCKWASHER	12
8	O-780	SHEAVE (6B5.4)	1
9	PR-565	CAP SCREW (5/16" X 2-3/4" NC W/Lockwasher)	3
10	PR-566	SHAFT (1-3/8" Dia.) (Gas)	1
	O-893	SHAFT (1-5/8" Dia.) (Electric)	
11	PR-567	CLAMP RING	1
12		SET SCREW (3/8" NC X 3/4")	1
13		SET SCREW (3/8" NC X 3/8")	2

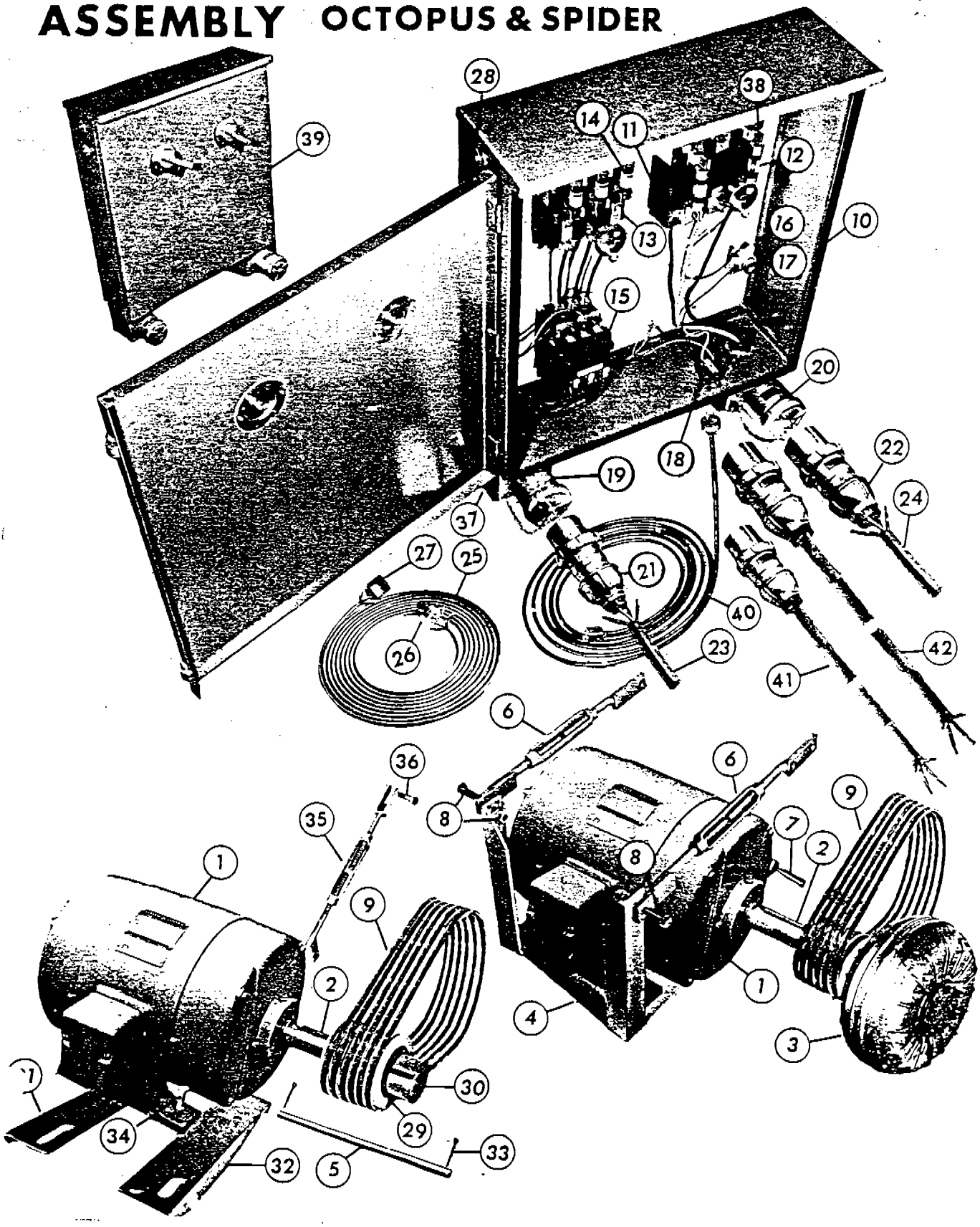


REF. NO.	PART NO.	NAME OF PART	NO. REQ.
14	W-259	BEARING CARRIER	1
15	W-266	SNAP RING	2
16	W-258	BEARING	1
17	PR-570	SPACER	1
18	W-328	"O" RING	1
19	W-273	LOCKWASHER	1
20	W-264	NUT	1
21	PR-571	COVER PLATE	1
22	PR-572	PIPE PLUG	2
23	W-263	IMPELLER KEY (1/4" X 1/4" X 2-1/4")	1
24	PR-765	STEP KEY (3/8" to 3/16" X 2-3/8")	1
25	PR-40	HYDRO-SHEAVE (1-3/8" Bore) (Gas)	1
	O-896	HYDRO-SHEAVE (1-5/8" Bore) (Elec.)	

NOTE:
PLEASE SPECIFY SERIAL NUMBER OF RIDE WHEN ORDERING PARTS

Everly AIRCRAFT CO. SALEM, ORE.

ELECTRIC DRIVE & LIGHTING CONTROL ASSEMBLY OCTOPUS & SPIDER



ELECTRIC DRIVE & LIGHTING CONTROL ASSEMBLY OCTOPUS & SPIDER

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1		ELECTRIC MOTOR (3 Phase, 15 HP, 1800 RPM) (1-5/8" Shaft)	1
2	O-556	MOTOR KEY (3/8"X 3/8"X 3") (Use with O-557)	1
	PR-765	MOTOR STEP KEY (3/8"X 3/16"X 2-3/8") (Use with O-892)	
3	O-892	HYDRO-SHEAVE ASSEMBLY (W/Sheave)	1
4	O-718	MOTOR MOUNT (Permanent Type)	1
5	O-471	MOTOR MOUNT PIN (Use with O-469 & O-470)	1
6	O-721	TURNBUCKLE (Permanent Mount)	1
7	O-26	UNIVERSAL TAPER PIN (1")	2
8		CAP SCREW (1/2"X 2" NF W/Nut & Lockwasher) (Turnbuckle)	4
9	O-139A	"V" BELT (B-75) (Matched Set of 6)	1
10	E-280	CONTROL CABINET (Water Tight, Bare)	1
11	E-252	SPIDER LIGHT SWITCH (100 Amp.) (Single Phase) (110/220 Volt) (D 10S3-ITE)	1
	E-249	OCTOPUS LIGHT SWITCH (60 Amp.) (Single Phase) (110 Volt) (D 10S2-ITE)	
	E-432	OCTOPUS LIGHT SWITCH (30 Amp.) (Single Phase) (110/220 Volt) (D 10S1-ITE)	
12	E-283	SPIDER RENUE FUSE (100 Amp.)	2 OR 1 OR 2
	E-282	OCTOPUS RENUE FUSE (60 Amp.)	
	E-433	OCTOPUS RENUE FUSE (30 Amp.)	
13	E-249	MOTOR SWITCH (60 Amp. 3 Phase, 220 Volt) (D 10S2-ITE)	1
14	E-284	MOTOR FUSE (50 Amp. Duo-Element)	3
15	E-248	MAGNETIC STARTER (A 203D22-#2-ITE) (Motor)	1
*	E-253	OVERLOAD SWITCH (E 20DOLI-ITE)	3
*		HEATER (Mag) (45.2 Amp. Min. 50.3 Amp. Max.)	3
16	E-281	FUSE HOLDER (Ticket Booth Lights) (B-410)	1
17	E-285	PLUG FUSE (Ticket Booth Lights) (15 Amp.)	1
18	E-286	RECEPTACLE (B 4710) (Ticket Booth Lights) (15 Amp.)	1
19	E-222	RECEPTACLE (Motor) (60 Amp. 220 V.) (AE 647)	1
20	E-225	RECEPTACLE (Spider Lights) (100 Amp.) (AE 1047)	1
	E-400	RECEPTACLE (Octopus Lights) (60 Amp. 110 Or 220 Volts) (AE 637)	
21	E-223	PLUG (Motor) (60 Amp. 220 Volt) (AEP 6452)	1
	E-224	PLUG (Spider Lights) (100 AMP. 220 V.) (AEP 10453)	
22	E-401	PLUG (Octopus Lights) (60 Amp. 110 or 220 Volts) (AEP 6352)	1
23	E-287	MOTOR CORD (6/4 SO X 33' Long)	1
24	E-289	LIGHT CORD (Spider) (4/4 SO X 35' Long) (220 V.)	1
	E-273	LIGHT CORD (Octopus) (8/4 SO X 35' Long) (220 V.)	
	E-37	LIGHT CORD (Octopus) (6/3 SO X 35' Long) (110 V.)	
25	E-47	TICKET BOOTH CORD ONLY (14/3 SJ X 45' Long)	1
26	E-3	PLUG (Ticket Booth Lights) (15 Amp.) (B-4721 N)	1
27	E-17	RECEPTACLE (Ticket Booth Lights) (15 Amp.) (B-7593 NC)	1
28	E-291	RED STOP BUTTON (NC Contact) (OT2B2-OTZD-W)	1
	E-292	BLACK START BUTTON (NO Contact) (OT2B1-OTZB-W)	
29	O-557	MOTOR PULLEY (6B 5.4) (For 1800 RPM)	1
30	O-557A	MOTOR PULLEY BUSHING (1615) (1-5/8" Bore)	1
31	O-470	ELECTRIC MOTOR MOUNT (L.H.)	1
32	O-469	ELECTRIC MOTOR MOUNT (R.H.)	1
33		COTTER KEY (1/4"X 2")	2
34		CAP SCREW (1/2"X 2-1/4" NF W/Nut & Lockwasher) (Motor)	4
35	O-562	TURNBUCKLE (Use with O-469 & O-470)	1
36		CAP SCREW (1/2"X 2" NF W/Nut & Lockwasher)	
37	E-324	JUNCTION BOX (5"X 5"X 4")	2
38	E-250	FUSE CLIP KIT (60 Amp.) (D 12C22) (For use in E-249 Switch, Ref. No. 11 & 13)	1
	E-251	FUSE CLIP KIT (100 Amp.) D 12E23) (For use In E-252 Switch, Ref. No. 11)	
	E-238	FUSE CLIP KIT (30 Amp.) (9D 12C21) (For use in E-432 Switch, Ref. No. 11)	
39	E-422	CONTROL CABINET ASSY. (Spider) (220 Volt)	
	E-436	CONTROL CABINET ASSY. (Octopus) (220 Volt)	
	E-437	CONTROL CABINET ASSY. (Octopus) (110 Volt)	
40	E-290	TICKET BOOTH LIGHT CORD ASSEMBLY	
41	E-421	MOTOR CORD ASSEMBLY (60 Amp. 220 Volt)	
42	E-408	SPIDER LIGHT CORD ASSY. (100 Amp. 220 Volt)	
	E-434	OCTOPUS LIGHT CORD ASSY. (60 Amp. 110 Volt)	
	E-435	OCTOPUS LIGHT CORD ASSY. (30 Amp. 220 Volt)	

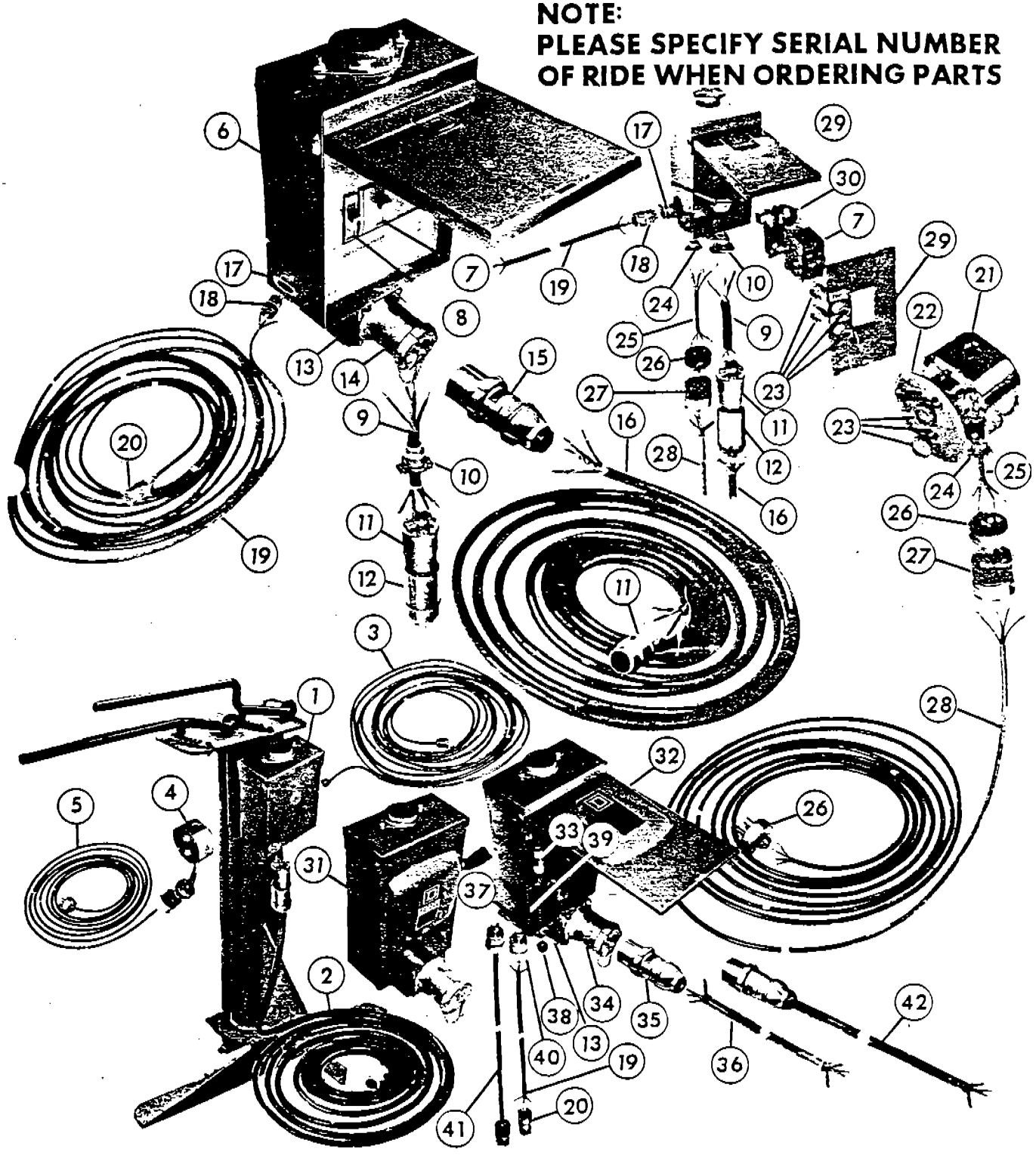
* Not Illustrated.

Everly AIRCRAFT CO. SALEM, ORE.

ELECTRICAL PANELS & SWITCH ASSEMBLIES GASOLINE ENGINE

OCTOPUS 110 & 220 VOLTS & SPIDER 220 VOLTS

NOTE:
PLEASE SPECIFY SERIAL NUMBER OF RIDE WHEN ORDERING PARTS



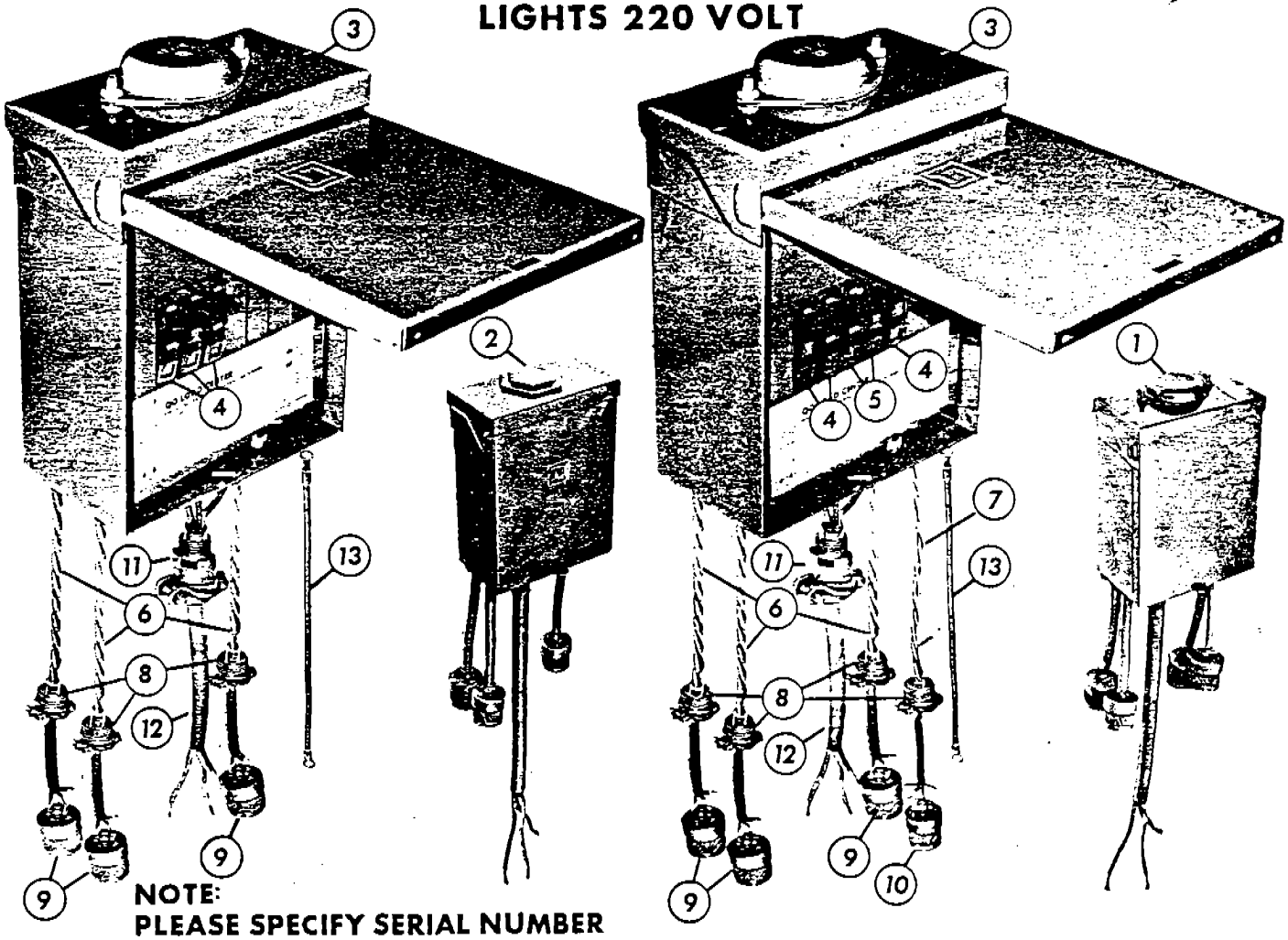
ELECTRICAL PANELS & SWITCH ASSEMBLIES GASOLINE ENGINE
OCTOPUS 110 & 220 VOLTS & SPIDER 220 VOLTS

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	E-409	OCTOPUS 110 VOLT LIGHT BREAKER PANEL ASSEMBLY (50 AMP.)	1
	E-410	OCTOPUS 220 VOLT LIGHT BREAKER PANEL ASSEMBLY (50 AMP.)	
2	E-38	OCTOPUS 110 VOLT LIGHT CORD ASSEMBLY	1
	E-277	OCTOPUS 220 VOLT LIGHT CORD ASSEMBLY	
3	E-48	OCTOPUS TICKET BOOTH CORD ASSEMBLY	1
4	E-278	START & STOP CONTROL BOX ASSEMBLY	1
5	E-43	START & STOP CONTROL BOX CORD ASSEMBLY	1
6	E-239	OCTOPUS LIGHT PANEL ONLY	1
7	E-220	OCTOPUS 110 VOLT OR 220 VOLT LIGHT CIRCUIT BREAKER (50 AMP.)	1
8	E-215	OCTOPUS TICKET BOOTH CIRCUIT BREAKER (15 AMP.)	1
9	E-34	OCTOPUS 110 VOLT PIGTAIL (Lights) (6/3 SO 16 In.)	1
10		CORD CONNECTOR (3/4" Straight)	1
11	E-35	OCTOPUS 110 VOLT RECEPTACLE (50 AMP.) (7764)	1
12	E-36	OCTOPUS 110 VOLT PLUG (50 AMP.) (7765)	1
13	E-324	JUNCTION BOX	1
14	E-400	OCTOPUS 220 VOLT RECEPTACLE (60 AMP.) (AE 637)	1
15	E-401	OCTOPUS 220 VOLT PLUG (60 AMP.) (AEP 6352)	1
16	E-37	OCTOPUS 110 VOLT LIGHT CORD ONLY (6/3 SO 35 Ft.)	1
	E-273	OCTOPUS 220 VOLT LIGHT CORD ONLY (8/4 SO 35 Ft.)	
17	E-44	OCTOPUS TICKET BOOTH RECEPTACLE (15 AMP.) (B 7596 ER)	1
18	E-20	OCTOPUS TICKET BOOTH PLUG (15 AMP.) (B 7594 NP)	1
19	E-47	TICKET BOOTH CORD ONLY (14/3 SJ 45 Ft.)	1
20	E-17	OCTOPUS TICKET BOOTH RECEPTACLE (15 AMP.) (B 7593 NC)	1
21	E-354	START & STOP CONTROL BOX ONLY	1
22	E-186	START & STOP CONTROL BOX COVER ONLY	1
23	E-30	START & STOP PUSH BUTTONS	2
24		CORD CONNECTOR (3/8" Straight)	1
25	E-39	START & STOP PIGTAIL (14/4 SJ 15 In.)	1
26	E-40	START & STOP PLUG (H 7411)	1
27	E-41	START & STOP RECEPTACLE (H 7413)	1
28	E-42	START & STOP CORD ONLY (14/4 SJ) (32 Ft.)	1
29		NOT AVAILABLE, SEE REF. No. 1 FOR ASSEMBLY - INTERNAL PARTS AVAILABLE	
30	E-28	OCTOPUS 110 VOLT CIRCUIT BREAKER MOUNTING BLOCK	1
31	E-405	SPIDER 220 VOLT FUSED LIGHT SWITCH ASSEMBLY (100 AMP.)	1
32	E-404	SPIDER 220 VOLT FUSED LIGHT SWITCH ONLY (100 AMP.)	1
33	E-283	SPIDER 220 VOLT LIGHT FUSE (100 AMP.)	2
34	E-225	SPIDER 220 VOLT RECEPTACLE (100 AMP.) (AE 1047)	1
35	E-224	SPIDER 220 VOLT PLUG (100 AMP.) (AEP 10453)	1
36	E-289	SPIDER 220 VOLT LIGHT CORD ONLY (4/4 SO 35 Ft.)	1
37	E-201	SPIDER TICKET BOOTH CARTRIDGE FUSE (15 AMP.)	1
38	E-200	SPIDER TICKET BOOTH CARTRIDGE FUSE HOLDER	1
39	E-72	SPIDER TICKET BOOTH RECEPTACLE (15 AMP.) (B 4710)	1
40	E-3	SPIDER TICKET BOOTH PLUG (15 AMP.) (B 4721 N)	1
41	E-290	SPIDER TICKET BOOTH CORD ASSEMBLY	1
42	E-408	SPIDER 220 VOLT LIGHT CORD ASSEMBLY	1

Everly AIRCRAFT CO. SALEM, ORE.

SPIDER CIRCUIT BREAKER ASSEMBLIES

LIGHTS 220 VOLT



NOTE:
PLEASE SPECIFY SERIAL NUMBER OF RIDE WHEN ORDERING PARTS

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	E-209	CIRCUIT BREAKER ASSEMBLY (With Center Ornament Outlet)	1
2	E-208	CIRCUIT BREAKER ASSEMBLY	1
3	E-239	CIRCUIT BREAKER BOX ONLY (#QO6-12 RB)	2
4	E-216	CIRCUIT BREAKER (20 Amp.)	6
5	E-218	CIRCUIT BREAKER (15 Amp.)	2
6	E-425	CORD (12/3 SO 20 In. Long)	6
7	E-424	CORD (14/4 SJ 20 In. Long)	1

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
8		CORD CONNECTOR (3/8" Straight 7315 U Appleton)	7
9	E-299	RECEPTACLE (20 Amp. 3 Wire) (B-70520 NC)	6
10	E-298	RECEPTACLE (20 Amp. 4 Wire) (B-71420 NC)	1
11		CORD CONNECTOR (3/4" Straight #7289 U Appleton)	2
12	E-426	CORD (6/3 SO 32 In. Long)	2
13	E-427	GROUND WIRE (#8 TW X 24" Long)	2

SPIDER JUNCTION BOX ASSEMBLY
LIGHTS 220 VOLT

NOTE:
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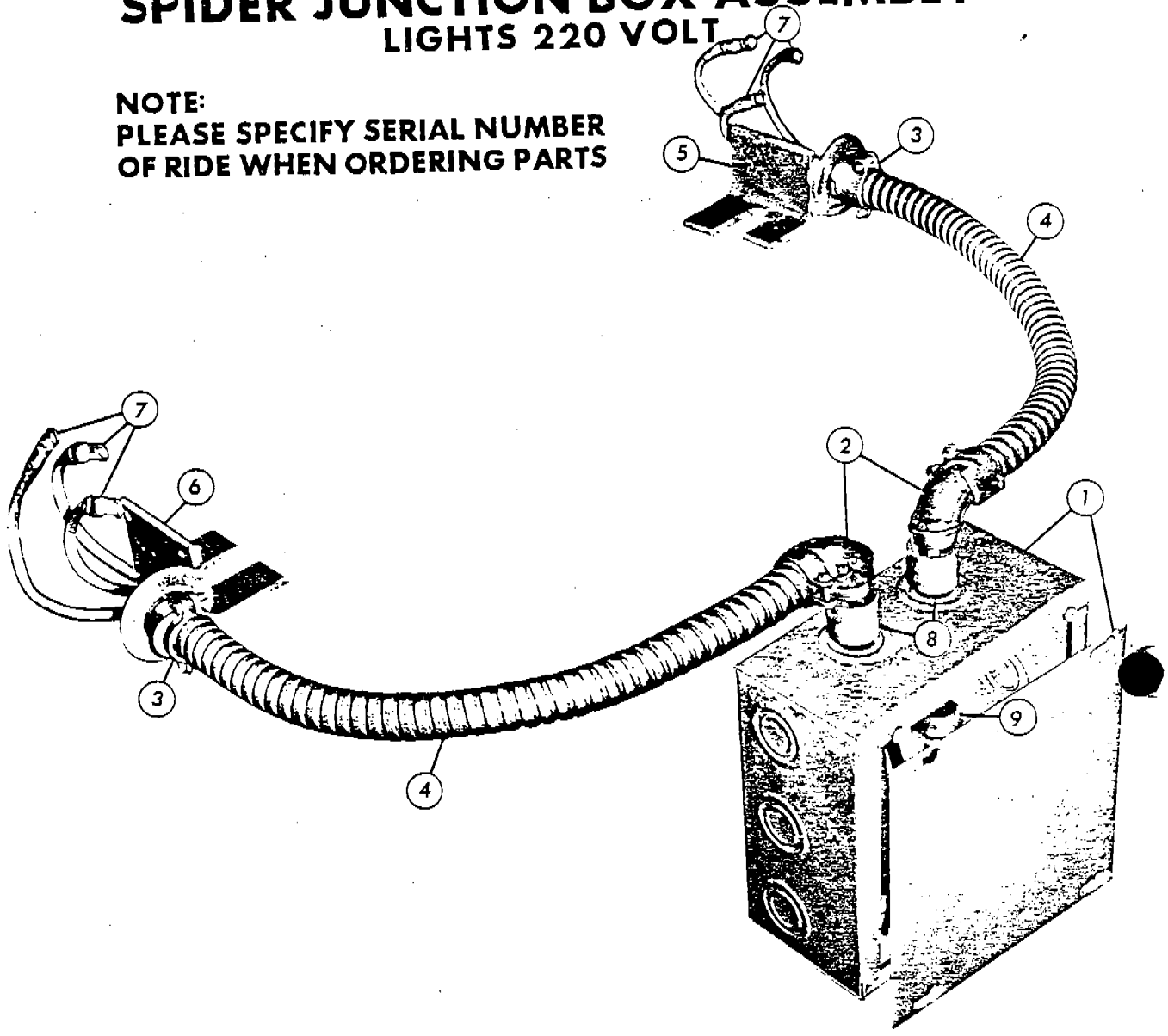
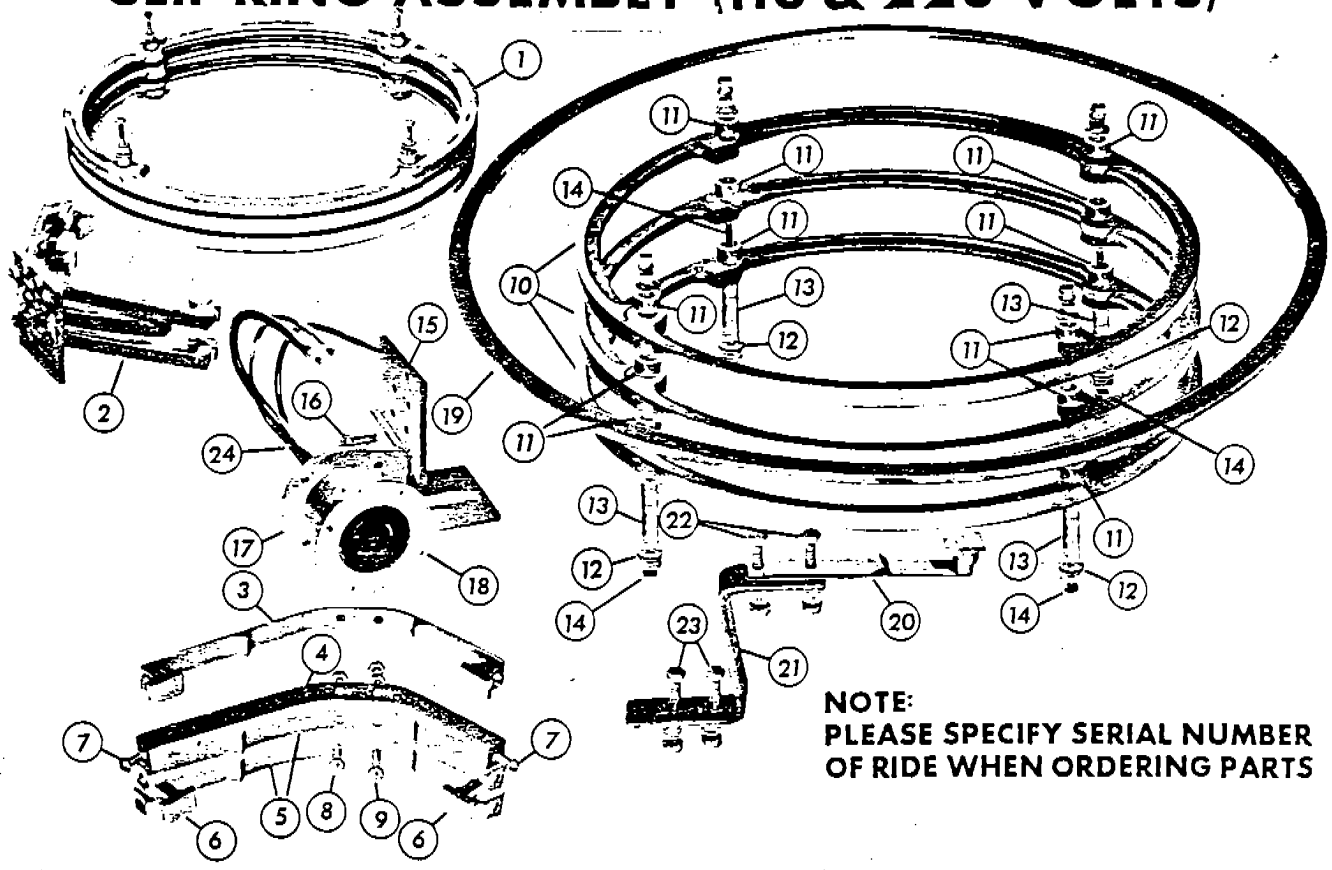


REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	E-306	JUNCTION BOX (Bare) (8" X 8" X 4")	1
2		FLEX CONDUIT CONNECTOR (3/4" 90 Degree Angle T-B 270)	2
3		FLEX CONDUIT CONNECTOR (3/4" Straight)	2
4	E-309	FLEX CONDUIT (3/4" X 19" Long)	2

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
5	E-310R	BRUSH HOLDER BRACKET (R. H.)	1
6	E-310L	BRUSH HOLDER BRACKET (L. H.)	1
7	E-311	NO. 6 TW WIRE (35" Long)	6
8		HALF COUPLING (3/4")	2
9		CHASE NIPPLE (3/4" CN 75)	2

EYERLY AIRCRAFT CO. SALEM, ORE.

SLIP RING ASSEMBLY (110 & 220 VOLTS)



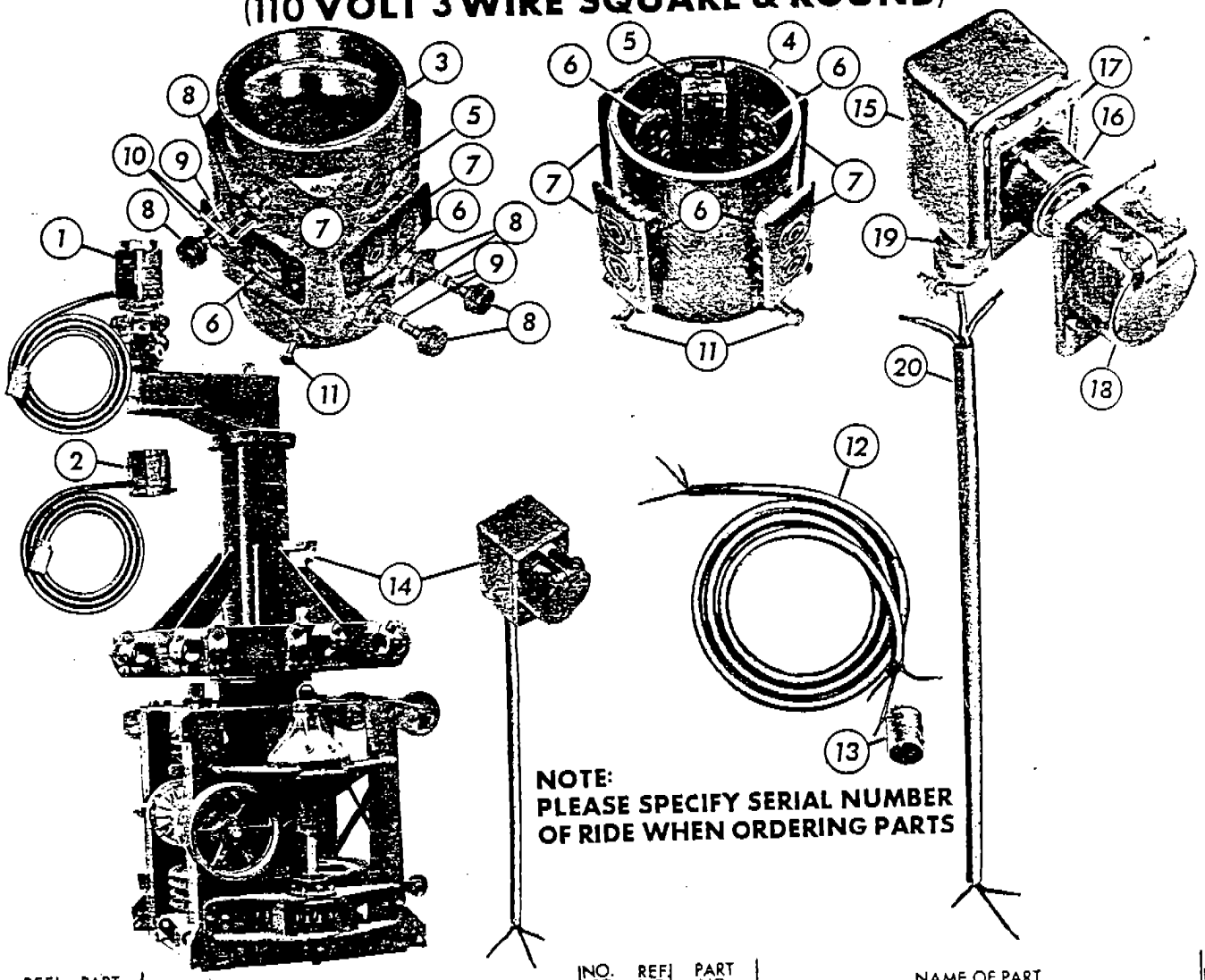
NOTE:
PLEASE SPECIFY SERIAL NUMBER OF RIDE WHEN ORDERING PARTS

REF. NO.	PART NO.	NAME OF PART	NO. REQ. 110 V.	NO. REQ. 220 V.
1	E-50	LIGHT RING ASSEMBLY (3 Wire)	1	1
2	E-51	BRUSH ASSEMBLY	1	2
3	E-51B	BRUSH FINGER ASSEMBLY	3	6
4	E-52	BRUSH SPRING	3	6
5	E-53	BRUSH CONDUCTOR STRIP	6	12
6	E-54	BRUSH CONTACT	6	13
7	E-55A	ROUND HEAD BRASS SCREW (1/4" X 1/2" NC)	6	13
8	E-56	ROUND HEAD BRASS SCREW (Short, 1/4" X 3/4" NC)	3	6
9	E-55	ROUND HEAD BRASS SCREW (Long, 1/4" X 1" NC)	3	6
10	E-60	LIGHT RING (Two Halves)	3	3
11	E-61	LIGHT RING INSULATOR SPACER 1/2" X 3/4" X 3/8" Long)	12	12
12	E-66	LIGHT RING INSULATOR (Lower) 3/4" X 1/2" X 1/8")	4	4
13	E-65	LIGHT RING INSULATOR (Long) 1/2" X 1/4" X 2-7/8" Long)	4	4
14	E-64	BOLT (1/4" X 4-1/2" NC W/2 Flat Washers, 1 Lockwasher, 2 Nuts	4	4

REF. NO.	PART NO.	NAME OF PART	NO. REQ. 110 V.	NO. REQ. 220 V.
15	E-57	BRUSH INSULATOR BLOCK	1	2
16		CAP SCREW (1/4" X 1" NF) (Brush Insulator Block)	2	4
17	E-58	BRUSH MOUNTING BRACKET	1	2
18	E-59	MALE FLUSH MOTOR BASE (H-7958)	1	2
19	E-204	GROUND RING		1
20	E-102A	GROUND RING BRUSH FINGER ASSY.		1
21	E-265	GROUND RING BRUSH MOUNTING BRACKET		1
22		CAP SCREW (1/4" X 3/4" NF W/Lock-washer & Nut) (Ground Ring Brush)		2
23		CAP SCREW (1/4" X 1-1/2" NF W/Lock-washer & Nut) (Brush Mounting Bracket)		2
*	E-204A	FLAT HEAD BRASS MACHINE SCREW (10/32 X 1" W/Lockwasher & Nut)		9
*	E-204B	FLAT HEAD BRASS MACHINE SCREW (10/32 X 1-1/2" W/Lockwasher & 2 Nuts)		1
24	E-68	BRUSH TO CAGE OUTLET LEAD (3 #6 & 1 #8 X 12" IB-1W-1G) (Octopus)		1
		BRUSH TO CAGE OUTLET LEAD (2 #6 & 1 #8 X 12" IB-1W-1G) (Octopus)	1	

* Not Illustrated.

HUB OUTLET ASSEMBLY, OCTOPUS LIGHTS
(110 VOLT 3 WIRE SQUARE & ROUND)



NOTE:
PLEASE SPECIFY SERIAL NUMBER OF RIDE WHEN ORDERING PARTS

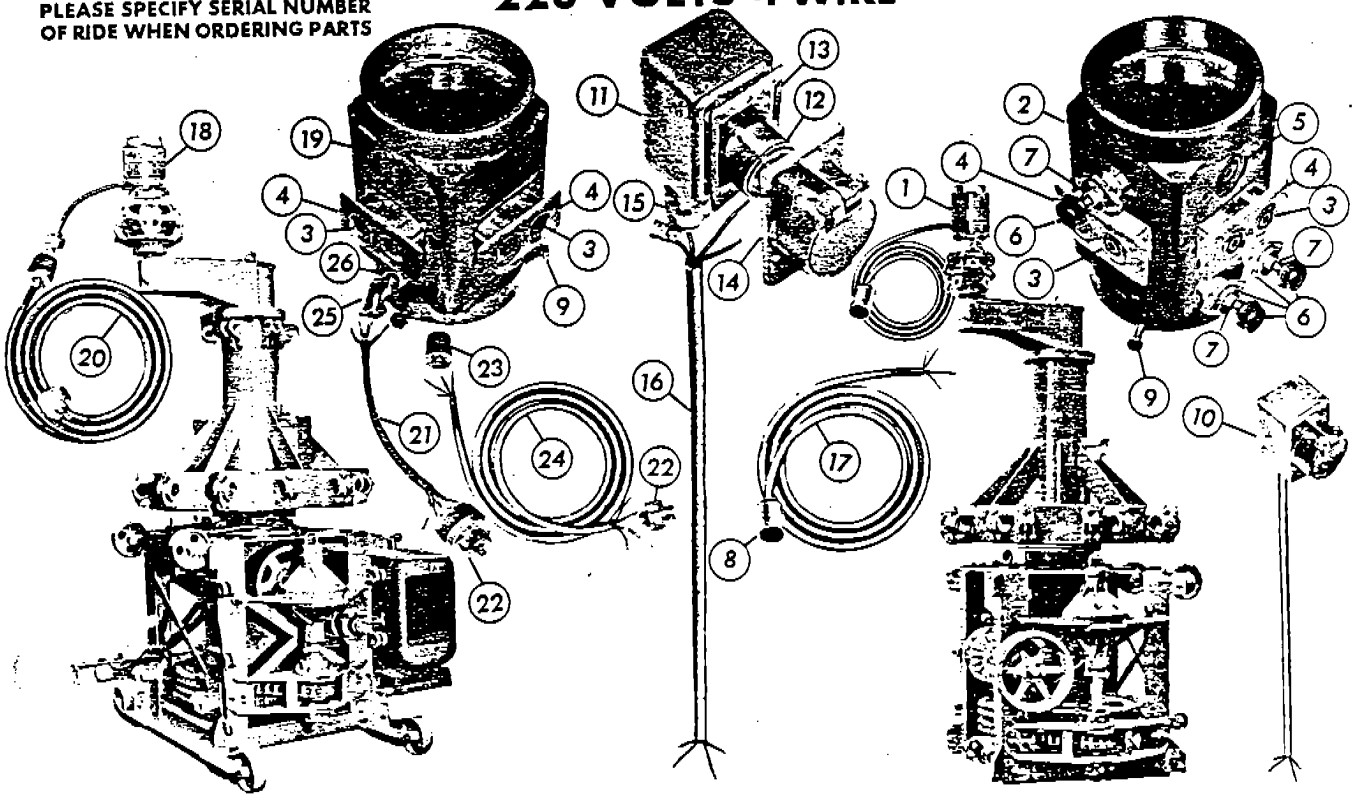
REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	E-293	HUB OUTLET ASSEMBLY (6 Arm 110 Volt) (Square, Fused)	1
	E-411	HUB OUTLET ASSEMBLY (8 Arm 110 Volt) (Square, Fused)	
2	E-70	HUB OUTLET ASSEMBLY (Round) (Replaced by E-293 and E-411, Ref. 1)	
3	E-430	HUB OUTLET HOUSING (6 Arm 110 Volt) (Square, Fused Type)	1
	E-272	HUB OUTLET HOUSING (8 Arm 110 Volt) (Square, Fused Type)	
4	E-71	HUB OUTLET HOUSING (Round) Replaced by E-293 and E-411, Ref. 3)	
5	E-72	RECEPTACLE (15 Amp.) (B-4710)	1
6	E-73	DUPLEX RECEPTACLE (B-4700)	4
7	E-74	DUPLEX RECEPTACLE COVER (A-2510)	4
8	E-200	FUSE HOLDER ASSEMBLY	5

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
9	E-201	FUSE CARTRIDGE (15 Amp.)	5
10		MACHINE SCREW (Fuse Holder, 6/32 X 3/4")	10
11		CAP SCREW (3/8" X 3/4" N.C.)	3
12	E-75	HUB OUTLET CORD (#6-3 Wire S O 10' Long)	1
13	E-36	PLUG (H-7765)	1
14	E-77	BRUSH OUTLET ASSEMBLY (110 Volt)	1
15	E-78	APPLETON BOX (#FD-1-75)	1
16	E-79	RECEPTACLE (H-7380)	1
17	E-80A	RECEPTACLE COVER GASKET	1
18	E-80	RECEPTACLE COVER (H-7382)	1
19		CORD CONNECTOR (3/4" Straight)	1
20	E-81	BRUSH CORD (#6-3 Wire S O 30" Long)	1

EVERLY AIRCRAFT CO. SALEM, ORE.

HUB OUTLET ASSEMBLY
SPIDER & OCTOPUS LIGHTS
220 VOLTS 4 WIRE

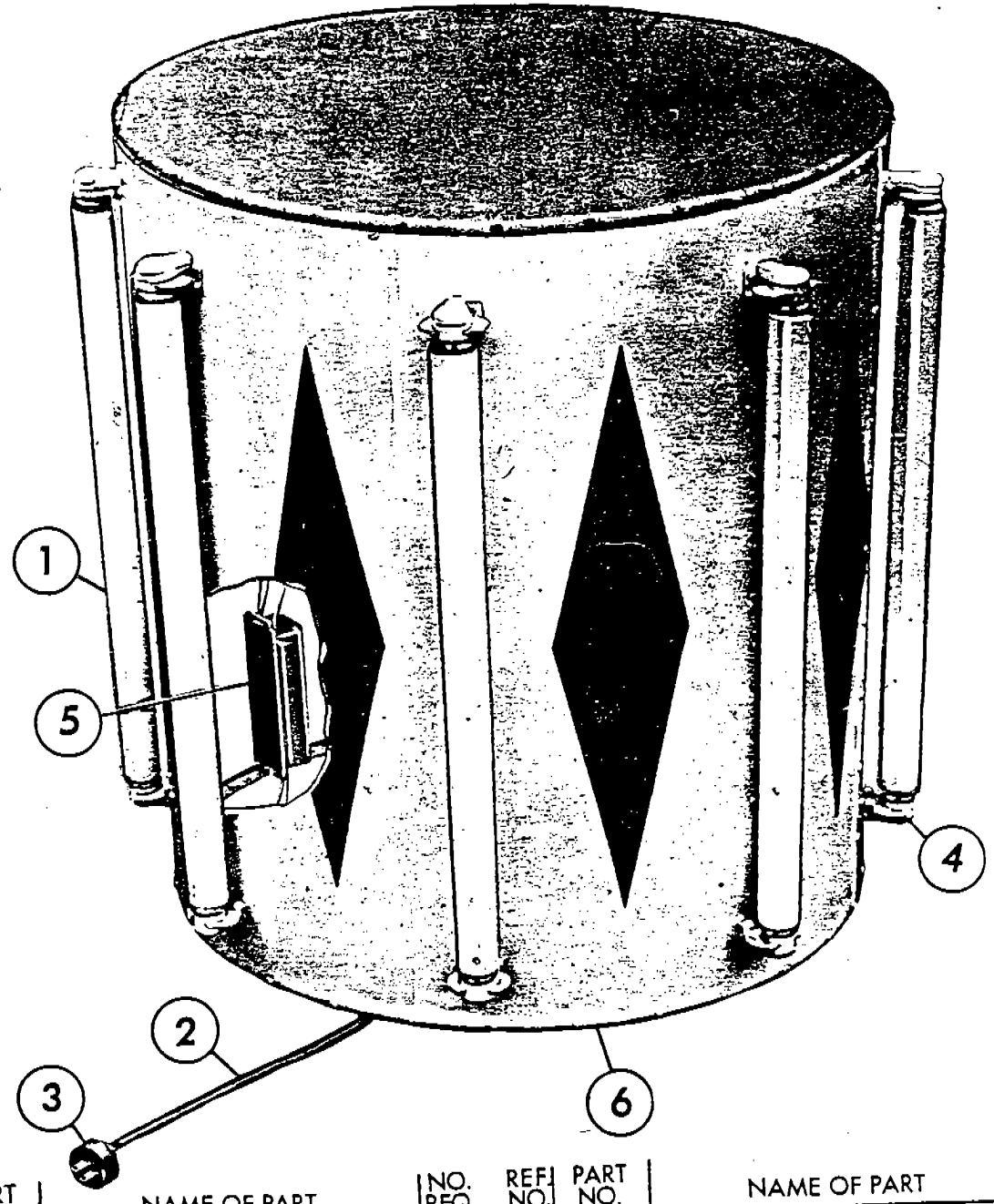
NOTE:
PLEASE SPECIFY SERIAL NUMBER OF RIDE WHEN ORDERING PARTS



REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	E-428	OCTOPUS HUB OUTLET ASSY. (6 Arm 220 Volt) (Non-Fused)	1
	E-429	OCTOPUS HUB OUTLET ASSY. (8 Arm 220 Volt) (Fused)	
2	E-271	OCTOPUS HUB OUTLET HOUSING (6 Arm 220 Volt) (Non-Fused)	1
	E-272	OCTOPUS HUB OUTLET HOUSING (8 Arm 220 Volt (Fused Type	
3	E-73	DUPLEX RECEPTACLE (B-4700)	4
4	E-74	DUPLEX RECEPTACLE COVER PLATE (A-2510)	4
5	E-72	OCTOPUS RECEPTACLE (15 Amp.) (B-4710)	1
6	E-200	OCTOPUS FUSE HOLDER	5
7	E-201	OCTOPUS CARTRIDGE FUSE (15 Amp.)	5
8	E-36	OCTOPUS PLUG (50 Amp.) (H-7765)	1
9		CAP SCREW (3/8" X 3/4" NC)	3
10	E-415	OCTOPUS BRUSH OUTLET ASSEMBLY	1
11	E-78	OCTOPUS APPLETON BOX (FD-1-75)	1
12	E-79	OCTOPUS RECEPTACLE (50 Amp.) (H-7380)	1
13	E-80A	OCTOPUS RECEPTACLE COVER GASKET	1
14	E-80	OCTOPUS RECEPTACLE COVER (H-7382)	1

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
15		CORD CONNECTOR (3/4" Straight)	1
16	E-295	OCTOPUS BRUSH CORD (6/4 SO 30 " Long)	1
17	E-294	OCTOPUS HUB OUTLET CORD (6/4 SJ 10' Long)	1
18	E-412	SPIDER HUB OUTLET ASSEMBLY (6 Arm 220 Volt) (Non-Fused)	1
	E-414	SPIDER HUB OUTLET ASSEMBLY (8 Arm 220 Volt) (Non-Fused)	
19	E-271	SPIDER HUB OUTLET HOUSING (6 Arm 220 Volt) (Non-Fused Type)	1
	E-413	SPIDER HUB OUTLET HOUSING (8 Arm 220 Volt) (Non-Fused Type)	
20	E-416	SPIDER HUB OUTLET CORD ASSEMBLY	1
21	E-418	SPIDER HUB OUTLET PIGTAIL (14/4 SJ 17" Long)	1
22	E-40	SPIDER HUB OUTLET PIGTAIL PLUG (20 Amp.) (B-71420 NP)	2
23	E-41	SPIDER HUB OUTLET RECEPTACLE (20 Amp.) (B-71420 NC)	1
24	E-417	SPIDER HUB OUTLET CORD (14/4 SJ 21' Long)	1
25		CORD CONNECTOR (3/8" 45 Degree)	1
26		BUSHING (3/4")	1

FLUORESCENT ORNAMENT ASSEMBLY



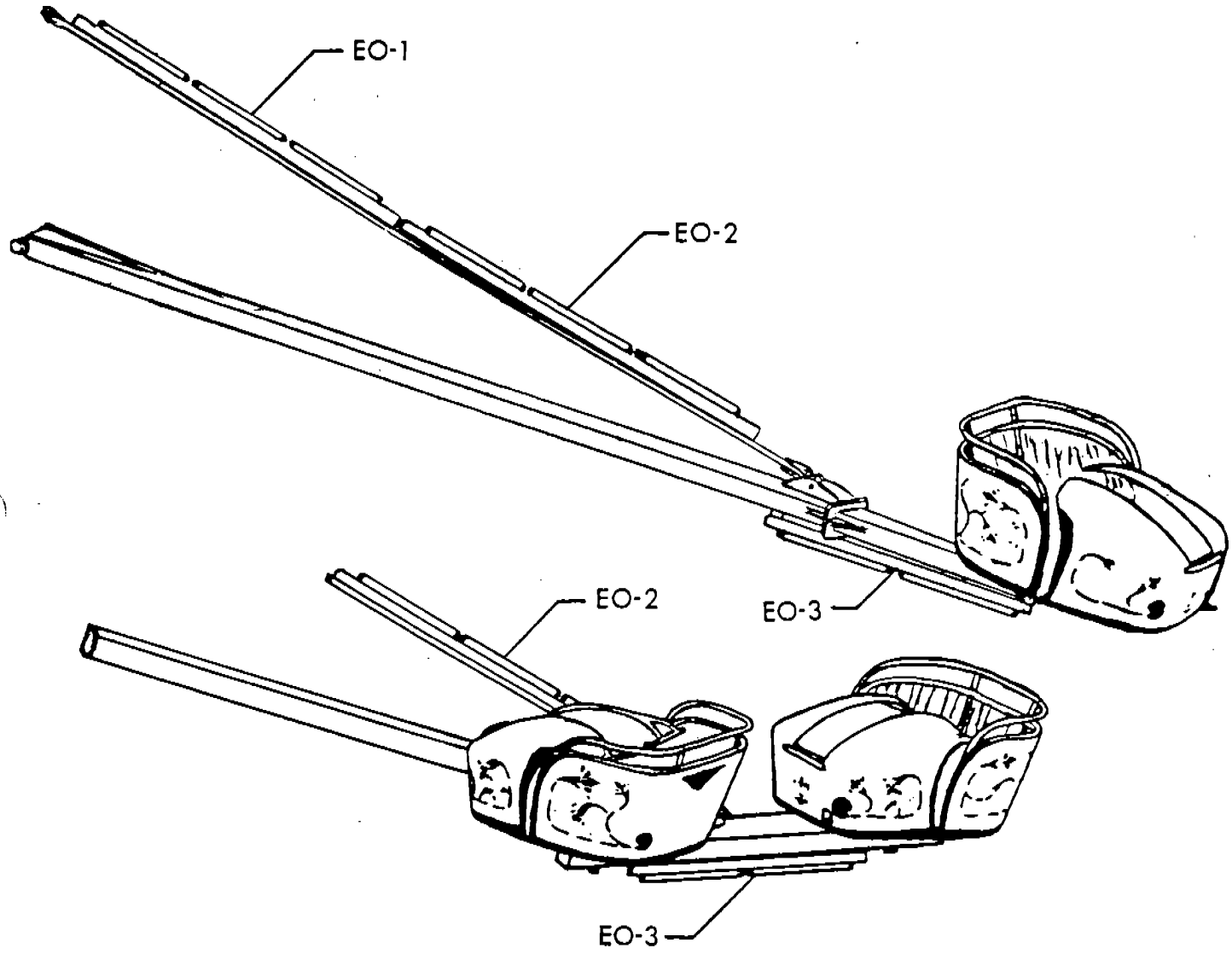
REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	E-1	FLUORESCENT TUBE (20 Watt) (F 20 T12)	8
2	E-23	CORD (14/3 SJO 33" Long)	1
3	E-3	MALE CAP (B-4721 N)	1
4	E-4	LAMP HOLDER	16

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
5	E-11	BALLAST	8
6	E-25	ORNAMENT ASSEMBLY (Complete)	1
*	E-45	ORNAMENT CRATE	1

* Not Illustrated.

EVERLY AIRCRAFT CO. SALEM, ORE.

FLUORESCENT FIXTURES

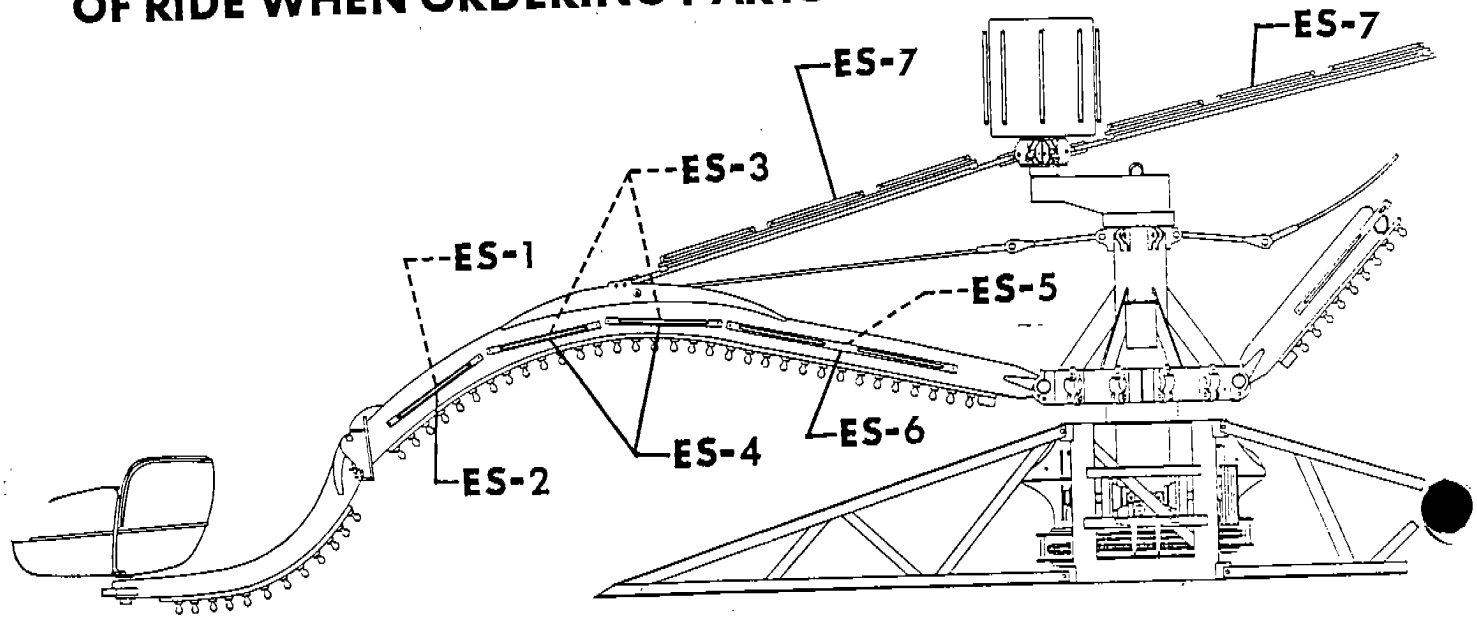


DETERMINE THE PART NUMBER OF THE LIGHT FIXTURE REQUIRED BY IT'S POSITION ON SWEEP

REFER TO NEXT PAGE FOR PART NUMBERS WHEN ORDERING COMPONENT PARTS

SPIDER FLUORESCENT FIXTURES

NOTE:
PLEASE SPECIFY SERIAL NUMBER OF RIDE WHEN ORDERING PARTS

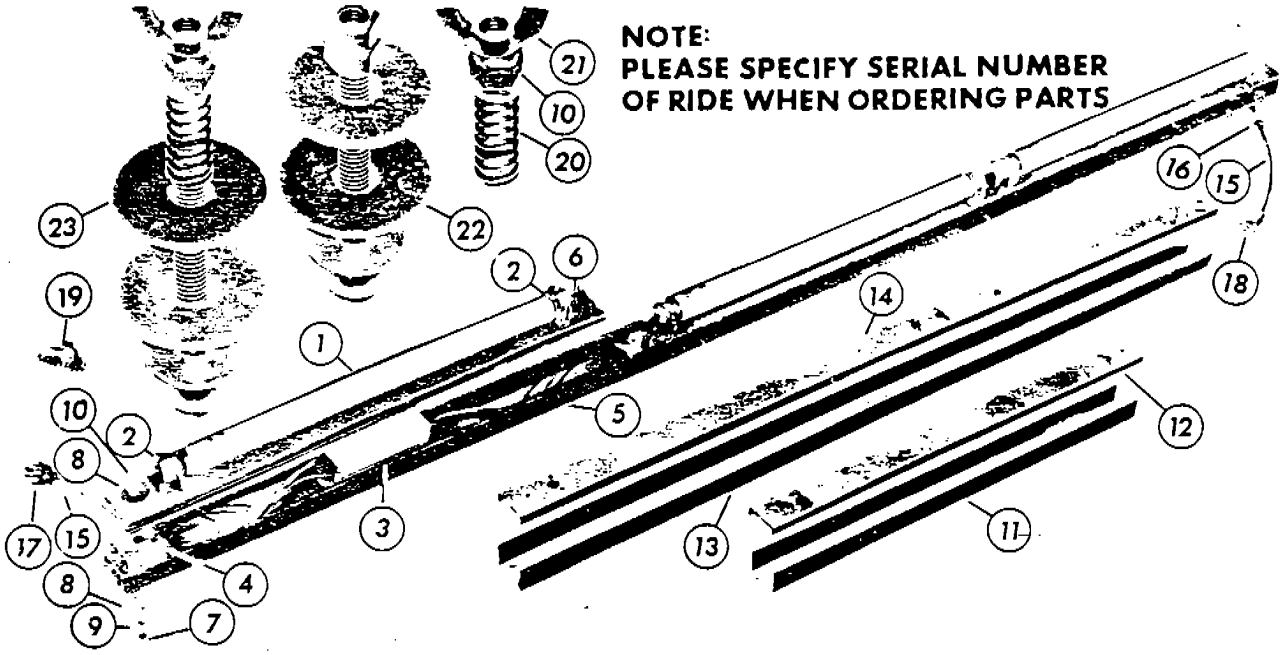


DETERMINE THE PART NUMBER OF THE LIGHT FIXTURE REQUIRED BY IT S POSITION ON RIDE

REFER TO NEXT PAGE FOR PART NUMBERS WHEN ORDERING COMPONENT PARTS

EVERLY AIRCRAFT CO. SALEM, ORE.

FLUORESCENT FIXTURE COMPONENTS



NOTE:
PLEASE SPECIFY SERIAL NUMBER OF RIDE WHEN ORDERING PARTS

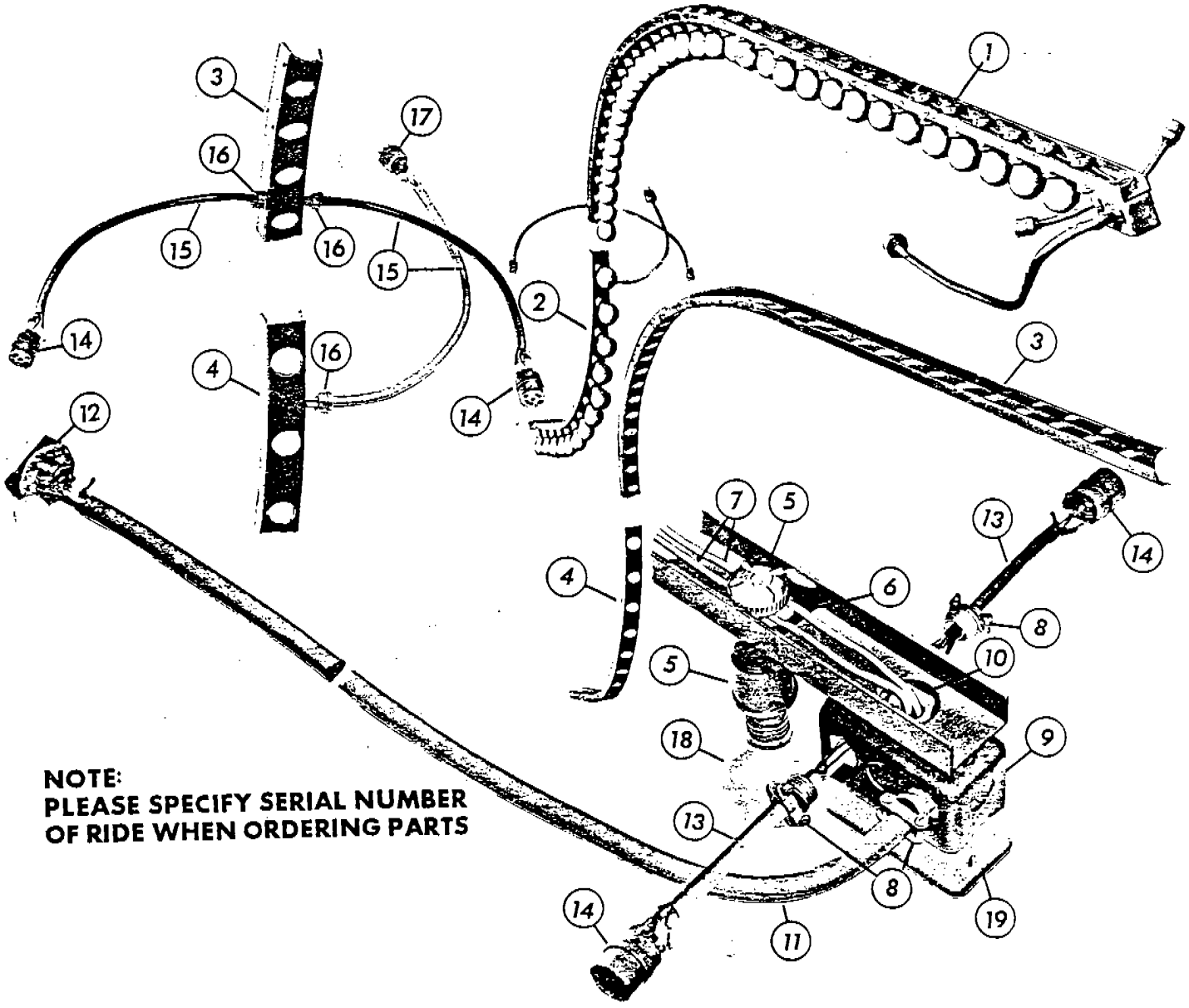
REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	E-1G	FLUORESCENT LAMP (Green) (F 20 T 12 G)	**
	E-1GO	FLUORESCENT LAMP (Gold) (F 20 T 12 GO)	
	E-1R	FLUORESCENT LAMP (Red) (F 20 T 12 R)	
2	E-4	FLUORESCENT LAMP HOLDER	6
3	E-11	BALLAST	3
4	E-10	BLOCK (Box End)	2
5	E-15	BOX (Three Lamp Fixture)	1
6	E-8	BOX COVER (Three Lamp Fixture)	1
7		MOUNTING BOLT (5/16" X 3" N C Round Head) (Stainless Steel)	2
8	E-12	WASHER (Flat)	4
9	E-13	WASHER (Curved)	2
10		MOUNTING NUT (5/16" N C)	2
11	E-16	BOX (One Lamp Fixture)	**
12	E-19	BOX COVER (One Lamp Fixture)	**
13	E-22	BOX (Two Lamp Fixture)	**
14	E-21	BOX COVER (Two Lamp Fixture)	**
15	E-2A	FLUORESCENT FIXTURE CORD (9")	2
	E-2B	FLUORESCENT FIXTURE CORD (15")	
	E-2C	FLUORESCENT FIXTURE CORD (18")	
	E-2D	FLUORESCENT FIXTURE CORD (22")	
	E-2E	FLUORESCENT FIXTURE CORD (24")	
	E-2F	FLUORESCENT FIXTURE CORD (26")	
	E-2G	FLUORESCENT FIXTURE CORD (28")	
	E-2H	FLUORESCRNT FIXTURE CORD (32")	
	E-2J	FLUORESCENT FIXTURE CORD (36")	
	E-2K	FLUORESCENT FIXTURE CORD (40")	
	E-2L	FLUORESCENT FIXTURE CORD (48")	
	E-2M	FLUORESCENT FIXTURE CORD (53")	
	E-2N	FLUORESCENT FIXTURE CORD (63")	
16	E-9	CORD GRIP	2
17	E-20	PLUG (Midget) (B-7594 N P)	1
18	E-17	RECEPTACLE (Midget) (B-7593 N C)	1
19	E-3	PLUG (B-4721 N P)	1
20	E-7	SPRING (Mounting) (Standard Ride)	2
21	E-5	WING NUT (5/16" Mounting Bolt) (Standard Ride)	2
22	E-14B	MOUNTING BOLT ASSY. (Portable Ride)	2
23	E-14A	MOUNTING BOLT ASSY. (Standard Ride)	2
*		MACHINE SCREW ASSY. (6-32 X 3/8") (Lamp Holder & Ballast)	18
*		SHEET METAL SCREW (Box Cover) (#7 X 1/1/2")	12

NOTE: The "NO. REQ." Column Indicates the Number of Each Part Required for One Three Lamp Fixture.

* Not Illustrated. **Specify Number Required.

Everfly AIRCRAFT CO. SALEM, ORE.

SPIDER INCANDESCENT LIGHT FIXTURES & COMPONENTS



NOTE:
PLEASE SPECIFY SERIAL NUMBER OF RIDE WHEN ORDERING PARTS

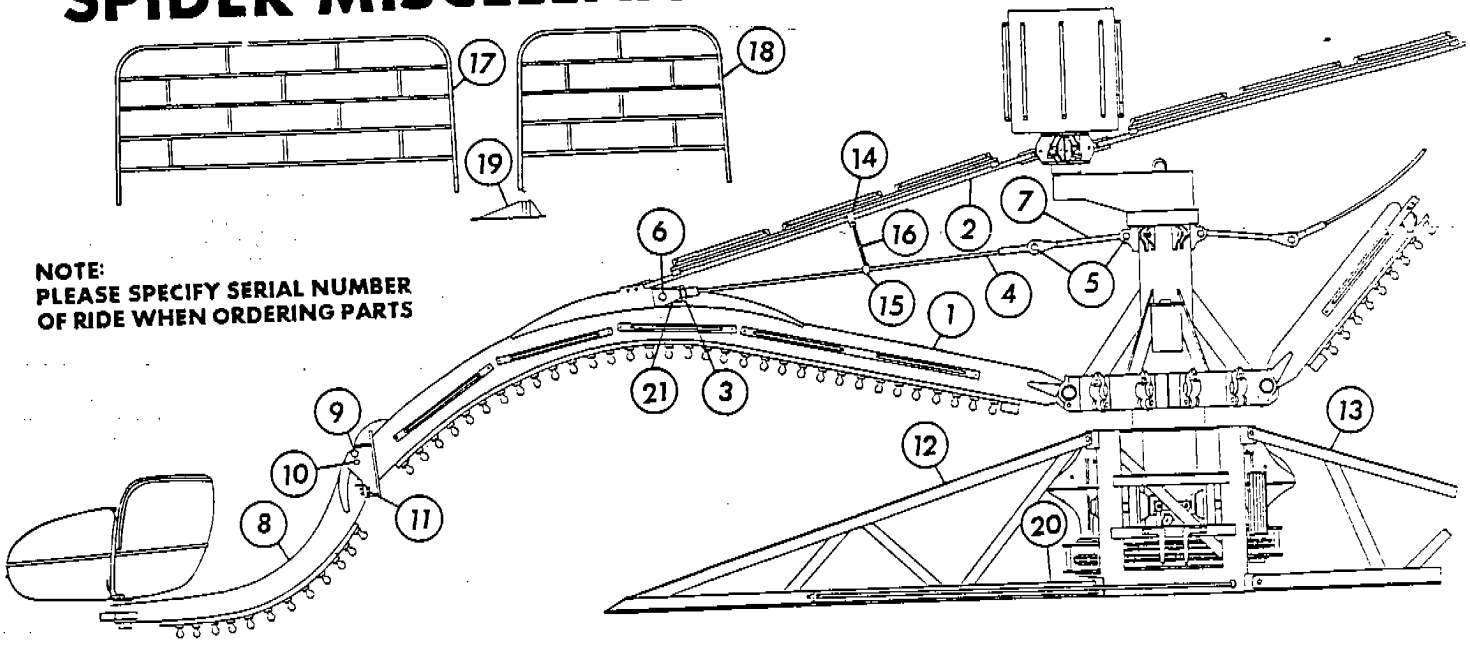
SPIDER INCANDESCENT LIGHT FIXTURES & COMPONENTS

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	E-187	INCANDESCENT LIGHT STRINGER ASSEMBLY (Sweep)	1
2	E-188	INCANDESCENT LIGHT STRINGER ASSEMBLY (Stub Arm)	1
3	E-187A	INCANDESCENT LIGHT STRINGER CHANNEL (Sweep)	1
4	E-188A	INCANDESCANT LIGHT STRINGER CHANNEL (Stub Arm)	1
5	E-189	LIGHT BULB SOCKET (#232 Rodale)	46
6	E-190	INSULATOR	46
7	E-330	10 TW STRANDED WIRE 160" LONG (Sweep)	2
8		CORD CONNECTOR (3/8" Straight)	3
9	E-192	UTILITY BOX	1
10		CHASE NIPPLE (1/2")	1
11	E-329	12/3 SO CORD 60" LONG	1
12	E-191	PLUG (B-70520 N P)	1
13	E-327	14/3 SJ CORD 12" LONG	2
14	E-17	RECEPTACLE (Midget) (B-7593 N C)	4
15	E-328	14/3 SJ CORD 16" LONG	3
16	E-9	CORD GROMMET	3
17	E-20	PLUG (Midget) (B-7594 N P)	1
18	E-206	INCANDESCENT LIGHT BULB (25 Watt, Gold, Rough Service)	59
19	E-193	UTILITY BOX COVER	1
*	E-331	10 TW STRANDED WIRE 60" LONG (Stub Arm)	2

NOTE: The "No. Req." Column Indicates the Number of Each Part Required for One Sweep.

* Not Illustrated.

SPIDER MISCELLANEOUS PARTS & TOOLS



NOTE:
PLEASE SPECIFY SERIAL NUMBER OF RIDE WHEN ORDERING PARTS

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	O-619	SWEEP	1
2	O-624	SWEEP SUPPORT ROD	1
3	RR-258	JAM NUT (Safety Cable Clevis) (1-1/2" NC)	1
4	O-705	SAFETY CABLE (89-1/2" Long)	1
5	O-627	SAFETY CABLE CONNECTING LINK PIN	2
6	O-626	SAFETY CABLE CLEVIS PIN (W/Cotter Key)	1
7	O-706	SAFETY CABLE CONNECTING LINK	1
8	O-658	STUB ARM	1
9		CAP SCREW (W/Nut & Lockwasher) (Stub Arm) (1-1/4" X 7" NF Class 8)	1
10	O-657	SAFETY PIN (W/Cotter Key) (Stub Arm)	
11		CAP SCREW (W/Nut & Lockwasher) (Stub Arm) (5/8" X 2-1/4" NF Class 8)	4
12	O-162	MUD SILL	3
13	O-161	MUD SILL (Drive Sheave Corner)	1
14	O-647	SUPPORT ROD SPRING CLAMP	1

Note: The number in the "NO. REQ." Column, Pertaining to the Sweeps, indicates the number of parts required for one Sweep.

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
—		CAP SCREW (1/4" X 1-3/4" NF W/Nut & Lockwasher)	1
—		No. 2/0 CHAIN LINK (Support Rod Spring Clamp)	1
15	O-648	SAFETY CABLE SPRING CLAMP	1
—		CAP SCREW (1/4" X 1-1/2" NF W/Nut & Lockwasher)	1
16	P-451	SPRING	1
17	*O-877	FENCE (Long)	30
18	*O-878	FENCE (Short)	2
19	*O-879	FENCE JACK	35
20	O-628	MUD SILL TIE ROD ASSY. (7/8")	8
21	O-625	SAFETY CABLE CLEVIS	1
—	O-616	PARTS BOX	1
—	*E-212	LIGHT STRINGER CRATE (Short)	1
—	*E-211	LIGHT STRINGER CRATE (Long)	1

— Not Illustrated.

*Optional Equipment, not considered as part of basic Operating Unit.

TOOL KIT

1 - PILLOW BLOCK BAR	1 - 6" SCREW DRIVER	1 - 1-1/8" SPUD WRENCH	
1 - 8" CRESCENT WRENCH	1 - 7" DIAGONALS	1 - OIL CAN	
1 - 12" CRESCENT WRENCH	1 - 8" PLIERS	6 - ALLEN WRENCHES 1/8" - 5/32" - 3/16" - 1/4" - 5/16" - 3/8"	
1 - 16" CRESCENT WRENCH	1 - 3/4" DRIFT PUNCH		
1 - 3 Lb. HAMMER	1 - 1-1/2" X 1-7/16" BOX WRENCH	1 - 3/4" DRIVE FLEX HANDLE	
1 - 15/16" COMBINATION WRENCH	1 - 7/8" X 3/4" DRIVE SOCKET	1 - PRY BAR	1 - GREASE GUN

MAINTENANCE

MOTOR CHAIN & BOOM CHAIN ADJUSTMENTS

For the purpose of clarification, Ref.(A) Fig. 3, designates Motor Chain, Ref.(B) Fig. 3, Boom Chain and Ref.(D) Fig. 3, Tilt Chain.

To properly adjust the Motor and Boom Chains, all pressure should be relieved from the Motor Chain. This may be accomplished by removal of the Shim Washers, Ref.(C) Fig. 3, or by removing a link and separating the Chain. The four Bolts, Ref.(A) Fig. 1, should then be loosened to allow movement of the Countershaft Housing Flange, Ref.(B) Fig. 1 & 2. Adjuster Nut, Ref.(E) Fig. 1, is then tightened until approximately 3/4" depression of Chain is obtained by slight thumb pressure midway between the Countershaft and Boom Sprockets. If adjustment slots in the Countershaft Housing Flange are at maximum adjusting point, remove the half link and readjust the Chain. If there is no half link in Chain, remove a full link and install a half link. After proper adjustment of this Chain, tighten the four Bolts, Ref.(A) Fig. 1, and safety Adjuster Nut, Ref.(E) Fig. 1. The Motor Chain is then adjusted by Shim Washers, Ref.(C) Fig. 3, with variations of minimum and maximum adjustments compensated as described above by utilizing half links. Care should be exercised to properly align the Motor Sprocket with the Countershaft Sprocket, with horizontal alignment accomplished by shim washers and vertical alignment by slots provided on Motor Support Base. Brake adjustment, described below, is usually required after Motor Chain adjustment.

TILT CHAIN ADJUSTMENT

To properly adjust the Tilt Chain, Ref.(D) Fig. 3, loosen the Gear Unit Bolts, Ref.(C) Fig. 1 and Ref.(E) Fig. 3. Then loosen Adjusting Screw, Ref.(D) Fig. 1. Next, tighten Chain by turning Adjusting Stud, Ref.(F) Fig. 3, in until Chain can be depressed about 3/4", midway between the Sprockets, by a slight thumb pressure. Secure in position by tightening Adjusting Screw, Ref.(D) Fig. 1, until it bears against the Gear Housing. Secure Gear Unit Bolts, Ref.(C) Fig. 1. To loosen Chains, reverse above procedures. The correct alignment of Sprocket, Ref.(J) Fig. 3, with Sprocket, Ref.(K) Fig. 3, is dependant upon it's proper location on the Gear Unit Shaft.

OPERATION

Make certain operating area is cleared of all obstructions, such as crates on platform, overhead wires, etc. Place hand brake in lock position and make certain that motor reversing switch is in neutral position and tilt motor control switch is in 'off' position Engage line disconnect switch. Coordinate release of brake while engaging reversing switch to eliminate heavy torque starting loads on the driving components. If passenger load is unbalanced, it may be necessary to reverse direction to 'rock' the load over the top. After first time over the top the tilt motor switch may be engaged but caution must be exercised to keep rotation switch engaged during the tilt cycle. Also, the tilt motor switch should not be disengaged unless the tilt assembly is in the near down position. Direction of rotation changes should only be made when tilt assembly is in down position.

Normal operating practices include balancing of passenger loads and an operating period not to exceed two minutes. The tilt-up feature does not add materially to the ride sensation but does contribute greatly to the flash and appeal of the ride. Some operators eliminate the tilt action when playing to capacity operation to lessen the operating cycle time but include this feature when 'grind' or slower operational periods indicate.

CAR REVOLVING CABLE ADJUSTMENT

To adjust Car Revolving Cable, Ref.(D) Fig. 4, loosen Lock Nuts, Ref.(A) Fig. 4, and tighten Adjusting Nuts, Ref.(B) Fig. 4, to 75 foot lbs. of torque. The Car Keyway, in the spindle, must point up on a parallel line with the Column. Tighten the Lock Nuts, Ref.(A) Fig. 4. Check Cable Clamps for tightness. To replace Cable, rewind as shown in Fig. 4.

REVERSING SWITCH ADJUSTMENTS

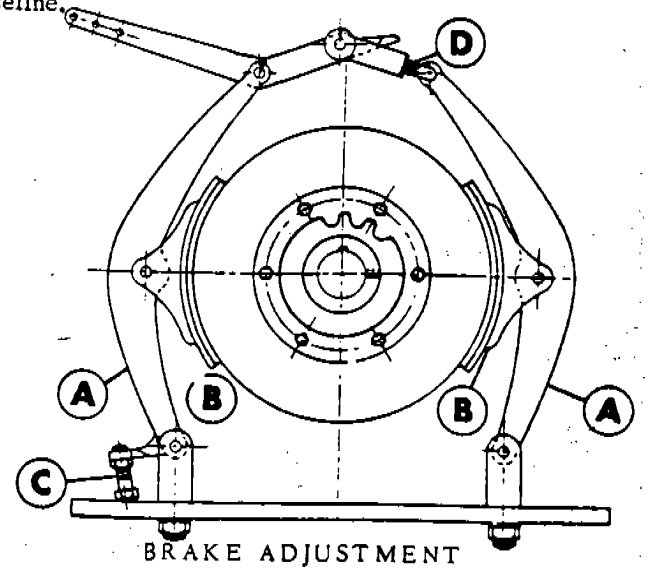
Westinghouse, Model 204113 Refer to Pages 22 & 23

Contact Fingers, Ref. (36), and Drum Contacts, Ref. (25), must engage squarely and simultaneously. This is accomplished by threading Adjuster Screw, Ref.(41), in or out. In order to engage properly in both directions, it may be necessary to slightly change the angle of bend in the Finger Base, Ref.(37). After proper adjustment has been accomplished, maintain adjustment by clinching Plate Washer, Ref, (40), against head of Adjuster Screw, Ref. (41). Keep Contacts clean and lubricate with vaseline.

REVERSING SWITCH ADJUSTMENTS

Westinghouse, Model 657D 893 G22, Refer to Pages 24 & 25

Finger Contacts, Ref.(25), and Drum Contacts, Ref.(17) & (18), must engage squarely and simultaneously. This is accomplished by threading Adjuster Bolt, Ref.(33), in or out. In order to engage properly in both directions, it may be necessary to slightly change the angle of bend in the Contact Fingers, Ref.(24). Keep Contacts clean and lubricate with vaseline.



BRAKE ADJUSTMENT

The Brake Supports, Ref.(A), are adjusted on the Motor Plate so as to center the Brake Shoes, Ref.(B), on the Drum. Adjust Brake Stop, Ref.(C), so that the left Brake Shoe, Ref.(B), will clear the Brake Drum about 1/16". Adjust the other Shoe by threading Brake Adjuster, Ref.(D), in or out for the same clearance.

MAINTENANCE & LUBRICATION

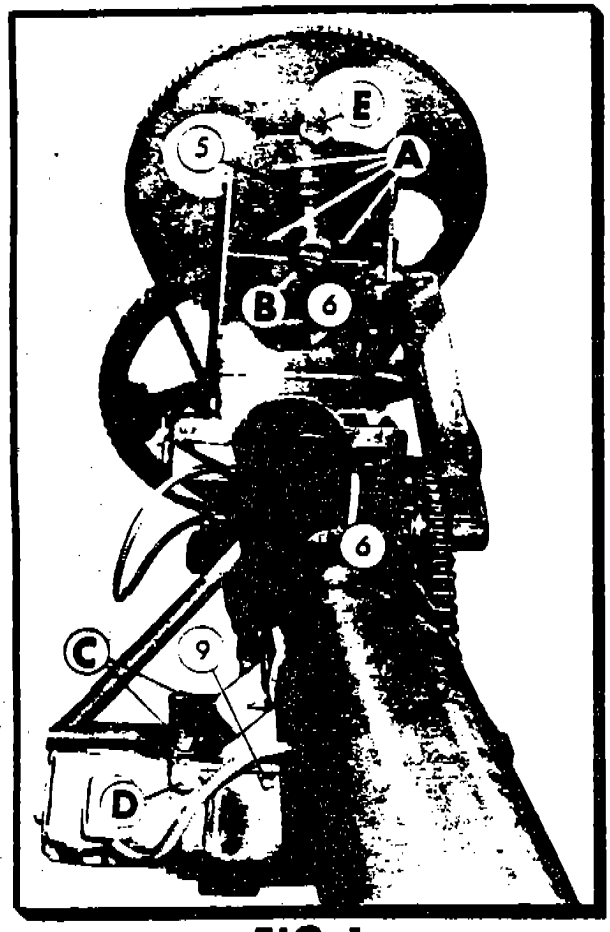


FIG. 1

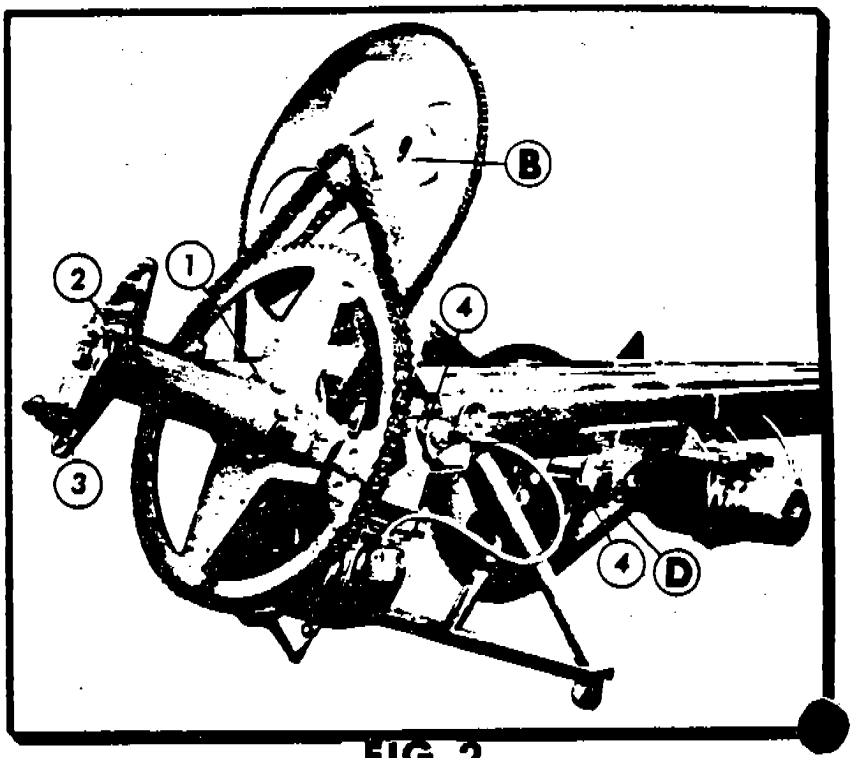


FIG. 2

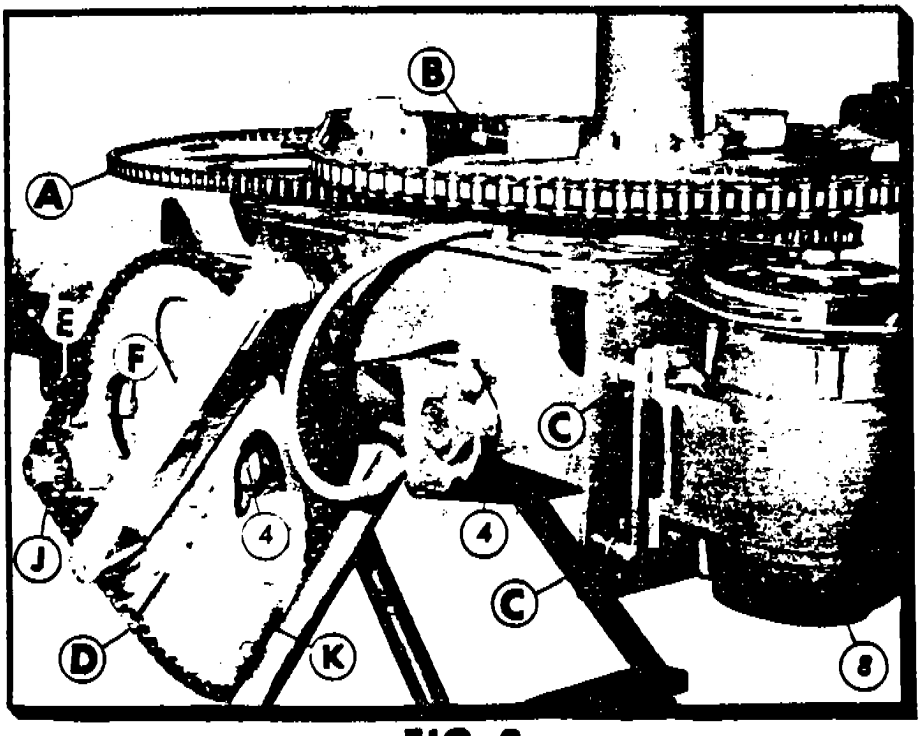


FIG. 3

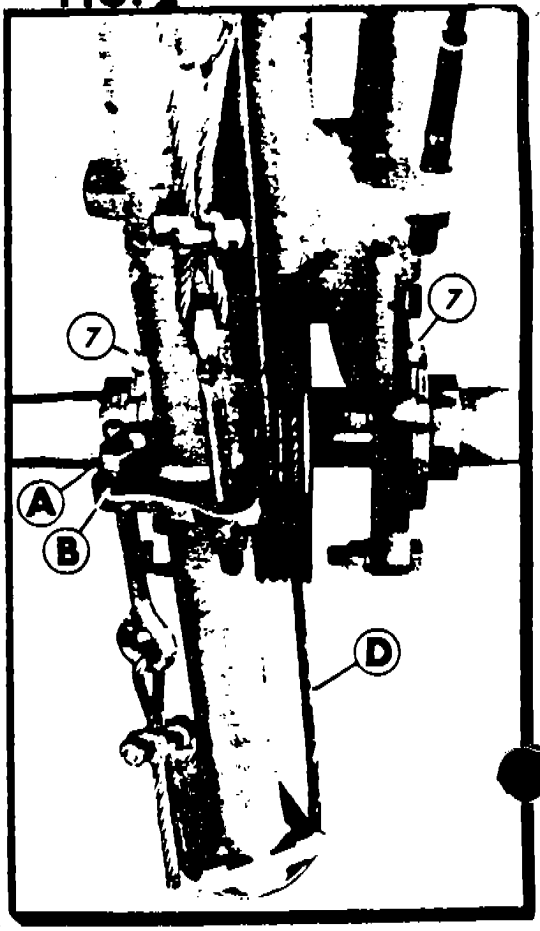


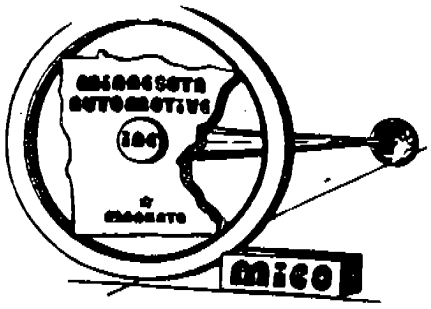
FIG. 4

INSTALLATION AND SERVICE INSTRUCTIONS

MICO

CALIPER DISC BRAKE

MODEL NO. 02-520-027



The MICO Model 02-520-027 Disc Brake is designed to be used with a disc of 1/2 inch thickness. (For other disc thicknesses consult manufacturer.) If a disc of lesser thickness is used, the same centerline must be maintained and the initial disc to puck clearance will be greater; however, after an initial brake application the linings will contact the disc, then upon pressure release, the Mico-Jeffries retractor-compensator will provide the proper running clearance of .010 inch to .030 inch per side.

CAUTION: Minimum allowable disc thickness for use with this caliper assembly is 7/16". If a thinner disc is used, a loss of fluid may occur at the time of complete lining wear.

Uneven lining wear may occur if the caliper is not mounted squarely over the disc, or, if the pucks are not parallel to the disc surface. Reduced 'O' ring seal life may also be evident. After the linings have worn to the point of replacement they then may be replaced with lining 20-060-012.

When installing the MICO Model 02-520-027 Disc Brake it is of utmost importance that the caliper be centered evenly and squarely over the disc. This is to provide even and equal travel and contact of the lining assemblies or "pucks". The MICO Model 02-520-027 has a mounting face to disc centerline distance of 2-11/16". When planning or designing an installation of this brake on a vehicle this dimension should be closely held. A .03 inch variance (greater or lesser) from this 2-11/16" dimension will eliminate the disc running clearance. Proper shims must be inserted between the disc brake mounting face and the vehicle mounting surface. Torque mounting bolts to approximately 80 foot pounds. Bleed according to standard procedure.

DISASSEMBLY PROCEDURE

1. Remove brake from vehicle by disconnecting necessary fluid lines and removing mounting bolts. (Drain fluid from assembly.)
2. Separate caliper halves (item 3) by removing assembly bolts (item 1), washers (item 2), nuts (item 18), tubing assembly (item 16) and spacer (item 14). Use bench vise.
3. Remove free floating lining assembly (item 13).
4. Loosen assembly nut (item 12) approximately 3 turns with a 12" socket wrench.
5. Remove piston (item 6) from housing by pulling piston from bore. If piston fails to move, place housing half face down on bench. Protect piston face by placing a cloth pad between piston and bench. Support housing half on bench in such a way that piston can be blown out of its bore. This is accomplished by carefully introducing low pressure air (10-15 p.s.i.) through fluid inlet fittings. *CAUTION: Do not use high pressure as it is dangerous and unnecessary. Be careful not to scratch piston.*
6. Remove assembly nut (item 12), loading spring (item 11), wedge (item 10), pressure ring (item 9), and o'ring (item 8) from compensator assembly (item 20).
7. Remove compensator sub-assembly (item 7) from bottom of housing (item 3) using an 11/16" socket wrench over the retainer.
8. Remove back-up ring (item 5) and o'ring (item 4) from housing groove.
9. Repeat steps 3-8 for second caliper half.

CHANGE LINING PROCEDURE

1-2, Follow steps 1 and 2 of Disassembly Procedure.
3. Remove free floating lining assemblies (item 13).
4. Install new linings (item 13) into housing pockets.
5. Complete assembly and installation by following steps 8-14 of Assembly Procedure.

HYDRO-SHEAVE

MODEL 9.4 HSD FLUID COUPLING (HYDRO SHEAVE) UNIT ASSEMBLY AND SERVICE INSTRUCTIONS

ASSEMBLY INSTRUCTIONS

NOTE: Tapers to be cleaned with suitable solvent, wiped dry and assembled per S765. Do not use molybdenum disulfide or equivalent friction reducing compounds on fasteners or tapers.

1. If seal and needle bearing are not in place in sheave hub install them using special seal and bearing driver.
2. Install "O" ring in coupling face. Mount sheave hub to coupling face using the six 12 point capscrews with "O" rings. Torque capscrews to 27-30 lb. ft.
3. Install ball bearing into front bearing carrier with special bearing driver. Care must be taken to not damage circuit front cover adjacent to flat head screws.
4. To install input shaft, seal bushing with "O" ring, end cap assembly, and retaining ring.
   a) Install input shaft through sheave hub and into taper in runner hub. Press shaft through ball bearing until it overhangs bearing 3/8 to 7/16 inch.
   b) Install seal bushing with "O" ring into overhung end of shaft.
   c) If seal is not in place in end cap install it using special seal driver.
   d) Mount end cap assembly with "O' ring and six 12 point capscrews with "O" rings. Torque to 27-30 lb. ft.
   e) Install roll pins in retainer washer. Place retainer washer with roll pins over shaft end making sure pins align with holes in shaft.
   f) Insert capscrew through retainer washer and into thread of special tapped tool. Torque capscrew to 177-195 lb. ft
   g) To install motor shaft adapter, loosen capscrew from special tapped tool and remove tool. Insert motor shaft adapter and engage screw hand tight for shipment purposes only.
5. Check air tightness with 5-10 psi pressure applied thru filler hole.

TOOLS REQUIRED FOR ASSEMBLY

1. Needle bearing and seal driver (sheave hub)
2. Ball bearing driver
3. Seal driver (end cap)
4. Tapped bar

SERVICE DISASSEMBLY INSTRUCTIONS

1. Remove the two pipe plugs in the front cover and impeller. Allow fluid to drain completely.
2. Remove six 12 point capscrews and "O" rings from end cap and coupling. Remove end cap and "O" ring.
3. Remove hex head capscrew which retains the motor shaft adapter. Remove retainer washer with roll pins.
4. Remove seal bushing and "O" ring from shaft end.
5. Insert push rod through hole in input shaft to bottom of tapped hole in motor shaft adapter. Use a capscrew* in end of input shaft, and tighten against push rod to break taper between input shaft and motor shaft adapter. Use flats on shaft end to react wrench torque on screw. It may be necessary to tap end of capscrew to break taper contact.
6. Remove input shaft and coupling assembly with sheave from motor shaft adapter. Remove the 3 capscrews retaining the sheave. Remove sheave from sheave hub.
7. Remove six 12 point capscrews and "O" rings from sheave hub and coupling. Remove hub assembly and "O" ring
8. If removal of bearing and seal from sheave hub is necessary, use a rod and tap from sheave side to remove
9. Remove pusher rod from motor shaft adapter. Remove shaft adapter from motor shaft.
10. To remove input shaft, support runner on a tube* and press input shaft from runner. Use plug against input shaft to protect threads in shaft.
11. To remove ball bearing, use a rod and tap out from coupling sheave end.

NOTE: If the front cover and impeller assembly is damaged, the basic unit must be replaced.

***TOOLS REQUIRED FOR DISASSEMBLY**

1. Push rod (50 dia. x 4.00 long steel hardened to Rc 50 min.)
2. Tube (3.44 O.D. x 2.75 I.D. x 7.00 long)
3. Capscrew (3/4 10 NC x 1.00 long)

RECOMMENDED REPLACEMENTS FOR OVERHAUL

1. Seals
2. Bearings
3. "O" rings

SERVICING THE CONTROL CYLINDER

Service the control cylinder if one or more of the following symptoms are suspected:

1. If normal lever force and stroke develops braking pressure, but the lever then drifts, service the head and barrel (13).
2. If the lever will not return to normal position after brake application, service the spring case (20).
3. If brake fluid leaks past the shaft or the spring case, replace these seals (8-12).
4. If the supply tank (3) appears defective, *discard and replace* the complete assembly.

When servicing the assembly, always refer to the nameplate assembly number on top of the supply tank.

SERVICING THE HEAD AND BARREL (13)

Drain fluid from the supply tank (3). Remove four stud bolts and head and barrel assembly (13). Clamp barrel lightly in vise in vertical position with piston end up. Remove stop wire, support ring piston, cup retainer and return spring, valve and valve seat. Clean cylinder using only brake fluid or isopropyl alcohol. *Do not* use gasoline, cleaning solvent or mineral oil. Bypass port holes must not be clogged. If cylinder bore is scratched or pitted, discard and replace head and barrel assembly.

Reassemble head and barrel in reverse order using all new parts (14, 16-19A) from head and barrel repair kit, ST-201. Lubricate parts with vegetable base fluid. Clean residual fluid from supply tank reservoir and reinstall head and barrel using new gear gasket (31). Make sure that piston push rod aligns with socket on lever (5).

SERVICING THE SPRING CASE (20-26)

If the lever will not return to normal position, loosen the three screws (26) and apply 125-175 in. lb. counterclockwise torque to the spring case (20). Tighten screws. If this does not help, the clock spring may be defective. Loosen screws and unwind the spring case clockwise, remove the screws and spring case. The spring case is serviced as a ST-202 Kit including items 20-26. Note that a new spring case includes a hex for tightening with standard wrench.

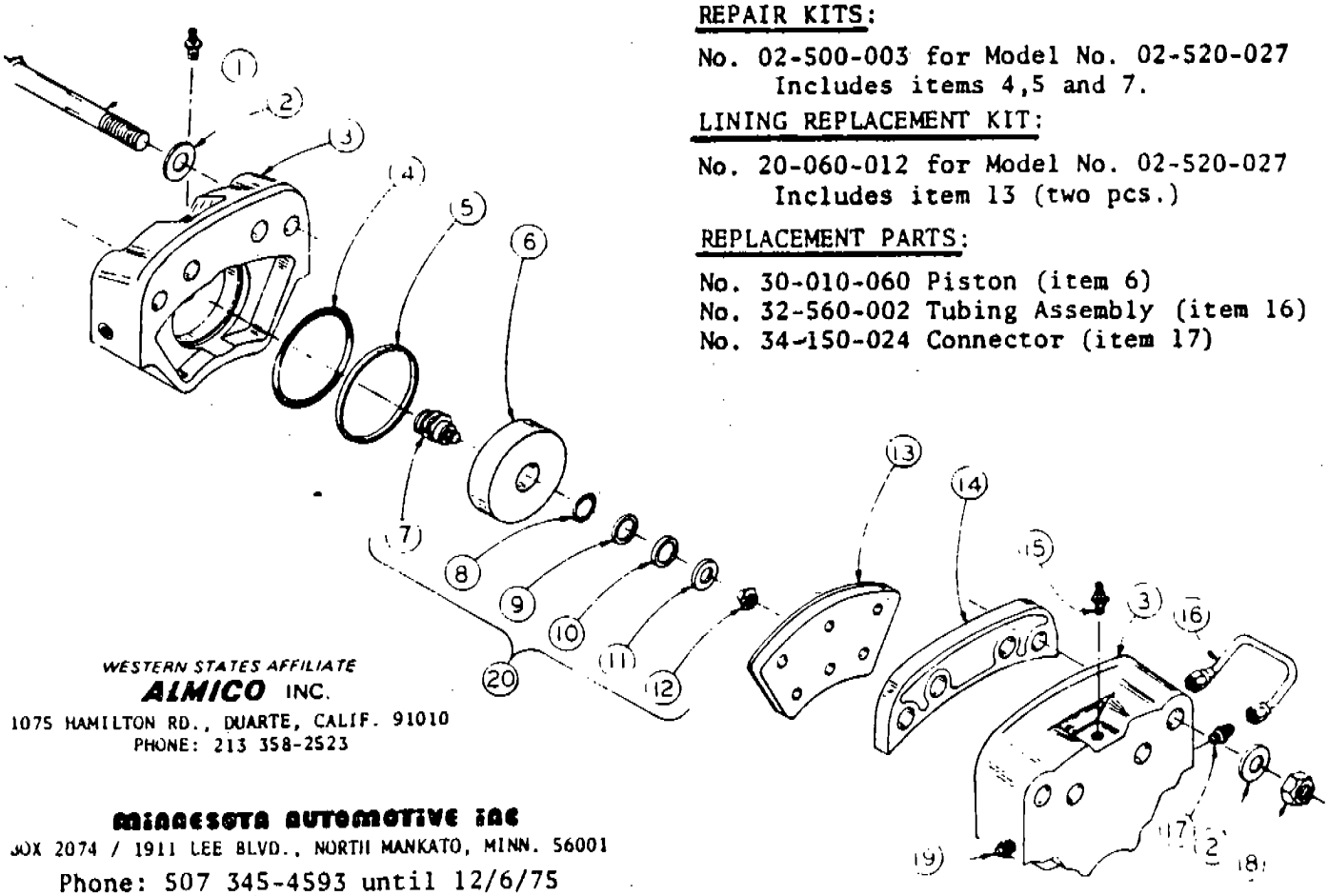
To reassemble, lubricate gasket (23) with brake fluid and slide over spring case (20). Insert assembly into supply tank (3) while rotating to engage pin (21) to slot in shaft (4). Attach three lockwashers, case washers and screws loosely. Use wrench to wind spring case counterclockwise to 125-175 in. lb. torque. Tighten the screws and check torque by installing arm at a 45° angle above floor. With head and barrel (13) in place, depressed arm must return to original angle.

SERVICING THE SHAFT SEAL (8-12)

Remove retainer, felt seal, snap ring, retainer plate and o-ring. Use new parts (8-12) from ST-200 Shaft Kit. Dip o-ring and felt seal in brake fluid and reinstall in reverse order.

ASSEMBLY PROCEDURE

1. Clean housing bore with type fluid used in system.
2. Lubricate o'ring (item 4) and back-up ring (item 5) with type fluid used in system and install in groove of housing. *CAUTION: When installing back-up ring (item 5) be sure it is positioned on the lining side of groove. If the back-up ring is cupped be sure that cupped side is against o'ring (item 4).*
3. Install new compensator sub-assembly (item 7) in bottom of housing using an 11/16" socket wrench over the retainer.
4. Lubricate piston (item 6) with type fluid used in the system. Carefully insert piston through o'ring (item 4). Push piston into bore with a twisting motion. Piston must bottom on housing to assure lining to disc clearance on vehicle.
5. Lubricate and install compensator o'ring (item 8), pressure ring (item 9), wedge (item 10) with taper to match that of the compensating piston. Install loading spring (item 11) and assembly nut (item 12). Torque assembly nut to approximately 15 ft. lbs.
6. Install lining (item 13) into housing pocket.
7. Repeat steps 1-6 for second housing half.
8. Position spacer (item 14) between the caliper halves (item 3) and insert two 1/2" bolts (item 1) with washers (item 2) through the outboard holes. Assemble washers (item 2) and nuts (item 18) and torque to approximately 80 ft. lbs.
9. Connect tubing assembly (item 16).
10. Install brake assembly on vehicle with bleeder screw up. Torque mounting bolts to approximately 80 ft. lbs. and connect lines.
11. Connect necessary fluid lines.
12. Bleed according to standard procedure.
13. Make several static brake applications. Check for leaks and bleed again.
14. Check linings to be sure there is no drag. If lining to disc drag occurs refer to step 4 above to correct.



REPAIR KITS:

No. 02-500-003 for Model No. 02-520-027
Includes items 4,5 and 7.

LINING REPLACEMENT KIT:

No. 20-060-012 for Model No. 02-520-027
Includes item 13 (two pcs.)

REPLACEMENT PARTS:

No. 30-010-060 Piston (item 6)
No. 32-560-002 Tubing Assembly (item 16)
No. 34-150-024 Connector (item 17)

WESTERN STATES AFFILIATE
AIMICO INC.
1075 HAMILTON RD., DUARTE, CALIF. 91010
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MINNESOTA AUTOMOTIVE INC
BOX 2074 / 1911 LEE BLVD., NORTH MANKATO, MINN. 56001
Phone: 507 345-4593 until 12/6/75
Phone: 507 625-6426 after 12/6/75

FORM NO. 81-520-004 / 12-75

Printed in U.S.A.

HYDRO-SHEAVE

MODELS 9.4 HC, HCF, HCM, HBM FLUID COUPLINGS UNIT ASSEMBLY AND SERVICE INSTRUCTIONS

ASSEMBLY INSTRUCTIONS

NOTE: Tapers to be cleaned with suitable solvent, wiped dry and assembled per S765. Do Not use molybdenum disulfide or equivalent friction reducing compounds on fasteners or taper.

1. If seal and needle bearing are not in place in rear bearing carrier, install them using special seal and bearing driver
2. Install "O" ring in coupling face, mount rear bearing carrier to coupling face using six 12 point capscrews with "O" rings. Torque capscrews to 27-30 lb. ft.
3. Install ball bearing into front bearing carrier with special bearing driver. Care must be taken to not damage circuit front cover adjacent to flat head screws.
4. Install output shaft or output flange assembly through rear bearing carrier and into taper in runner hub. Support the output end of output shaft flange assembly and press ball bearing onto output shaft until bearing inner race overhangs shaft end .060 to .120". **CAUTION:** Do not press flush with shaft end. Press force never to exceed 24,000 lbs. and torque to 177-195 lb. ft. bearing and runner are now in place.

   NOTE: To hold shaft from turning while torquing capscrew, use open end or pipe wrench on retainer washer.
5. Mount selected input group with "O" ring and six 12 point capscrews with "O" rings to input end. Torque to 27-30 lb. ft
6. Check air tightness with 5-10 PSI pressure applied thru filler hole.

TOOLS REQUIRED FOR ASSEMBLY

1. Bearing and seal driver.
2. Bearing driver.

SERVICE DISASSEMBLY INSTRUCTIONS

1. Remove the two pipe plug in the front cover and impeller, allow fluid to drain completely
2. Remove coupling assembly from installation.
3. Remove the six 12 point capscrews and "O" rings from the input group. Remove input group and "O" ring
4. Remove hex head capscrew which retains the output shaft or output flange assembly. Remove the retainer washer
5. To remove Models HC or HCF output shaft and Model HCM output flange assembly, pack shaft center screw hole with grease. Wrap thread of removed hex. Head capscrew with several layers of teflon tape to seal against high grease pressure. Insert screw thru retainer washer into grease filled hole and tighten. Repack hole if necessary until release of taper joint is achieved. To remove Model HBM output shaft, first remove output bearing carrier per instructions no. 6. Support runner on a tube* and press output shaft from runner. Use plug against output shaft to protect threads in shaft
6. Remove six 12 point capscrews and "O" rings from output bearing carrier. Remove carrier assembly and "O" ring
7. If removal of bearing and seal from output bearing carrier is necessary, press out from coupling side.
8. To remove input ball bearing use a rod and tap out from coupling output end.

   NOTE: If the front cover and impeller assembly is damaged, the basic unit must be replaced.

***TOOLS REQUIRED FOR DISASSEMBLY**

1. Teflon tape
2. Tube (3.00 O.D. x 1.81 I.D. x 5.00 Long)

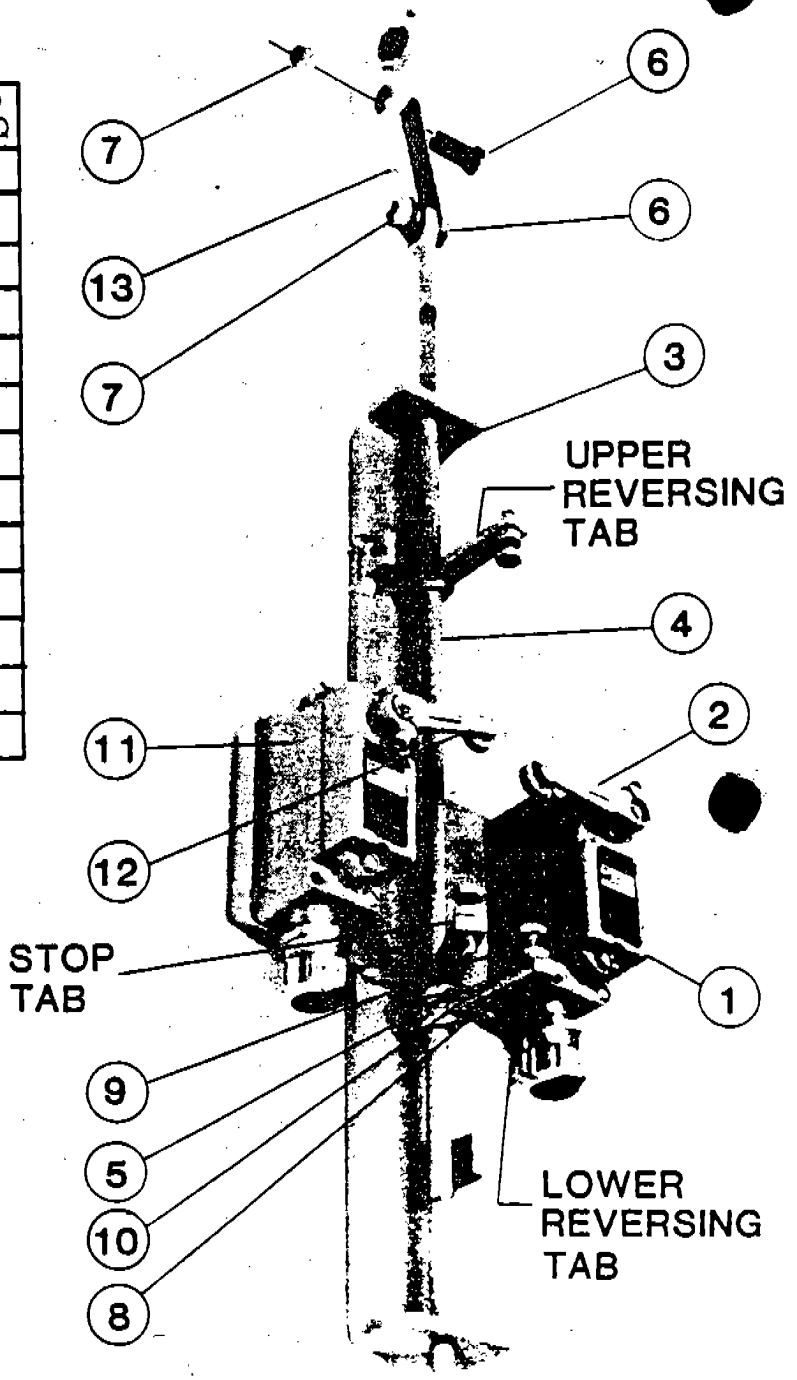
RECOMMENDED REPLACEMENTS FOR OVERHAUL

1. Seal
2. Bearings
3. All "O" rings

LIMIT SWITCH ACTUATOR ASSEMBLY

FIG LS-1

REF NO	PART NO	NAME OF PART	NO REQ
1	E-700	SWITCH, REVERSE LIMIT	1
2	E-701	LEVER, LIMIT SWITCH	2
3	ST-45-1	ASSEMBLY, BASE	1
4	ST-45-5	ROD, CONNECTING	1
5		SCREW, 1/4-28 NF SET	3
6		BOLT, 3/8-24NF X 1	2
7		NUT, 3/8-24 LOCK	2
8	ST-45-6	TAB, ACTIVATOR	3
9		BOLT, 1/4-28 NF x 1	3
10		NUT, 1/4-28 NF JAM	3
11	E-700A	SWITCH, STOP LIMIT	1
12	E-701	LEVER, LIMIT SWITCH	1
13	ST-45-4	LINK, CONNECTING	2



NOTE:

COVER PLATE (ST-12-22) AND (8) 1/4-28 NF x 1/2" MUST BE REMOVED FOR ACCESS TO LIMIT SWITCHES.

[59]SERVICING THE HYDRAULIC BRAKE SYSTEM

After all brake components are completely assembled. but before connecting rod end (part 36), follow the following procedure:

A. Locate tilt head in a position where the control cylinder filler plug (part 1) is in the "Up" position.

B. Remove filler plug (part 1) and fill the control cylinder reservoir with an automotive type (vegetable based brake fluid). Replace filler plug (part 1).

C. Back disc brake bleeder plug (part 61) out ⅛ turn.

D. With bleeder plug (part 61) in the open position, pump the control cylinder until brake fluid is ejected from the bleeder plug (part 61).

E. Re-tighten bleeder plug (part 61) securely. Operate control cylinder arm (part 35), using 16" crescent wrench, or other advantage. Maintain pressure on cylinder arm (part 35) and open bleeder plug (part 61) ⅛ turn. Re-tighten before releasing cylinder arm (part 35).

F. Wipe clean all evidence of brake fluid spills.

G. Pre-load control cylinder by fixing control arm (part 35) in such a position that it requires half its throw to mate the rod end (part 36) when the brake cable is in the "Brake Off" position. This will establish the "Brake Off" position of the control arm (part 35) to be approximately 45° with respect to the base of the control cylinder when control cylinder arm (part 35) is connected to rod end (part 36).

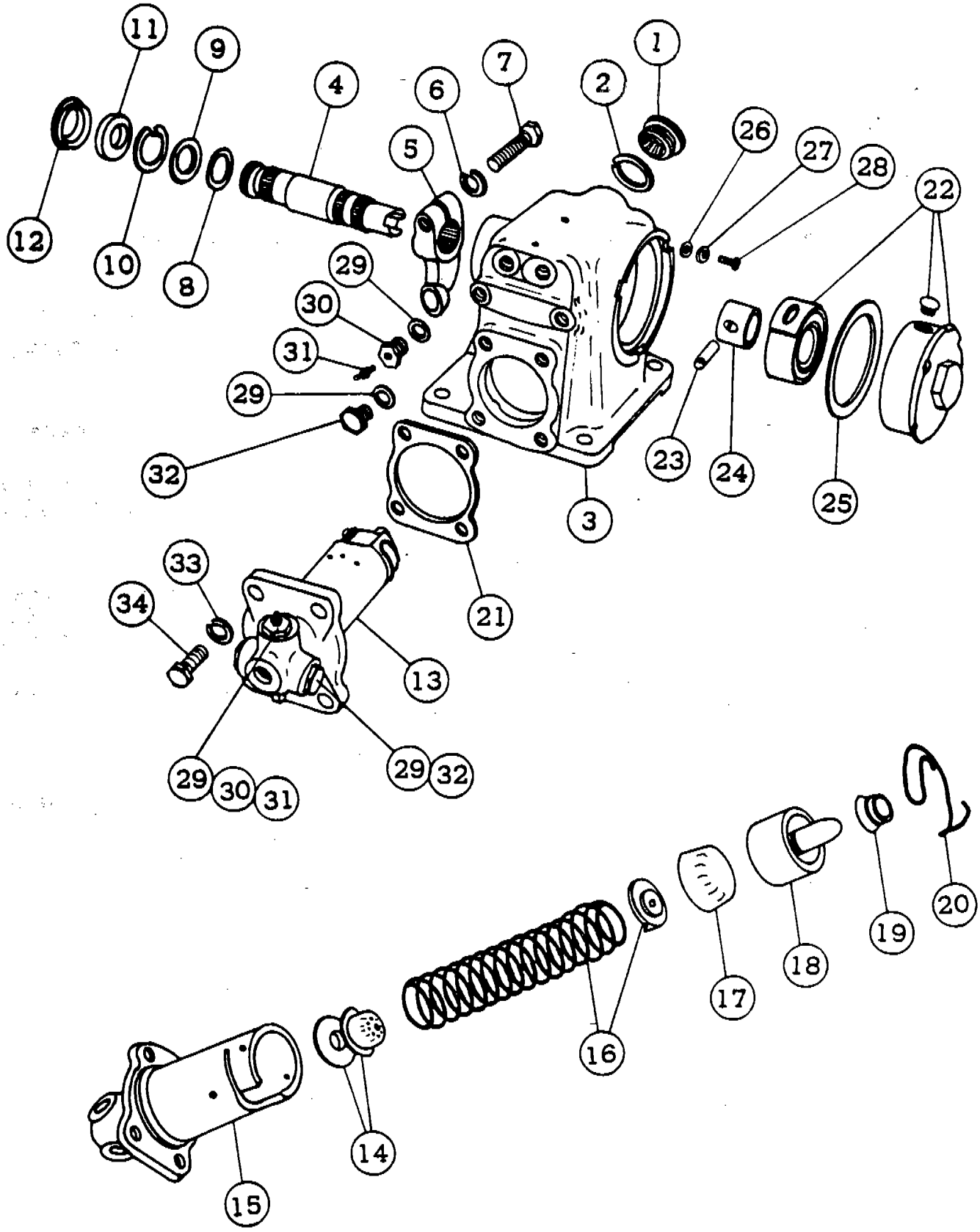
H. Actuate brake system from operators control stand. If steps (A) through (G) were successful, the brake handle will develop considerable resistence. If the brake arm is soft, it indicates that either the bleeding was not satisfactorily completed, or there is a leak in the system.

I. Inspect all connections for leaks.

J. In the event the brake does not operate and there are no leaks, repeat steps (A) through (I) until trapped air is disposed of through bleeding.

K. When the brake is operational, locate the tilt head in a position where the control cylinder filler plug is up and carry out step (B).

CONTROL CYLINDER



LUBRICATION INSTRUCTIONS

	LUBE POINT LOCATION	LUBRICANT TYPE	DAILY	WEEKLY	MONTH	90 DAYS	YEARLY
A	TILT CYLINDER ROD END	BEARING LUBE	X				
B	TILT HEAD HINGE BEARINGS	BEARING LUBE	X				
C	REVOLVING ROD BUSHINGS	BEARING LUBE	X				
D	CAR BELT BAR PIVOT	30W OIL		X			
E	RETURN ROD LINKAGE (CAR)	BEARING LUBE		X			
F	CAR DOOR HINGES	30W OIL		X			
G	CAR DOOR LATCH PLUNGER	30W OIL		X			
H	COLUMN HINGE BUSHINGS	BEARING LUBE			X		
I	BOOM HUB DRIVE CHAIN	HI-SPEED CHAIN LUBE			X		
J	BACK BRACES	BEARING LUBE				X	
K	SAFETY CYLINDERS	BEARING LUBE	X				
L	UNIVERSAL JOINTS & SPLINE	BEARING LUBE			X		
M	MUDSILL PIVOT BEARINGS	BEARING LUBE				X	
N	TILT HEAD SAFETY HOOKS	BEARING LUBE			X		
O	GEAR REDUCER	GEAR LUBE			CHECK		DRAIN & REFILL
P	HYDRAULIC SYSTEM*	HYD. FLUID		CHECK			X
Q	BRAKE MASTER CYLINDER DISC	HYD. BRAKE FLUID			CHECK		
R	WHEEL BEARINGS (TLR)	GEAR LUBE			CHECK		DRAIN & REFILL
S	BOOM ANCHOR POINTS (HUB) 4	BEARING LUBE			X		
T	BOOM HUB LOCK BOLT	BEARING LUBE			X		
U	BOOM HUB	BEARING LUBE			X		
V	CONTROL STAND LINKAGES	BEARING LUBE		X			
W	BRAKE LEVER SHAFT BEARINGS	30W OIL	X				
X	GOOSENECK HINGE	BEARING LUBE		X			
Y	CAR REVOLVING CHAIN	HI-SPEED CHAIN LUBE	X				
Z	CAR REVOLVING BEARINGS	BEARING LUBE	X				

* DRAIN & REFILL - CHANGE FILTER CARTRIDGE 1ST 90 DAYS OPERATION.

Bearing Lube - A multi-purpose water resistant grease with an accepted extreme pressure additive

30w Oil - Good grade 30w motor oil.

Hi-Speed Chain Lube - Hydrotex #525 deluxe leaded or equivalent.

Gear Lube - Hydrotex 80w-140 or equivalent.

Hyd. Brake Fluid - Vegetable based brake fluid

Hyd. Fluid - DTE light or equivalent.

EMERGENCY PROCEDURE

EMERGENCY PROCEDURE FOR LOWERING PASSENGER LOADED CARS TO LOADING POSITION IN EVENT OF HYDRAULIC PUMP DRIVE OR BELT FAILURE

There are two counterbalance valves located just behind the solenoid operated valve. Each have ½ " adjusting bolts (¾ " hex), locked with a locknut and jam nut. Back off each bolt until they are within one or two full turns of thread of being removed. Scribe a mark on the bolt and valve body to enable easier return to proper adjustment. Engage the rotation slowly until the boom end with heavier cars starts to descend. As the boom lowers, apply the rotation hand brake. The car will come to rest at the loading position. With the hand brake applied, unload only one car, unless only one car is loaded at the upper boom end. Unload both cars if only one car in the second set is loaded.

If cars are evenly balanced and will not descend, it will be necessary to lower the cars with a line as follows:

With the booms located in line with the ride (cars directly over operator), apply and lock hand brake. Pass a rope (⅜" or larger) over the boom above the operator, as near the cars as possible and manually pull the cars down. As the boom assembly passes over the center of the hinge it will descend to loading position without further assistance. Unload passengers in the sequence as outlined in the operating procedure.

LIMIT SWITCH ADJUSTING PROCEDURE

This assembly is set at the factory and should require no further adjustment. However, there may be a certain part or parts at some time that may require replacing, in which case, re-adjustment may be necessary.

The following procedure will facilitate this operation.

1. With the column erected and the cars in loading position, rotate booms ¼ revolution, or until parallel with ground. Apply and lock brake. Remove access plate located approximately 24" below boom hub on side of column facing operator. Loosen the set screws securing the actuator tabs, Ref. #8, until they slide freely on connecting rod, Ref. #4. The limit switch lever RH, Ref. #2, should be set at approximately 90° with limit switch. The limit switch lever LH should be set slightly above as shown in Fig. #LS-1.

2. With hydraulic selector valve lever positioned at "Auto" and toggle switch on control box switched to "Man" start hydraulic system. Move stop tab up connecting rod until it engages the roller on LH limit switch lever.

   NOTE: Do not move lever, Ref. #12, up to the end of the stroke at this time. Move it up just far enough to solidly engage the lever roller without stopping the hydraulic system. Secure set screw.

3. Move the lower reversing tab up the connecting rod until it engages the RH (Reversing Limit Switch) lever roller. Secure set screw on tab.

4. Screw out adjusting bolt, Ref. #9, on stop tab (LH) until limit switch is activated and the hydraulic system shuts off.

5. Screw out adjusting bolt, Ref. #9, on reversing tab until a 'click' is heard in the reversing limit switch. Turn out the adjusting bolt one-half turn further.

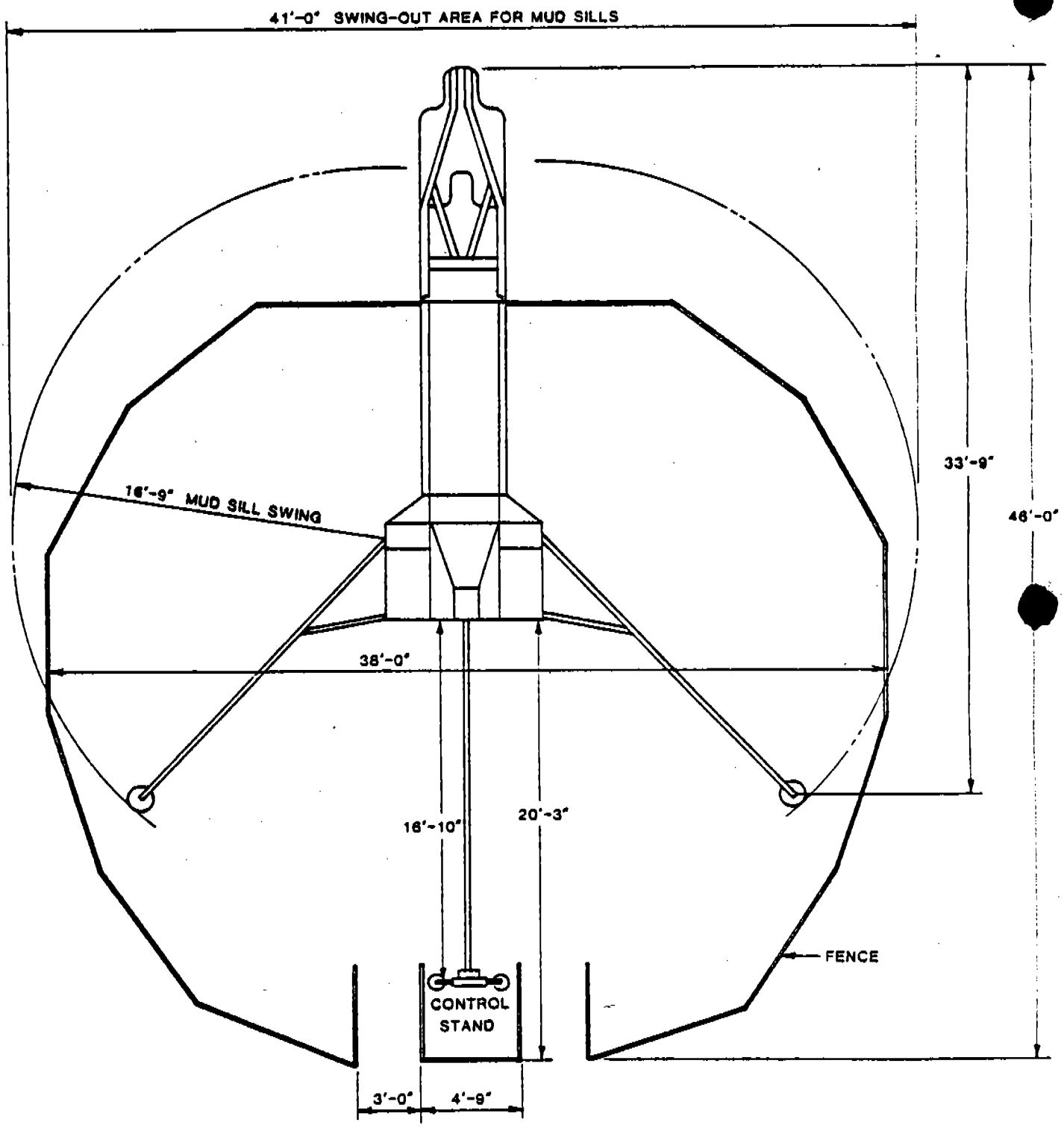
6. With selector valve and toggle switch on "Auto" have someone depress the hydraulic start button. The tilt head should begin closing. Let the system operate until the lower reversing tab has moved approximately 3" down from the limit switch lever. Reach in and manually press down on the RH reversing limit switch lever. The tilt head will reverse itself and the lower reversing tab will move upwards. If the reversing tab adjusting bolt contacts the roller and the cycle reverses, the adjusting bolt will have to be turned in until the 'Reversing' limit switch and the 'Stop' limit switch activate simultaneously.

   NOTE: To get adequate movement on the adjusting bolts it may be necessary to re-locate the adjusting tabs.

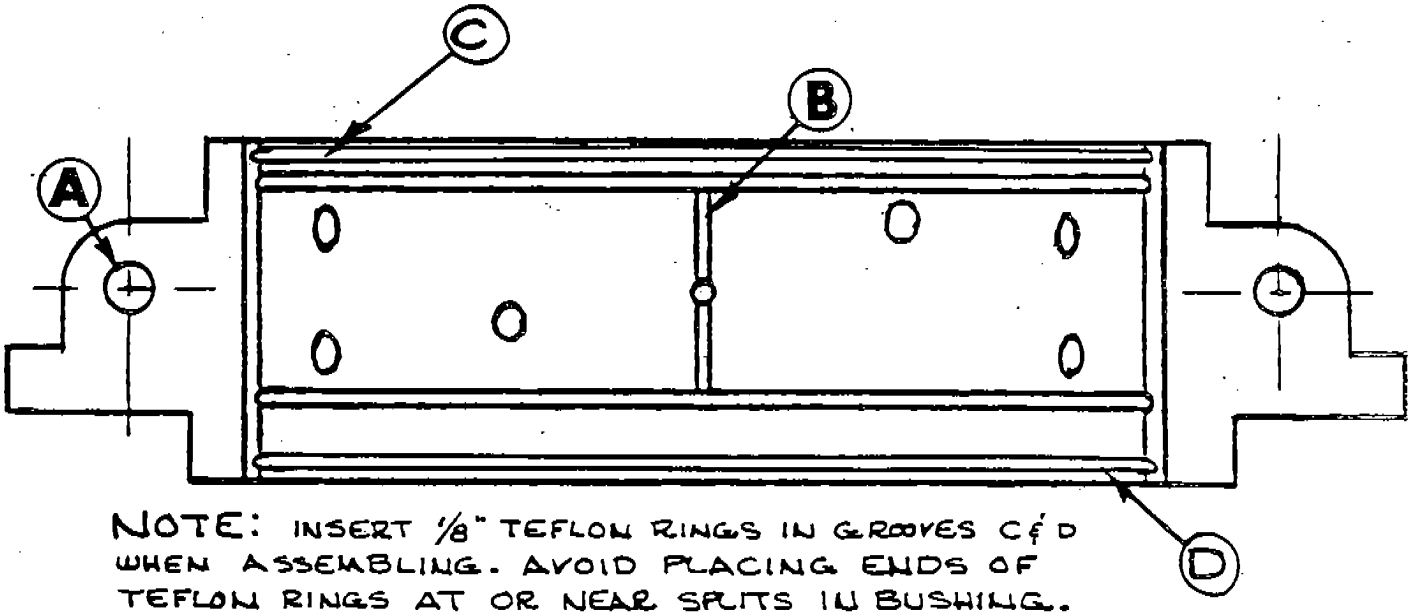
7. Depress the start button. The tilt head will begin closing and continue until the tilt cylinder is completely closed and hydraulic system will by-pass. Depress the stop button. Lower the upper reversing tab until a 'click' is heard in the reversing limit switch. Secure the tab with set screw to the connecting rod. Turn out the adjusting screw one-half turn. Depress the start button. The tilt head should operate through the complete cycle.

8. Operate the tilt cycle in the usual manner, making sure all adjustments are correct. If no further adjustments are required, the adjusting bolts on the stop and reversing tabs must be locked at this time. Make certain the jam nuts are tight!

PLAN VIEW & FENCE LAYOUT



INSTRUCTIONS FOR INSTALLING THE SPLIT HUB BUSHING



NOTE: INSERT 1/8" TEFLON RINGS IN GROOVES C & D WHEN ASSEMBLING. AVOID PLACING ENDS OF TEFLON RINGS AT OR NEAR SPLITS IN BUSHING.

(1) Remove the old bushing by cutting the ends from the rivets on the outside. Then punch them out with a 3/16" punch.

(2) With the bolts "A" loose slide the new bushing into the housing with the grease grooves located as shown. BE SURE TO LOCATE THE VERTICAL GROOVE "B" OVER THE GREASE FITTING.

(3) Tighten the bolts.

(4) Drill the rivet holes through the bushing with a 1/4" drill and countersink for the head so it is just below the surface.

(5) The riveting can be done by clamping a short steel bar in a vertical position in a vise and hanging the split hub over it so the bar backs up the rivet head. A light hammer is best for riveting.

(6) Drill an 11/32" hole through the grease fitting hole.

(7) Saw the bushing in half adjacent to the parting lines of the casting and remove any burrs with a file.

NSTRUCTIONS FOR INSTALLING HINGES ON OCTOPUS CARS

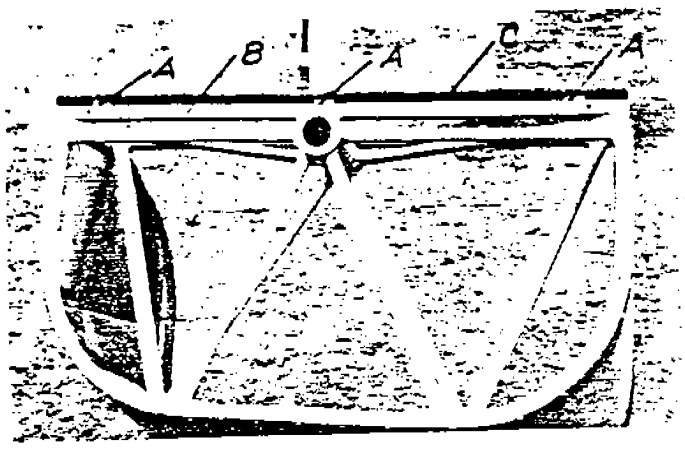


FIG. 1

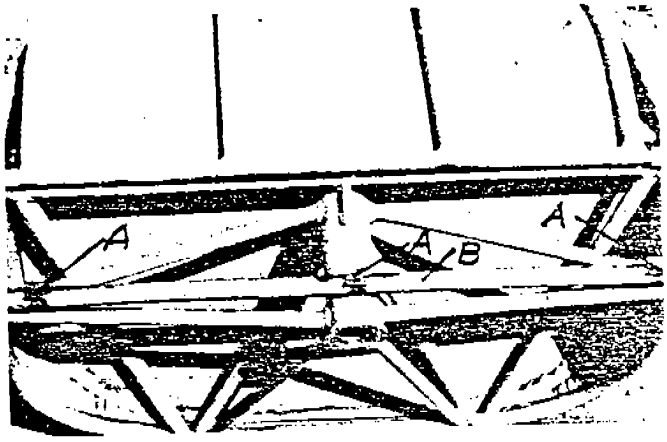


FIG. 2

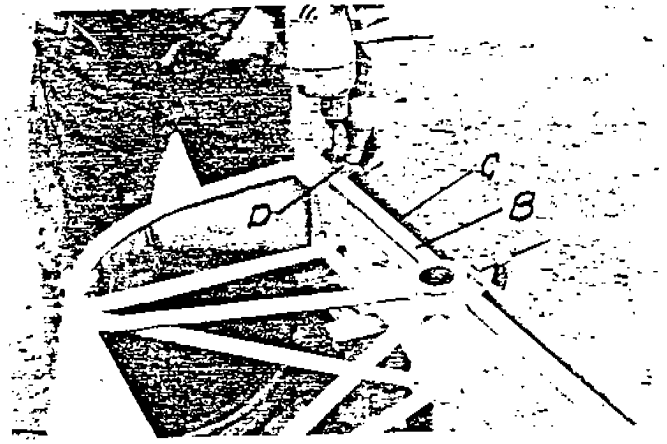


FIG. 3

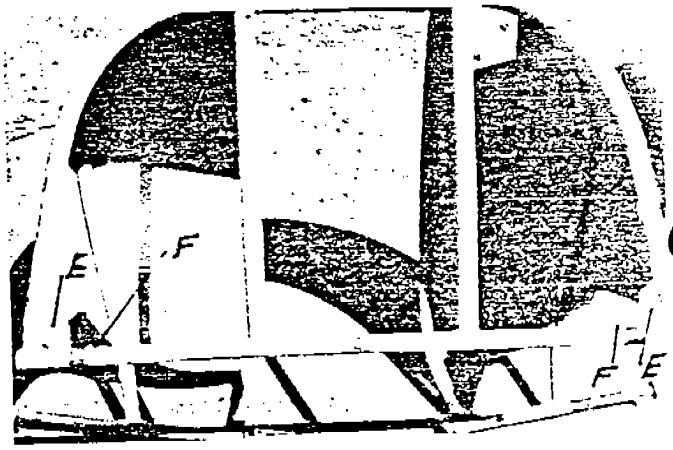


FIG. 4

STEP 1

Clamp saddles "A" to lower front cross member "B" by use of pipe "C" which is furnished for the purpose of aligning saddles to cross member. Align the saddles with the scribed lines on the pipe "B" and weld in position. See Fig. 1 and 2.

STEP 2

Drill lower front cross member "B" for hinges "D" by locating the hinges in position over the pipe "C" and centering hinge with saddles. Hold in this position and drill 17/64" holes through the cross member. See Fig. 3.

STEP 3

Place the car nose in position in the saddles to determine where to cut gussets "E" to clear hinges. Remove this portion of gusset either by sawing or burning. See Fig. 4.

STEP 4

Assemble the car nose to the seat section by use of the hinges "D" and locate stops "F" to clear the inside edge of the outer hinges. Weld these stops to cross member "B". See Figs. 4 and 5.

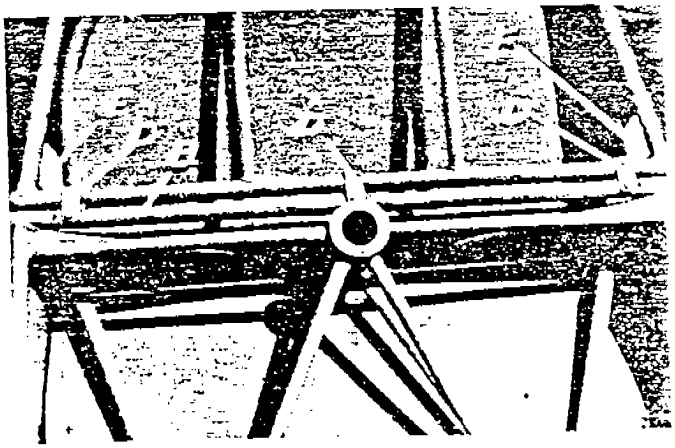
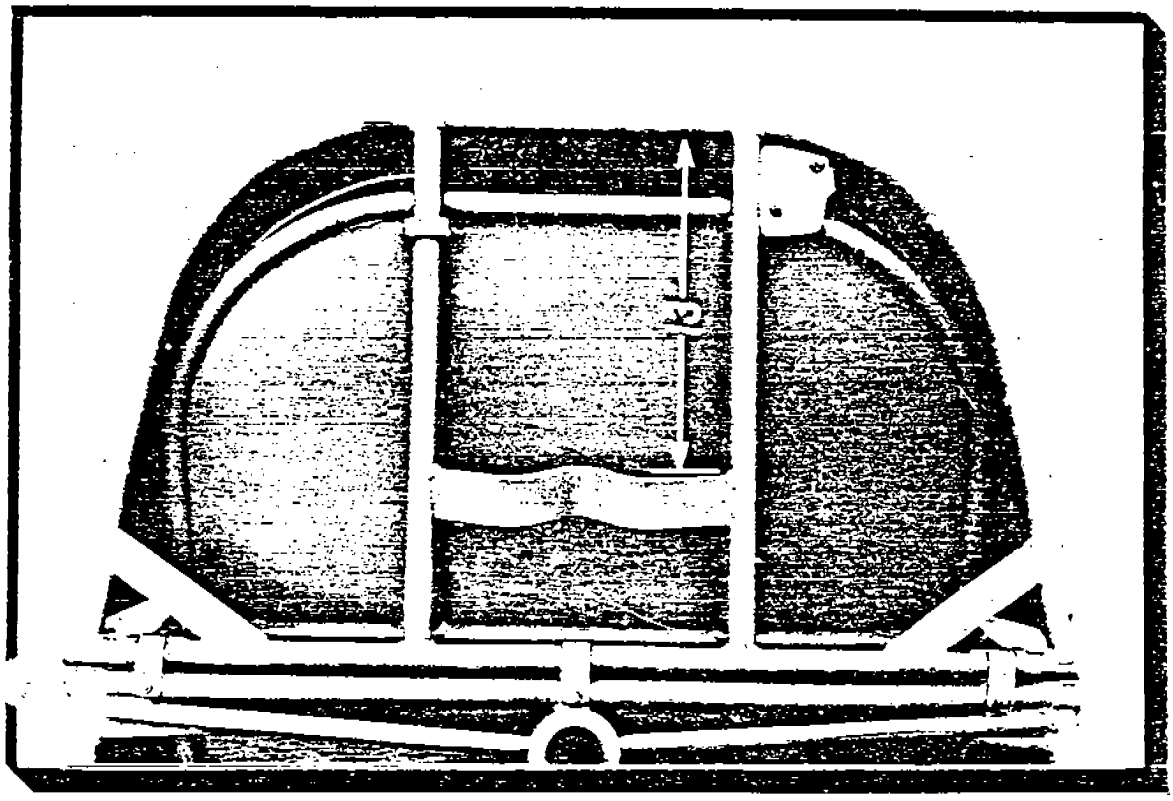
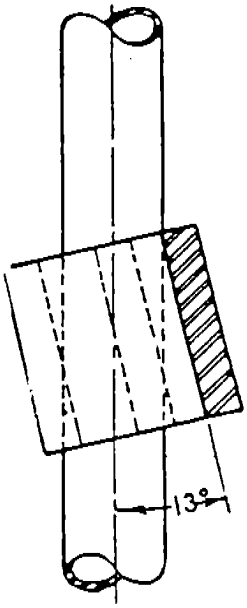


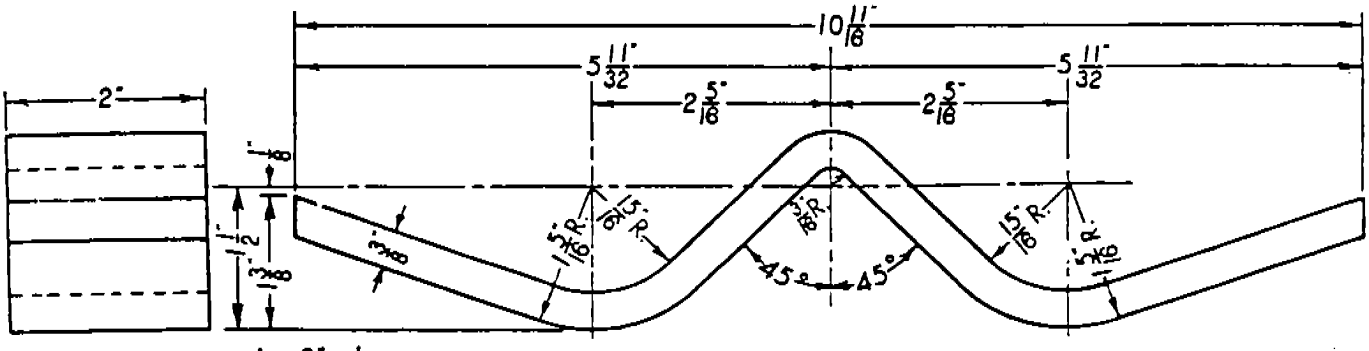
FIG. 5

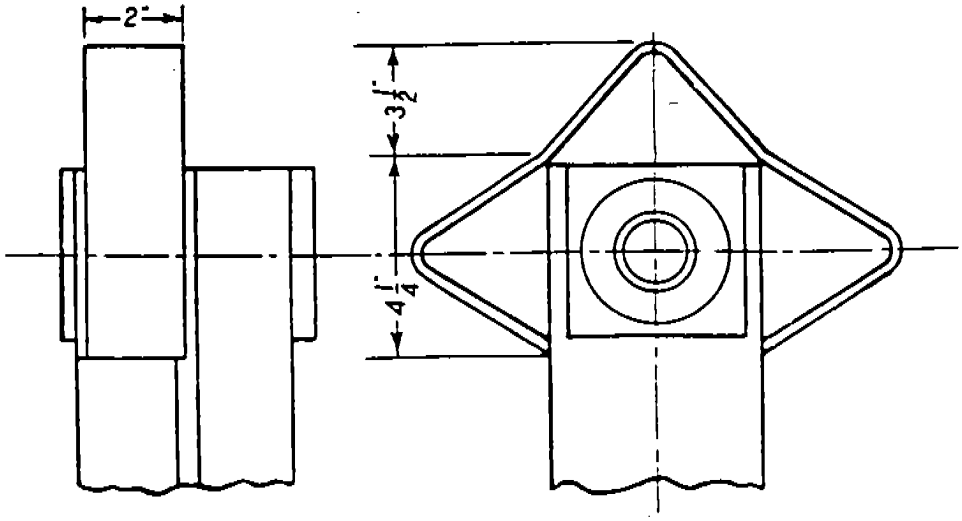
In case of cars without gussets, it will be necessary to weld stops at the outside edge of the outer hinges also. No stops are necessary on the center hinge.

ILLUSTRATION SHOWING LOCATION OF CAR SAFETY CLAMP & 3 POSITION STEEL CAR JAM



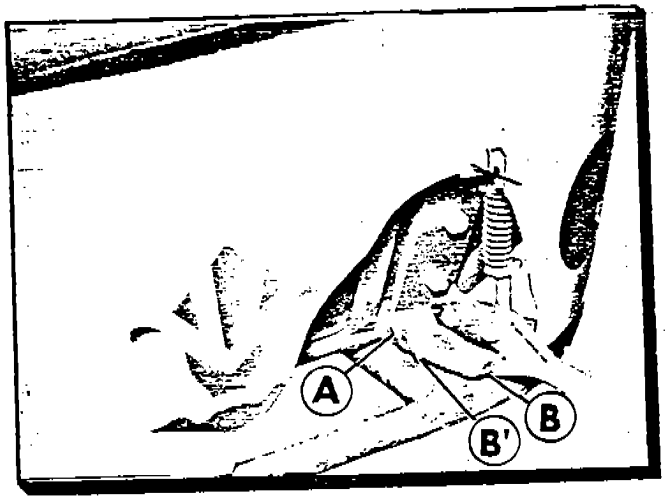


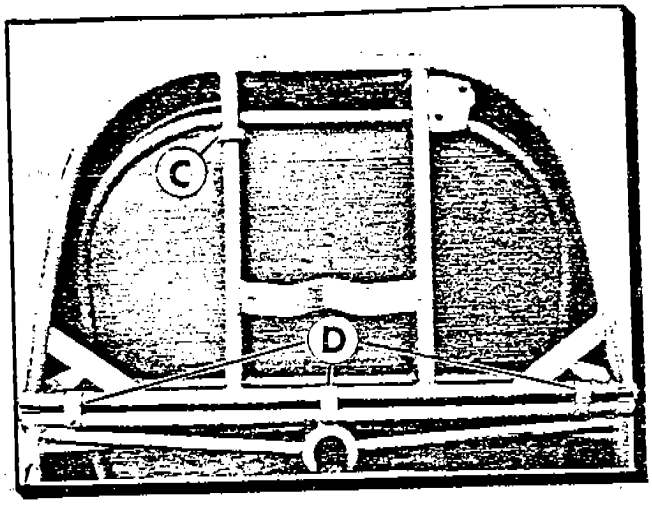




BULLETIN NO. O-16

OCTOPUS CAR LATCH & SAFETY CLAMP





The following items are suggested for normal safety maintenance of your Octopus Cars.

(1) Safety lip "A" must align properly with "B". Adjust by bending into place if necessary.

(2) If "B" has worn into "A" weld a piece of 3/8" key stock 1" long to "B" as shown at (B').

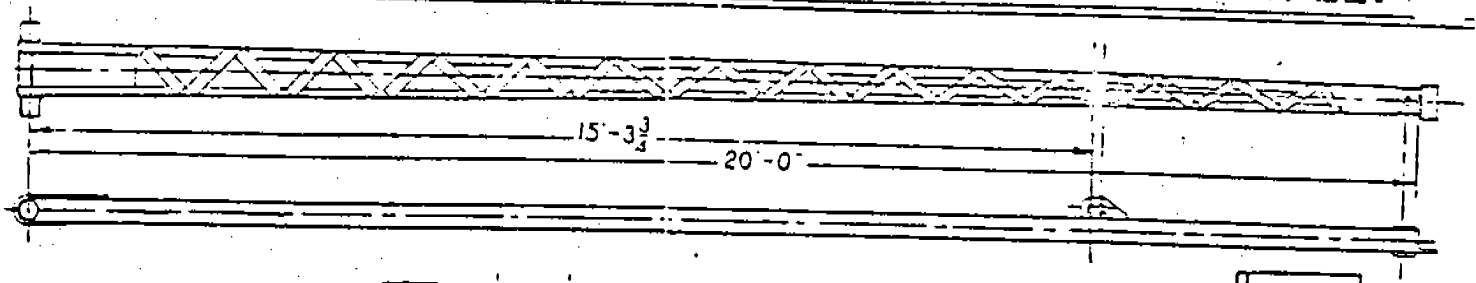
(3) If strap hinges are worn excessively, replace with new. If bolt holes only are worn, drill to 5/16" diameter and replace the 1/4" bolts with 5/16" bolts. If cars are not equipped with strap hinges "D" as shown, send for Bulletin No. O-1.

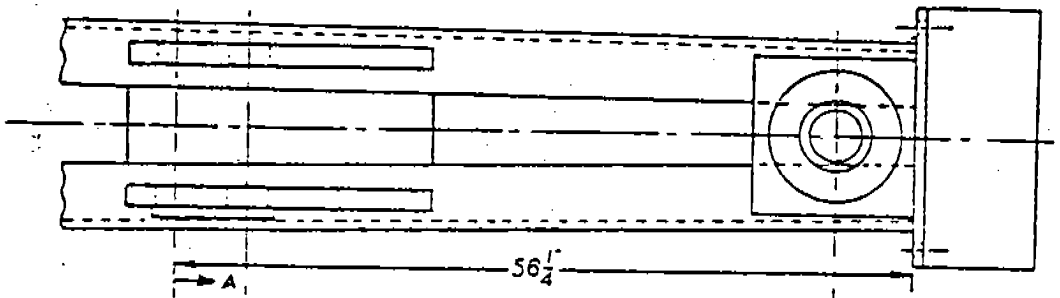
(4) Supplementing the above, Safety Clamp "C" assists in preventing the disengagement of the car latch during operation. This clamp (Part No. O-603) grips the step tube but slides freely along the nose tube, preventing passangers from raising the step with their feet and disengaging the latch. This also prevents improper alignment which often results in damaged nose skin above the latch. These clamps are available at our cost of $1.00 each.

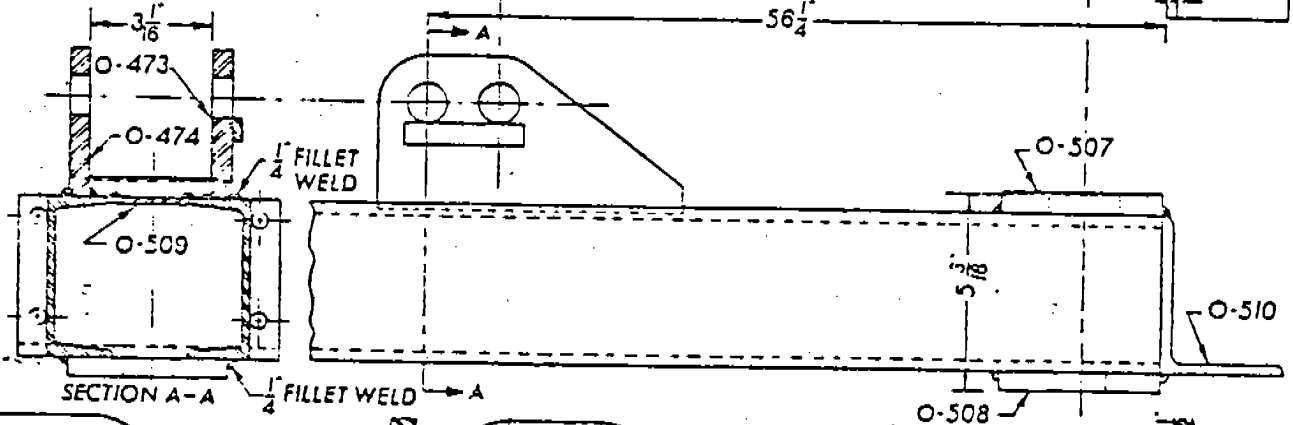
It is advisable to give close attention to the above mentioned items.

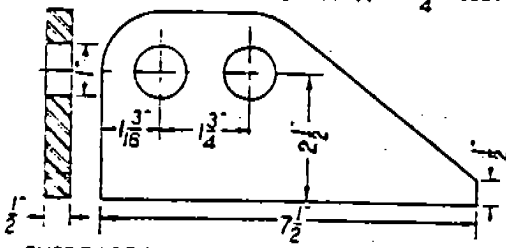
1/7/65

INSTRUCTIONS FOR SHORTENING OCTOPUS SWEEPS

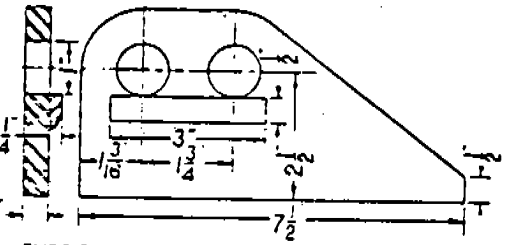




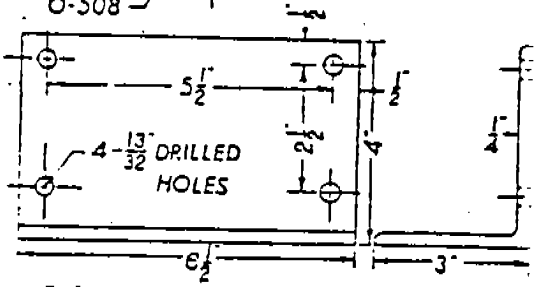




SUPPORT ROD FITTING, R.H. Drg.No.O-473

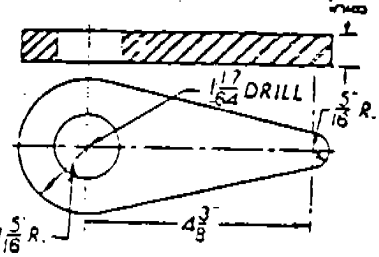


SUPPORT ROD FITTING, L.H. Drg.No.O-474

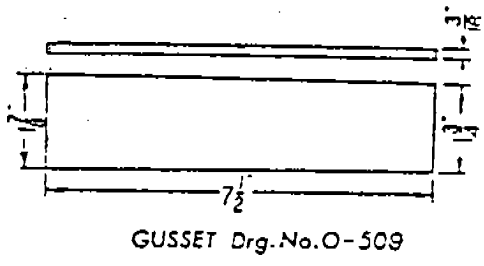


CAR JAM SUPPORT BRACKET Drg.No.O-510

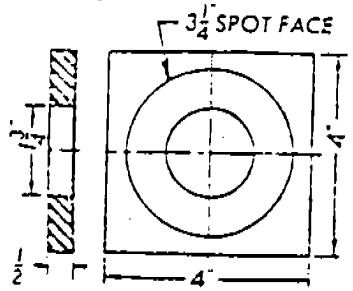
(1) Cut 36" off outer end of sweeps.
(2) Weld Car Jam Support Brackets (Drgs. No. O-510) to the ends of the sweeps with ¼" fillet welds.
(3) Locate the Car Pivot Support Plates (Drgs. No. O-507 & O-508) by first leveling the sweep and then aligning the plates by inserting a Car Spindle through the plates and screwing a nut on the lower end of spindle. Adjust the nut so that the dimension from the top of the upper plate to the bottom of the lower plate is 5-1/16". Weld plates in place with ¼" fillet welds all around.
(4) Locate Support Rod Fittings (Drg. No. O-473 & O-474) as per above drawing and weld with ¼" fillet welds after removing any webbing that interferes.
(5) Locate Gusset (Drg. No. O-509) between channels and weld with ¾6" flush welds.
(6) Determine length of support rods by blocking up the outer end of the sweep so that the distance from the upper side of the sweep to the ground is 10". Rotate the eccentric until it is midway between the blocked sweep and the one next to it. With the swivels in blocks in place, measure the distance between centers of the holes in the swivels. Cut the support rods off and weld the support rod Ears (Drg. No. O-392) on the rods, making the distance between centers conform with the distance between the holes in the swivels.



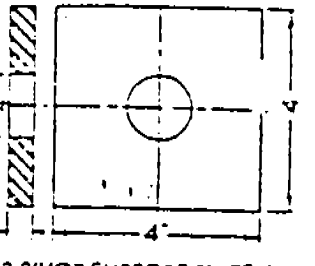
SUPPORT ROD EAR Drg.No.O-392



GUSSET Drg.No.O-509



CAR PIVOT SUPPORT PLATE, Upper



CAR PIVOT SUPPORT PLATE, low Drg.No.O-508

All OCTOPUS rides from Serial No. 2000 to 2105

INSTRUCTIONS FOR INSTALLING HINGES ON OCTOPUS CARS

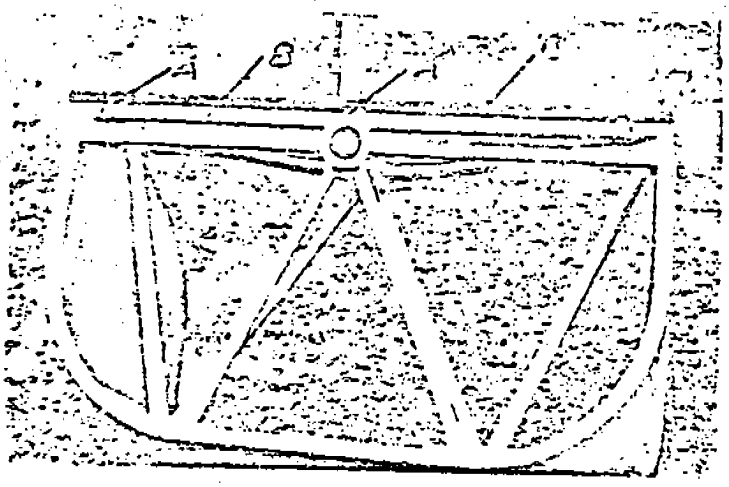


FIG. 1

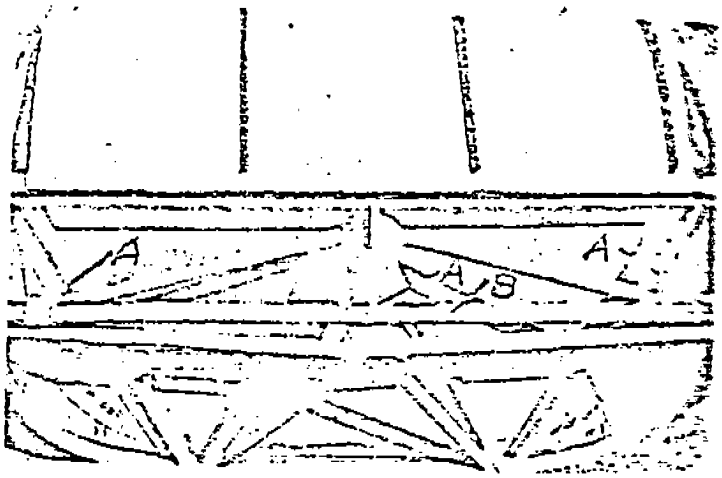


FIG. 2

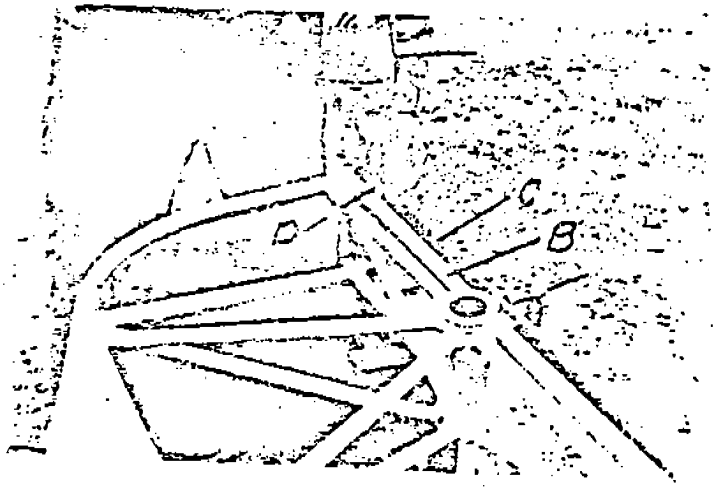


FIG. 3

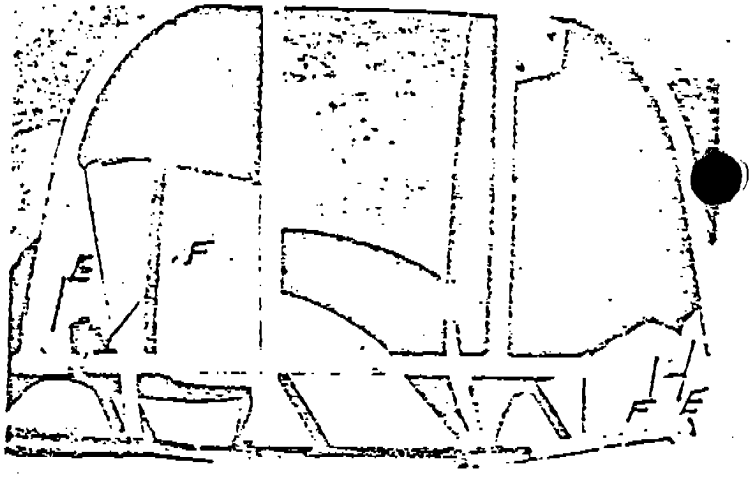


FIG. 4

STEP 1

Clamp saddles "A" to lower front cross member "B" by use of pipe "C" which is furnished for the purpose of aligning saddles to cross member. Align the saddles with the scribed lines on the pipe "B" and weld in position. See Fig. 1 and 2.

STEP 2

Drill lower front cross member "B" for hinges "D" by locating the hinges in position over the pipe "C" and centering hinge with saddles. Hold in this position and drill 17/64" holes through the cross member. See Fig. 3.

STEP 3

Place the car nose in position in the saddles to determine where to cut gussets "E" to clear hinges. Remove portion of gusset either by sawing or burning. See Fig. 4.

STEP 4

Assemble the car nose to the seat section by use of the hinges "D" and locate stops "F" to clear the inside edge of the outer hinges. Weld these stops to cross member "B". See Figs. 4 and 5.

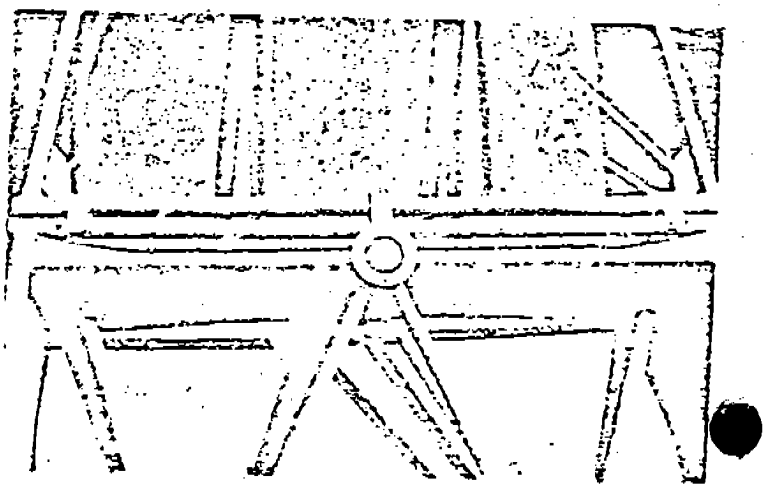
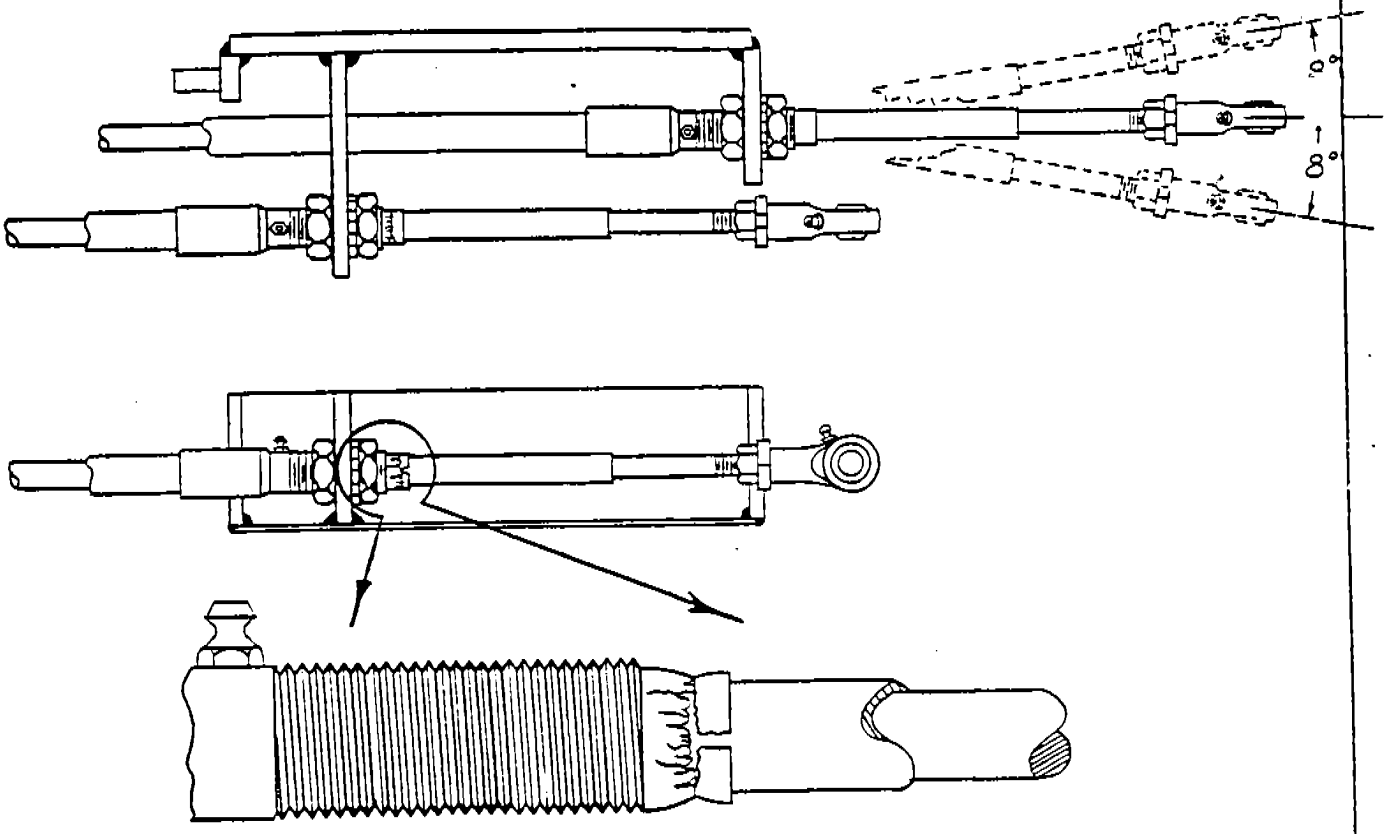


FIG. 5

In case of cars without gussets, it will be necessary to weld stops at the outside edge of the outer hinges also.



FAILURES IN FLEXIBLE CONTROL CABLES

Some operators have swiveled the control cable rods beyond the recommended maximum 8° angle when removing from the clutch and brake control levers. Too much cable travel between "brake on" and "clutch engaged" will also exceed the recommended maximum 8° angle at the control stand. Either condition will result in failure at the cable swivel joint.

Please examine your cables for failures and notify us of the type of failure, short or long cable, and which end. Damaged cables should be replaced although they will still operate if the stroke is maintained within the 4" limit.

Kits to eliminate failures will soon be available.

FAILURES IN FLEXIBLE CONTROL CABLES				
DRAWN BY: Neal	SCALE: none	NO. REQ'D.: - -	MATERIAL: - - -	
DATE: 8/25/69	NEXT ASSY.: - - - -	SDS. NO.:	EFF. W/SN:	Drg. No. O-19/69
		SDD. BY NO.:	EFF. W/SN:	

MANUFACTURERS OF AMUSEMENT RIDES

TELEPHONE
585-6706
AREA CODE 503

CABLE ADDRESS
EYERLYRIDE SALEM

LEE U. EYERLY
1892-1963

JACK V. EYERLY
PRESIDENT

P. O. Box 670
SALEM, OREGON 97308

8/73

Our records indicate that you are the owner and/or operator of OCTOPUS, Serial No. _____. This device was delivered new in _____, and equipped with box type sweep assemblies in _____.

We have been informed of some failures occurring in these assemblies, and although we have no way of knowing what type of abuses the machines, on which failures have occurred, have been subjected to, we strongly recommend that these assemblies be replaced immediately with new units fabricated from channel and strap materials and commonly described as 'web' type.

A recommended safe endurance stress life has been established at 20 years for the bulk of the major stress members of our products with a lesser period for some wear-stress items such as seat spindles, fasteners, and swivel blocks and their pins. This is providing that safe and normal operational and maintenance procedures have been practiced and the unit has not been subjected to abuses of which the more obvious could be such items as excessive operational speeds, excessive wear which could also result in backlash in some areas, inadequate lubrication, and improper adjustments. There are many types of abuses to which these devices may be subjected with results that could only be determined by actual inspection of the machine. Any abuse could reduce this operational stress life period proportionate to the degree of the severity of the abuse.

We will exchange the 'web' type assemblies for the units now on your OCTOPUS based upon this 20 year life recommendation. The owner will absorb the cost for time usage to date and we will absorb the balance. These units will be replaced at manufacturer's cost.

INSTRUCTIONS FOR INSTALLING SAFETY CABLES ON STRAIGHT SWEEP OCTOPUS

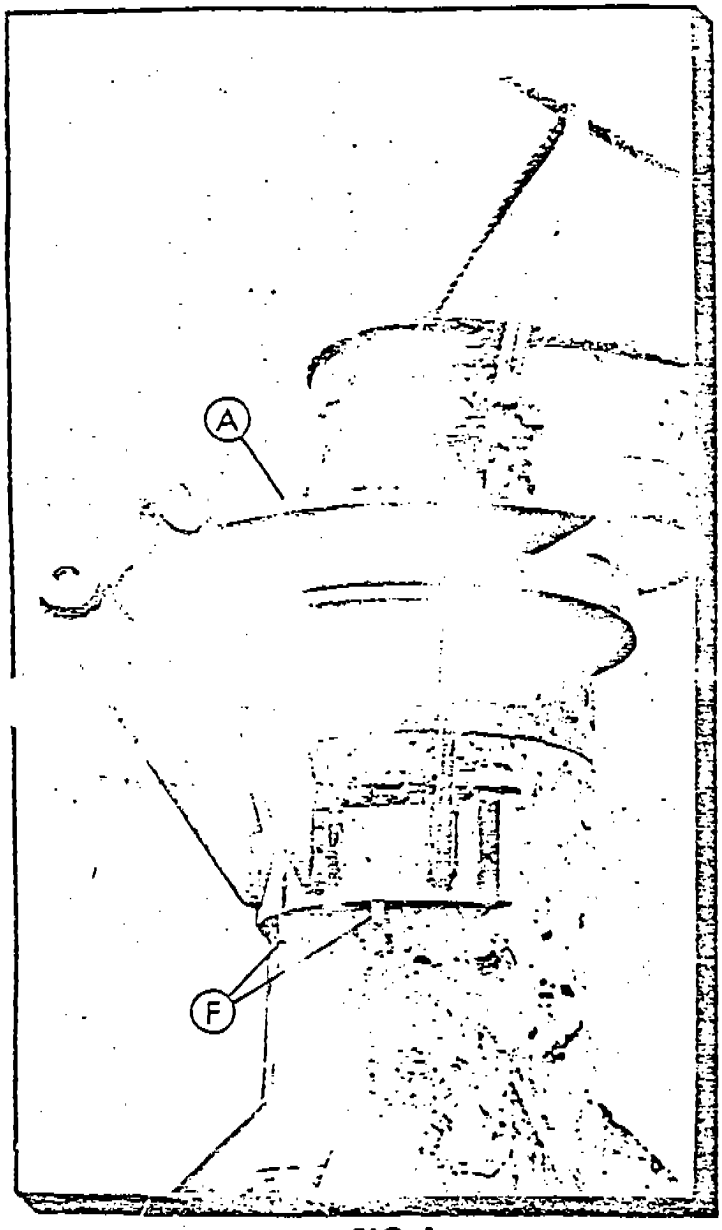


FIG. 1

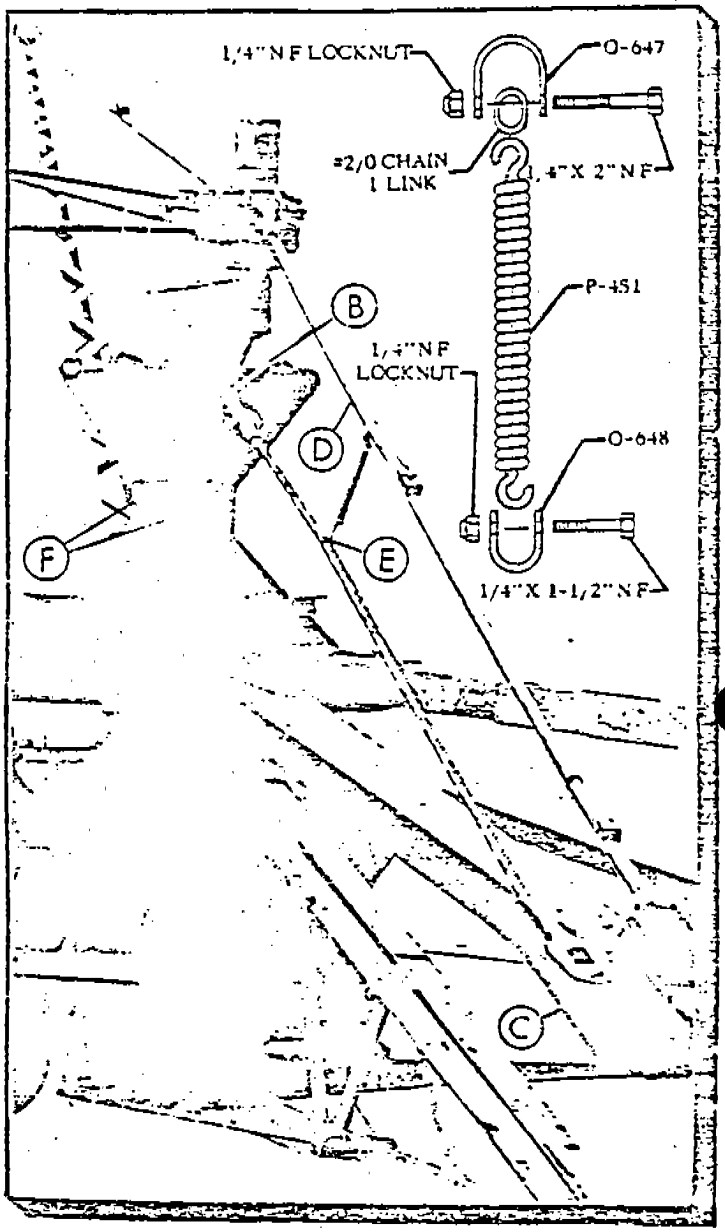


FIG. 2

(1) Mount the column cable adaptor (A) Fig. 1, consisting of two halves, by means of a rope or light cable placed over a sweep support rod as shown in Fig. 1, Align the top plate of the adaptor flush with the top of eccentric tube weather band and position vertical ears in alignment with center line of sweeps. Install and secure retaining bolts.

(2) Weld 4 equally spaced 1/2"X 2-1/2" keystops (F) Fig. 1 to mn pipe directly below lower clamp band of column cable tor. Weld keystops on sides only.

(3) Attach the connecting rods (B) Fig. 2 to the adaptor using 1-1/4" Pins. Then attach the cables to the outer end of the connecting rods. Install clevises on threaded end of cable.

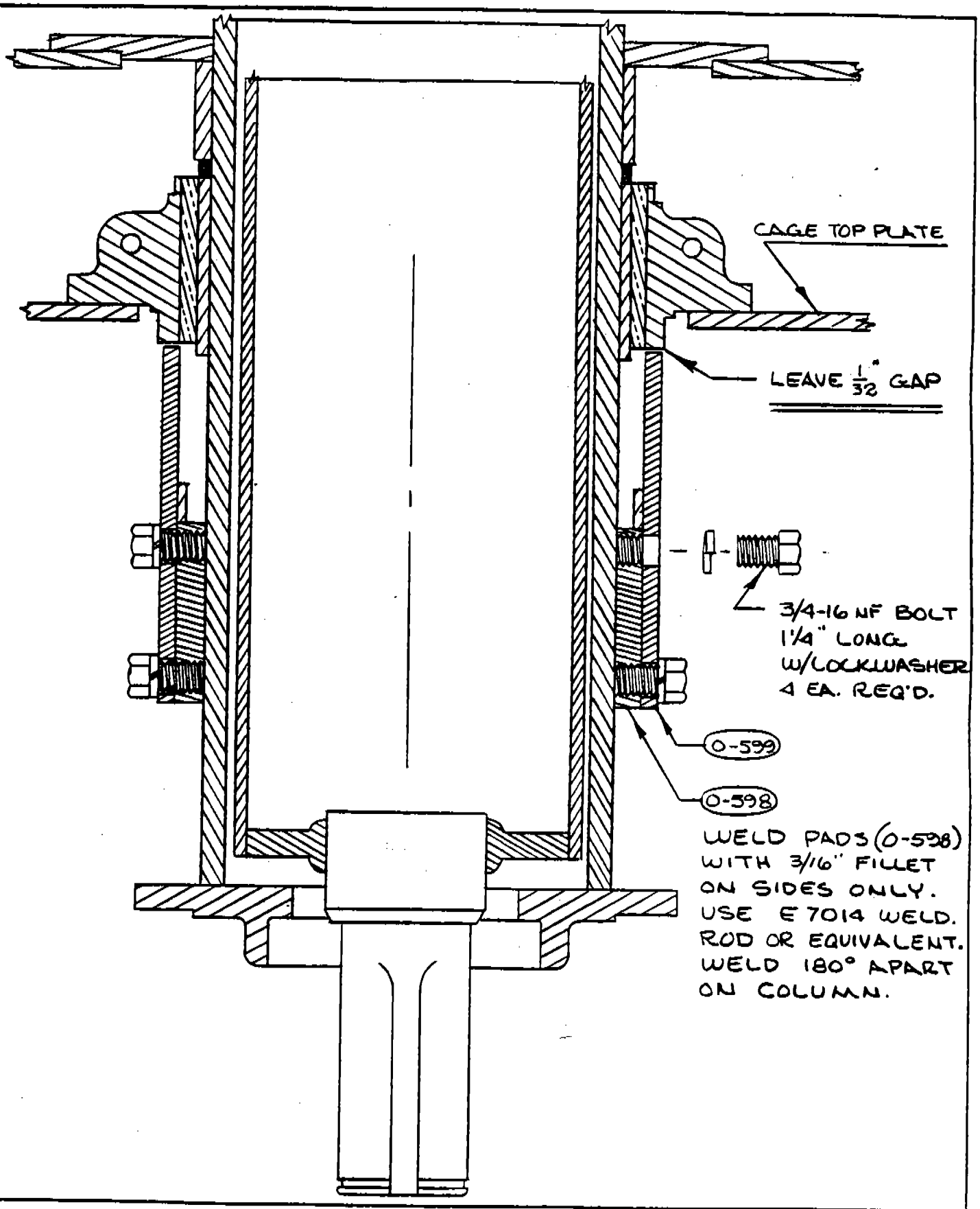
(4) Mount the anchor plate (C) Fig. 2 between the sweeps and the stub or cross arms using 3/4"X 2-1/4" class 8 heat treated bolts and nuts as furnished.

(5) Adjust cable tension so they are nearly tight when the sweeps are in their lowest position. Then lock the clevis to the cable by tightening 1-1/2" jam nut. If the cables are too tight they will cause the support rods to bend.

(6) Attach clevises, using 1-1/4" pins,to the anchor plate holes which correspond to the holes used to attach the sweep support rods to the sweeps.

(7) Attach spring clamps (D) Fig. 2 to the sweep support rods 5 feet from inner support pin. Attach clamps and springs to the safety cables 6" to 8" further out (E) Fig. 2 to pull cables toward the center when the sweeps are reised. Springs should remain attached to the cables when disassembling.

NOTE Because of possible dimensional variations each cable should be marked to remain with it's origional sweep. Safety all pins before operation. Lubricate the bronze bushings daily.



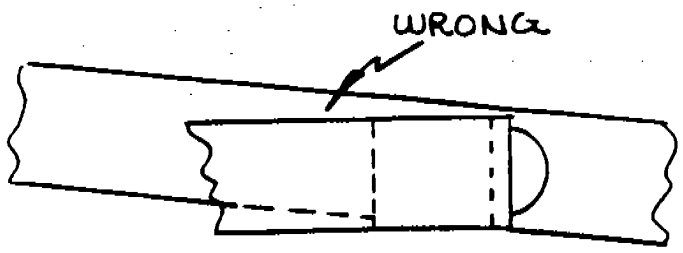
COLUMN RETAINING BAR INSTALLATION

DRAWN BY:	SCALE:	NO. REQ'D.:	MATERIAL:
LEA	NONE	—	AS SHOWN

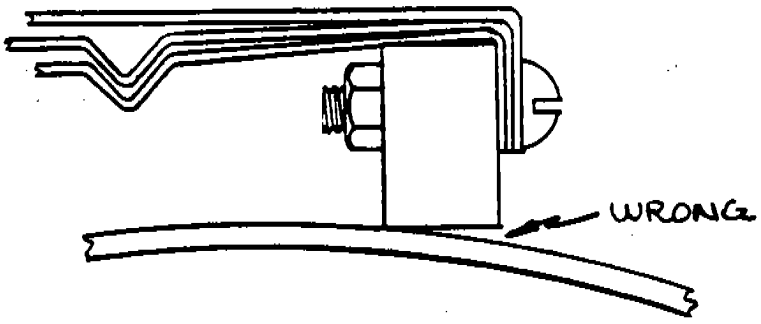
DATE:	NEXT ASSY.:	SDS. NO.:	EFF. W/SN:
4-30-73	—	SDD. BY NO.:	EFF. W/SN:

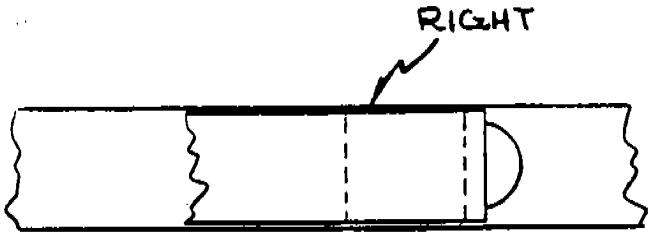
Cessna Aircraft Co. Wichita, Kan.

Drg. No. 0-30



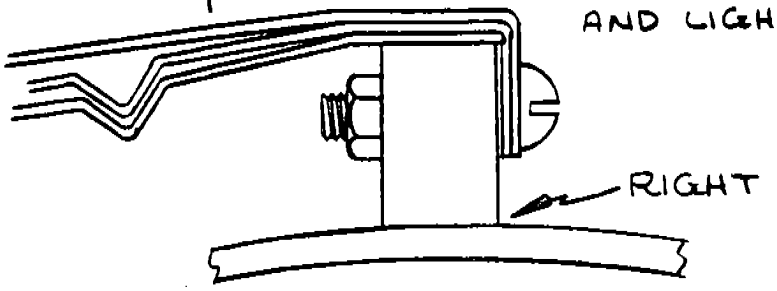
MISALIGNMENT WILL SHORTEN LIFE OF BRUSH PADS.





BRUSH PADS MUST BE PARALLEL WITH LIGHT RINGS. CORRECT BY ELONGATING MOUNTING HOLES IN BRUSH INSULATING BLOCK WITH RATTAIL FILE.

BEND IN THIS AREA WITH PLIERS TO ASSURE CORRECT SEATING OF PAD ON LIGHT RING. FURTHER SEATING CAN BE ACCOMPLISHED BY USING EMORY PAPER BETWEEN PAD AND LIGHT RING.



BRUSHES SHOULD BE INSPECTED REGULARLY FOR WEAR. EXCESSIVE WEAR WILL CAUSE ARCING IF METAL SPRING TOUCHES LIGHT RING. LIGHT RING COULD BE DAMAGED BEYOND REPAIR.

CONTACT ALIGNMENT BULLETIN			
DRAWN BY: NEA	SCALE: ~	NO. REQ'D.: ~	MATERIAL: ~
DATE: 1-30-76	NEXT ASSY.: ~	SDS. NO.:	
		SDD. BY NO.:	

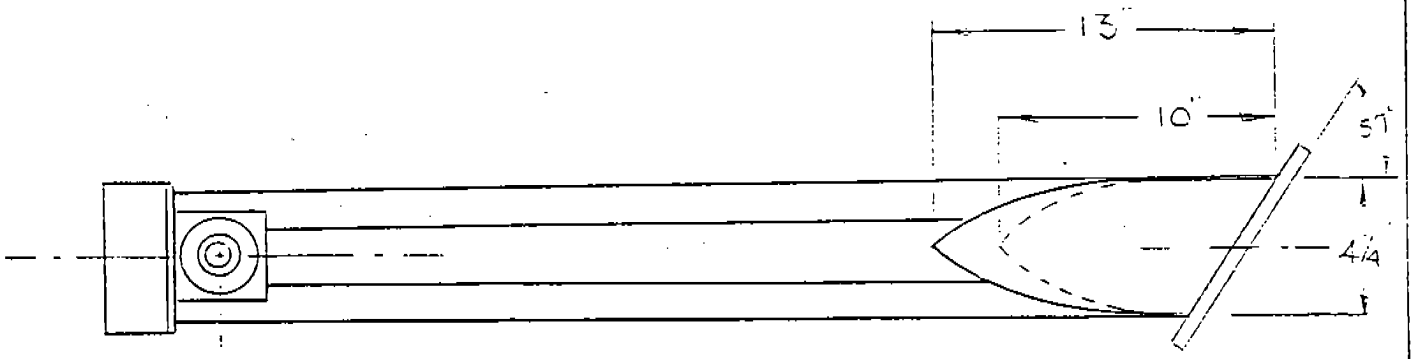
Cycoil

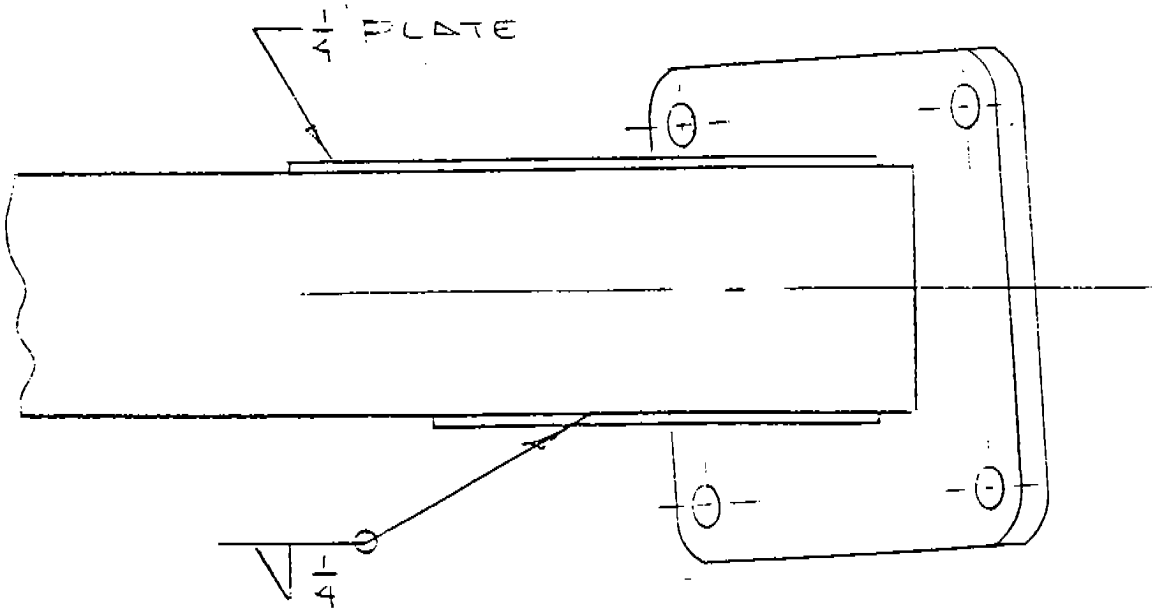
Drg. No. O-38-76

O-00-76

NOTE :

IT IS RECOMMENDED THAT ALL OCTOPUS SWEEPS WITH BOXED CHANNELS BE REINFORCED AS INDICATED.



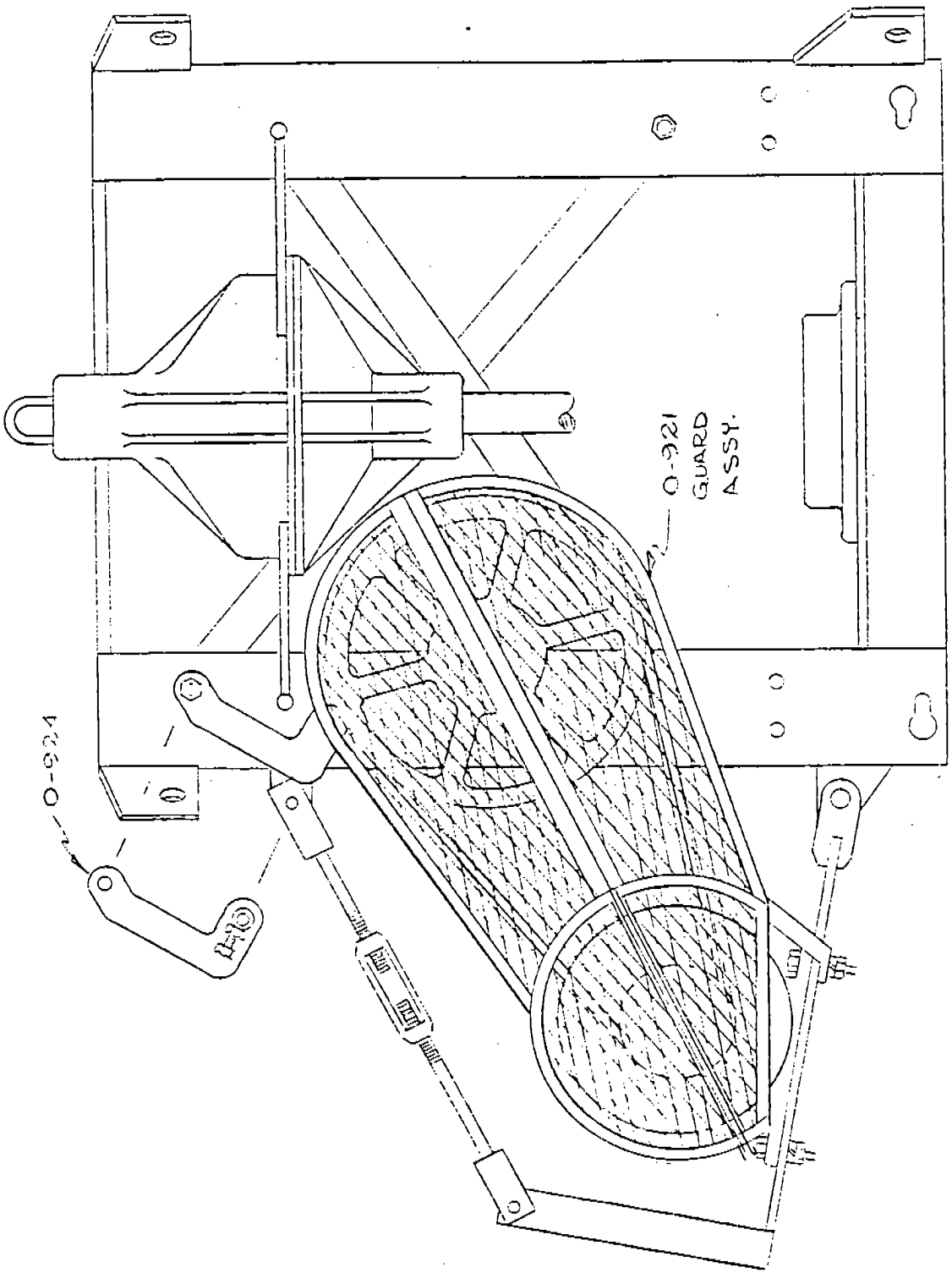


REINFORCEMENT FOR OCTOPUS OUTER ARM

DRAWN BY:	SCALE:	NO REQ'D	MATERIAL
AEL	NONE	—	—
DATE: 1-11-72	NEXT ASSY: —	SDS NO: / EFF W SN	
		SDD BY NO: / EFF W SN	

Everly

Drg. No. O-10



BELT SAFETY GUARD INSTALLATION

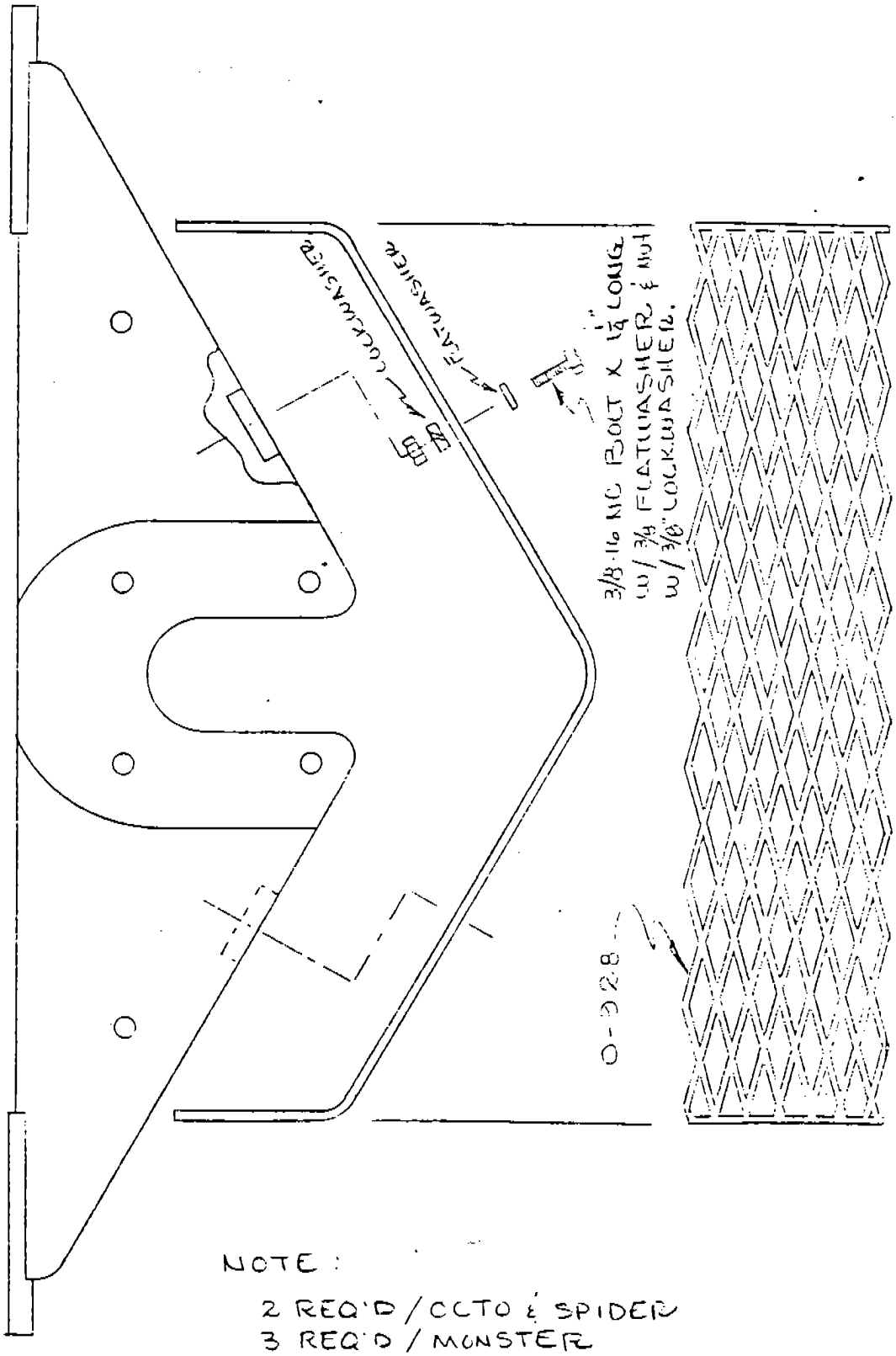
DRAWN BY:	SCALE:	NO REQ'D:	MATERIAL:
MEL	~	~	A & S IRON
DATE: 3-1-74	NEXT ASSY.: ~	SDS NO.:	EFF W SN:
		SDD BY NO.:	EFF W SN:

Eyerly Aircraft Co. Salem Ore.

Drg. No. O-941

BULLETIN O-34-74

1. POSITION GUARD C/TO SUPPORT ASSY.
2. MARK 2 HOLE LOCATIONS & REMOVE GUARD.
3. DRILL SUPPORT ASSY WITH 21/64" DIA. DRILL.
4. MOUNT GUARD.



NOTE:

2 REQ'D / CCTO & SPIDER
3 REQ'D / MONSTER

CHAIN & SPROCKET GUARD ASSY INSTALLATION

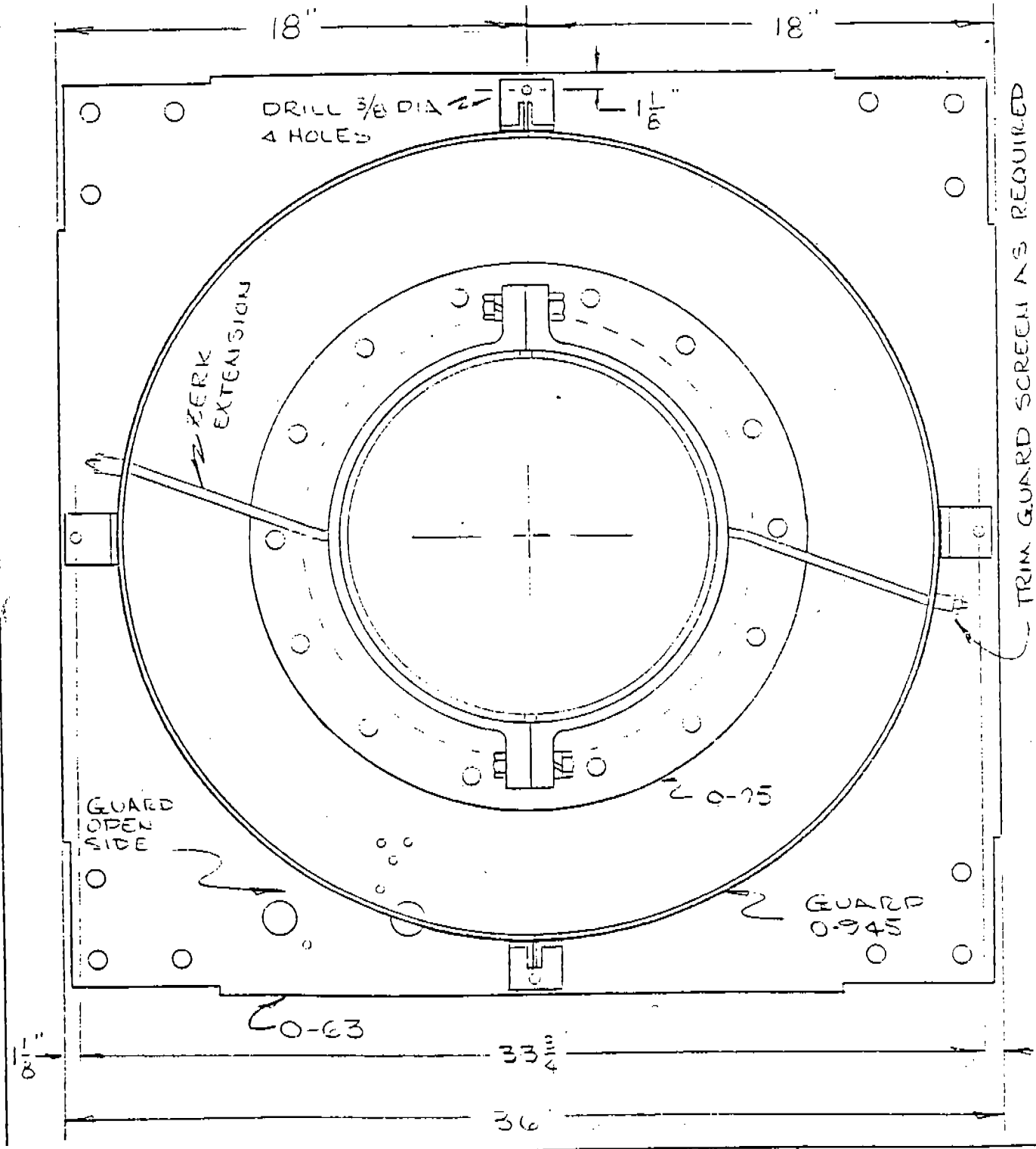
DRAWN BY:	SCALE:	NO REQ'D:	MATERIAL:
NEA	~	SEE NOTE	AS SHOWN
DATE: 3-12-74	NEXT ASSY.: ~	SDS NO: C-946	EFF W/SN:
		SDD BY NO.	EFF W/SN:

Eyerly

Drg. No. C-946

BULLETIN 0-35-74

ENGINE OR MOTOR SIDE

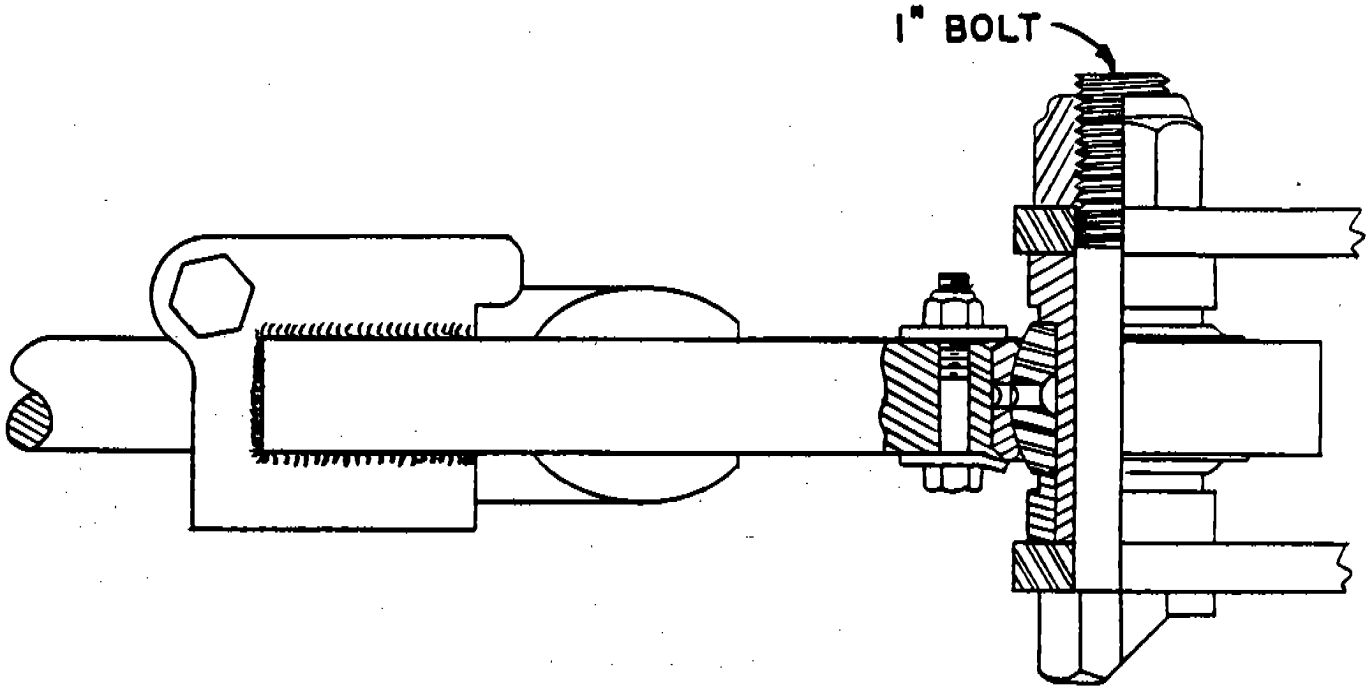


RIDER LIGHT RING SAFETY GUARD INSTALLATION INSTRUCTION

DRAWN BY:	SCALE:	NO REQ'D:	MATERIAL:
NEIL	NONE	~	AS SHOWN
DATE: 5-23-74	NEXT ASSY: ~	SDS NO.:	
		SDD BY NO.:	

Drg. No. O-950

BULLET 1 6-27-74



IT IS VERY IMPORTANT THAT THE ONE INCH BOLT PASSING THROUGH THE BALL JOINT SUPPORT ROD ENDS BE KEPT TIGHT.

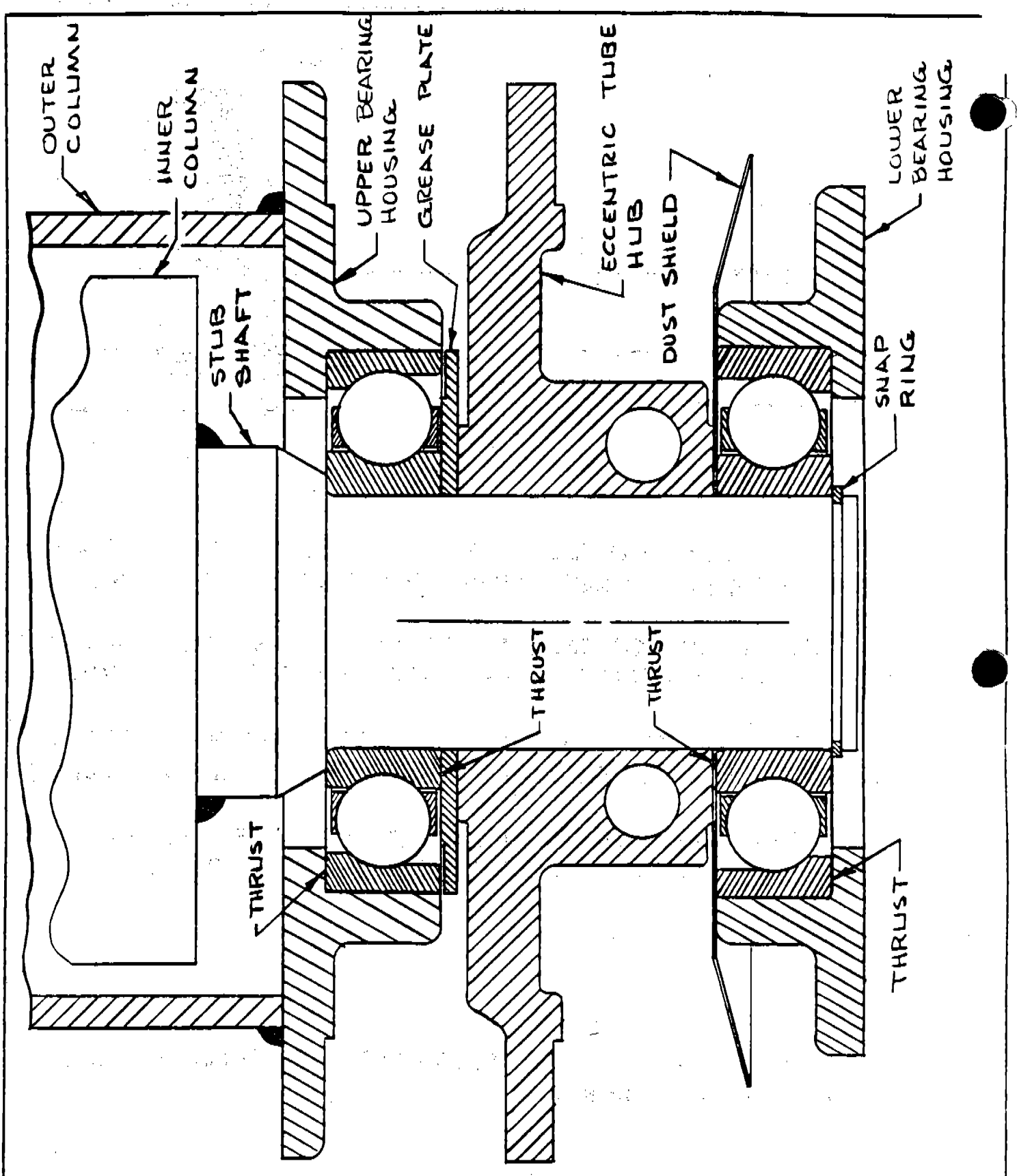
ANY LOOSNESS HERE CAN ALLOW THE ASSEMBLY TO TURN ON THE BOLT, CAUSING IT TO WEAR THROUGH IN A SHORT TIME.

WE SUGGEST A DRY TIGHTENING TORQUE OF 600 FT.—LB. OR 200 LB. ON THE END OF A 3FT. WRENCH, OR THE EQUIVALENT.

THIS SHOULD BE CHECKED AFTER THE FIRST DAY OF OPERATION AND AGAIN AFTER OPERATING FOR A WEEK.

THESE INSTRUCTIONS PERTAIN TO BOTH ENDS OF THE SWEEP SUPPORT RODS.

MONO BALL SUPPORT ROD BOLT BULLETIN				
DRAWN BY: NEA	SCALE: NONE	NO. REQ'D.: ~	MATERIAL: ~	Curry
DATE: 8-19-74	NEXT ASSY.: ~	SDS. NO.: ~		Drg. No. BULLETIN 0-20
		SDD. BY NO.: ~		

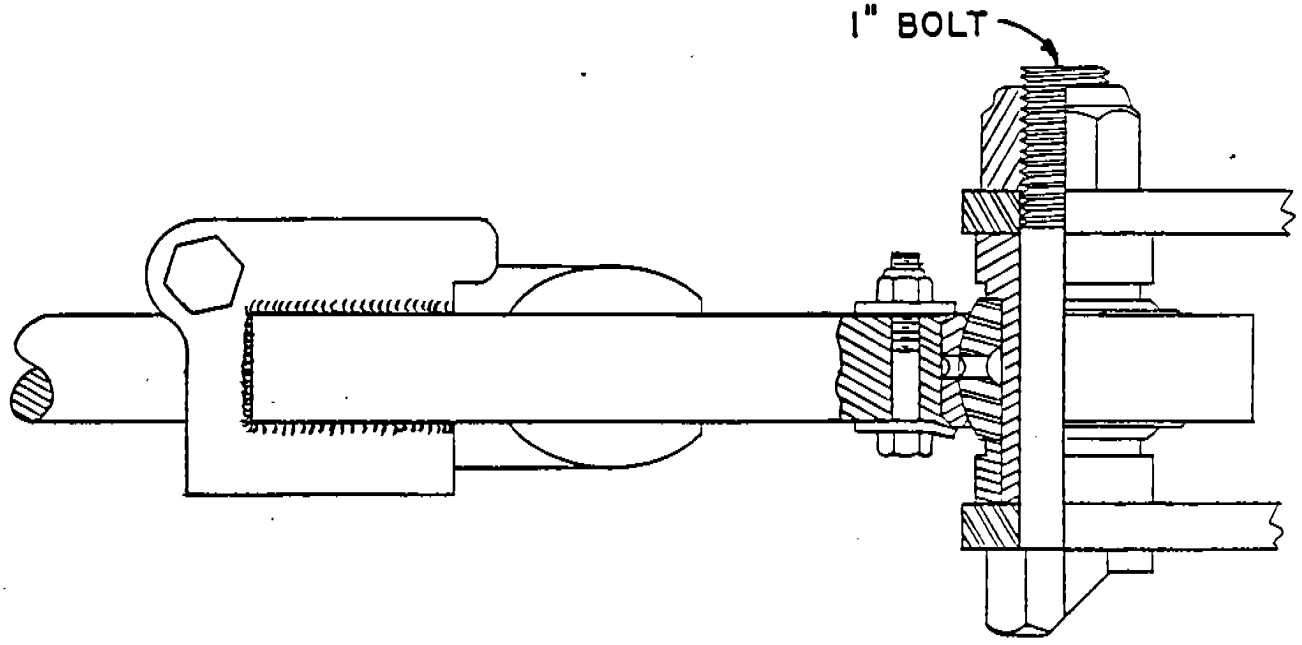


LOWER BEARING ASSY.

DRAWN BY:	SCALE:	NO. REQ'D.:	MATERIAL:
NEA	1/2"=1"	~	AS NOTED
DATE: 7-7-69	NEXT ASSY.: ~	SDS. NO.:	EFF. W/SN:
		SDD. BY NO.:	EFF. W/SN:

Dyer

Drg. No. 0-25



IT IS VERY IMPORTANT THAT THE ONE INCH BOLT PASSING THROUGH THE BALL JOINT SUPPORT ROD ENDS BE KEPT TIGHT.

ANY LOOSNESS HERE CAN ALLOW THE ASSEMBLY TO TURN ON THE BOLT, CAUSING IT TO WEAR THROUGH IN A SHORT TIME.

WE SUGGEST A DRY TIGHTENING TORQUE OF 600 FT.—LB. OR 200 LB. ON THE END OF A 3FT. WRENCH, OR THE EQUIVALENT.

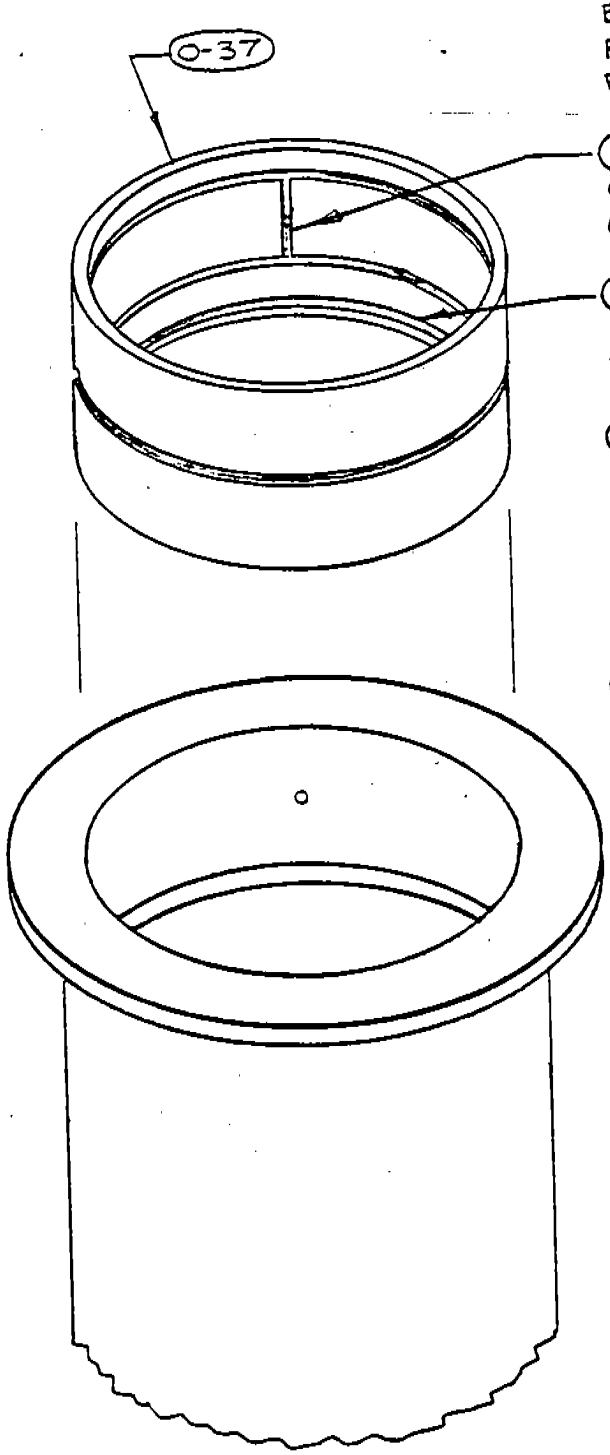
THIS SHOULD BE CHECKED AFTER THE FIRST DAY OF OPERATION AND AGAIN AFTER OPERATING FOR A WEEK.

THESE INSTRUCTIONS PERTAIN TO BOTH ENDS OF THE SWEEP SUPPORT RODS.

MONO BALL SUPPORT ROD BOLT BULLETIN

DRAWN BY:	SCALE:	NO. REQ'D.:	MATERIAL:
NEA	NONE	~	~
DATE:	NEXT ASSY.:	SDS. NO.:	
8-19-74	~	SDD. BY NO.: ~	

Drg. No. BULLETIN 0-20



① AFTER REMOVING OLD BUSHING, CLEAN COLUMN BORE; REMOVE ANY SCORE MARKS; OIL BORE SURFACE.

② ALIGN VERTICAL GREASE GROOVES WITH EXISTING GREASE FITTING HOLE.

③ GREASE RETAINER RING MUST BE INSTALLED TOWARD BOTTOM OF COLUMN.

④ START BUSHING IN BORE BY TAPPING WITH HAMMER WHILE PROTECTING BUSHING SURFACE WITH HARDWOOD BLOCK - CHECK FOR ALIGNMENT - CORRECT IF NECESSARY.

⑤ USING A 1" ROD ABOUT 92" LONG WITH 12" OF USABLE THREAD AND CENTRALLY DRILLED 1½" X 4" X 13" LONG CROSS BARS ON EACH END TIGHTEN NUT TO PULL BUSHING TO FULL DEPTH OF BORE.

⑥ DRILL HOLE THRU BUSHING FOR GREASE PASSAGE AT ZERK HOLE.

OCTOPUS COLUMN BUSHING INSTALLATION

DRAWN BY:	SCALE:	NO. REQ'D.:	MATERIAL: AS SHOWN
AEA	NONE	—	
DATE: 5-14-71	NEXT ASSY.: —	SOS. NO.: / SDD. BY NO.:	EFF. W/SN: / EFF. W/SN:

Everly

Drg. No. O-24-71

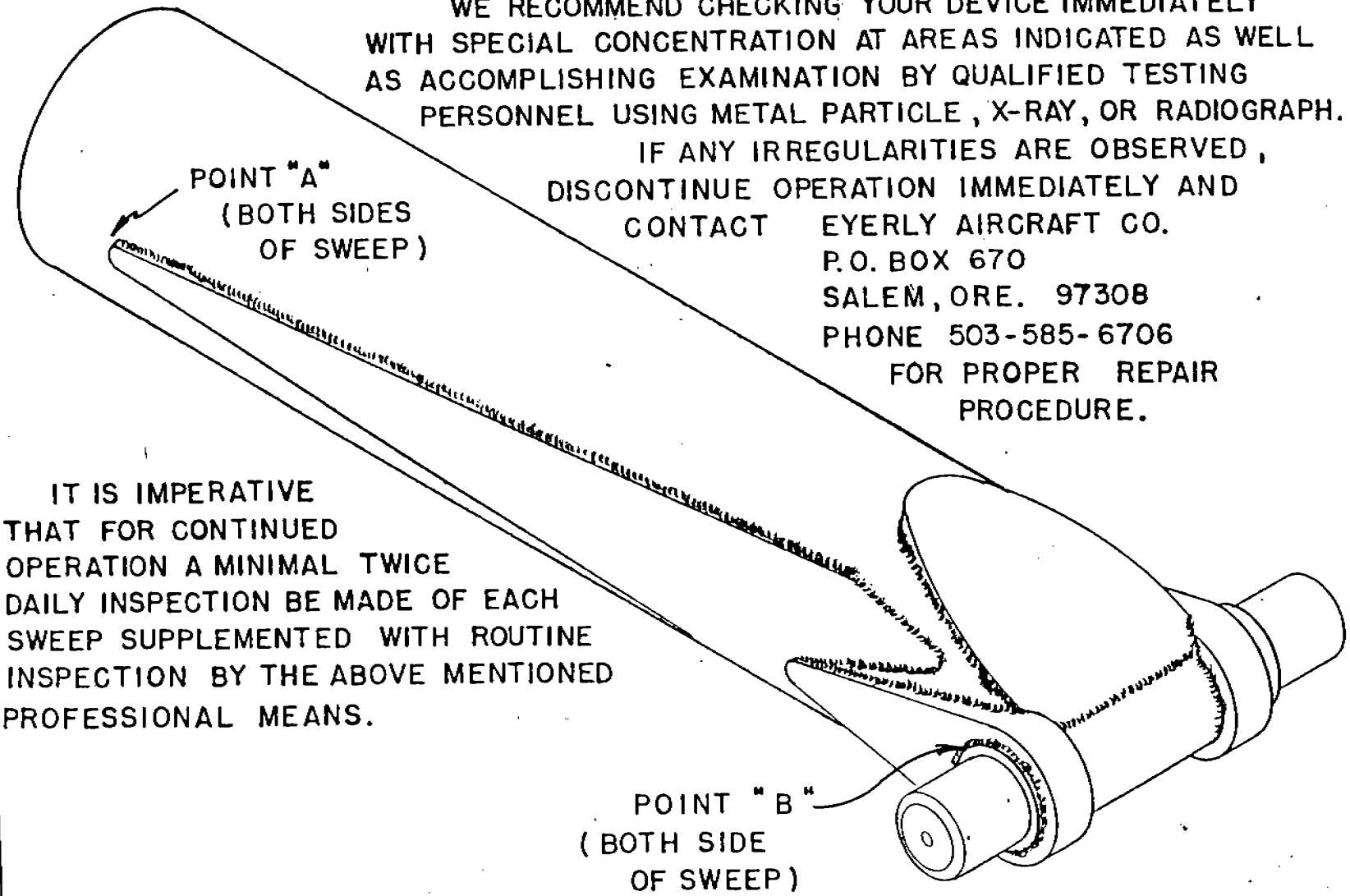
DRAWN BY: NEAL	SCALE: NONE	NO. REQ'D.: ~	MATERIAL: ~	SPIDER
DATE: 8-30-74	NEXT ASSY.: ~	SDS. NO.:		
		SDD. BY NO.:		

BULLETIN S-1

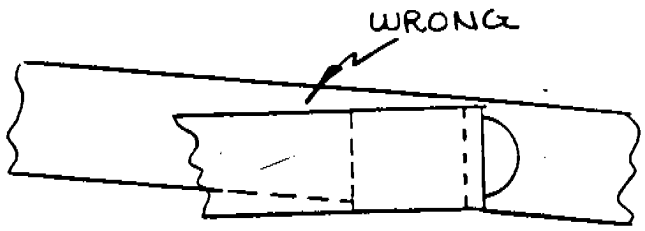
WE HAVE BEEN ADVISED OF A CURVED SWEEP FAILURE WITH INDICATION OF ORIGINAL BREAKING AT POINT "A" AS SHOWN BELOW. ALSO, SOME HAIRLINE CRACKS HAVE BEEN REPORTED IN THE AREA OF ATTACHMENT OF THE SWEEP SPINDLE TO THE REINFORCING TEARDROP GUSSETS DESIGNATED AS POINT "B" BELOW.

WE RECOMMEND CHECKING YOUR DEVICE IMMEDIATELY WITH SPECIAL CONCENTRATION AT AREAS INDICATED AS WELL AS ACCOMPLISHING EXAMINATION BY QUALIFIED TESTING PERSONNEL USING METAL PARTICLE, X-RAY, OR RADIOGRAPH.

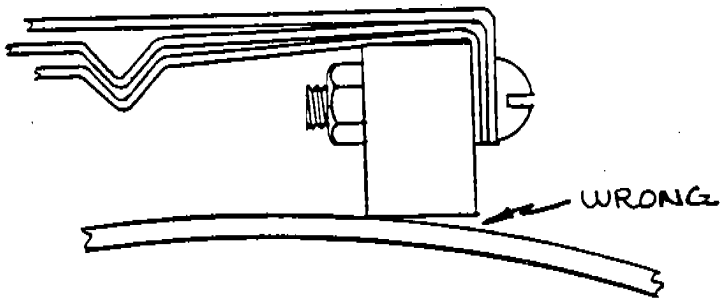
IF ANY IRREGULARITIES ARE OBSERVED, DISCONTINUE OPERATION IMMEDIATELY AND CONTACT EYERLY AIRCRAFT CO.
P.O. BOX 670
SALEM, ORE. 97308
PHONE 503-585-6706
FOR PROPER REPAIR PROCEDURE.

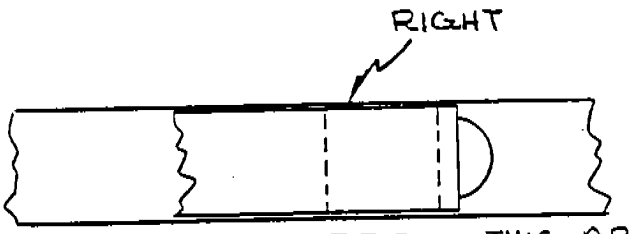


IT IS IMPERATIVE THAT FOR CONTINUED OPERATION A MINIMAL TWICE DAILY INSPECTION BE MADE OF EACH SWEEP SUPPLEMENTED WITH ROUTINE INSPECTION BY THE ABOVE MENTIONED PROFESSIONAL MEANS.



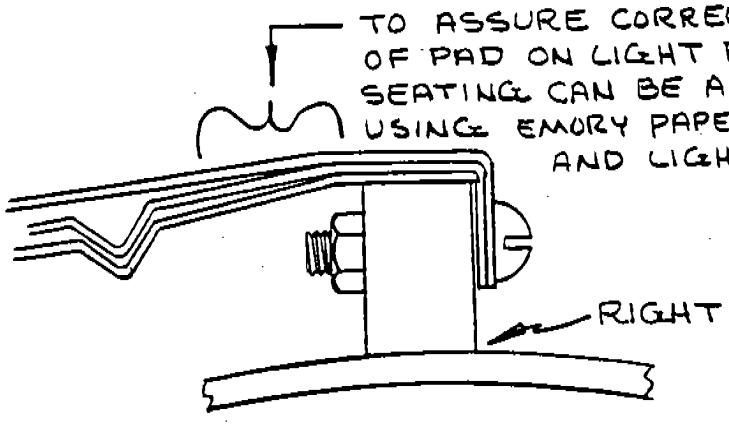
MISALIGNMENT WILL SHORTEN LIFE OF BRUSH PADS.





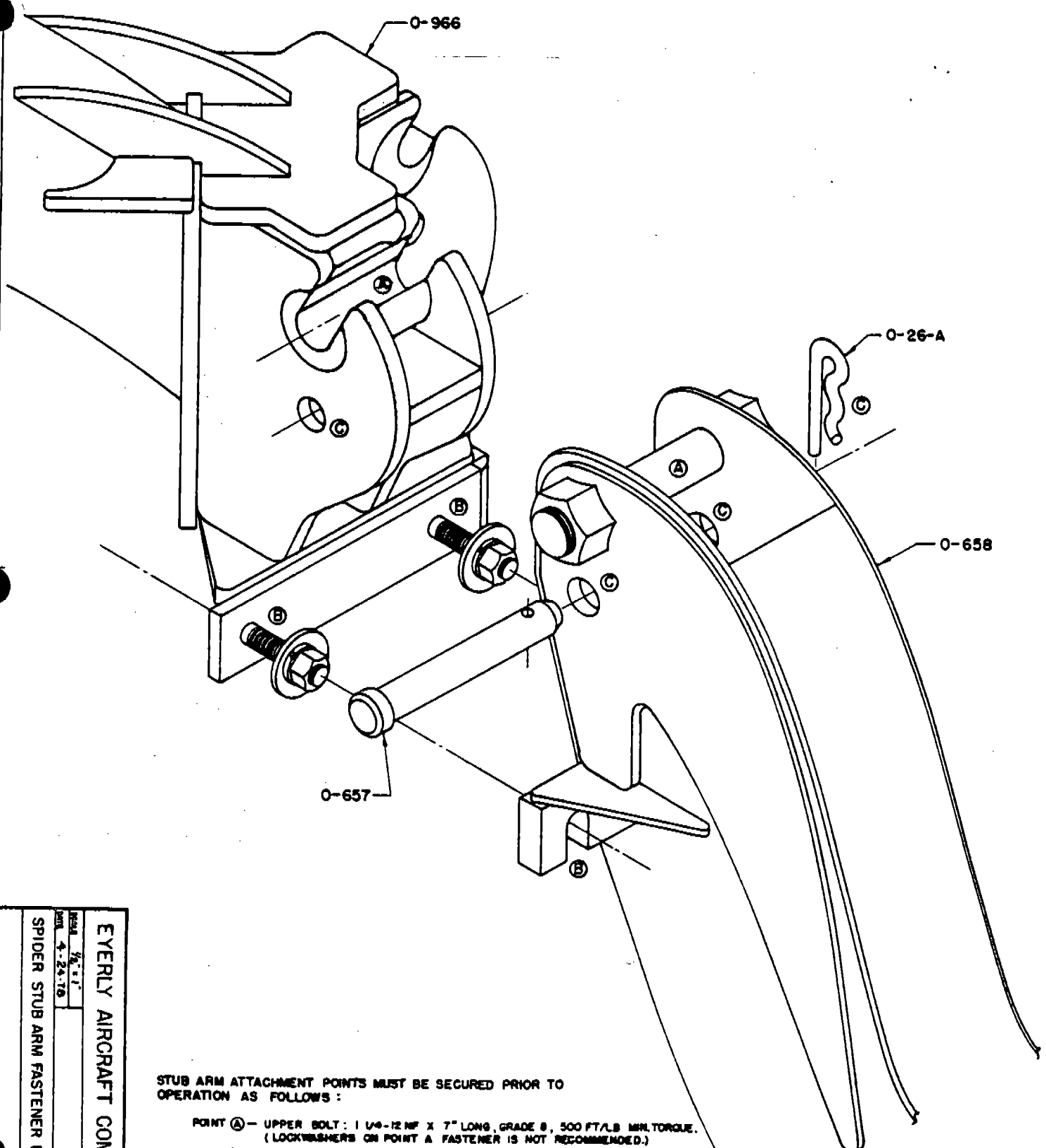
BRUSH PADS MUST BE PARALLEL WITH LIGHT RINGS CORRECT BY ELONGATING MOUNTING HOLES IN BRUSH INSULATING BLOCK WITH RATTAIL FILE.

BEND IN THIS AREA WITH PLIERS TO ASSURE CORRECT SEATING OF PAD ON LIGHT RING. FURTHER SEATING CAN BE ACCOMPLISHED BY USING EMORY PAPER BETWEEN PAD AND LIGHT RING.



BRUSHES SHOULD BE INSPECTED REGURLARLY FOR WEAR. EXCESSIVE WEAR WILL CAUSE ARCING IF METAL SPRING TOUCHES LIGHT RING LIGHT RING COULD BE DAMAGED BEYOND REPAIR.

CONTACT ALIGNMENT BULLETIN				
DRAWN BY: NEAL	SCALE: ~	NO. REQ'D.: ~	MATERIAL: ~	Cyclelay Drg. No. 0-38-76
DATE: 1-30-76	NEXT ASSY.: ~	SDS. NO.:	SDD. BY NO.:	



STUB ARM ATTACHMENT POINTS MUST BE SECURED PRIOR TO OPERATION AS FOLLOWS :

POINT Ⓐ— UPPER BOLT : 1 1/4-12 NF X 7" LONG, GRADE 8, 500 FT/LB MIN. TORQUE. (LOCKWASHERS ON POINT A FASTENER IS NOT RECOMMENDED.)

POINT Ⓑ— LOWER BOLT : 5/8-18 NF X 2 1/4" LONG, GRADE 8, 100 FT/LB MIN. TORQUE.

POINT Ⓒ— SAFETY PIN (O-657) : 15/16" X 6 1/4 LONG. HAIR PIN (O-26-A) : 1/4".

WARNING : IF SAFETY PIN IS REMOVED, OPERATION OF RIDE WITH BOLTS IN LOOSENED CONDITION MAY PERMIT STUB ARM TO DISENGAGE AND FALL.

NOTE : OPERATION OF RIDE WITH O-657 PIN UNSECURED, AND/OR REMOVED, SHOULD NOT BE PERMITTED.

EYERLY AIRCRAFT COMPANY

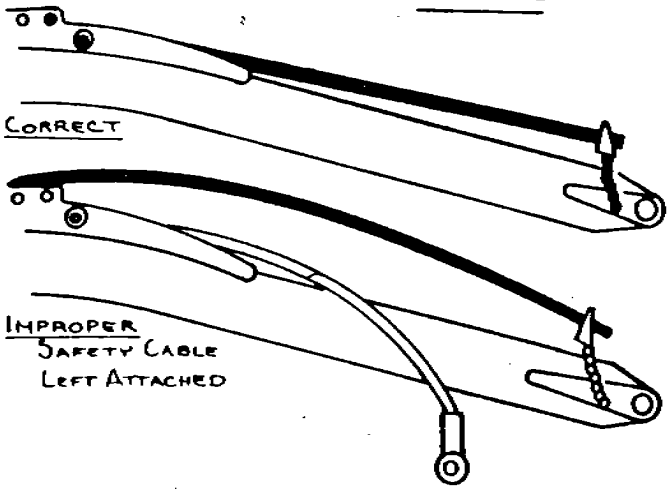
SPIDER STUB ARM FASTENER BULLETIN

DATE 4-24-78

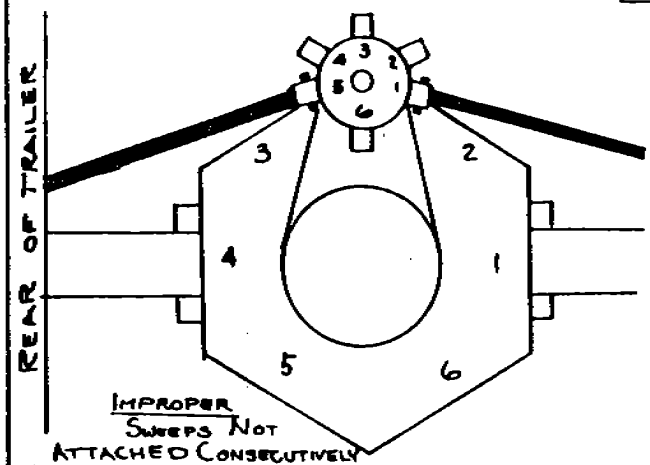
DRAWN BY AFA

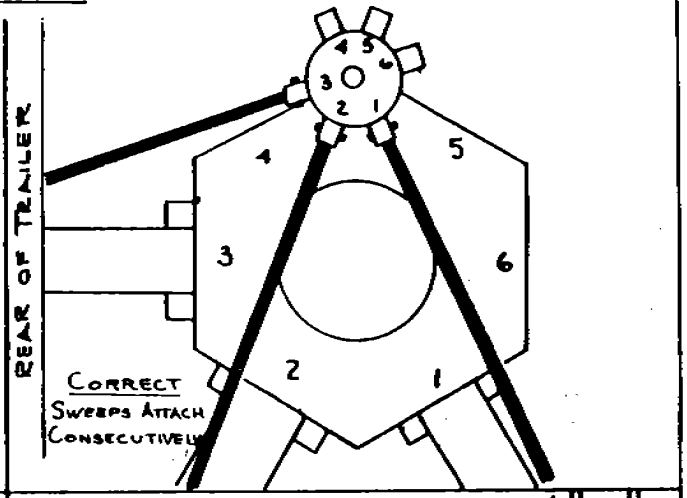
DWG. NO. O-43-78

CAUSE 1

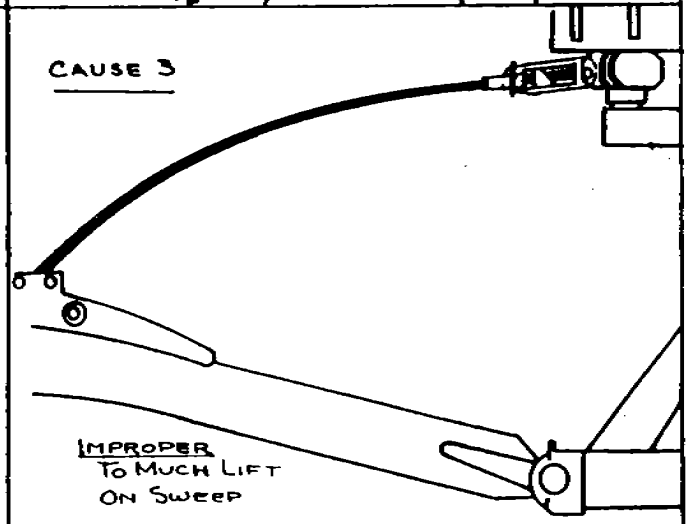


CAUSE 2





CAUSE 3



NOTICE!

OPERATION OF THE SPIDER AMUSEMENT RIDE DEVICE WITH A BENT SWEEP SUPPORT ROD WILL CAUSE THE ROD TO BREAK AND WILL PERMIT A SWEEP TO FALL WITHOUT WARNING DURING OPERATION. ALL BENT OR DEFORMED RODS MUST BE REPLACED BEFORE OPERATION. FIELD REPAIRS ARE NOT RECOMMENED OR AUTHORIZED BY THE FACTORY. THREE COMMON CAUSES OF ROD DEFORMATION OR BENDING ARE:

1) IMPROPER TRANSPORTING METHOD

IF, DURING TRANSPORTATION, THE SAFETY CABLE AND PIN ARE LEFT ATTACHED TO SWEEP, THE SUPPORT ROD WILL REST ON THE CABLE END AND WILL BEND OR DEFORM AT THAT POINT.

2) IMPROPER ASSEMBLY METHOD

IF, DURING ASSEMBLY, SWEEPS AND SWEEP RODS ARE NOT ASSEMBLED IN CONSECUTIVE SEQUENCE BEGINNING WITH FIRST SWEEP ATTACHED, A ROD MAY BE ATTACHED TO THE WRONG EAR ON THE ECCENTRIC HUB. UPON FUTHER ROTATION THE SWEEP ROD WILL BEND OR DEFORM AT ATTACHING POINT. DURING ASSEMBLY FROM TRAILER ECCENTRIC CRANK MUST BE POSITIONED PARALLEL TO REAR OF TRAILER POINTED LEFT (PASSENGER SIDE), ECCENTRIC CRANK IS NOT TO BE ROTATED DURING ASSEMBLY OF SWEEPS.

3) CARELESS DISASSEMBLY

IF, DURING DISASSEMBLY, SWEEP IS LIFTED BY HOIST BEYOND ROD DISCONNECT POINT FROM ECCENTRIC HUB ROD WILL LOCK AGAINST ECCENTRIC HUB ATTACHMENT AND WILL BEND OR DEFORM.

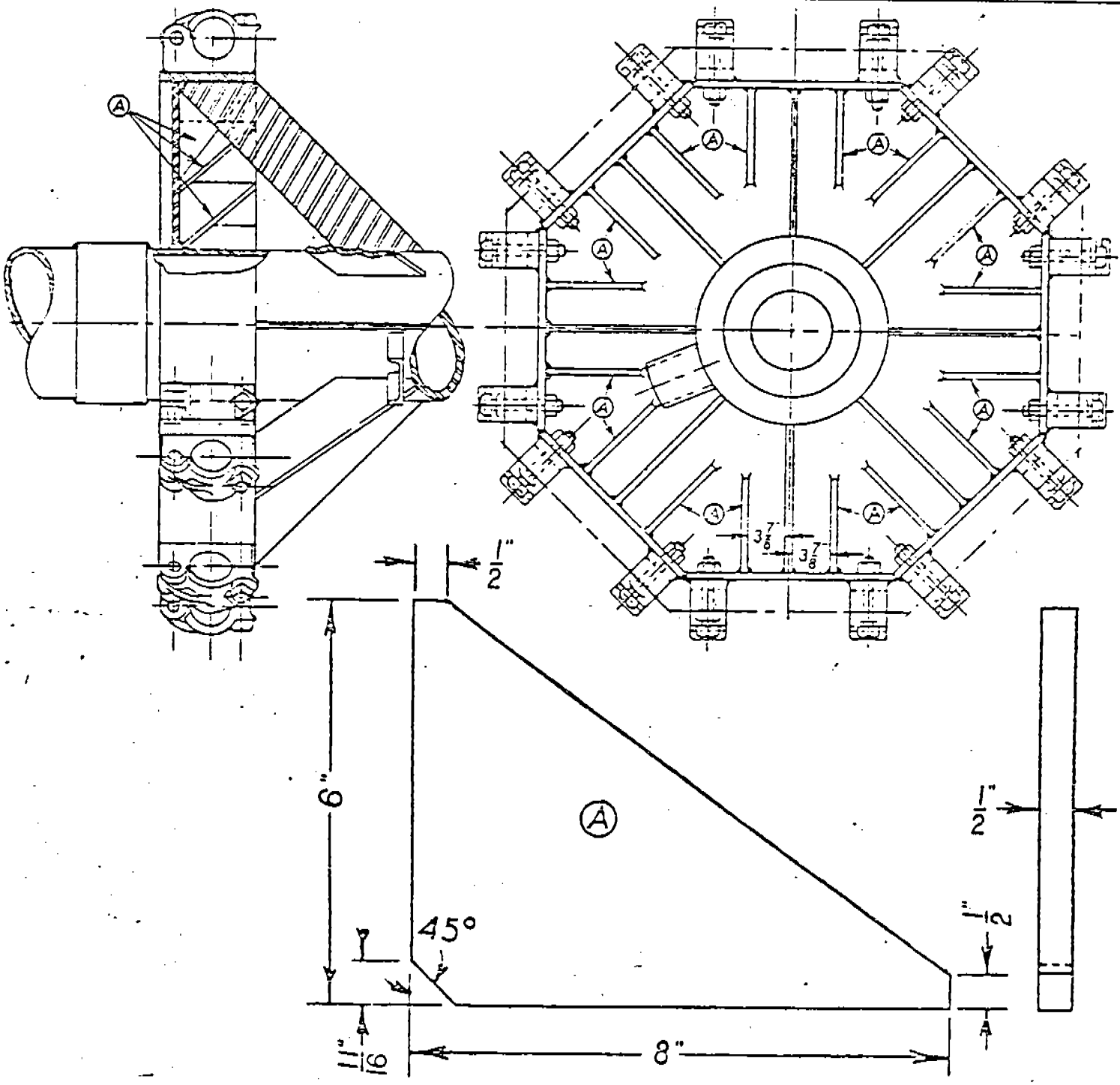
SWEEP SUPPORT ROD BULLETIN

DRAWN BY: TMcQ	SCALE:	NO REQ'D:	MATERIAL:
DATE: 9-25-78	NEXT ASSY:	SDS NO: 0-41-76	EFF W/SN:
		SDS. BY NO.:	EFF W/SN:

Chance

Drg. No. 0-45/10-78

REINFORCEMENTS FOR OCTOPUS OUTER COLUMN & SWEEPS. SERIAL NUMBERS 2105 TO 2120 INCLUSIVE

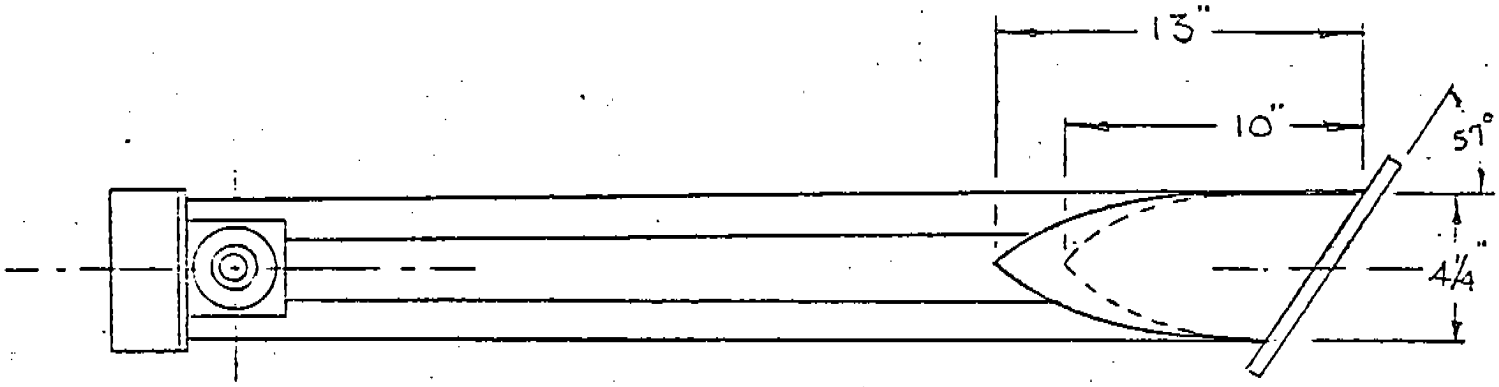


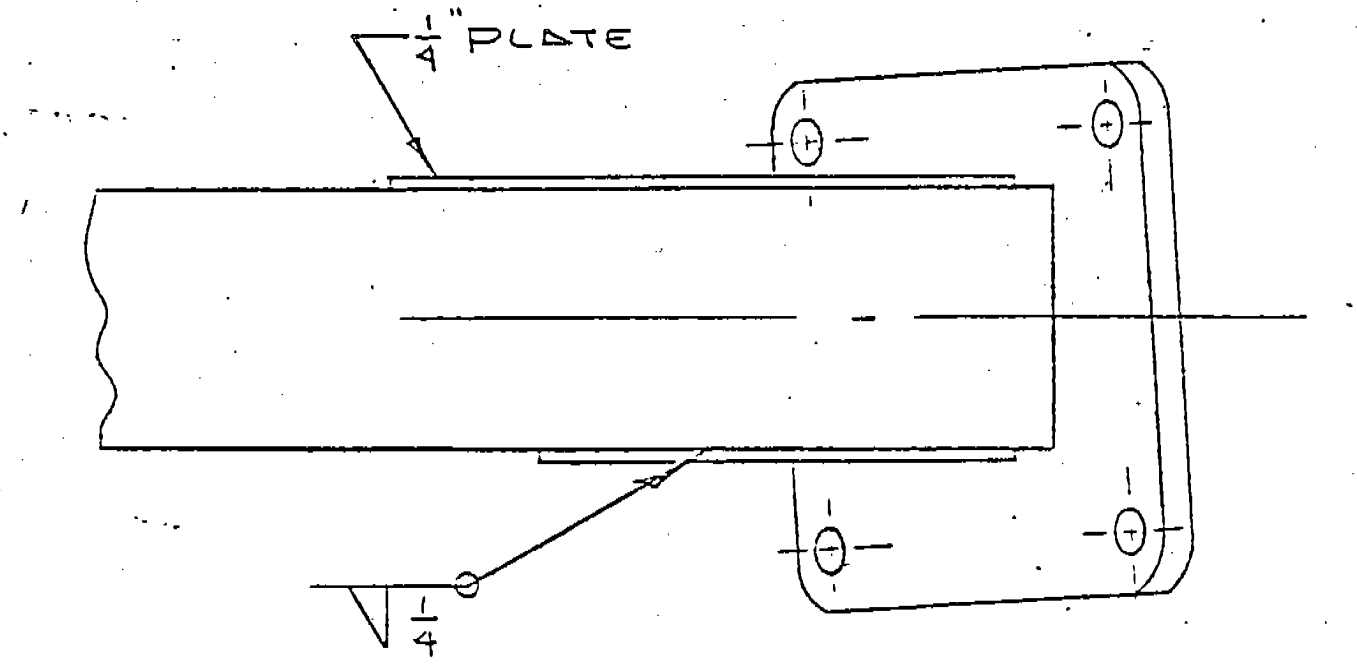
WELD 16 GUSSETS "A" TO OUTER COLUMN AS SHOWN ON ABOVE DRAWINGS. USE 1/4" FILLET WELDS ON BOTH SIDES OF GUSSETS.

WELD REINFORCEMENT PLATES TO SWEEPS AS SHOWN ON BULLETIN O-5. ALSO REINFORCE THE SWEEP FLANGES THE SAME AS SHOWN FOR OUTER ARMS ON BULLETIN O-6. THESE SWEEPS MUST NOT BE USED IF RIDE IS CONVERTED TO A 16 CAR OCTOPUS.

NOTE :

IT IS RECOMMENDED THAT ALL OCTOPUS SWEEPS WITH BOXED CHANNELS BE REINFORCED AS INDICATED.



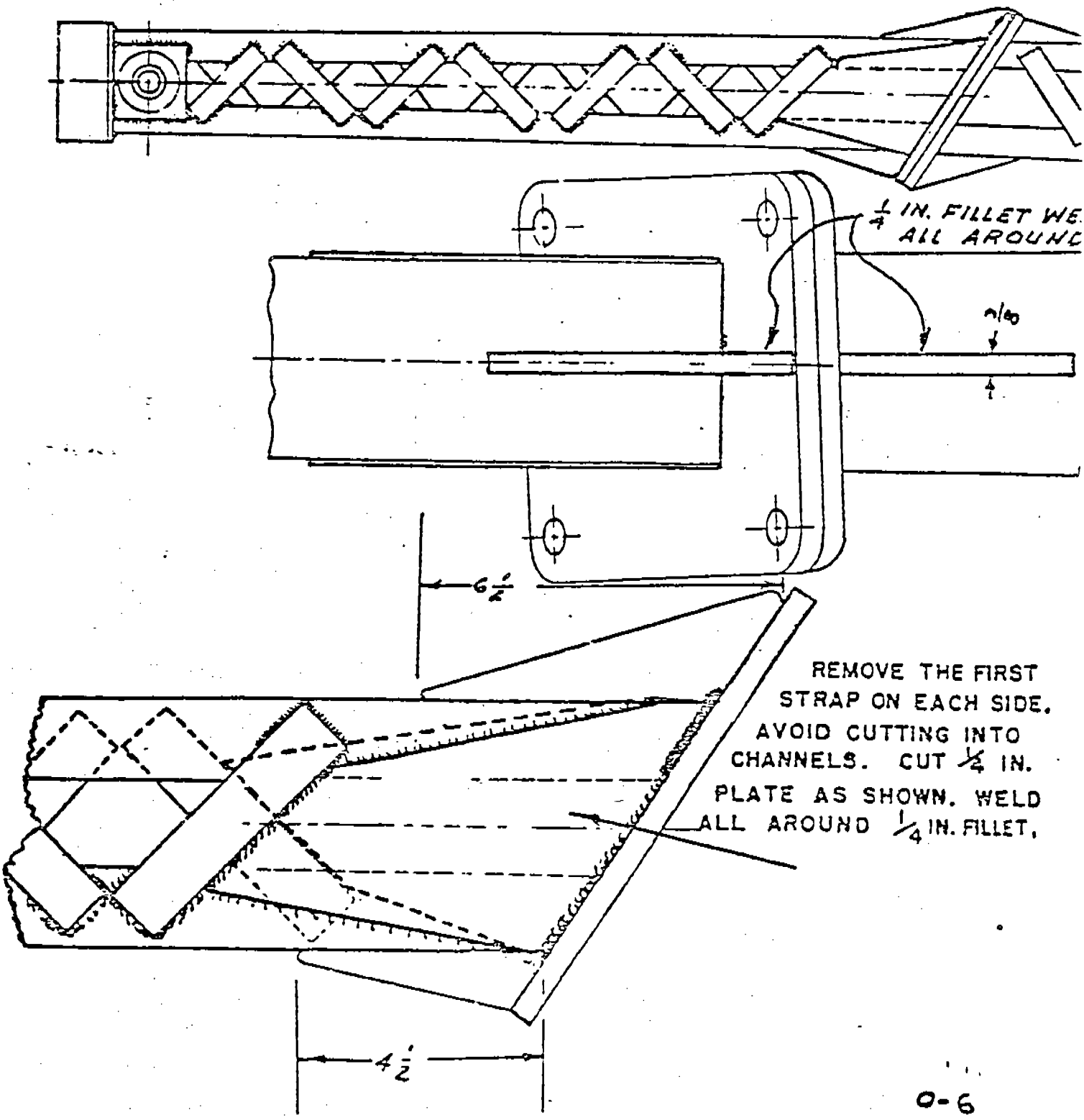


REINFORCEMENT FOR OCTOPUS OUTER ARM			
DRAWN BY: AEA	SCALE: NONE	NO. REQ'D.: ~	MATERIAL: ~
DATE: 4-11-73	NEXT ASSY.: ~	SDS NO.:	EFF W.SN:
		SDD BY NO:	EFF W SN:

Drg. No. O-10

REINFORCEMENT FOR OCTOPUS OUTER ARM

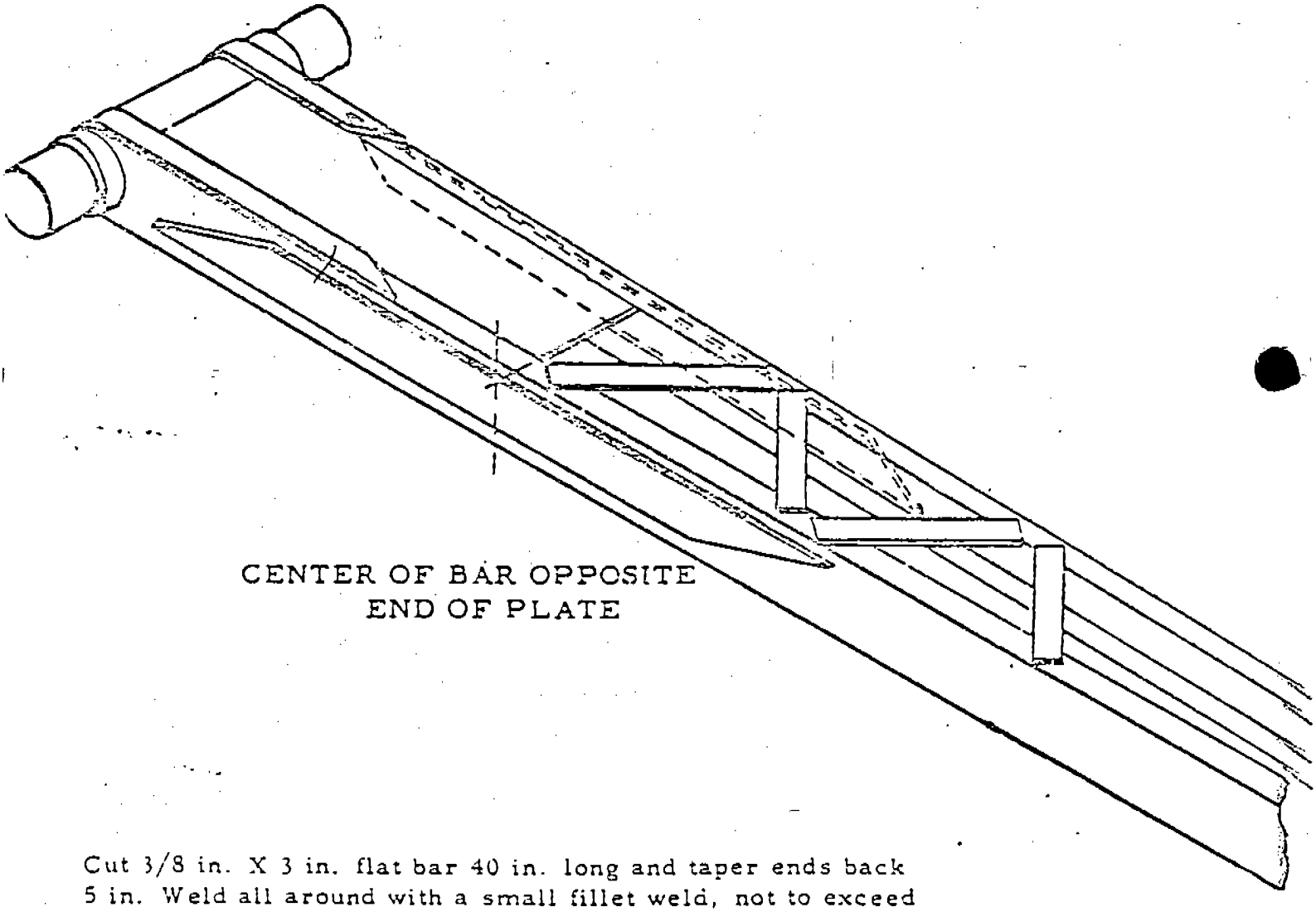
It is recommended that all Octopus Sweeps be reinforced as indicated by drawings.



REMOVE THE FIRST STRAP ON EACH SIDE. AVOID CUTTING INTO CHANNELS. CUT 1/4 IN. PLATE AS SHOWN. WELD ALL AROUND 1/4 IN. FILLET.

REINFORCEMENT FOR OCTOPUS SWEEPS

APPLICABLE ON 4" CHANNEL TYPE OF SWEEP ONLY.



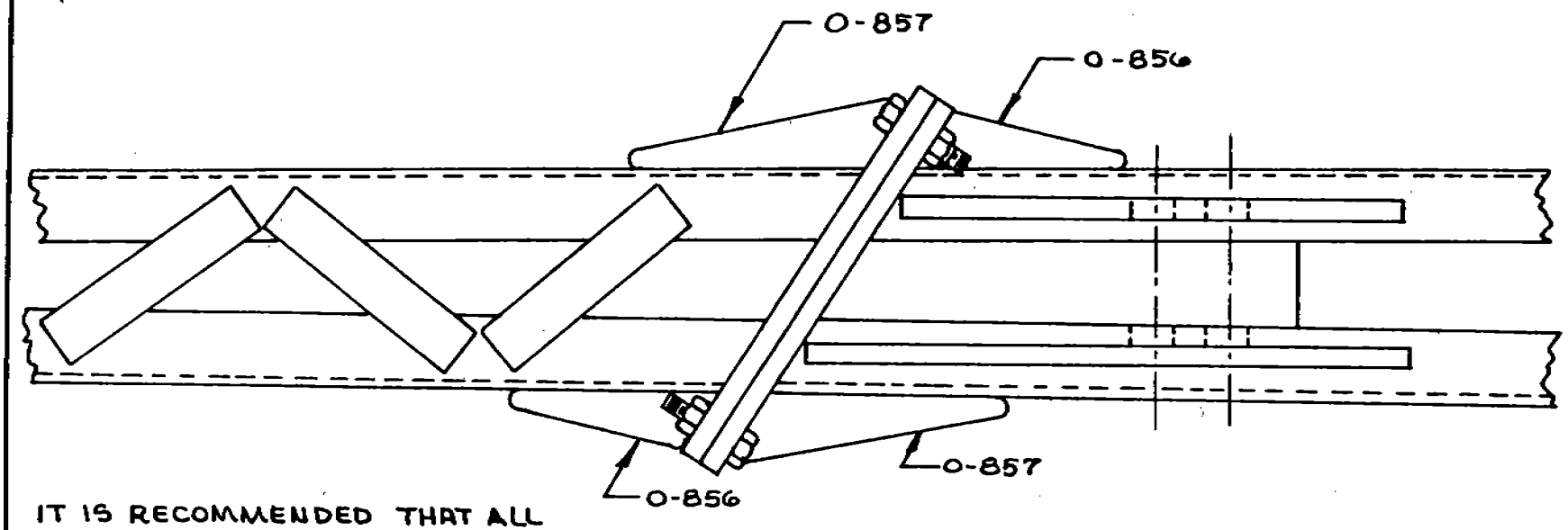
Cut 3/8 in. X 3 in. flat bar 40 in. long and taper ends back 5 in. Weld all around with a small fillet weld, not to exceed a 3/16 in. bead. Install on both sides of each sweep making certain that the tapered ends are in opposite positions as indicated by dotted lines.

Sal # 2000- 2120

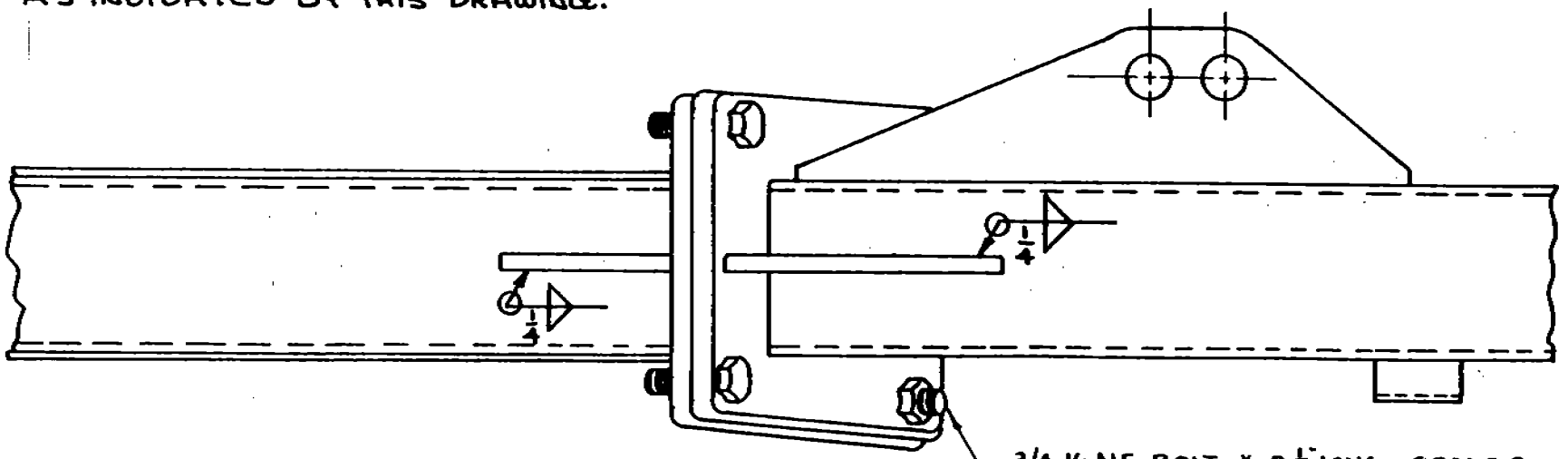
REINFORCEMENT FOR OCTOPUS OUTER ARM

DRAWN BY:	SCALE:	NO. REQ'D.:	MATERIAL:
NEAL	NONE	~	AS SHOWN
DATE: 5-8-78	NEXT ASSY.: ~	SDS. NO.: BULLETIN 0-6	
		SDD. BY NO.: ~	

Dwg. No. 0-44-78

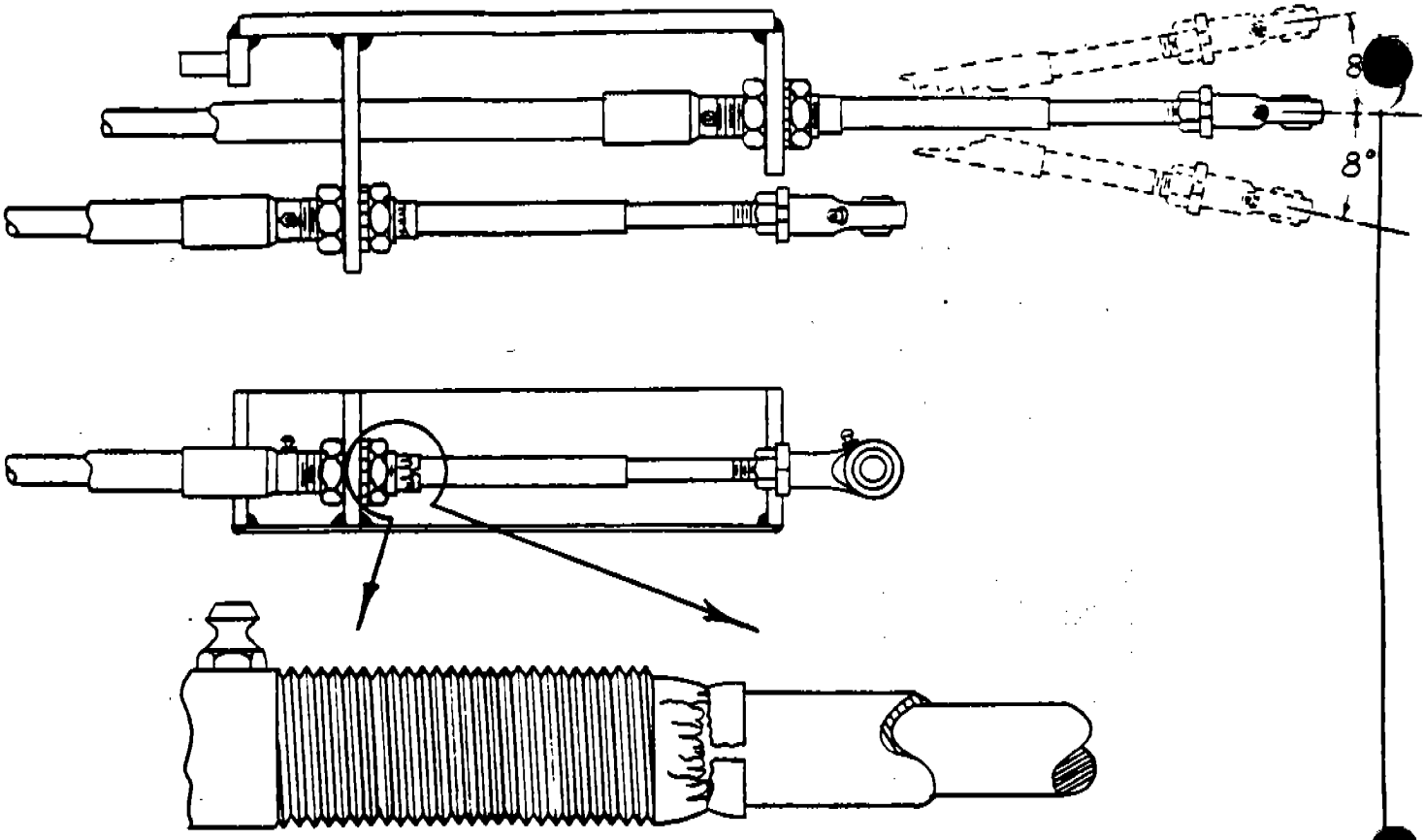


IT IS RECOMMENDED THAT ALL OCTOPUS SWEEPS BE REINFORCED AS INDICATED BY THIS DRAWING.



3/4-16 NF BOLT X 2 1/4" LONG - GRADE 8.
3/4-16 NF HEX NUT - GRADE 8.
4 EACH REQ'D PER SWEEP.

OUTER ARM & SWEEP TO BE BOLTED TOGETHER WHEN WELDING.



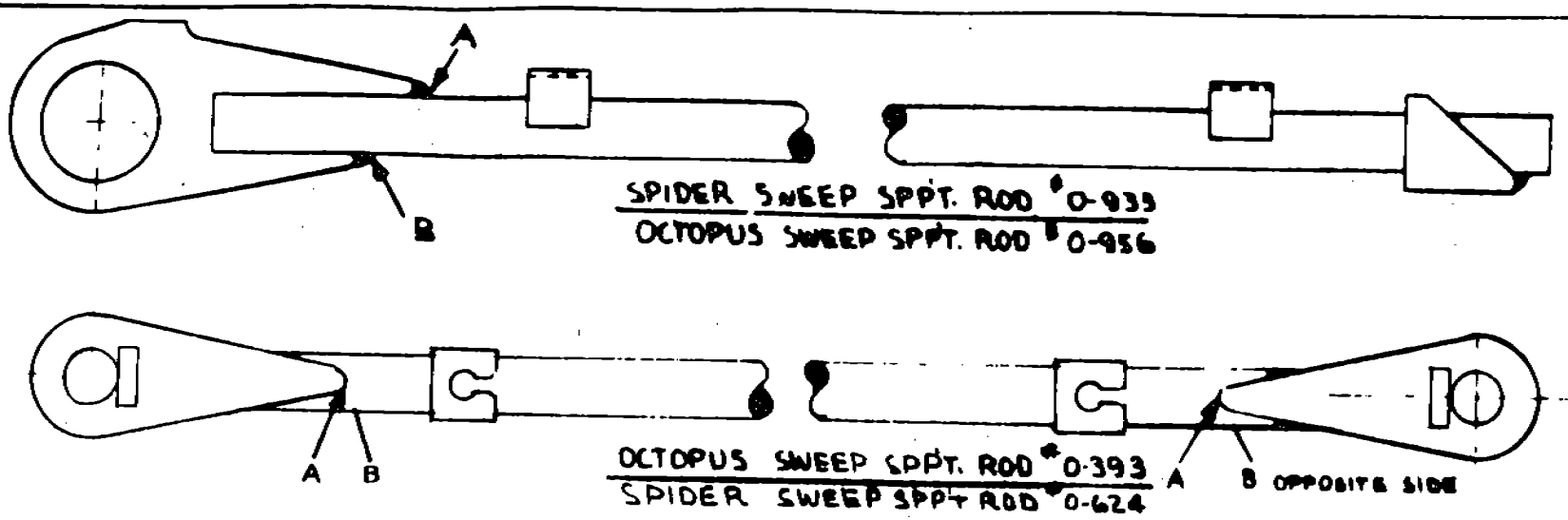
FAILURES IN FLEXIBLE CONTRCL CABLES

Some operators have swiveled the control cable rods beyond the recommended maximum 8° angle when removing from the clutch and brake control levers. Too much cable travel between "brake on" and "clutch engaged" will also exceed the recommended maximum 8° angle at the control stand. Either condition will result in failure at the cable swivel joint.

Please examine your cables for failures and notify us of the type of failure, short or long cable, and which end. Damaged cables should be replaced although they will still operate if the stroke is maintained within the 4" limit.

Kits to eliminate failures will soon be available.

FAILURES IN FLEXIBLE CONTROL CABLES				
DRAWN BY: Neal	SCALE: none	NO. REQ'D.: - -	MATERIAL: - - -	
DATE: 8/25/69	NEXT ASSY.: - - - -	SDS. NO.:	EFF. W/SN:	Drg. No. O-19/69
		SDD. BY NO.:	EFF. W/SN:	



OPERATION OF THE SPIDER OR OCTOPUS AMUSEMENT RIDE WITH DEFECTIVE SWEEP SUPPORT RODS, (CRACKED, BENT OR OTHERWISE DEFORMED) WILL RESULT IN FAILURE OF THE ROD AND WILL PERMIT THE SWEEP TO FALL WITHOUT WARNING DURING OPERATION. ALL GREASE, GRIME AND DIRT SHOULD BE REMOVED FROM AREAS "A" AND "B" SHOWN, AND N.D.T. TESTED, USING MAGNETIC PARTICAL PROCESS. ALL CRACKED OR OTHERWISE DEFECTIVE RODS MUST BE REPLACED BEFORE OPERATION. FIELD REPAIRS ARE NOT RECOMMENDED. IT IS RECOMMENDED THAT A VISUAL CHECK BE MADE EACH SET-UP OR EVERY SEVEN DAYS, SPECIFICALLY IN AREA SHOWN.

ALL RODS SHOULD BE CHECKED EVERY 200 HOURS OF OPERATION USING THE ABOVE MAGNETIC PARTICAL METHOD. ANY DEFECTIVE ROD FOUND SHOULD BE REPLACED WITH A NEW FACTORY ROD ONLY.

THIS BULLETIN SHOULD BE KEPT WITH ALL PERTINENT RIDE DOCUMENTS.

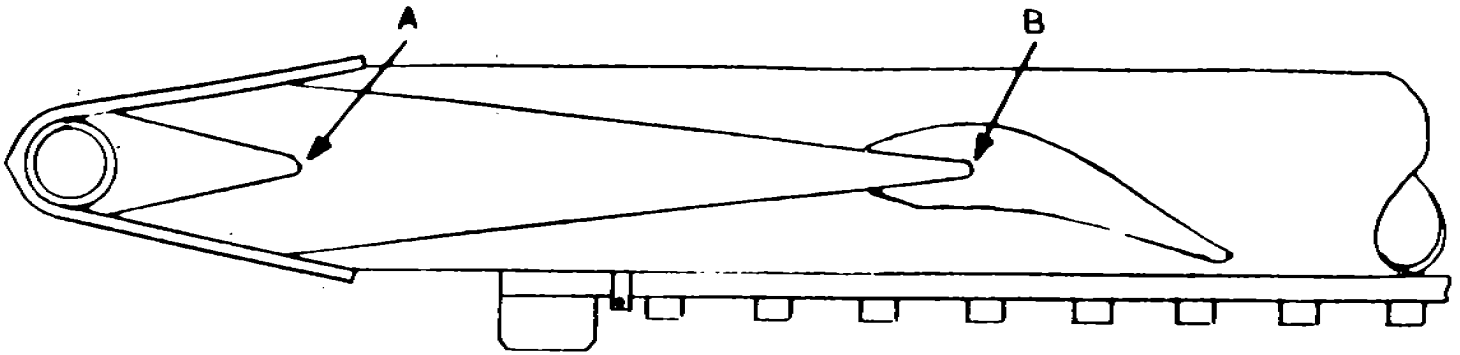
Chance

Drg. No. 0-48-86

Octo./Spider Sweep Support Rod Bulletin

DRAWN BY: | SCALE: | NO. REQ'D.: | MATERIAL:

DATE: | NEXT ASSY.: | SDS. NO.: | SDD. BY NO.:



WE HAVE BEEN ADVISED OF SOME HAIRLINE CRACKS THAT HAVE DEVELOPED IN THE WELDMENTS AT POINTS 'A' AND 'B' (BOTH SIDES) OF THE SPIDER SWEEP, PART 0-619. IT IS IMPERATIVE THESE POINTS BE THOROUGHLY INSPECTED IMMEDIATELY UPON RECEIPT OF THIS BULLETIN. IT IS RECOMMENDED THE INSPECTION BE MADE BY QUALIFIED AND APPROVED TESTING PERSONNEL, EMPLOYING MAGNETIC PARTICLE, X-RAY, OR RADIOGRAPH PROCEDURES. IF THE INSPECTION REVEALS ANY IRREGULARITIES, OPERATION OF THE DEVICE SHOULD BE DISCONTINUED IMMEDIATELY. REPAIR IS TO BE DONE BY A QUALIFIED FACILITY KNOWLEDGEABLE IN APPROVED METHODS OF A.W.S. - A.S.M.E. STANDARDS.

IT IS RECOMMENDED THAT A VISUAL INSPECTION BE MADE AT EACH SET-UP OR EVERY SEVEN DAYS OF OPERATION, SPECIFICALLY IN AREAS NOTED.

THIS BULLETIN SHOULD BE KEPT WITH ALL PERTINENT RIDE DOCUMENTS.

Dwg. No. 0-49-86

Spider Sweep 0-619 Bulletin

DRAWN BY:
SCALE:
NO. REQ'D.:
MATERIAL:
DATE:
NEXT ASSY.:
SOS. NO.:
SOD. BY NO.:

OCTOPUS CAR SPINDLE

ABUSE AND IMPROPER MAINTENANCE OCCASIONALLY CAUSE FAILURE OF OCTOPUS CAR SPINDLES. OUR INVESTIGATIONS HAVE DIVULGED THE FOLLOWING CONTRIBUTING FACTORS WHICH MAY EFFECT THESE VITAL SAFETY MEMBERS:

I. IMPACT - OPERATIONAL PRACTICES:

(A) ACCUMULATED BACKLASH OF LOOSE OR WORN DRIVING MEMBERS, INCLUDING IMPACT LOADS WHICH TERMINATE AT THE CAR SPINDLE. (THIS IS A COMMON FAULT ENCOUNTERED AND, AS STRESSED IN PREVIOUS BULLETINS, HAS ALSO CAUSED SWEEP AND SWEEP SUPPORTS MEMBER FAILURE.)

(B) IMPROPER SUPPORT DURING TRANSPORTING. UPSET OR COLLISION OF TRANSPORTING VEHICLE.

(C) ACCIDENTAL STRIKING OF OBJECT SUCH AS CONTROL TUBE, PLANK OVER FENCE, ETC., WITH SWEEP OR CAR.

(D) CAR SPINDLES NOT PROPERLY TIGHTENED ALLOWING MOVEMENT IN SWEEP END WITH RESULTANT, HOLE WEAR, ALLOWING IMPACT LOADS.

(E) EXCESSIVE RPMS INCREASING STRESSES TRANSMITTED TO SPINDLE.

II. MAINTENANCE:

(A) EXCESSIVE TIGHTENING OF SPINDLE RETAINING NUT, PLACING ADDITIONAL STRESSES ON SPINDLE FROM SHOULDER PORTION TO RETAINING NUT. USUALLY A RESULT OF TIGHTENING WITH HAMMER AND WRENCH. PROPER TENSION EITHER WITH LOCKWASHER OR LOCK NUT SHOULD NOT EXCEED 200 FT. LBS.

(B) LACK OF PROPER LUBRICANT OR INTRODUCTION OF FOREIGN MATTER IN WEAR AREA CAUSING SEIZING OR GALLING WITH RESULTANT STRESSES.

(C) LENGTH OF SERVICE IS AN IMPORTANT FACTOR FOR CONSIDERATION:

1. WE HAVE AN ADEQUATE SAFETY FACTOR DESIGNED INTO THESE AND OTHER CRITICAL STRESS MEMBERS OF YOUR EYERLY DEVICE.

2. THE SMALL NUMBER OF FAILURES SET AGAINST THE FANTASTIC NUMBER OF HOURS OF RUNNING ON THESE SPINDLES OVER THE YEARS.

3. SOME OF THESE SPINDLES HAVE BEEN KNOWN TO RUN TWENTY-FIVE AND THIRTY YEARS.

4. WE HAVE NO WAY OF KNOWING THE CONDITIONS UNDERWHICH EACH MACHINE HAS BEEN OPERATED.

DUE TO OUR CONSTANT IMPROVEMENT POLICY, PRESENT PRODUCTS ARE FAR SUPERIOR IN STRENGTH AND WEAR QUALITIES DUE TO METALURGICAL CHANGES OF METAL, ENGINEERING CONSIDERATIONS, AND WITH ADDITION OF INDUSTRIAL HARD CHROME AT WEAR POINTS. HOWEVER, IT MUST BE BORNE IN MIND THAT ALL METALS EVENTUALLY FATIGUE, EVEN PROVIDING THE DEVICE HAS ENJOYED STRICT OPERATIONAL SUPERVISION AND MAINTENANCE DURING ITS LIFETIME. EACH OWNER OR OPERATOR NEEDS TO CONSIDER THE AGE OF HIS MACHINE AND THE KIND OF MAINTENANCE IT HAS RECEIVED. BASED ON THIS EXPERIENCE, IT MAY BE WISE TO REPLACE THESE SPINDLES TO INSURE TROUBLE-FREE OPERATION.

SHOULD THERE BE ANY QUESTIONS IN THE MINDS OF OWNERS OR OPERATORS AS TO THE PRESENT CONDITION OF CAR SPINDLES, WE STRONGLY SUGGEST THAT AN IMMEDIATE INSPECTION OF THE SPINDLES BE MADE BY AUTHORIZED METALURGICAL LAB PERSONNEL TO DETERMINE AND ESTABLISH THE PROPER CONDITION OF YOUR SPINDLES AND OTHER HIGH STRESS MEMBERS.

Octopus + Roll-o-Plane

A. Chaffee

SALEM, OREGON

OCTOPUS RIDES, SERIAL NUMBERS 2500 TO 2634 INCLUSIVE, WERE FACTORY EQUIPPED WITH CARS HAVING A STRAP AND PIN TYPE HINGE HOLDING THE NOSE TO THE BACK.

WE HAVE ENCOUNTERED SEVERAL INSTANCES WHERE IMPROPER MAINTENANCE AND ABUSIVE OPERATION HAS ALLOWED THE RETAINING PINS TO WEAR EGG-SHAPED. THIS CONDITION ALLOWS THE NOSE TO DROP SLIGHTLY FROM A LEVEL WITH THE BACK AND IN EXTREME CASES, WHERE THE NOSE LATCHES HAVE BECOME EXCESSIVELY WORN OR LOOSE, HAVE ALLOWED THE NOSE OR FRONT PORTION OF THE CAR TO OPEN DURING OPERATION.

WE HAVE AVAILABLE, KIT NO. 0-1 TO REPLACE THESE HINGES WITH OUR CURRENT PRODUCTION TYPE. YOU WILL NOTE THAT A SPACING OR JIG BAR IS FURNISHED IN THE KIT WHICH IS STANDARDIZED WITH OUR CURRENT PRODUCTION MACHINES. IF PROPER APPLICATION IS MADE ACCORDING TO JIG AND INSTRUCTIONS, ALL PARTS WILL INTERCHANGE WITH OUR CURRENT MANUFACTURED PARTS.

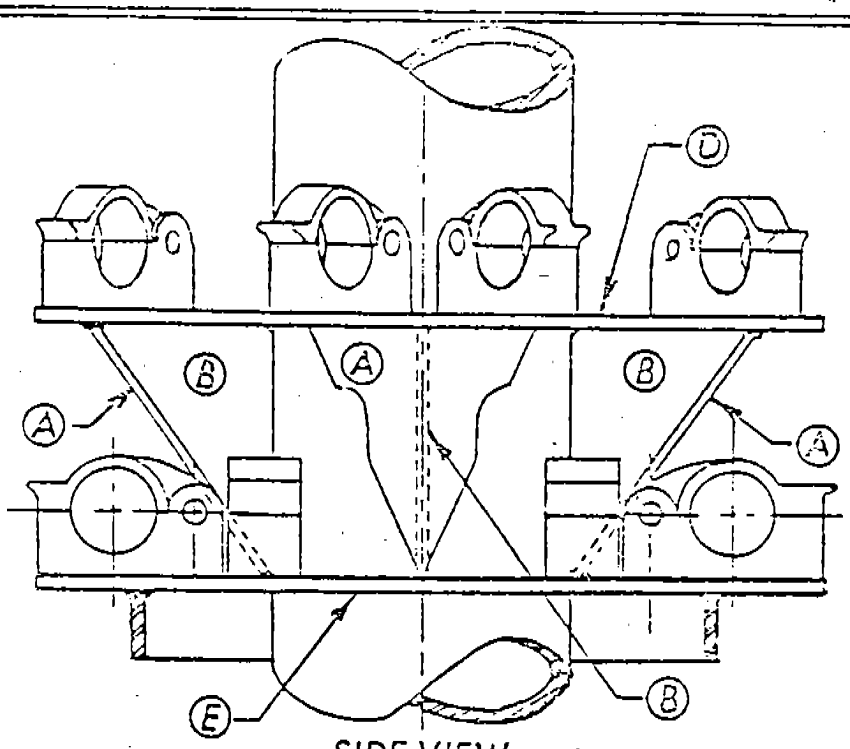
WE URGENTLY RECOMMEND THAT YOU CHANGE THE HINGES ON YOUR CARS AS SOON AS POSSIBLE SO AS TO AVOID ANY POSSIBILITY OF DEVELOPING THE CONDITION DESCRIBED ABOVE.

The Eyerly Aircraft Company, Salem, Oregon, manufacturer of the OCTOPUS, calls attention to the following modifications that should be made in models built before 1942.

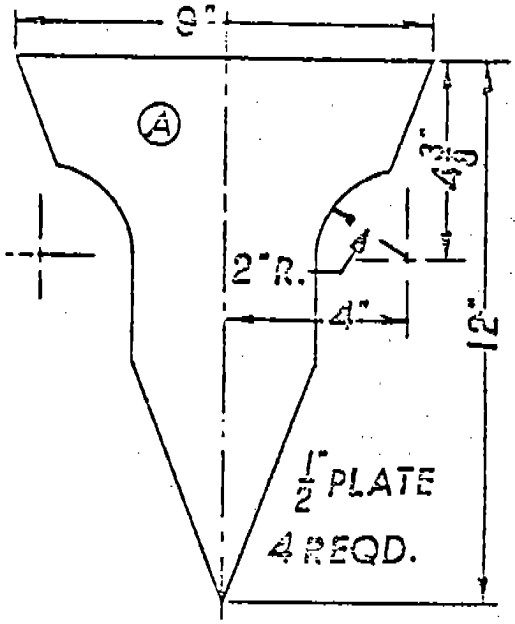
a. Reinforcement for OCTOPUS outer arm. (8 car models, Serial Nos. 2105 through 2120 inclusive and 2500 through 2650).
b. Bulletin on OCTOPUS car spindles. (Applied to Serial Nos. 2000 through 2074).
c. Reinforcement for OCTOPUS eccentric. (Applies to Serial Nos. 2000 through 2076).
d. Instructions for shortening OCTOPUS sweeps. (All Octopus rides from Serial Nos. 2000 to 2105 inclusive should be shortened as shows in this bulletin).
e. Reinforcement for OCTOPUS column. (These plates should be applied to all machines from Serial No. 2000 to 2104 inclusive).
f. Reinforcement for OCTOPUS sweeps. (Applies to Serial Nos. 2000 through 2120).

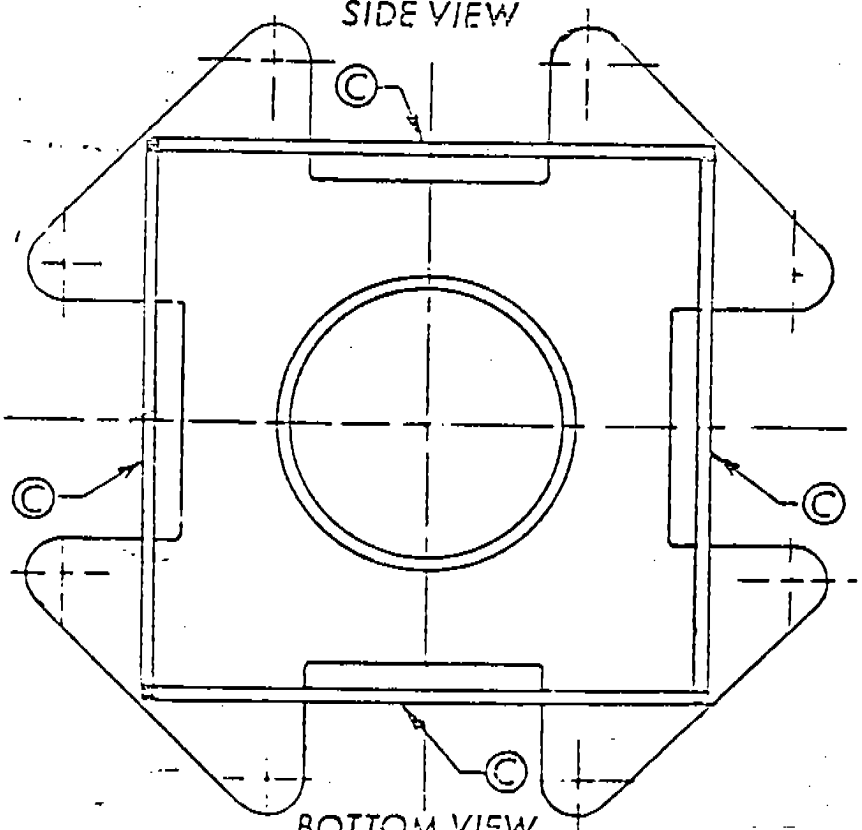
The manufacturer will supply bulletins giving specific details for the above modifications. Unless satisfactorily modified, those models built prior to 1942 are considered unsatisfactory for use.

REINFORCEMENT FOR OCTOPUS COLUMN



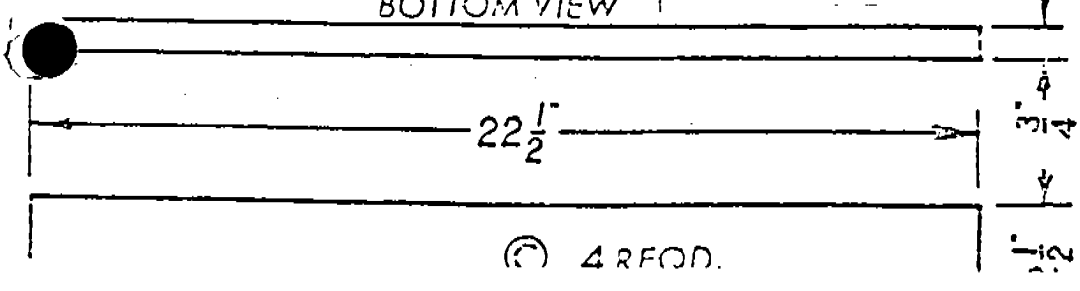
SIDE VIEW





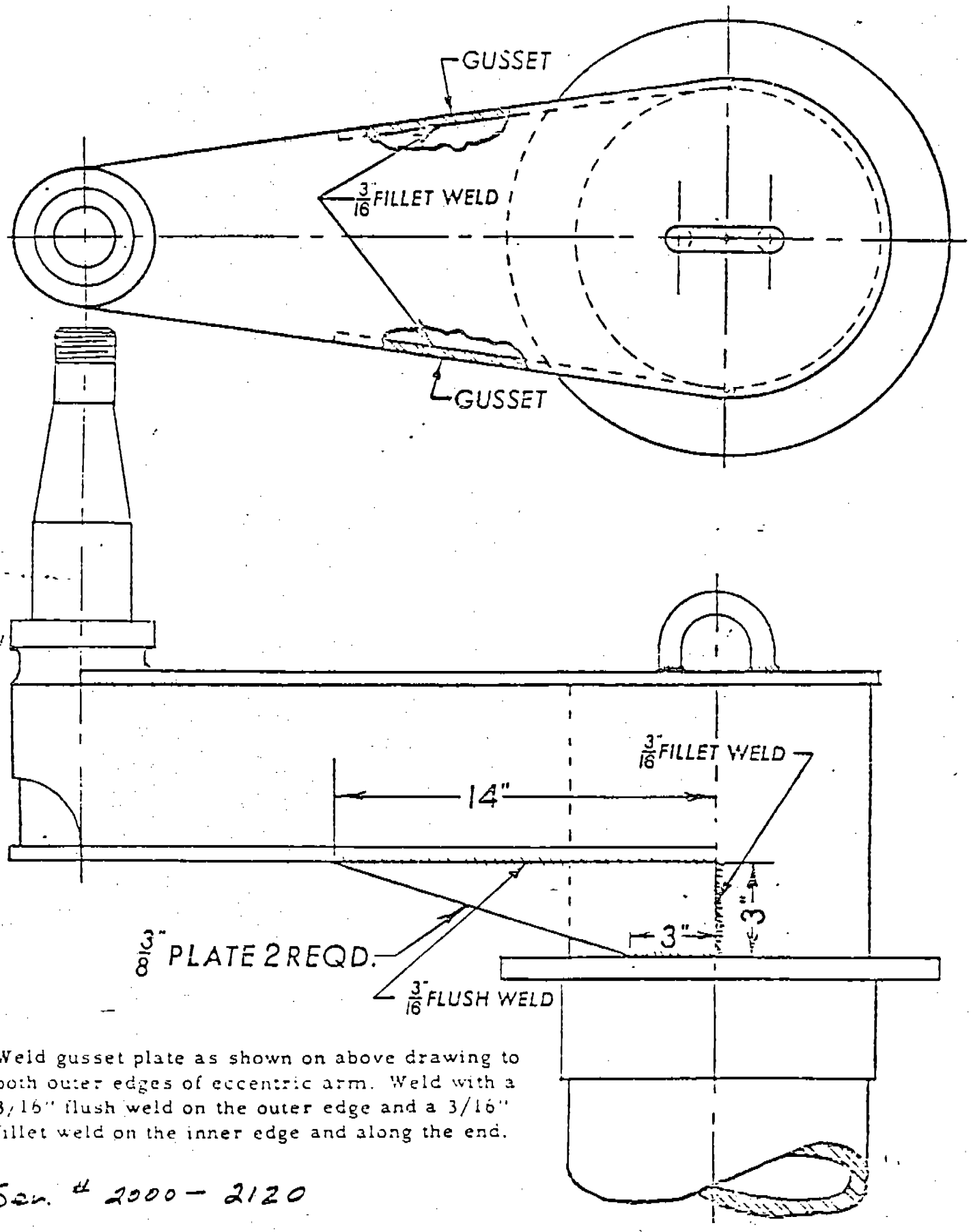
BOTTOM VIEW

Position gussets "A" on gussets "B" as shown on drawing. Weld the top edge of gussets "A" to the upper hinge plate "D" with 1/4" fillet welds on both sides. Also weld on both sides of gussets "B" with 1/4" fillet welds. Position bars "C" on the bottom of the lower hinge plate "E" as shown on the drawing to the left. Weld with 1/4" fillet welds on both sides and on each corner.



THESE REINFORCEMENT PLATES SHOULD BE APPLIED TO ALL MACHINES FROM SERIAL NO. 2000 TO 2104 INCLUSIVE.

REINFORCEMENT FOR OCTOPUS ECCENTRIC



Weld gusset plate as shown on above drawing to both outer edges of eccentric arm. Weld with a 3/16" flush weld on the outer edge and a 3/16" fillet weld on the inner edge and along the end.

Ser. # 2000 – 2120

INSTRUCTIONS FOR FIELD CONVERSION TO O-631 CAR SPINDLES

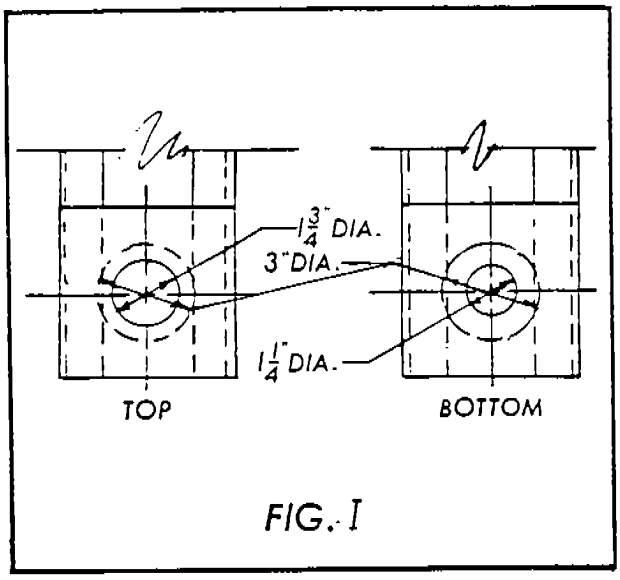


FIG. I

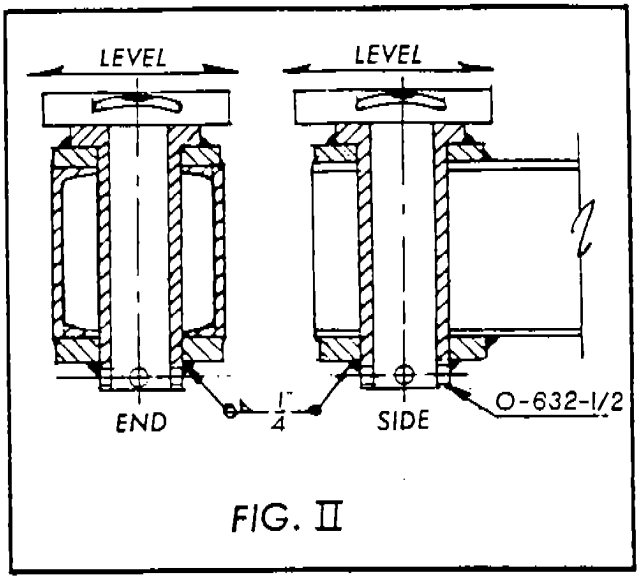
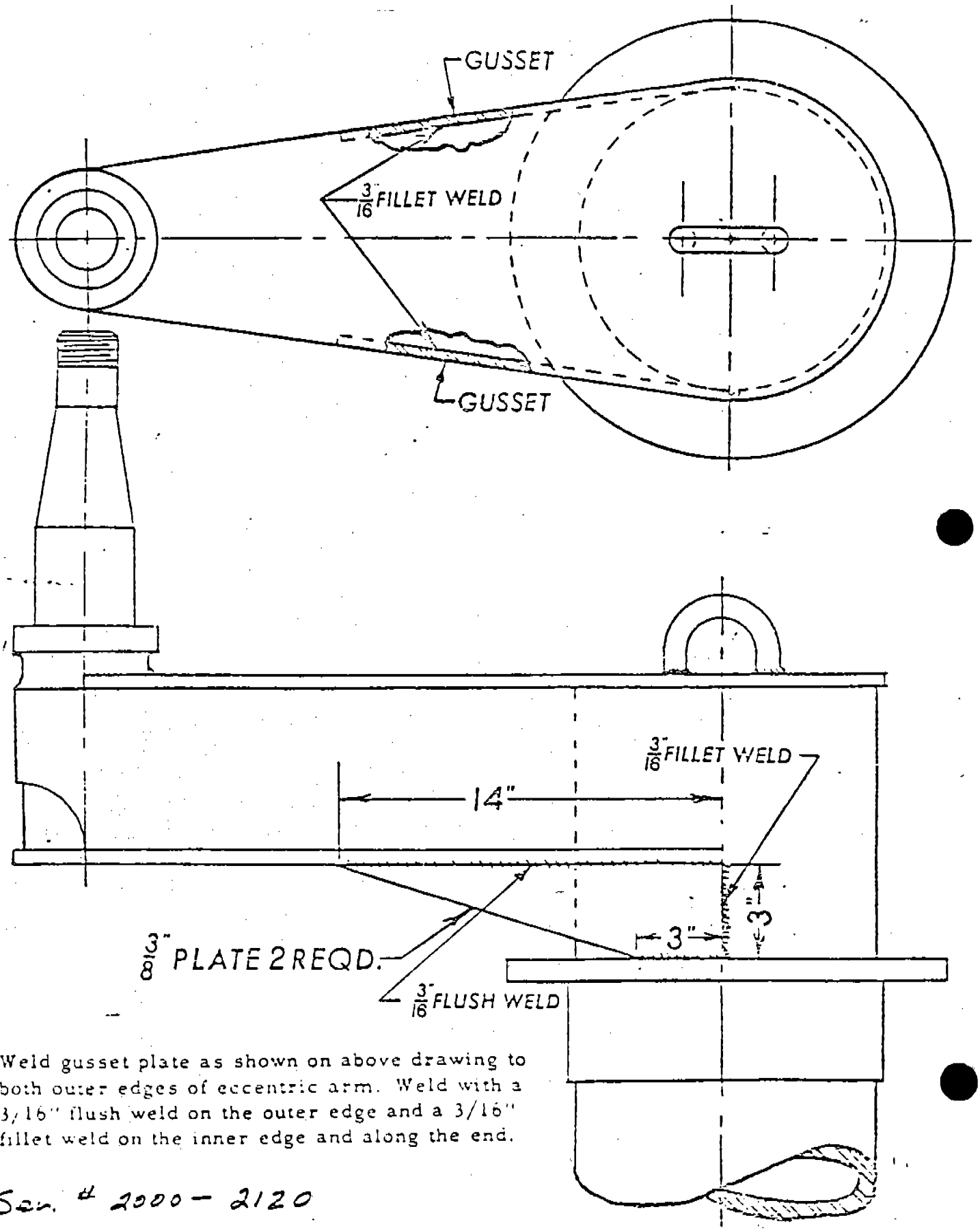


FIG. II

Refering to Fig. 1 above use the reversible marking disc furnished with kit assembly to mark (scribe) 3" diameter circle on each of present upper and lower plates forming present car spindle retention area. The disc has pilots on each side to center in the corresponding size holes top and bottom. Burn out 3" holes top and bottom as marked. Remove all burning slag. Insert the O-632-1/2 Car Support Tube with one set of drilled holes parallel and the other at right angles to the arm per Fig. 11 with the arm level. Level the Support Tube in two directions as shown in Fig. 11. Using ASTM 6013 or equivalent electrodes tack weld the tube at the top in four (4) places on opposite sides. Re-check level and correct if tilted then tack weld the tube at bottom in four (4) places as at the top. Weld the tube permanently with a 1/4" fillet weld all around top and bottom. The tubes are bored .006" oversize before shipment. The anticipated welding shrinkage should reduce this to .004" oversize allowing a slip fit for the spindle. Excessive shrinkage spots can be corrected by filing with a half round file to remove high spots. To prevent rust and corrosion in bore of tube O-632-1/2 coat with heavy grease where frequent removal is occasioned. We recommend a more permanent lubricant such as NEVER SEEZ along with occasional rotation of spindle to alternate set of lock pin holes for permanent or park operation. Lock Pin O-634 is recommended for portable operation and class 5 or better 3/8"X 3-3/4" heat treated bolt with self locking nut recommended for permanent operation.

REINFORCEMENT FOR OCTOPUS ECCENTRIC



Weld gusset plate as shown on above drawing to both outer edges of eccentric arm. Weld with a 3/16" flush weld on the outer edge and a 3/16" fillet weld on the inner edge and along the end.

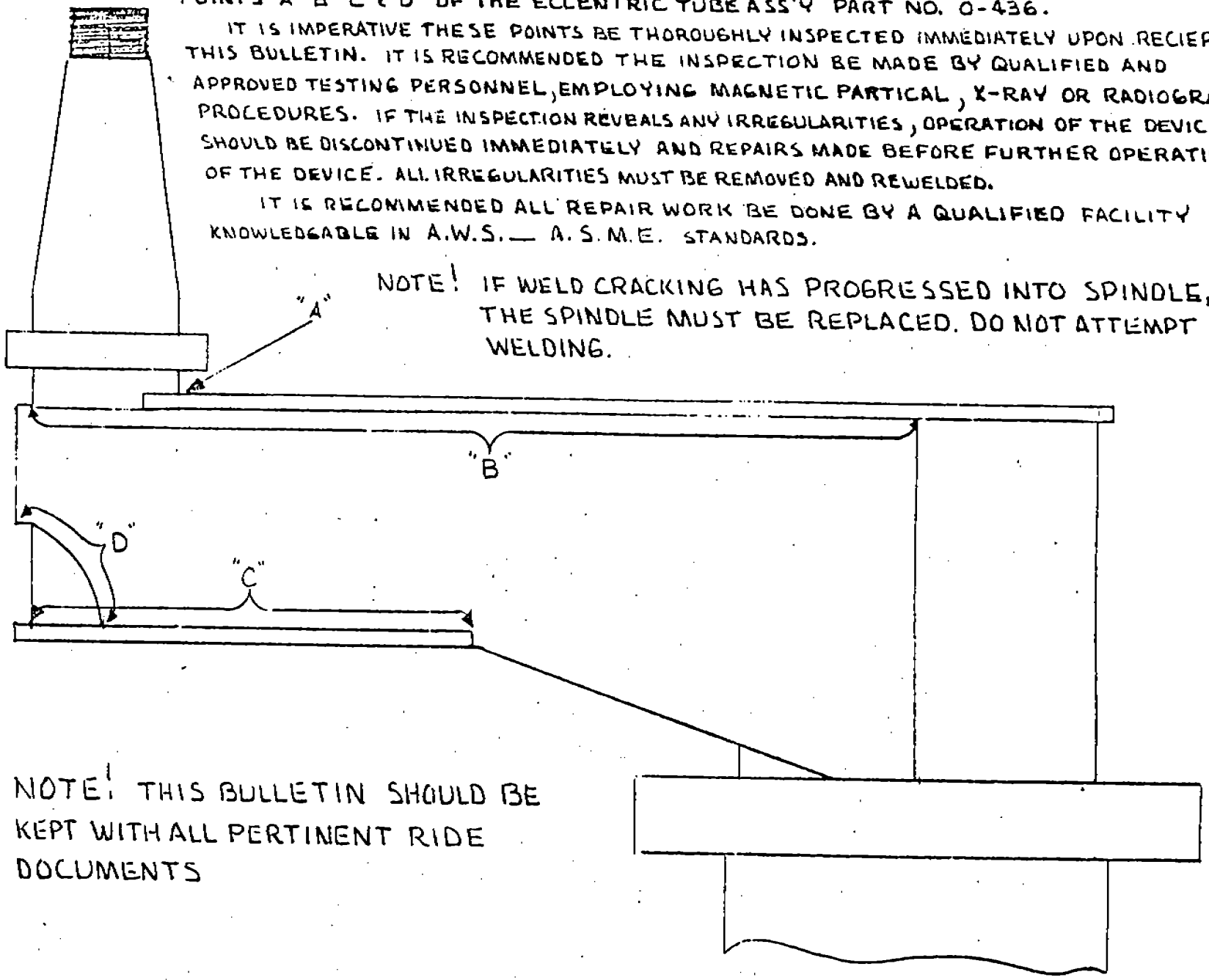
Ser. # 2000 – 2120

WE HAVE BEEN ADVISED OF SOME HAIRLINE CRACKS THAT HAVE DEVELOPED IN THE WELDMENTS AT POINTS "A B C & D" OF THE ECCENTRIC TUBE ASS'Y PART NO. O-436.

IT IS IMPERATIVE THESE POINTS BE THOROUGHLY INSPECTED IMMEDIATELY UPON RECIEPT OF THIS BULLETIN. IT IS RECOMMENDED THE INSPECTION BE MADE BY QUALIFIED AND APPROVED TESTING PERSONNEL, EMPLOYING MAGNETIC PARTICAL, X-RAY OR RADIOGRAPH PROCEDURES. IF THE INSPECTION REVEALS ANY IRREGULARITIES, OPERATION OF THE DEVICE SHOULD BE DISCONTINUED IMMEDIATELY AND REPAIRS MADE BEFORE FURTHER OPERATION OF THE DEVICE. ALL IRREGULARITIES MUST BE REMOVED AND REWELDED.

IT IS RECOMMENDED ALL REPAIR WORK BE DONE BY A QUALIFIED FACILITY KNOWLEDGABLE IN A.W.S. — A.S.M.E. STANDARDS.

NOTE! IF WELD CRACKING HAS PROGRESSED INTO SPINDLE, THE SPINDLE MUST BE REPLACED. DO NOT ATTEMPT WELDING.



NOTE! THIS BULLETIN SHOULD BE KEPT WITH ALL PERTINENT RIDE DOCUMENTS

Dwg. No. O 50 86

ECCENTRIC CRANK #0 436 BULLETIN

DRAWN BY:
SCALE:
NO. REQ'D.:
MATERIAL:
DATE:
NEXT ASSY.:
BDS NO.:
SDD BY NO.:

1450

LUBRICATION INSTRUCTIONS

REF. NO.	NAME OF PART	BEARING TYPE	FREQUENCY *GREASE	FREQUENCY OIL
1	CLUTCH SHIFTER LINK	BRONZE		D
2	CLUTCH SHIFTER LEVER	BRONZE		D
3	CLUTCH THROTTLE LEVER	BRONZE		D
4	A. C. THROTTLE ALTERATION	BRONZE		B
5	SHIFTER RING	ANTI-FRICTION	A	
6	PENDULUM BUSHING	BRONZE	A	
7	DRIVE SHAFT UNIVERSALS	ANTI-FRICTION	C	
8	CONTROL STAND	STEEL	B	
9	DRIVE SHAFT BEARING	ANTI-FRICTION	C	
10	CONTROL STAND	STEEL	B	
11	BRAKE PEDAL	STEEL		B
12	CLUTCH CONTROL ROD	MONO-BALL	D	
13	LOWER GEAR BOX	GEARS		E
14	UPPER GEAR BOX	GEARS		E
15	CLUTCH ROLLERS & SHAFT	STEEL		D
16	ENGINE CLUTCH SHAFT BEARINGS	ANTI-FRICTION	C	
17	LOWER GEAR BOX	ANTI-FRICTION	B	
18	CAR	STEEL		F

(A) DAILY OR EVERY 8 HOURS DURING HEAVY OPERATION.
(B) EVERY SET-UP.
(C) EVERY THREE MONTHS.
(D) DAILY.
(E) CHECK EVERY MONTH, CHANGE EVERY YEAR, USE EP-90
(F) KEEP ALL MOVING PARTS OILED DAILY

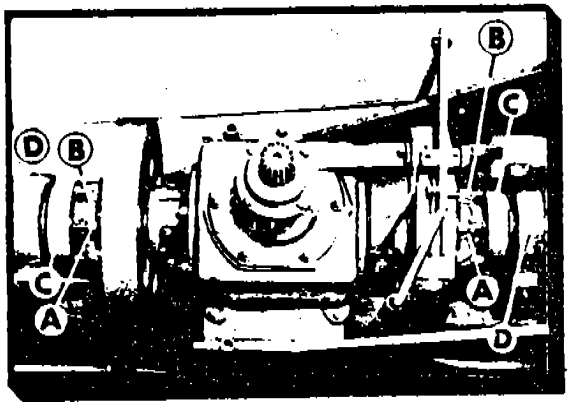
*USE A MULTI-PURPOSE WATER RESISTANT GREASE WITH AN ACCEPTED EXTREME PRESSURE ADDITIVE, SUCH AS MOLYBDENUM DISULFIDE, ON ALL PRESSURE GUN FITTINGS.

LUBRICATE THE CHAINS EVERY TWO WEEKS WITH AN APPROVED LUBRICANT.

NOTE: SEE ALLIS-CHALMERS OPERATION & MAINTENANCE MANUAL FOR SERVICE OF G-138 ENGINE.

THE ABOVE FREQUENCY OF GREASING THE BEARING IS FOR AVERAGE OPERATING CONDITIONS WITH SEALS INTACT.

CLUTCH & THROTTLE ADJUSTMENTS



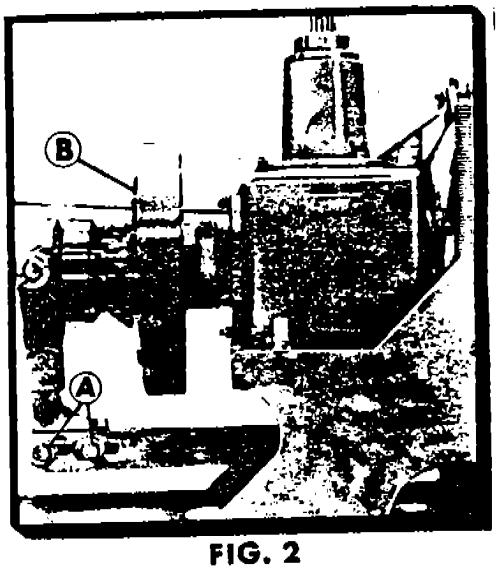


FIG. 2

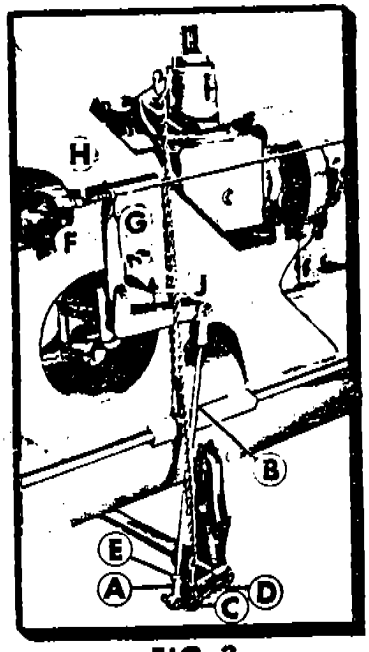


FIG. 3

Adjust the clutches by depressing the lock lever (A) Fig. 1, or by loosening Allen Head Screw, and screwing the clutch finger assembly (B) in a clockwise direction, facing the clutch, to tighten and in a counter-clockwise direction to loosen. They should be adjusted to where it requires some leverage to engage them and should feel and hear a definite snap as the rollers engage the recess in the cam (C). Be sure the lock lever (A) drops into the slot, or the Allen Head Screw is tight, when the adjustment is completed.

If the control stand is located on the right hand side of the machine, adjust the cam (C) on the clutch to the right when facing the machine from the control stand. With the control lever on the control stand in the neutral position, adjust the cam by moving the shifter yoke assembly (D) Fig. 1 allowing a maximum of .015" between the cam and rollers. Adjust the cam on the left hand side by releasing the two bolts (A) Fig. 2 on the shifter yoke and adjusting it in the same manner as the right hand clutch.

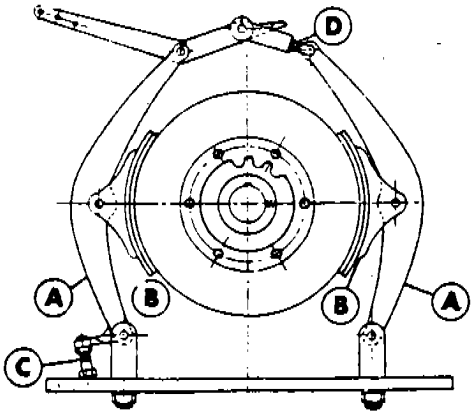
With the clutches in this neutral position, adjust the rod end (A) Fig. 3 on the rod (B) to where the bolt (C) may be inserted in the rod end and the lever (D). When adjusrment is completed, be sure to tighten jam nut (E).

With the engine idling and the control lever on the control stand in neutral position and the nut (F) Fig. 3 about 3/4" from the end of rod (G), adjust the rod to where the spring (H) contacts the nut (F) but does not compress the spring.

Adjust stops (J) to where the engine runs the same speed in either direction. This may be accomplished by first running the ride in one direction and marking the position of the rod (G) in relation to the outer rod guide and then reversing the ride and adjusting the stop until the rod is in the same position relative to the rod guide.

Adjust the spring (H) by means of the nut (F) to where the ride revolves from 22 to 24 R.P.M., without load.

ELECTRIC MODEL BRAKE ADJUSTMENT



The Brake Supports, Ref. (A), are adjusted on the Motor Plate so as to center the Brake Shoes, Ref. (B), on the Drum. Adjust Brake Stop, Ref. (C), so that the left Brake Shoe, Ref. (B), will clear the Brake Drum about 1/16". Adjust the other Shoe by threading Brake Adjuster, Ref. (D), in or out for the same clearance.

Florida Department of Agriculture & Consumer Services
BOB CRAWFORD, Commissioner
The Capitol • Tallahassee, FL 32399-0800

Please Respond To:
Division of Standards
Bureau of Fair Ride Inspection
131 Administration Building
3125 Conner Boulevard
Tallahassee, FL 32399-1650
1-800-HELP FLA
Ph. (850) 488-9790, Fax (850) 488-9023

October 5, 1998

Dear Sir or Madam:

According to our records your company owns and has operated a ride called "Spider" or "Octopus" manufactured by Eyerly . On or about September 26, 1998, there was an accident in North Carolina involving a "Spider", manufactured by Eyerly. The failure, according to North Carolina officials, was on the sweep arm where it attaches to the base. The failure was in a similar location as described in Eyerly Bulletin 0-39-74, copy attached. We have attached a diagram showing the location of cracks found as a result of the 9/26/98 failure.

Before any "Spider" or "Octopus", manufactured by Eyerly, is allowed to operate in Florida we require that a non-visual Non Destructive Test be completed on those areas indicated on all of the attached diagrams and a properly completed affidavit of compliance must be submitted by a qualified inspector and/or professional engineer.

Your assistance and cooperation in this matter are appreciated.

If you should have any questions regarding this matter please do not hesitate to write or call me or Mike Rinehart, Operations & Managment Consultant II, at the above number.

Sincerely,

BOB CRAWFORD
COMMISIONER OF AGRICULTURE

Isadore Rommes, Bureau Chief
Bureau of Fair Ride Inspection

Enclosure

Jackson's United Shows - No current address located

Alligator Kid Rides
P.O. Box 2439
Palm City, FL 34990

Amusements of America
24301 S.W. 137th Ave.
Princeton, FL 33032

Arnolds Amusements
11120 Carmon St.
Riverview, FL 33569

Deggeller Attractions, Inc.
P.O. Box 238
Stuart, FL 34995

Great Sutton Shows, Inc.
P.O. Box 10306
Brooksville, FL 34601

Lawrence Carr Amusement Co.
12864 Biscayne Blvd.
N. Miami, FL 33181

McDaniel Brothers Shows
P.O. Box 293
Lodi, NJ 07644

Mighty Blue Grass Shows
2032 51st Street South
Tampa, FL 33619

Miracle Strip Amusement Park
12000 Front Beach Rd.
Panama City Beach, FL 32407

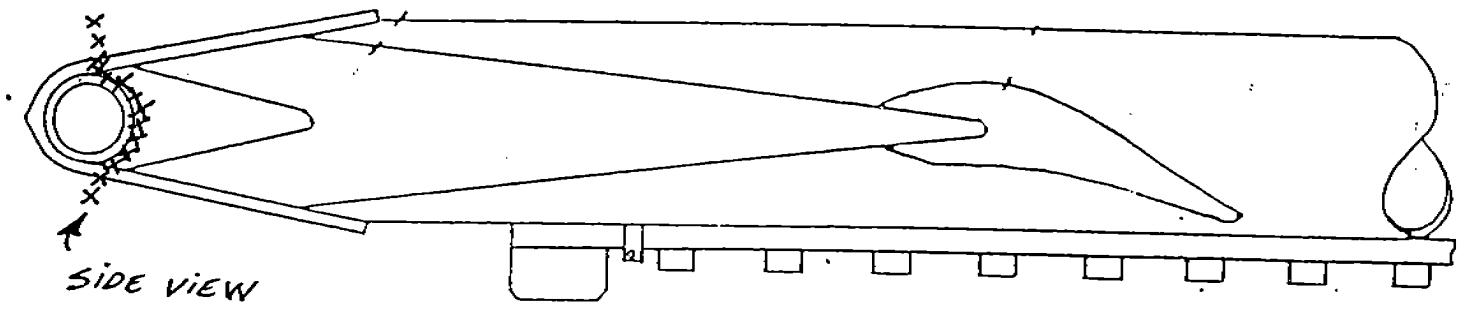
Myers International Midways
P.O. Box 1929
Gibsonton, FL 33534

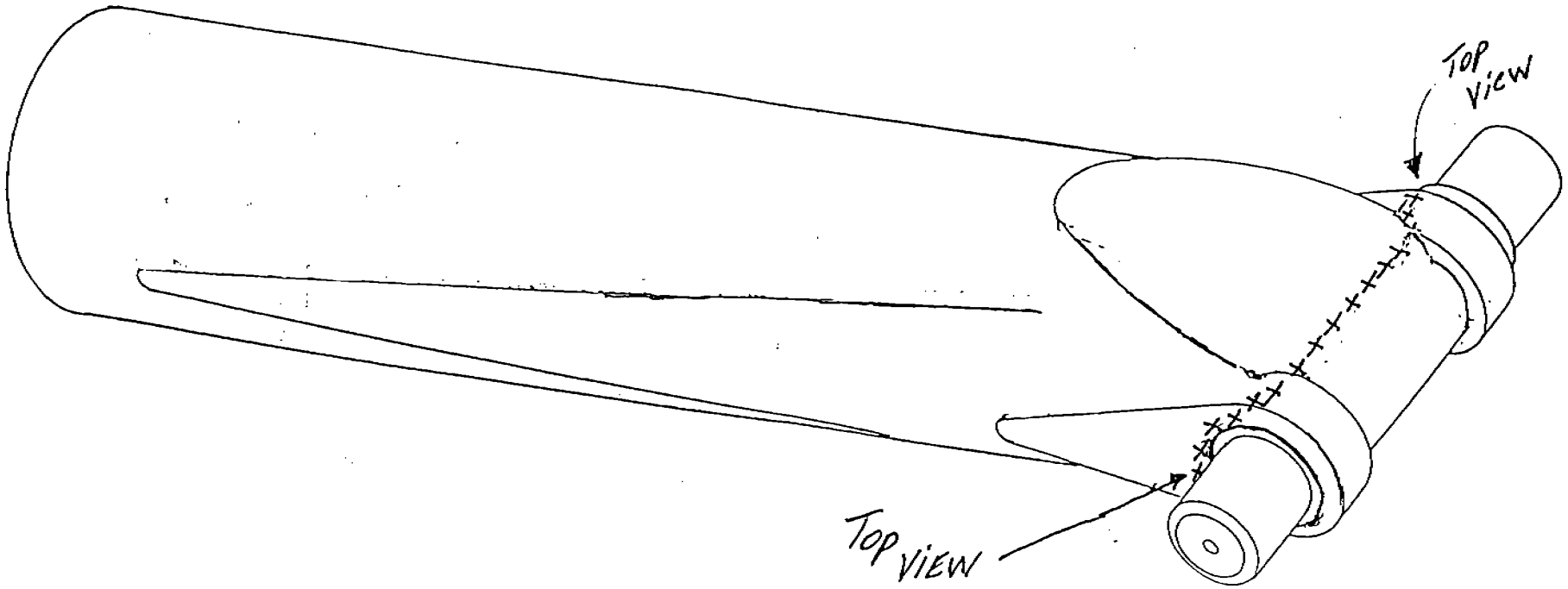
Southland Amusements, Inc.
12806 15th St.
Tampa, FL 33612

Thebault-Blomsness, Inc.
591 Mulberry Court
Buffalo Grove, IL 60089

Wade Shows
P.O. Box 570
St. Claire Shores, MI 48080

9/26/98 FAILURE





DRAWN BY: NEAL	SCALE: NONE	NO. REQ'D.: ~	MATERIAL: ~
DATE: 8-30-74	NEXT ASSY.: ~	SDS. NO.:	
		SDD. BY NO.:	

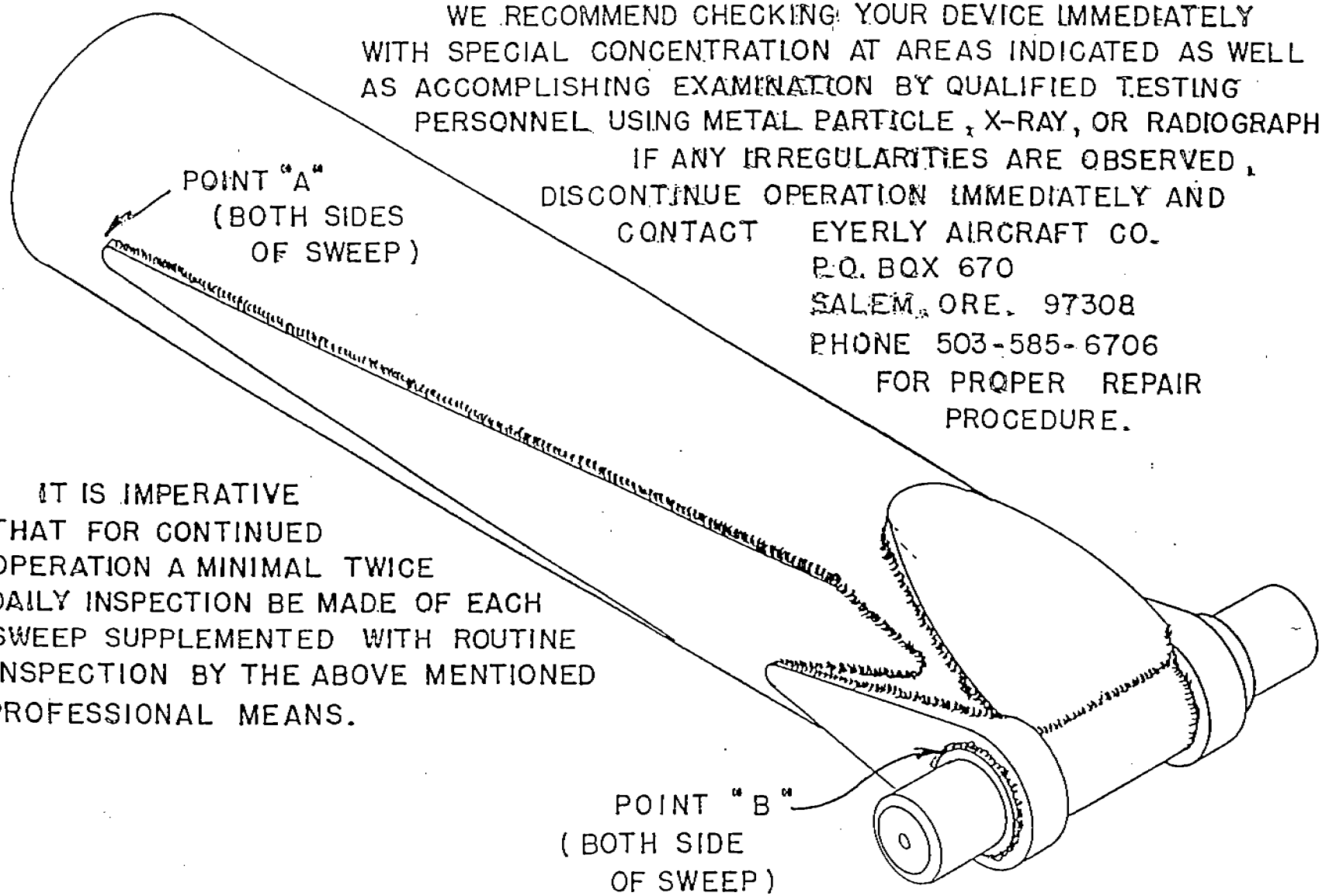
SPIDER

BULLETIN O-39-74

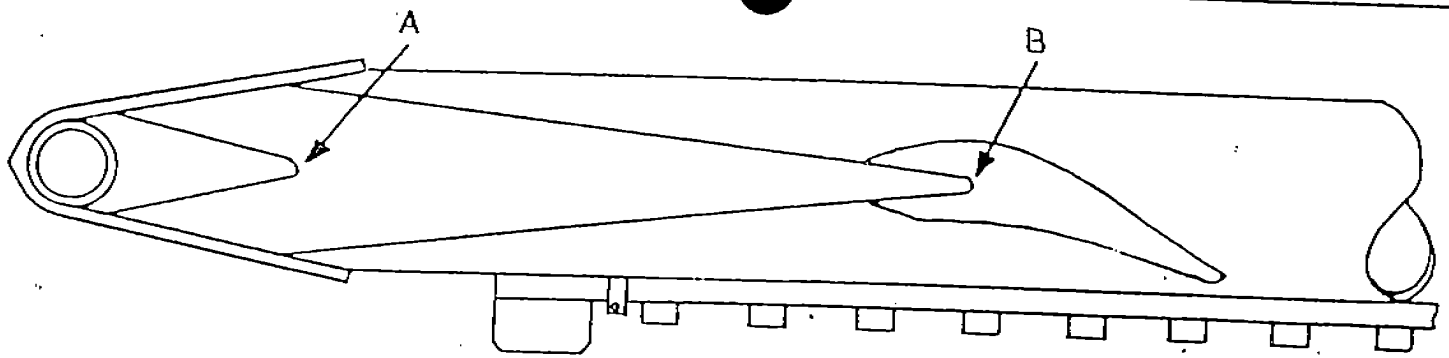
WE HAVE BEEN ADVISED OF A CURVED SWEEP FAILURE WITH INDICATION OF ORIGINAL BREAKING AT POINT "A" AS SHOWN BELOW. ALSO, SOME HAIRLINE CRACKS HAVE BEEN REPORTED IN THE AREA OF ATTACHMENT OF THE SWEEP SPINDLE TO THE REINFORCING TEARDROP GUSSETS DESIGNATED AS POINT "B" BELOW.

WE RECOMMEND CHECKING YOUR DEVICE IMMEDIATELY WITH SPECIAL CONCENTRATION AT AREAS INDICATED AS WELL AS ACCOMPLISHING EXAMINATION BY QUALIFIED TESTING PERSONNEL USING METAL PARTICLE, X-RAY, OR RADIOGRAPH.

IF ANY IRREGULARITIES ARE OBSERVED, DISCONTINUE OPERATION IMMEDIATELY AND CONTACT EYERLY AIRCRAFT CO.
P.O. BOX 670
SALEM, ORE. 97308
PHONE 503-585-6706
FOR PROPER REPAIR PROCEDURE.



IT IS IMPERATIVE THAT FOR CONTINUED OPERATION A MINIMAL TWICE DAILY INSPECTION BE MADE OF EACH SWEEP SUPPLEMENTED WITH ROUTINE INSPECTION BY THE ABOVE MENTIONED PROFESSIONAL MEANS.



WE HAVE BEEN ADVISED OF SOME HAIRLINE CRACKS THAT HAVE DEVELOPED IN THE WELDMENTS AT POINTS 'A' AND 'B' (BOTH SIDES) OF THE SPIDER SWEEP, PART 0-619. IT IS IMPERATIVE THESE POINTS BE THOROUGHLY INSPECTED IMMEDIATELY UPON RECEIPT OF THIS BULLETIN. IT IS RECOMMENDED THE INSPECTION BE MADE BY QUALIFIED AND APPROVED TESTING PERSONNEL, EMPLOYING MAGNETIC PARTICLE, X-RAY, OR RADIOGRAPH PROCEDURES. IF THE INSPECTION REVEALS ANY IRREGULARITIES, OPERATION OF THE DEVICE SHOULD BE DISCONTINUED IMMEDIATELY. REPAIR IS TO BE DONE BY A QUALIFIED FACILITY KNOWLEDGEABLE IN APPROVED METHODS OF A.W.S. - A.S.M.E. STANDARDS.

IT IS RECOMMENDED THAT A VISUAL INSPECTION BE MADE AT EACH SET-UP OR EVERY SEVEN DAYS OF OPERATION, SPECIFICALLY IN AREAS NOTED.

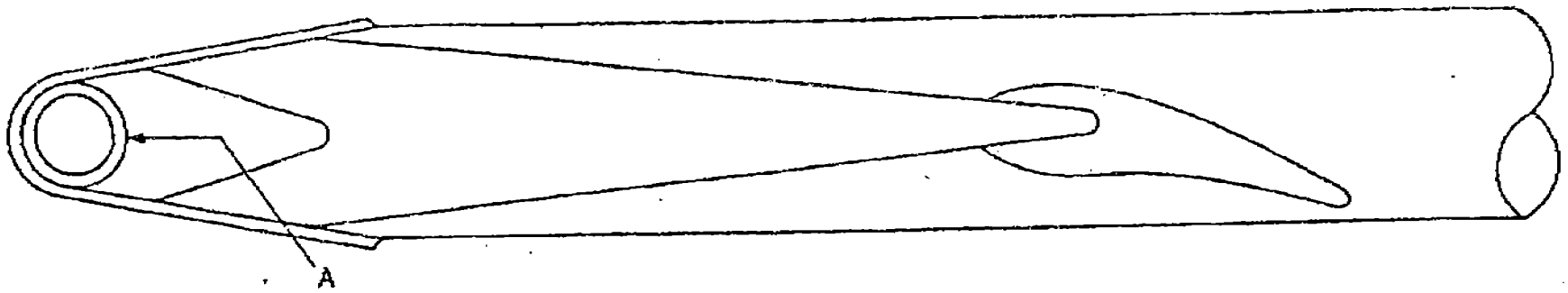
THIS BULLETIN SHOULD BE KEPT WITH ALL PERTINENT RIDE DOCUMENTS.

Drg. No. 0-49-86

Spider Sweep 0-619 Bulletin

DRAWN BY:	SCALE:	NO. REQ'D.:	MATERIAL:
DATE:	NEXT ASSY.:	SDS. NO.:	SDD. BY NO.:

NOTICE: TO ALL OWNERS OF "SPIDER"
AMUSEMENT RIDE DEVICES MANUFACTURED BY
EYERLY AIRCRAFT COMPANY.



WE HAVE LEARNED OF A SWEEP FAILURE ON A SPIDER DEVICE
MANUFACTURED BY EYERLY AIRCRAFT COMPANY.
THE FAILURE OCCURED AT THE HINGE PIN WELDMENT. Note: Fig. "A"
AS A PUBLIC SERVICE TO THE INDUSTRY, JVI IS ISSUING BULLETIN NO.8-88-1,
RELATIVE TO THE EYERLY AIRCRAFT CO. 0-619 SWEEP WITH THE 16" HINGE PIN.
IT IS ADVISED THAT YOU IMMEDIATELY INSPECT THE SWEEPS
FOR FAILURE IN THIS AREA, (BOTH SIDES). IF CRACKING IS FOUND, NOTE LOCATION
AND LENGTH, AND ADVISE JV INDUSTRIES (503) 399-0817 IMMEDIATELY

SPIDER SWEEP 0619			JV INDUSTRIES Inc.
Dr. By JPM			BULLETIN NO.
Date 8-88	S.D.D. By		8-88-1
	S.D.S.		

MEMORANDUM

Bureau of Fair Rides Inspection
3125 Conner Blvd., Bldg. #4
Tallahassee, FL 32399-1650

DATE: September 16, 1994

TO: All Inspection Specialists and Supervisors

FROM: Ron Safford, Chief
Fair Rides Inspection

SUBJ: **SAFETY ALERT FOR EYERLY AIRCRAFT'S OCTOPUS, SPIDER AND MONSTER**

Enclosed is one copy of CPSC's September 13, 1994, safety alert for the Octopus, Spider and Monster.

All applicable rides shall comply with these recommendations when permitted or they are to be considered an imminent danger and closed.

Any carrier that cannot be proved to be less than 15 years old shall be tested in accordance with this alert.

Record the results of your inspection in the comment area for these rides.

RS/sm

Enclosure

U.S. CONSUMER PRODUCT SAFETY COMMISSION
WASHINGTON, D.C. 20207

OFFICE OF COMPLIANCE
AND ENFORCEMENT

Division of
Corrective Actions
Tel: 301-504-0608
Fax: 301-504-0359

AMUSEMENT RIDE SAFETY ALERT!

ATTENTION! STATE AMUSEMENT RIDE SAFETY OFFICIALS
2nd NOTICE

EYERLY AIRCRAFT
"OCTOPUS, SPIDER & MONSTER RIDES"
September 13, 1994

As noted in our August 16, 1994 Safety Alert, the U.S. Consumer Product Safety Commission (CPSC) in conjunction with the Commonwealth of Kentucky's Department of Weights & Measures, investigated an accident involving an "Octopus" amusement in Irvine, Kentucky. The accident involved the failure of the car's tubular framing behind and under the seat causing the two passengers to be dumped from the car. CPSC staff have preliminarily determined the cause of the accident to be due to excessive corrosion (wide pits, deep pits, and perforation) and fracturing of the tubular structure supporting the hub under the car's seat. The corrosion appears to have been as a result of moisture collecting in the gap between two under-side tubes and their fiberglass covering. Fracture of these tubes is believed to have preceded the fracture of the other frame tubes.

The rides were manufactured from 1936 to the mid-1970's by the defunct Eyerly Aircraft Co., Salem, Oregon. No new rides are being made, although parts can be purchased from Oregon Rides, Salem, OR. The rides involved are all "Octopus", "Spider" and "Monster" rides with fiberglass covered tubs/cars. Production of fiberglass cars began in 1964. These tubs/cars are believed to be used interchangeably by the industry. Those fiberglass tubs/cars that are 15 years and older are considered the most likely to have hidden corrosion.

The CPSC recommends inspection of the cars critical areas. The following text provides information about using either destructive or nondestructive techniques for the examination of the tubing that is covered by fiberglass matting on the underside of a car seat.

General Inspection Comments

The inspection for possible corroded or cracked tubing hidden by a fiberglass covering may be done by either destructive or nondestructive methods. Either method is to be used in conjunction with the use of visual inspection or magnetic particle inspection of the car's other underside tubing that is not covered by fiberglass. Attachment 11 shows the location of the tubing that is the subject of this bulletin. This bulletin is not intended to exclude the inspection of other components of the cars or ride as described by the manufacturer and past and present parts suppliers.

Cars that are known to be over 15 years old or those cars whose age cannot be verified to be less than 15 years old are subject to this inspection recommendation. Follow up inspections are to be done at 5-year intervals after the initial inspection.

The number of cars on an individual ride to be inspected should be based on whether or not that cars have a history of being together as one unit. If the ride's cars have an unknown history or if the cars are known to not have always been together as a unit, then all of that ride's cars should be inspected. The inspection should be repeated in succeeding 5-year intervals. If all of a ride's cars have a known history of always being together as a unit, then one-third of that ride's cars may be selected for examination. This first one-third of a rides cars should not be examined again if the cars remain together as a unit until each third has been examined over each succeeding 5-year inspection interval. Consult with Oregon Rides about all instances of tubing corrosion, perforation, or cracking.

The fracture of the other frame tubes may be assisted by the distortion of the underside tubes during handling. This distortion may have increased the stress in the frame increasing the probability of crack initiation. These other tubes should be inspected for straightness. This inspection should be combined with a visual or magnetic particle inspection of this other exposed tubing. This should be done in addition to the ride owner's choice of doing a destructive examination or a nondestructive examination of the tubing that is covered by the fiberglass matting. Oregon Rides is preparing a bulletin providing detailed information about the examination of a car's exposed tubing.

Destructive Examination

Destructive examination of the tubing is intended to be only destructive to the fiberglass matting that bonds the tubing to the underside of the fiberglass seat. It is destructive because the examination entails the incremental removal of 1-inch wide strips of fiberglass matting with a blade. The tubing and the fiberglass seat material is not to be cut. The destructive examination should be accomplished by:

(1) - Locating a point 12-inches from the car's spindle retainer on the fiberglass matting covering and bonding the two underside tubes that are welded to the spindle retainer to the fiberglass seat. On the fiberglass covering of the two other tubes bonded to the seat bottom, mark a point on these two tubes that is next to the 12-inch point marked on the first two tubes.

(2) - Locating the edges of the fiberglass matting nearest to the car's drain holes for the four tubes bonded to the car's underside.

(3) - Starting from the edge of the fiberglass matting, use a blade, without cutting the tubing or fiberglass seat, to remove a 1-inch wide section of fiberglass matting from the four tubes bonded to the fiberglass seat.

(4) - If no corrosion is observed after removing the first 1-inch wide section of fiberglass matting stop and repair the fiberglass matting according to instructions from Oregon Rides.

(5) - If light surface corrosion that does not reduce the wall thickness is observed, continue removing 1-inch wide sections of fiberglass matting until no corrosion (clean metal surface) is observed or the 12-inch point described above is reached. If only light surface corrosion that does not reduce the wall thickness is observed, clean the tube surface with a wire brush and repair the fiberglass covering according to instructions from Oregon Rides.

(6) - If severe corrosion, deep or wide pitting, wall penetration, or wall cracking is observed, then the tubing should be replaced and bonded to the fiberglass seat with new fiberglass matting according to instructions from Oregon Rides.

(7) - The other tubing that is not covered by fiberglass matting may be inspected by visual inspection or magnetic particle inspection techniques according to instructions from Oregon Rides.

Non-Destructive Examination

(1) - The non-destructive examination involves radiography of the underside tubing through the fiberglass seat and fiberglass matting covering the underside tubing. The examination can be done by a Level II or III Inspector qualified in radiography.

(2) - If the radiography does not reveal any corrosion, deep or wide pitting, perforation, or cracking in the tubing, then the tubing shall be considered to be not affected.

(3) - If corrosion is observed, the corrosion should be exposed by removing 1-inch wide increments of the fiberglass matting from the tube. Remove 1-inch wide sections of fiberglass matting until no corrosion is observed. (a) If only light surface corrosion that does not reduce the wall thickness is observed, use a wire brush to clean the corrosion from the tube surface and repair the fiberglass covering according to instructions from Oregon Rides. (b) If severe corrosion, in the form deep or wide pitting, wall porosity, or through wall thickness cracking is observed, then the tubing should be replaced and bonded to the fiberglass seat with new fiberglass matting according to instructions from Oregon Rides.

(4) - The other underside tubing, not covered by the fiberglass matting, may be inspected by visual inspection or magnetic particle inspection techniques.

For further information or clarification on this Safety Bulletin you may contact one of the following:

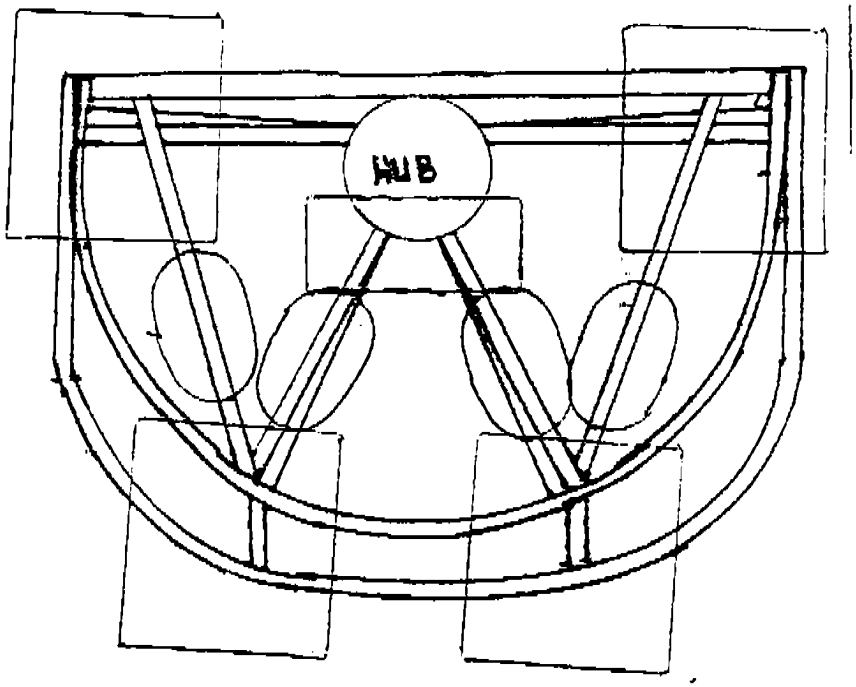
US Consumer Product Safety Commission
Division of Corrective Actions
Washington, DC
Jay DeMarco at (301) 504-0608 ext 1353
and
Division of Mechanical Engineering
Thomas Caton at (301) 504-0494 ext 1305
or
Oregon Rides, Inc.
Portland, OR
Guy Sherborne, Sr. at (503) 588-0984.

Attachment 11 - Examination Areas for Destructive/Non-Destructive and Visual/ Magnetic Particle Techniques

- Areas to be examined by visual or magnetic particle inspection techniques

- Areas to be examined by destructive or non-destructive radiographic techniques

Attachment 11 - Examination Areas for Destructive/Non-Destructive and Visual/ Magnetic Particle Techniques



- Areas to be examined by visual or magnetic particle inspection techniques

- Areas to be examined by destructive or non-destructive radiographic techniques

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U.S. CONSUMER PRODUCT SAFETY COMMISSION
WASHINGTON, D.C. 20207

OFFICE OF COMPLIANCE AND ENFORCEMENT

Division of
Corrective Actions
Tel: 301-504-0608 Ext. 1353
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DATE: August 16, 1994 PAGES TRANSMITTED: 3 + Cover

TO: State Amusement Ride Safety Official

TITLE:

OFFICE FAX:

FROM: James A. DeMarco, Compliance Officer, CECA, HQ

REMARKS: The attached "Safety Alert" is being provided as part of the Commission's Amusement Ride Safety Program.

RECEIVED
AUG 16 1994
BUREAU OF
FAIR RIDES INSPECTION

NOTE: If you have any problems with this transmittal, please contact the person listed above.

U.S. CONSUMER PRODUCT SAFETY COMMISSION
WASHINGTON, D.C. 20207

OFFICE OF COMPLIANCE
AND ENFORCEMENT

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AMUSEMENT RIDE SAFETY ALERT!

ATTENTION! STATE AMUSEMENT RIDE SAFETY OFFICIALS

EYERLY AIRCRAFT
"OCTOPUS, SPIDER & MONSTER RIDES"
August 16, 1994

On August 10 - 11, 1994, the U.S. Consumer Product Safety Commission (CPSC) in conjunction with the Commonwealth of Kentucky's Department of Weights & Measures, investigated two cars/tubs removed from an "Octopus" amusement ride involved in an accident on August 3, 1994, at the Estill County Fair in Irving, Kentucky. The accident involved the failure of a car that contained two male passengers. The car's tubular framing fractured behind and under the seat causing the two passengers to be dragged and then dumped from the car. CPSC staff have prelimarily determined the cause of the accident to be due to excessive corrosion and fracturing of the tubular structure supporting the hub under the car's seat. The corrosion appears to have been as a result of water draining from the drain holes and collecting in the gap between two under-side tubes and their fiberglass covering. The corrosion was greatest near the drain holes. Fracture of these tubes is believed to have preceded the fracture of the car's other frame tubes.

The rides were manufactured from 1936 to the mid-1970's by the defunct Eyerley Aircraft Co., Salem, Oregon. No new rides are being made, although parts can be purchased from Oregon Rides, Salem, OR. The rides involved are all "Octopus" and "Spider" with fiberglass or metal covered tubs/cars and "Monster" rides with serial number 22 and above.

While the CPSC's investigation into the cause of the failure continues, in the interim, we recommend inspection of the cars critical areas, as follows:

1. The critical areas are identified as the four tubes under the car seat that are covered by fiberglass. The tubes are shown in the attached schematic based on the Eyerly Aircraft Company drawing O-913 entitled "Octo & Spider Car Back Section."

2. Inspection by radiography is recommended if ride owners do not want to remove the fiberglass covering the car's tubing. It is recommended to have the radiography done by a class III technician. NOTE: Ultrasonic inspection is not recommended as tube roughness may make an accurate interpretation extremely difficult.
3. A visual inspection of the tubing may be done, but the fiberglass covering the tubing would need to be removed first for an adequate inspection.
4. Fiberglass removal techniques must be obtained from Oregon Rides prior to removing any fiberglass.
5. If excessively corroded or cracked tubing is found during the inspection, those tubes or the car should be replaced.
6. It is our understanding that a retrofit/fiberglass repair kit is being developed by Oregon Rides, Inc. CPSC will be evaluating the adequacy of this repair kit.
7. Magnetic particle inspection may be used to inspect the numerous welds around the hub and tubing of car back's underside.

Corrosion and cracking may also be found in non-critical areas of the seat front and seat back of the car. This corrosion and cracking may also be concealed by the fiberglass covering the car. Again, if corrosion or cracking is found, consult with Oregon Rides about the repair.

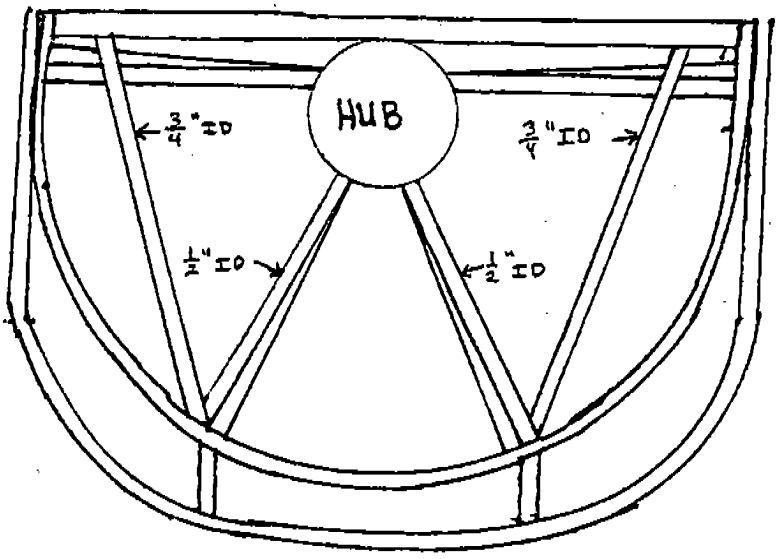
For further information or clarification on this Safety Bulletin you may contact one of the following:

US CPSC
Division of Corrective Actions
Jay DeMarco at (301) 504-0608 ext 1353
Division of Mechanical Engineering
Tom Caton at (301) 504-0494 ext 1305

Commonwealth of Kentucky, Dept. of Weights & Measures
Carl Dills at (502) 564-4870

Oregon Rides, Inc., Salem, OR
at (503) 588-0984.

SCHEMATIC BASED ON EYERLY AIRCRAFT COMPANY DRAWING O-913 "OCTO & SPIDER CAR BACK SECTION"



1. THE $\frac{3}{4}$"ID AND $\frac{1}{2}$"ID TUBES ARE COVERED BY FIBERGLASS ON THE UNDERSIDE OF THE CAR BACK SECTION.

2. NUMEROUS FILLET WELDS JOIN THE TUBES

(NOT TO SCALE)

ORI

OREGON RIDES INC.

MEMBER

OCTOPUS/SPIDER CHECKLIST

(Device) Name _____ Serial Number _____

INSPECTION DATE _____ INSPECTED BY _____

Please refer to the proper factory Parts Catalog and Operating Instruction Manual for detailed explanation of Inspection and Maintenance procedures. (Additional copies are available from us) In addition to your routine inspection and maintenance the following items should be checked:

DESCRIPTION	WHAT TO CHECK	OK/ /BY	DATE	NOTES AND REMARKS
1. Sweeps	Cracks and structural damage			Notify O.R.I. if damage or cracks are found.
2. Mudsills				
3. Cage				
4. Sweep Support Rods	Damage, straightness.			If support rods are bent, or damaged. Replace. (See bulletin 0-48-86)
5. Sweep Support Rod Pin Holes & Pin Retainer	Wear.			If pin hole wear exceeds +.0625", replace. If pins rotate, replace retainer to factory specifications.
6. Swivel Blocks & Monoballs	Wear, cracks or damage.			Replace swivel block if wear exceeds +.0625". Replace monoballs if worn or cracked.
7. Swivel Block Pins & Mono - ball fasteners	Wear, damage or cracks.			Replace pins if worn or cracked. Tighten monoball fastener if loose. See bulletin (0-20-74)
8. Safety Cables (SPIDER ONLY)	Stretch, corrosion, broken strands, adjustment, general condition.			Cable should not bear weight of sweep when extended. Attaching points should move freely. If cable dimension from center line of hole to end of thread exceeds 89-1/2" +1/2 -1/4 Replace.

P.O. Box 9066 • Brooks, Oregon 97305
Office: (503) 760-1511 • Parts & Shop: (503) 390-9015 • FAX: (503) 390-4858

DESCRIPTION	WHAT TO CHECK	OK/ /BY	DATE	NOTES AND REMARKS
9. Safety Cable Link	Twist or damage			If twisted, (cable has been stretched). Replace. Check cable length. ?
10. All Fasteners	Tightness and general condition			If movement is detected or bolts are damaged, replace with factory specified bolts.
11. Pillow Block & Hinge Pins	Looseness and structural damage			If bushing turns in pillow block when tight or block is damaged, or if block hinge is loose to excess, check with ORI for replacement procedure.
12. All Pins & Safeties	Looseness, proper safeties.			Replace if worn, or damaged. Make sure proper safeties are used.
13. Mudsill & Cage Pin Holes	Enlarged or damaged.			Ream and replace pins as per factory specifications.
14. Eccentric Hub	Play or rough bearing.			Tighten or replace as necessary.
15. Control Stand	Condition of ratchet & ratchet lug.			If handle will no longer lock in place, grind lug or replace with new handle. Ratchet quadrant cannot be ground. Replace.
16. Countershaft Assembly	Loose or bad bearings, worn collars, worn shifter yokes, clutch lining, release springs, rollers, roller lever & clutch brake assy.			Adjust or replace as necessary.
17. Cars	Worn spindle bushing, car latch for positive locking, hinges & worn or broken tubes. All fasteners.			Replace worn bushings, lubricate. If car latch has excessive movement, replace with new assemblies Contact ORI for proper tubing repair procedures. Repair or replace worn or damaged fasteners.

DESCRIPTION	WHAT TO CHECK	OK/ /BY	DATE	NOTES AND REMARKS
18. Cars with Swing out Safety Bar Assy	Cracked or broken safety bar, wear in safety bar bearings. Safety control rods, spring link & missing or broken springs. Loose or missing fasteners, slack in linkages.			Repair or replace damaged safety bars, replace worn or damaged safety bar bearings, control rods, missing or broken springs, tighten or replace loose or missing fasteners. Adjust, repair or replace loose linkages.
19. Mudsill Tie Rods	Straightness, cracking at the head, worn or bad threads, nuts			If any of these conditions exist adversely, replacement is necessary. DO NOT weld on rod, anywhere.
20. Electrical Components	Worn or bad cords plugs, light rings & brushes.			If worn or unsafe conditions exist repair or replace with correct siz & type. Replace brushes or rings if damaged or worn excessively.
21. Gear Drive Units	Loose pinion nuts, faulty seals, loose lower bearings and lubrication.			Tighten pinion nuts, replace faulty seals, & bearings. Clean & replace lubricant.
22. Eccentric	Lateral movement of eccentric tube cracks or structural damage.			If any of these conditions exist, notify ORI for corrective procedures. See bulletin (0-50-86)
23. Split Hub	Looseness			If any looseness, other that chain slack is detected, notify ORI for corrective procedures.
24. Cage Top Bearing (Hinge column)	Lateral movement.			If movement exceeds +.065" bearing should be replaced. Check that bearing housing is tight to cage top plate. Tighten or replace bolts with factory specified type.
25. Chains and Sprockets	Worn sprocket teeth, chain stretch, adjustment, alignment			If chain has been stretched it must be replaced. Loose or excessively tightened chain will result in undo sprocket wear. Badly worn sprockets must be replaced at time of new chain installation.

NOTE: When ordering parts please give serial number of your machine along with part numbers from the Parts Catalog and Operating Manual.