

MFG: JVI INDUSTRIES
NAME: LOOP-O-PLANE

Loop-O-Plane



JV INDUSTRIES, INC.

P.O. BOX 13399 SALEM, OR 97309-1399

(503) 399-0817

■ FABRICATORS OF STEEL AND FIBERGLASS PRODUCTS ■
■ MANUFACTURER OF AMUSEMENT DEVICES ■



JV INDUSTRIES, INC.

P.O. BOX 13399
SALEM, OR 97309-1399
(503) 399-0817
FAX (503) 581-9537
TWX - 910-250-1140
ESL - 62019801

JON V. EYERLY, PRESIDENT
KAROL W. KERSH, CEO/SALES

LOOP - O - PLANE 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. Mudsills	Cracks and structural damage.			Notify J.V.I. if damage or cracks are discovered.
2. Column				
3. Sweeps				
4. Column Hinge Pin and Clamp Bolt	Damage or looseness.			Replace hinge pin if clearance exceeds +.065". Replace clamping bolt and nut if threads are damaged or worn excessively.
5. Upper gear Box	Loose pinion nuts sprockets and lubricant.			If pinion is loose, adjust bearings to snug fit. Replace damaged or worn nuts. Lubricate as per instructions in Operating Manual.
6. Counter - weight Bolts	Worn or damaged bolts, nuts, correct size & type.			Replace with factory specified size and type.
7. Pendulum Bushing	Wear; diameter and end movement			If car moves in excess of 1" toward and away from column, with ride in operating position, replace.
8. A I I Fasteners	Worn, damaged or missing. Wrong type or size.			Replace with factory specified size and type.

DESCRIPTION	WHAT TO CHECK	OK/ /BY	DATE	NOTES AND REMARKS
9. Sign Hinge & Fastenings	Worn, damaged correct size bolts. Enlarged holes.			Replace with correct size bolts and factory parts.
10. Guy Cables & Turnbuckles	Corrosion, broken strands, kinks, damaged turn - buckles.			Replace if any of these conditions exist.
11. Mudsill Attaching Points & Pins	Cracks or struc- tural damage. Loose fitting pins.			Contact J,V,I. for repair procedures. Replace worn pins and damaged safeties.
12. Cars	Loose, cracked or missing screen Worn or broken frame tubing.			Contact J,V,I. for repair procedures on tubing. Repair or replace screen.
13. Automatic Belt Bar Assy	Condition of all fasteners, lost or broken spring, belt bar door key hole for wear. (Max. from out - side of hole to end of bar 3/8") Worn or damaged door keys, miss- ing door key straps, restraint belt condition.			Replace worn belts. Enlarged key holes should be weldfilled and drilled to correct size. Install new fastenings, keys and straps as required.
14. Door Latch & Hinges	Broken or miss- ing parts. Proper alignment. Positive locking			Align hinges for proper door lock- ing. Replace missing, worn, or broken parts.
15. Car Attaching Bolts & Nuts	Looseness, wear and structural damage.			If bolts are loose or structural damage is found, contact J,V,I. for information on bulletin # L-275 and proper repair procedures.
16. Chains & Sprockets	Chain stretch & wear. Sprocket teeth for wear.			If chain is stretched it must be replaced. Sprockets that are worn to excess, or otherwise damaged, must be replaced.

DESCRIPTION	WHAT TO CHECK	OK/ /BY	DATE	NOTES AND REMARKS
17. Electrical Components	Worn or bad cords or plugs, light rings & brush assemblies.			Replace worn or unsafe cords & plugs with proper size & type. Replace brushes & light rings if worn excessively.

ADDITIONALLY FOR GAS MODEL

18. U-Joints	Excessive wear & missalignment.			Replace or repair as necessary. Lubricate.
19. Mounting Bearings (U-joint)	Wear & lubrication.			Replace as necessary. Lubricate.
20. Engine Clutch	Wear & pilot bearing failure.			Repair or replace as necessary.
21. Clutch & Throttle Control Linkage	Excessive slack & wear.			Adjust, repair or replace loose or worn parts.
22. Lower Gear Box	Shaft movement, clutch condition			Shaft should have no movement laterally or Clutch should be positive. Repair or replace as required.

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



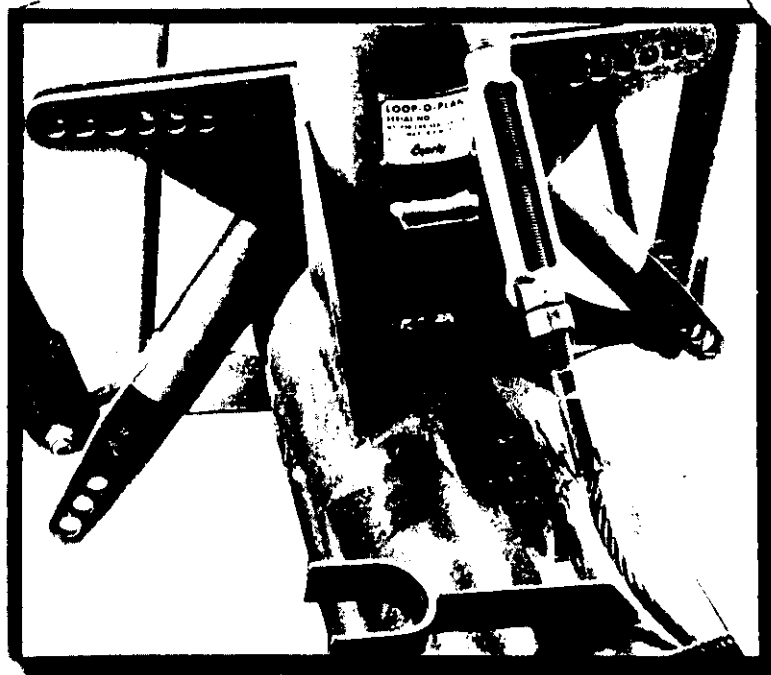
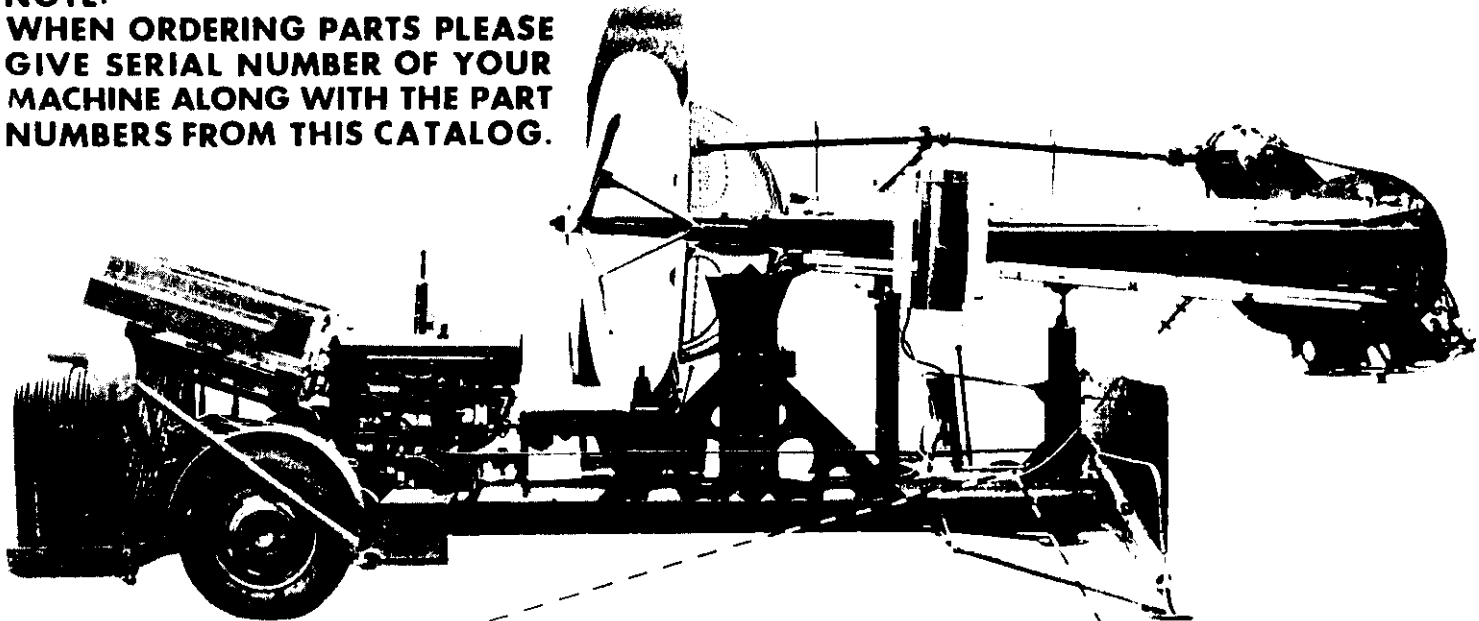
INDEX

	Page No.
SERIAL NUMBER LOCATION	I
SPACE REQUIREMENTS	II
PLAN VIEW & FENCE LAYOUT	III
WIRING DIAGRAM FOR LIGHTS	IV
HYDRAULIC LIFT & LIGHT CABLES DIAGRAM	V
LUBRICATION INSTRUCTION	VI & VII
SET-UP INSTRUCTIONS	VIII
MOVING INSTRUCTIONS	VIII
CLUTCH & THROTTLE ADJUSTMENTS	IX
FRAME ASSEMBLY.	1
COLUMN ASSEMBLY	2
PENDULUM BEARING ASSEMBLY	3
CAR ASSEMBLY	4
CAR BRACKET ASSEMBLY	5
DRIVE SHAFT ASSEMBLY	6
UPPER GEAR DRIVE ASSEMBLY	7
LOWER GEAR BOX ASSEMBLY	8
CLUTCH ASSEMBLY	9
FLEXIBLE COUPLING ASSEMBLY	10
FLUID DRIVE ASSEMBLY	11
CLUTCH SHAFT ASSEMBLY	12
CLUTCH THROWOUT ASSEMBLY	13
.	14
HYDRAULIC PUMP ASSEMBLY	15
LIFT HYDRAULIC CONTROL VALVE ASSEMBLY	16
LIFT HYDRAULIC FILTER ASSEMBLY	17
LIFT HYDRAULIC CYLINDER ASSEMBLY	18
VACUUM BRAKE CONTROLS DIAGRAM	19
VACUUM BRAKE ASSEMBLY	20
.	21
AIR BRAKE CONTROL DIAGRAM	22
AIR BRAKE ASSEMBLY	23
AXLE ASSEMBLY	24
FLUORESCENT FIXTURES	25
FLUORESCENT FIXTURE COMPONENTS	26
LIGHT RING ASSEMBLY	27
ELECTRICAL CONTROL ASSEMBLY (115 Volts)	28
SIGN ASSEMBLY	29
TICKET BOOTH & FENCE ASSEMBLY	30



LOCATION OF LOOP-O-PLANE SERIAL NUMBER

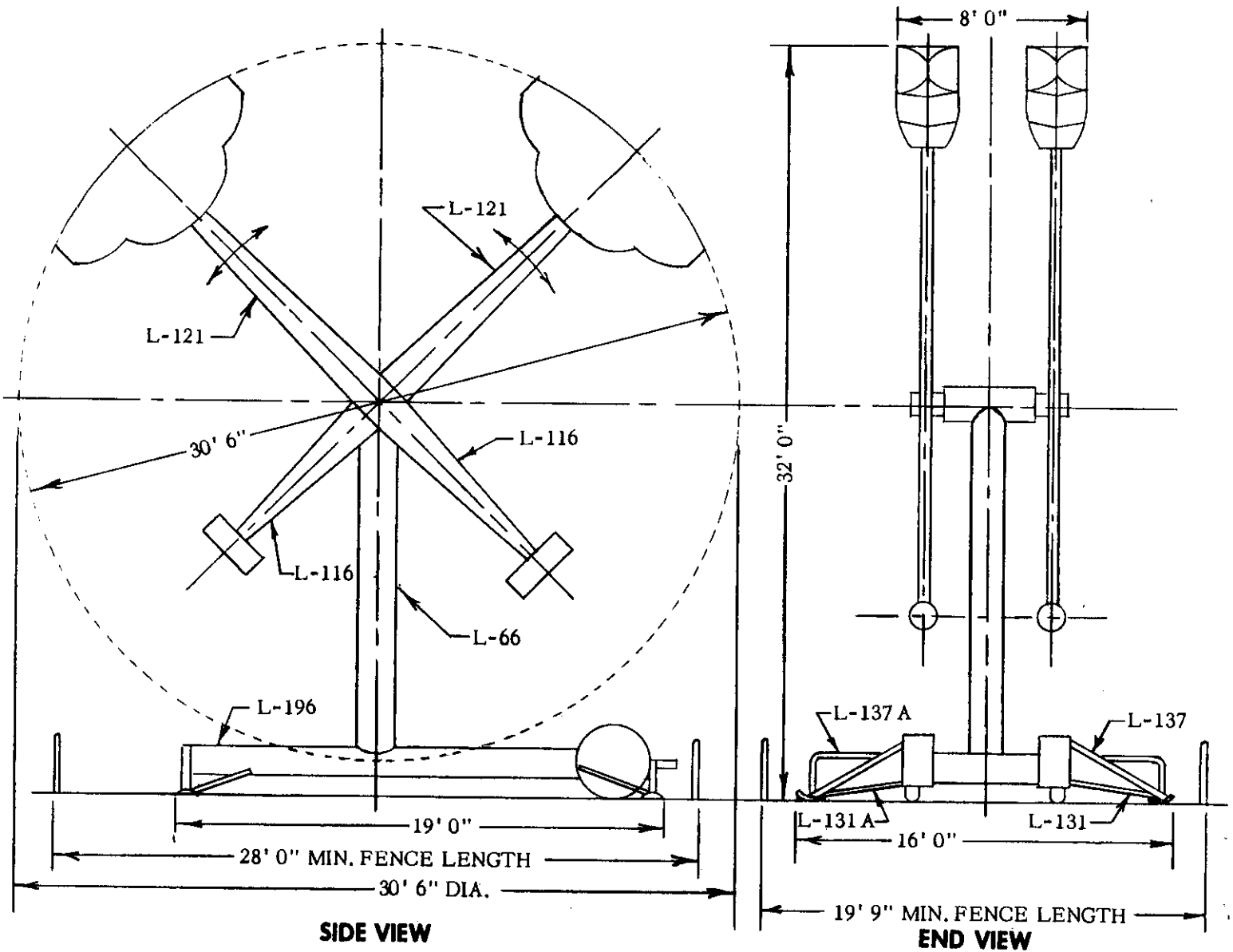
NOTE:
WHEN ORDERING PARTS PLEASE
GIVE SERIAL NUMBER OF YOUR
MACHINE ALONG WITH THE PART
NUMBERS FROM THIS CATALOG.



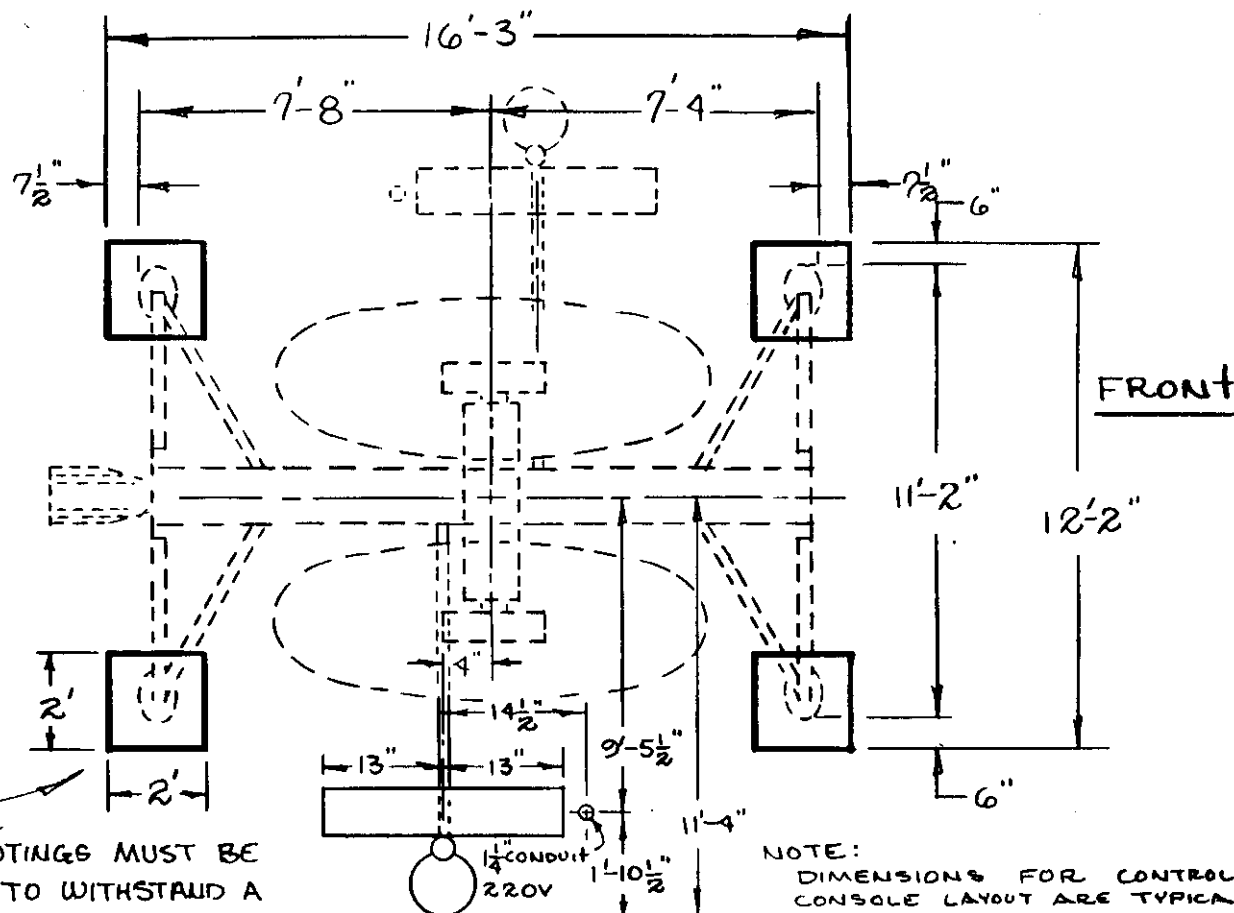
**THE SERIAL NUMBERS ASSIGNED TO THE
PARK MODEL LOOP-O-PLANE START AT
1301 AND THE PORTABLE MODEL STARTS
AT 1500.**



SPACE REQUIREMENTS

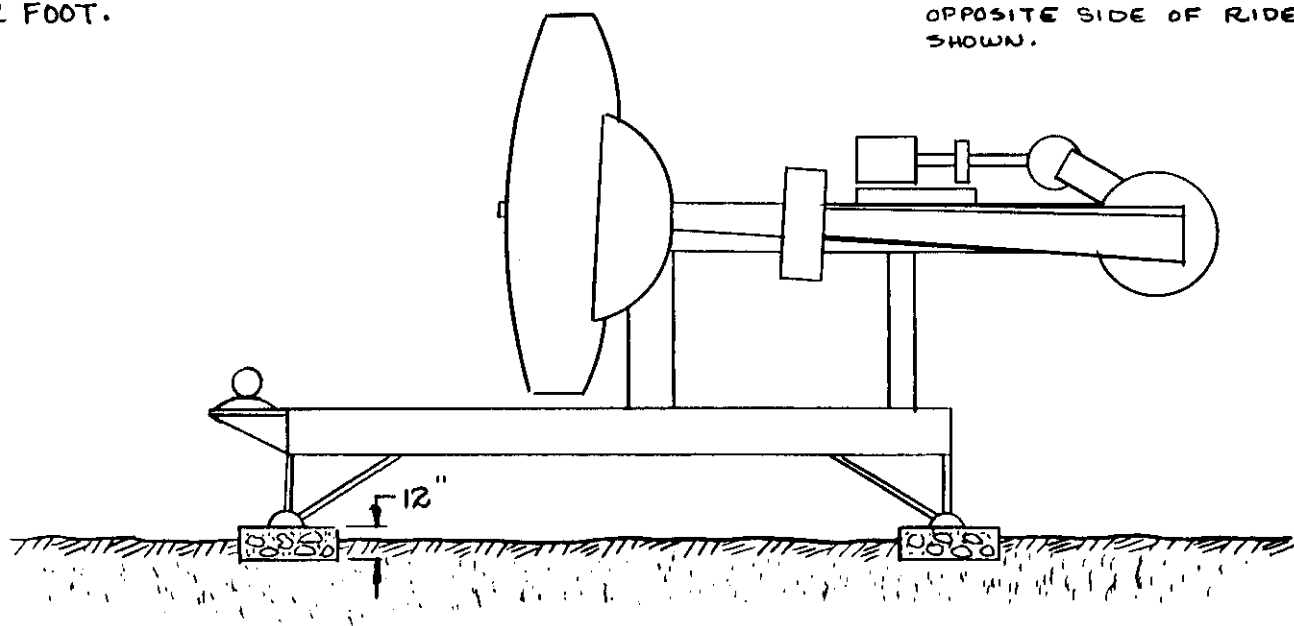


SPACE REQUIREMENTS—PARK MODEL



MUDSILL FOOTINGS MUST BE DESIGNED TO WITHSTAND A MAXIMUM LIVE LOAD OF 4700 LBS. PER FOOT.

NOTE:
DIMENSIONS FOR CONTROL CONSOLE LAYOUT ARE TYPICAL FOR BOTH SIDES IF CONTROL CONSOLE IS PLACED ON OPPOSITE SIDE OF RIDE AS SHOWN.

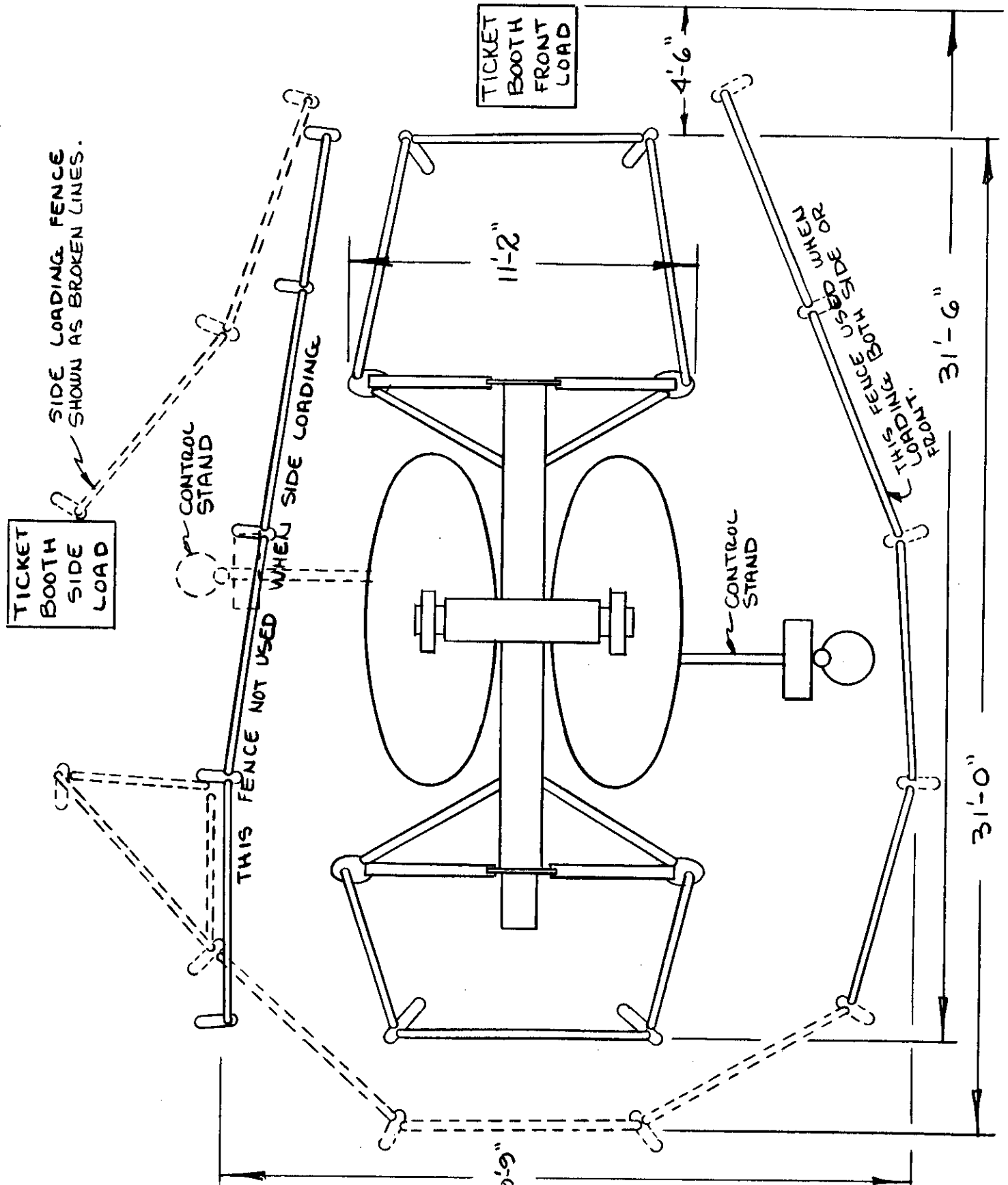


POWER REQUIREMENTS:

ONE MAIN 1 1/4" CONDUIT WITH 3-#2 T.W. BLACK,
1-#10 WHITE (NEUTRAL) PLUS #8 FOR GROUND
INPUT: 208/220V, 3 ϕ , 60~ 117V, 1 ϕ , 60~

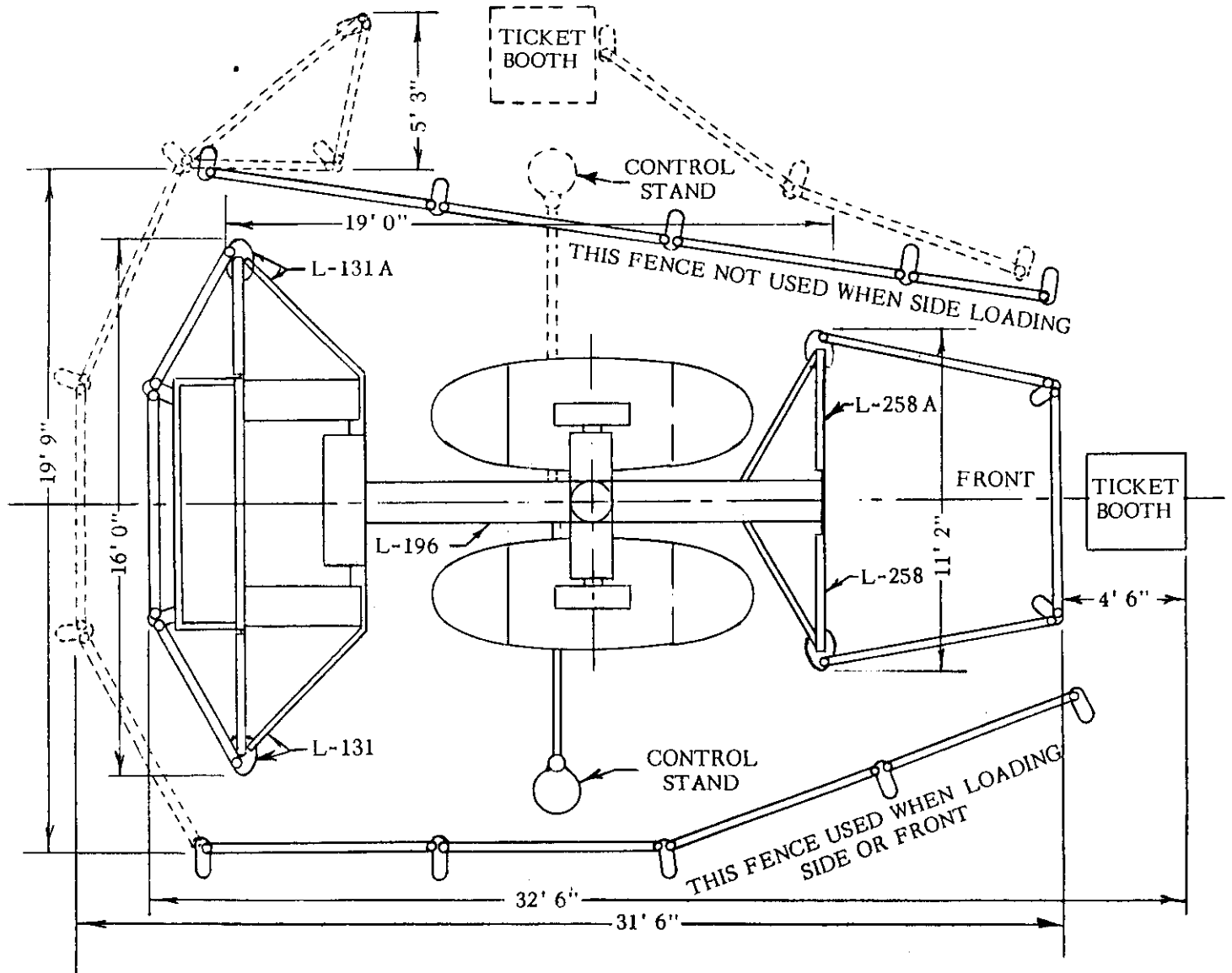


PLAN VIEW & FENCE LAYOUT—PARK MODEL



PLAN VIEW & FENCE LAYOUT

SIDE LOADING FENCE AND TICKET BOOTH
SHOWN AS BROCKEN LINES



30 IN. DRUMHEAD LIGHT FIXTURE

85 IN. COUNTERWEIGHT LIGHT FIXTURE

LIGHT RINGS

SIGN LIGHT FIXTURE

POP-O-RAZ

56 IN. PENDULUM LIGHT FIXTURE

85 IN. COLUMN LIGHT FIXTURE

56 IN. PENDULUM LIGHT FIXTURE

85 IN. COLUMN LIGHT FIXTURE

LIGHT FIXTURE CONNECTIONS

GREEN WHITE BLACK

BLUE WHITE BLACK

RED RED

BALLAST

WHITE BLACK

2-#4 WIRE (BLACK & WHITE)

1-#8 GROUND WIRE (GREEN)

CIRCUIT BREAKER (40 AMP.)

115 VOLT (BLACK)

NEUTRAL (WHITE)

GROUND (GREEN)

115 VOLT 1-PHASE ALTERNATE SYSTEM

15 AMP. OUTLET

CIRCUIT BREAKERS (20 AMP.)

115 VOLT (BLACK)

NEUTRAL (WHITE) 115 V.

115 VOLT (BLACK) 115 V.

GROUND (GREEN) 220 V.

NOTE:
REVISED SERIAL NO. 1559

NOTE:
REVISED SERIAL NO. 1559

HPC 15AMP FUSE HOLDERS

SIGM 4110

2

SELECT SWITCH

2-5 CORD (RECOMMENDED)

STOP

START

E-252 100 AMP MC SWITCH

E-553 50 AMP MC SWITCH

E-611 SIZE #3 REV. MAG. A213E22

E-552 SIZE #0 MAG. A203B22

15AMP SINGLE POLE BREAKER QOU-11S E-554

7595MB

WP-B E-551

25HP MAIN DRIVE MOTOR

3-# 14TW WIRE
1-# 8TW WIRE (GREEN)

SEE ALSO E-61B
SEE E-443-B FOR CONVERSION (2D RP, T FRAME)
SEE E-443-A FOR CONVERSION (1SD, U FRAME)

1310 UP
1585 UP

$$X = 15^T \text{ used on } \# 1592$$



LIGHT CABLES

A detailed technical line drawing of a mechanical assembly, likely a lamp or projector, with numerous numbered callouts (1-29) identifying its components. The diagram shows a complex arrangement of parts including a base, a vertical support, a horizontal arm, and a rotating mechanism. Key components include:

- 1**: A small rectangular component, possibly a switch or control unit, mounted on the base.
- 2**: A small cylindrical component, possibly a lens or filter, mounted on the base.
- 3**: A small rectangular component, possibly a switch or control unit, mounted on the base.
- 4**: A vertical support structure, possibly a pole or stand, mounted on the base.
- 5**: A small rectangular component, possibly a switch or control unit, mounted on the base.
- 6**: Multiple instances of a small rectangular component, possibly a switch or control unit, mounted on the base.
- 7**: A small rectangular component, possibly a switch or control unit, mounted on the base.
- 8**: A small rectangular component, possibly a switch or control unit, mounted on the base.
- 9**: A small cylindrical component, possibly a lens or filter, mounted on the base.
- 10**: Multiple instances of a small rectangular component, possibly a switch or control unit, mounted on the base.
- 11**: A small rectangular component, possibly a switch or control unit, mounted on the base.
- 12**: A small rectangular component, possibly a switch or control unit, mounted on the base.
- 13**: A small rectangular component, possibly a switch or control unit, mounted on the base.
- 14**: A small rectangular component, possibly a switch or control unit, mounted on the base.
- 15**: A small rectangular component, possibly a switch or control unit, mounted on the base.
- 16**: A small rectangular component, possibly a switch or control unit, mounted on the base.
- 17**: A small rectangular component, possibly a switch or control unit, mounted on the base.
- 18**: A small rectangular component, possibly a switch or control unit, mounted on the base.
- 19**: A small rectangular component, possibly a switch or control unit, mounted on the base.
- 20**: A small rectangular component, possibly a switch or control unit, mounted on the base.
- 21**: A small rectangular component, possibly a switch or control unit, mounted on the base.
- 22**: A small rectangular component, possibly a switch or control unit, mounted on the base.
- 23**: A small rectangular component, possibly a switch or control unit, mounted on the base.
- 24**: A small rectangular component, possibly a switch or control unit, mounted on the base.
- 25**: A small rectangular component, possibly a switch or control unit, mounted on the base.
- 26**: A small rectangular component, possibly a switch or control unit, mounted on the base.
- 27**: A small rectangular component, possibly a switch or control unit, mounted on the base.
- 28**: A small rectangular component, possibly a switch or control unit, mounted on the base.
- 29**: A small rectangular component, possibly a switch or control unit, mounted on the base.

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
17	L-348	PUMP HOSE ASSEMBLY (Long)	1
18	L-349	PUMP HOSE ASSEMBLY (Short)	1
19	L-346	CYLINDER HOSE ASSEMBLY (Long)	1
20	L-347	CYLINDER HOSE ASSEMBLY (Short)	1
21	E-154	RUNNING LIGHT PLUG (Female)	1
22	E-155	RUNNING LIGHT CABLE CONNECTOR	1
23	E-156	RUNNING LIGHT CABLE	1
24	L-466	HYDRAULIC NIPPLE (3/8")	1
25	E-157	RUNNING LIGHT CABLE FASTENER	1
26	E-158	LIGHT CABLE CONNECTOR	2
27	E-159	LIGHT CABLE	1
28	E-160	LIGHT PLUG (Male)	1
29	L-467	REMOTE CONTROL ASSEMBLY (Control Valve)	1
*	E-161	RUNNING CLEARANCE LIGHT PLUG (Male & Female)	1

* Not Illustrated.



LUBRICATION INSTRUCTIONS

REF. NO.	NAME OF PART	BEARING TYPE	FREQUENCY	
			*GREASE	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

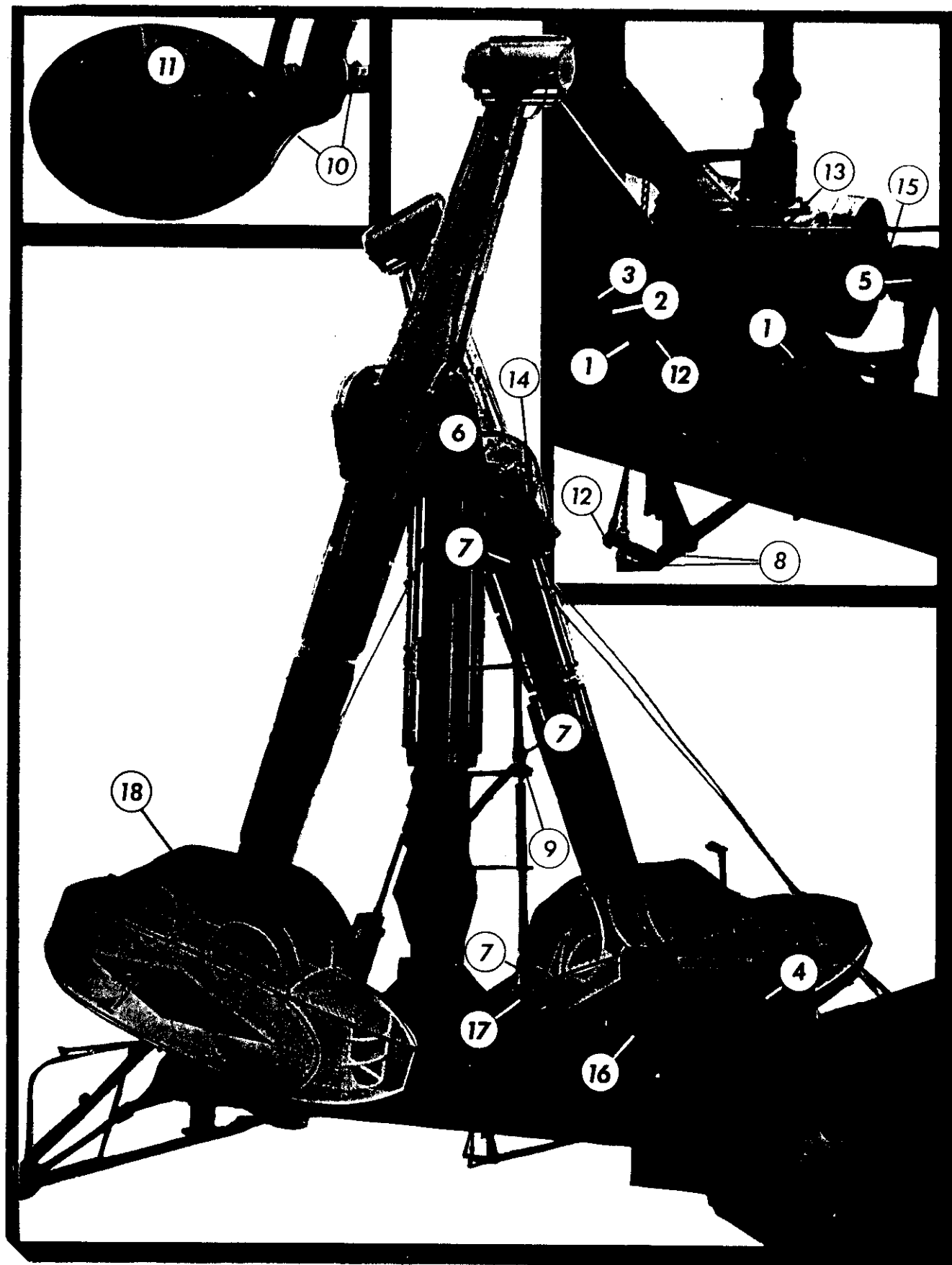
*USE A MULTI-PURPOSE WATER RESISTANT GREASE WITH AN ACCEPTED EXTREME PRESSURE ADDITIVE, SUCH AS MOLYBDENUM DISULFIDE, ON ALL PRESSURE GUN FITTINGS.

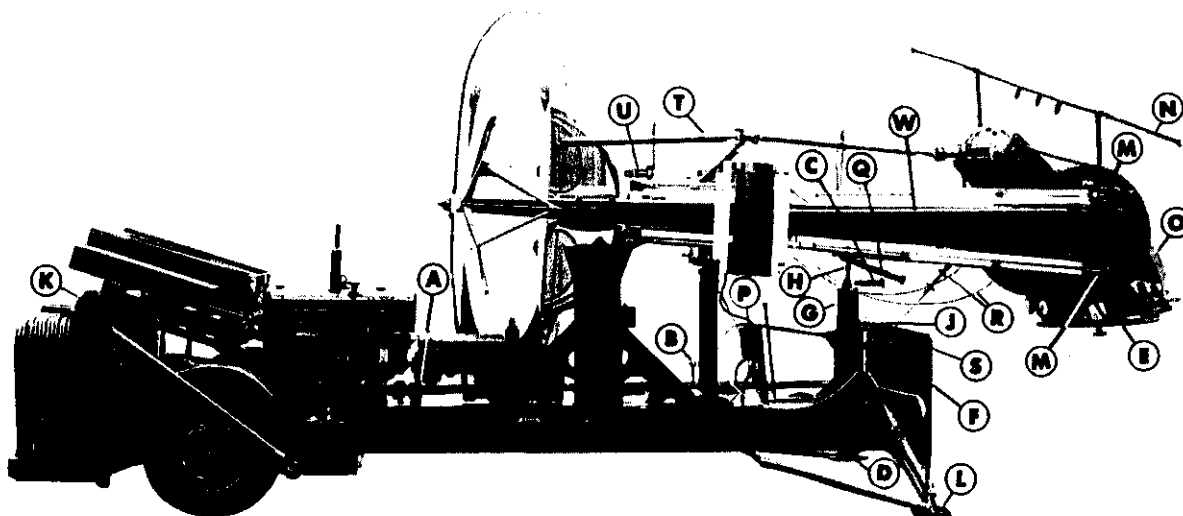
LUBRICATE THE CHAINS EVERY TWO WEEKS WITH AN APPROVED LUBRICANT.

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

THE ABOVE FREQUENCY OF GREASING THE BEARING IS FOR AVERAGE

LUBRICATION INSTRUCTIONS





SET-UP INSTRUCTIONS

1. Mount the pump belt (A) and start the engine. Idling speed is usually fast enough for lifting.

2. With the hydraulic control lever (B), take the weight off the front supporting pins and remove the short pin (C). The front of the base can be inched up by quick forward motions of the control lever, or down by quick backward motions.

3. Lower the front base of the ride to the ground by moving the control lever back. It is a good idea to put a 4" X 4", or equivalent, block under the jack pad (D).

4. Continuing with the control lever in the back position, lift the weight off the tractor, release the fifth wheel (E), drive the tractor away and remove the splash board (F).

5. With the control lever in the back position, raise the column until the lifting post (G) can be pinned to the second, or lower hole in the flat lifting bar (H) with the short pin (C). Pull out the lifting post lock (J).

6. Remove the long fence, drop the rear mud sills (K) and lock in place.

7. Raise the front of the ride by moving control lever forward and check for level sideways. If ride is not close to being level, lower the front and adjust the rear sills (K) accordingly. If the ground is far from being level, it may be necessary to use a hydraulic jack to level the rear.

8. When the ride is level sideways, raise the front until it is slightly above level fore and aft and pin the front mud sills (L) in place.

9. With the weight resting on the front sills, remove the short pin (C) from the flat lifting bar (H) and lower the column.

10. Unlock the safety chains, which secure counterweights to the column,

swing counterweights into place and secure with 1-1/4" X 3" bolts (M) (do not use lockwashers). Fold clearance light brackets (N) and fold down and pin sign (O).

11. Connect control stand (P), clutch rod and brake chain on either side to suit the operator.

12. Remove the long support pin (Q) from column.

13. Raise the column by moving the control lever back, being watchful of brace cables (R & S), drive shaft (T), etc.

14. Stop engine, remove the pump belt (A) and securely bolt the column joint with 1-1/4" X 4" bolt (U).

15. Connect drive shaft (T), being sure to line up the marks, and insert the 1/4" X 2-1/4" safety bolt.

16. Swing the pendulum support brackets, which also secure the counterweights, down against the column. Do not move pendulums (W) until both brackets are down, to prevent damaging the light stringers.

17. Remove and set up the fence and ticket booth. There are many possible arrangements for the fence, regarding location of gates, ticket booth and exits. Therefore, it is usually left to the operator to arrange the fence to suit his requirements.

18. Connect the rear brace cables (R) and tighten, being sure to cross over the engine. Do not apply excessive pressure on these cables and keep the tension as near equal as possible. Check the front cables (S). If either of these cables become slack, when the ride is operated with a full load, they may be taken up a little more.

19. Connect the light cords and check the lights.

MOVING INSTRUCTIONS

1. Disconnect rear brace cables (R).

2. Load short fence and ticket booth.

3. Swing car support brackets up under pendulums.

4. Disconnect drive shaft (T) and remove bolt (U) from column joint.

5. Mount pump belt (A) and start engine.

6. By moving the hydraulic control lever (B) forward, lower the column, being watchful of brace cables, etc.

7. Disconnect light cord and power control cord.

8. Disconnect the control stand (P) and install in transport position.

9. Unbolt the counterweights and swing around to where they can be pinned to the support brackets. Hook the safety chains and fold up sign.

11. Move the control lever forward, taking the weight off the front mud sills (L). Raise the front mud sills to transport and pin.

12. Lower the front of the ride to the ground by moving the control lever back. Continue to raise the column until the lift post lock pin can be inserted in the lift post.

13. Remove the short support pin (C).

14. Fold the rear mud sills (K) and safety the pin in the center of the cross channel.

15. Load and secure the fence jacks and long fence.

16. Install splash board and secure.

17. Lower the column to the proper height to engage the fifth wheel (E) on the tractor. Back the tractor under the fifth wheel and lock.

18. Move the control lever forward, raising the base to where the short

CLUTCH & THROTTLE ADJUSTMENTS

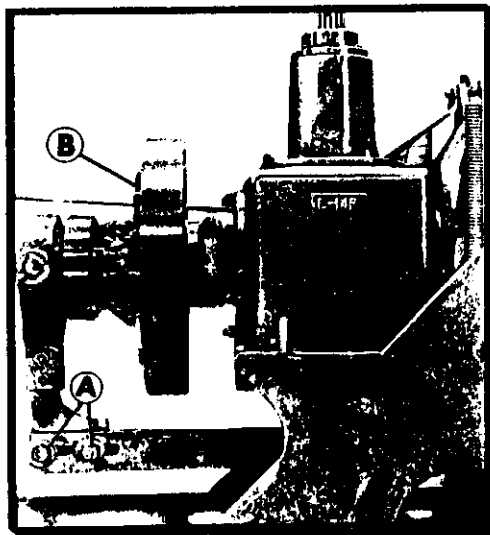
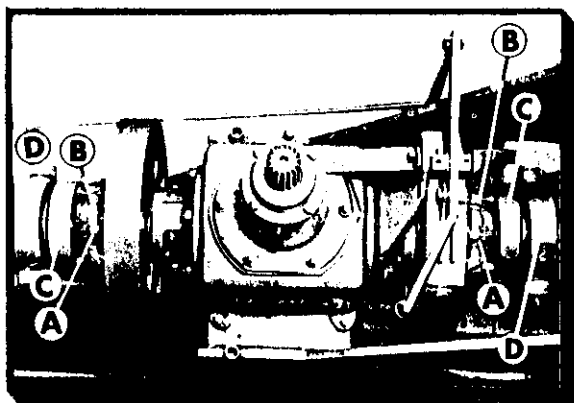


FIG. 2

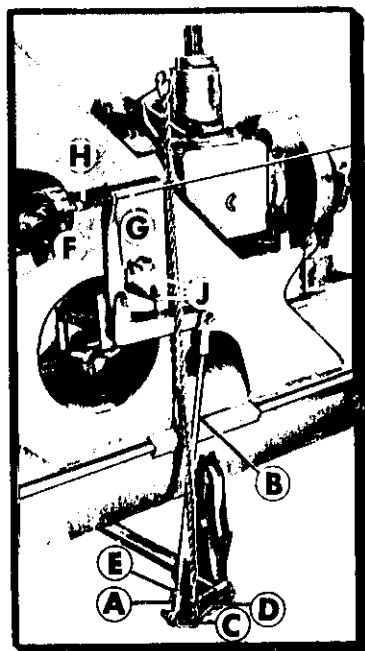
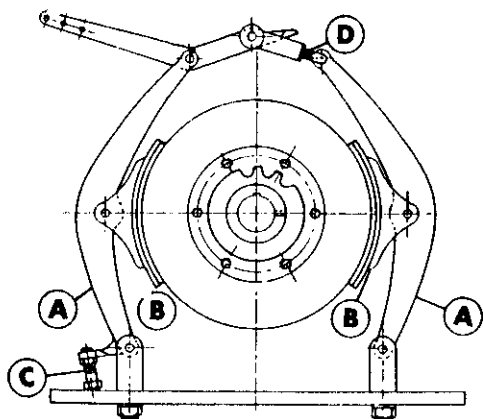


FIG. 3

ELECTRIC MODEL BRAKE ADJUSTMENT



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 adjustment 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.

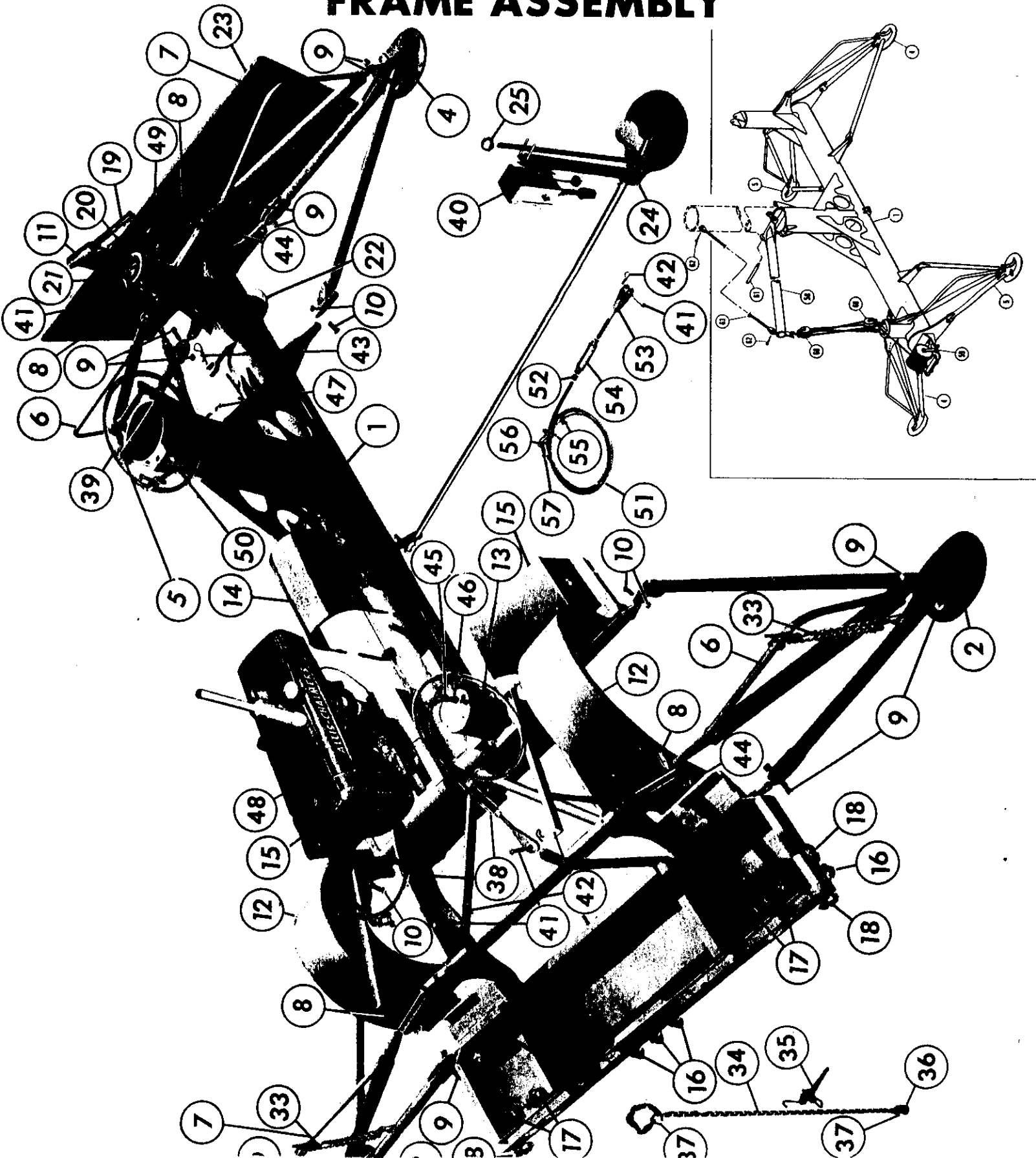
Adjust stops (I) to where the engine runs the same speed in either direction. This may be accomplished by first running the ride in one direction and marking the position of the rod (G) in relation to the outer rod guide and then reversing the ride and adjusting the stop until the rod is in the same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

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.



FRAME ASSEMBLY





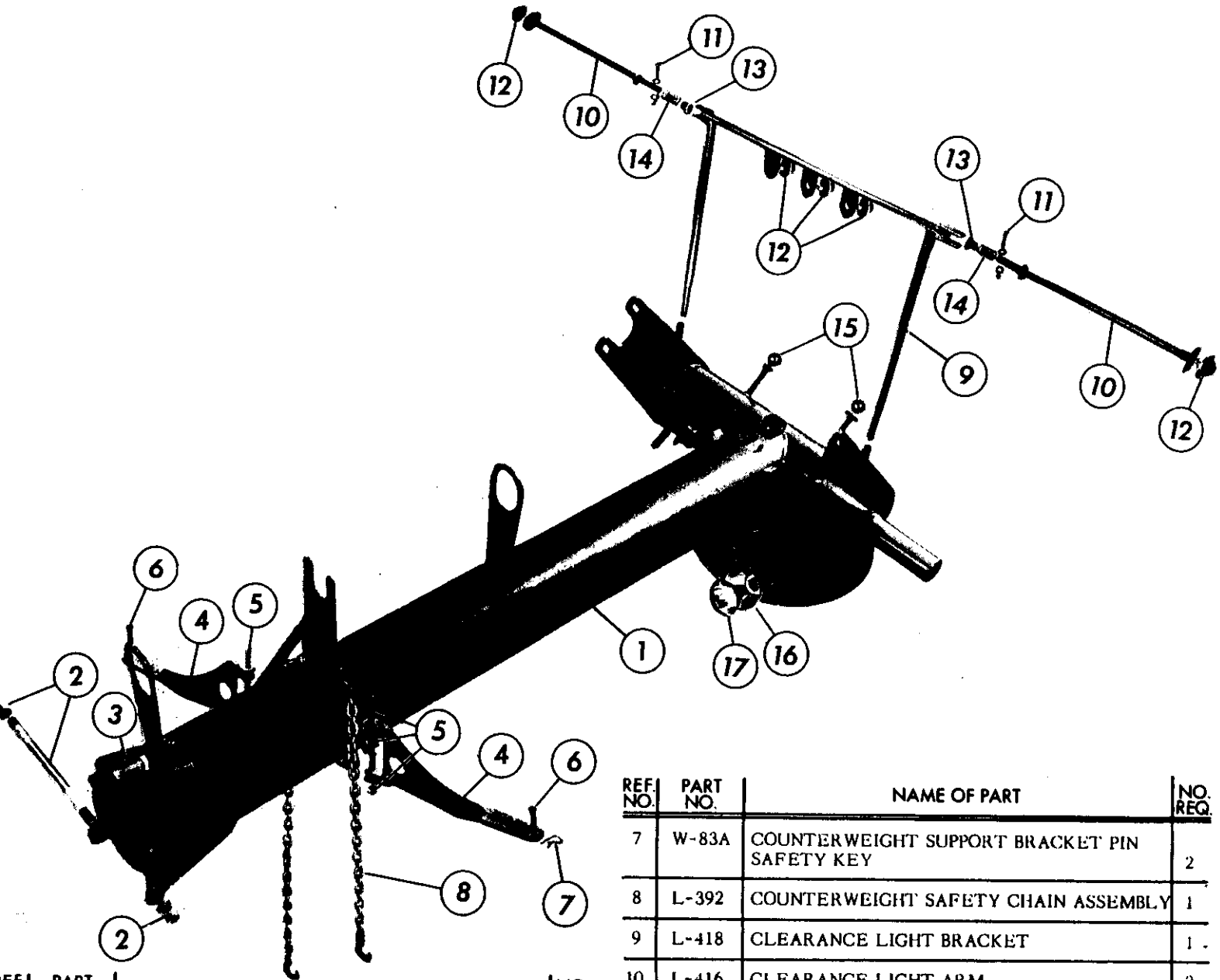
FRAME ASSEMBLY

REF. NO.	PART NO.	NAME OF PART	NO. REQ.	REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	L-196	FRAME ASSEMBLY	1	38	L-353	GUY CABLE ASSEMBLY (Rear)	2
2	L-131	MUD SILL (R. H. Rear)	1	39	L-352	GUY CABLE ASSEMBLY (Front)	1
3	L-131A	MUD SILL (L. H. Rear)	1	40	E-138	ELECTRICAL CONTROL BOX ASSEMBLY	1
4	L-258	MUD SILL (R. H. Front)	1	41	W-83	TAPER PIN (Small)	3
5	L-258A	MUD SILL (L. H. Front)	1	42	W-83A	TAPER PIN SAFETY KEY	4
6	L-137	MUD SILL TOP MEMBER (L. H. Front & R. H. Rear)	2	43	W-97A	SAFETY KEY	3
7	L-137A	MUD SILL TOP MEMBER (R. H. Front & L. H. Rear)	2	44	O-26A	UNIVERSAL TAPER PIN SAFETY KEY	4
8	O-26	UNIVERSAL TAPER PIN	4	45	L-212A	OIL TANK BREATHER	1
9	L-131B	MUD SILL BOLT ASSEMBLY (Long)	8	46	L-212B	OIL TANK PIPE REDUCER	1
10	L-131C	MUD SILL BOLT ASSEMBLY (Short)	4	47	L-377	LINE LEVEL	1
11	L-143	JACK LEG EXTENSION	1	48	L-340	MOTOR ASSEMBLY	1
12	L-205	FENDER	2	49	L-302	SPLASH BOARD LATCH	1
13	L-212	OIL TANK	1	50	L-66A	COLUMN CLAMPING BOLT ASSEMBLY	1
14	L-357	CLUTCH GUARD	1	51	L-353A	GUY CABLE (Rear)	2
15	L-288	TOOL BOX	2	52	L-353G	GUY CABLE JAM NUT	3
16	E-135	ARMORED MARKER LIGHT	5	53	L-353B	GUY CABLE CLEVIS	3
17	E-136	STOP, TURN & TAIL LIGHT	4	54	L-353C	GUY CABLE TURNBUCKLE BODY	3
18	E-137	REFLECTOR	4	55	L-353D	GUY CABLE CLAMP	6
19	L-208	FRONT SUPPORT PIN (Long)	1	56	L-353E	GUY CABLE THIMBLE	3
20	L-195	JACK LOCK PIN	1	57	L-353F	GUY CABLE SHACKLE	3
21	O-25	FRONT SUPPORT PIN (Short)	1	*	L-301	SPLASH BOARD ANGLE	2
22	L-141	JACK LEG	1	*	L-378	CONTROL STAND ANCHOR PIN	1
23	L-301	SPLASH BOARD	1	*	L-378A	CONTROL STAND ANCHOR BOLT ASSEMBLY	1
24	L-403	CONTROL STAND ASSEMBLY	1	*	L-195A	JACK LOCK PIN COTTER KEY	1
25	W-133B	CONTROL STAND LEVER BALL	1	*	L-352A	GUY CABLE (Front)	1
33	L-367	FENCE HOLD DOWN CHAIN ASSEMBLY	2	*	W-234	BATTERY	1
34	L-367A	FENCE HOLD DOWN CHAIN	2	*	W-234A	BATTERY CABLE (Long)	1
35	L-367B	FENCE HOLD DOWN CHAIN BINDER	2	*	W-234B	BATTERY CABLE (Short)	1
36	L-367C	FENCE HOLD DOWN CHAIN HOOK	2	*	W-234C	BATTERY CABLE TERMINAL INSULATOR	1
37	L-367D	FENCE HOLD DOWN CHAIN COLD SHUT	4				

* Not Illustrated.



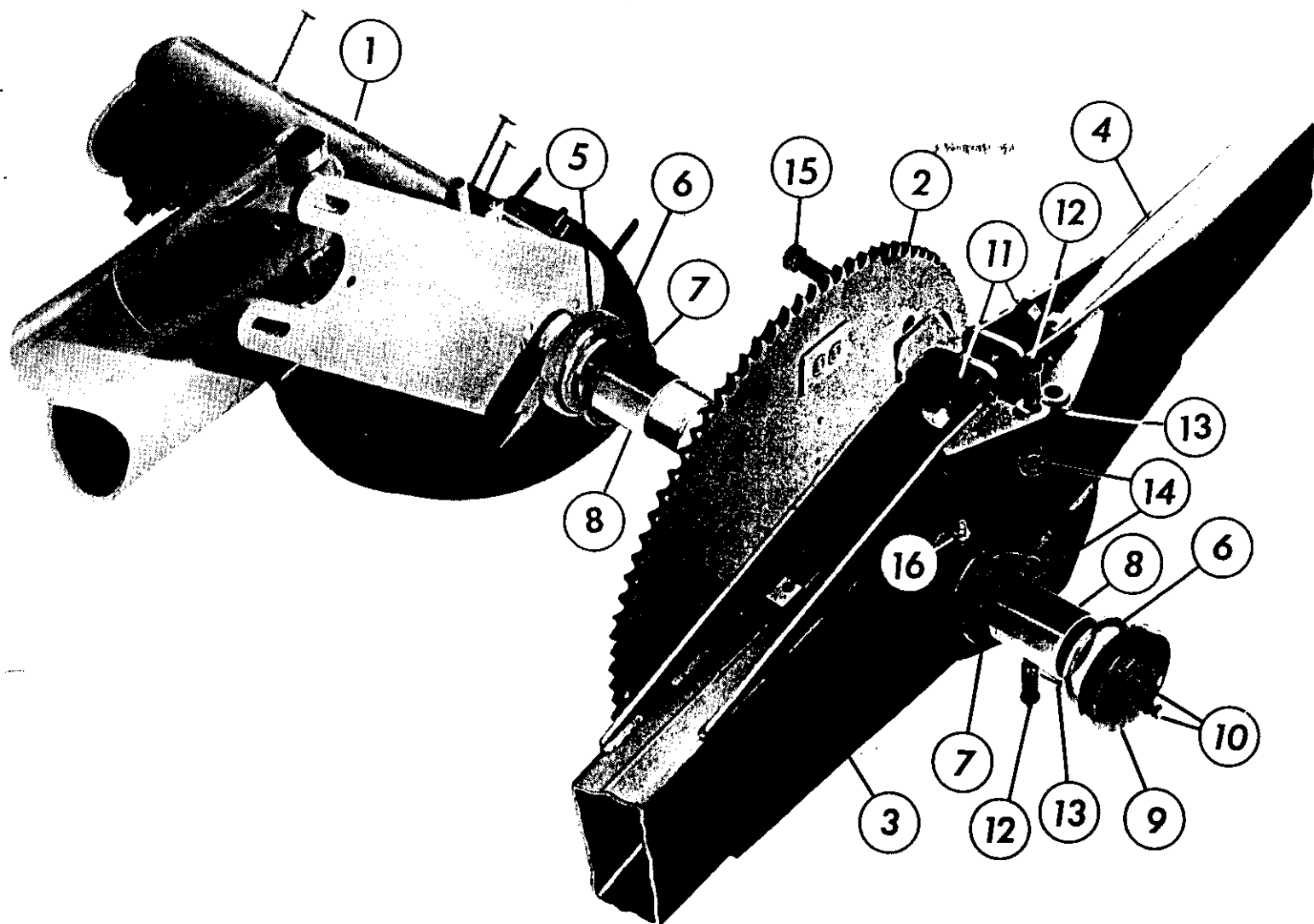
COLUMN ASSEMBLY



REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	L-66	COLUMN ASSEMBLY	1
2	L-209	COLUMN HINGE PIN ASSEMBLY	1
3	L-66A	COLUMN CLAMPING BOLT ASSEMBLY	1
4	L-81	COUNTERWEIGHT SUPPORT BRACKET	2
5	L-81A	COUNTERWEIGHT SUPPORT BRACKET BOLT ASSEMBLY	4
6	W-83	COUNTERWEIGHT SUPPORT BRACKET PIN	2

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
7	W-83A	COUNTERWEIGHT SUPPORT BRACKET PIN SAFETY KEY	2
8	L-392	COUNTERWEIGHT SAFETY CHAIN ASSEMBLY	1
9	L-418	CLEARANCE LIGHT BRACKET	1
10	L-416	CLEARANCE LIGHT ARM	2
11	L-416A	CLEARANCE LIGHT ARM BOLT ASSEMBLY	2
12	E-132	PLAIN MARKER LIGHTS	5
13	L-417	CLEARANCE LIGHT ARM LOCK	2
14	L-419	CLEARANCE LIGHT ARM SPRING	2
15	W-133B	SIGN BUMPER	2
16	E-133	FLOOD LAMP HOLDER	2
17	E-134	FLOOD LAMP	2

PENDULUM BEARING ASSEMBLY

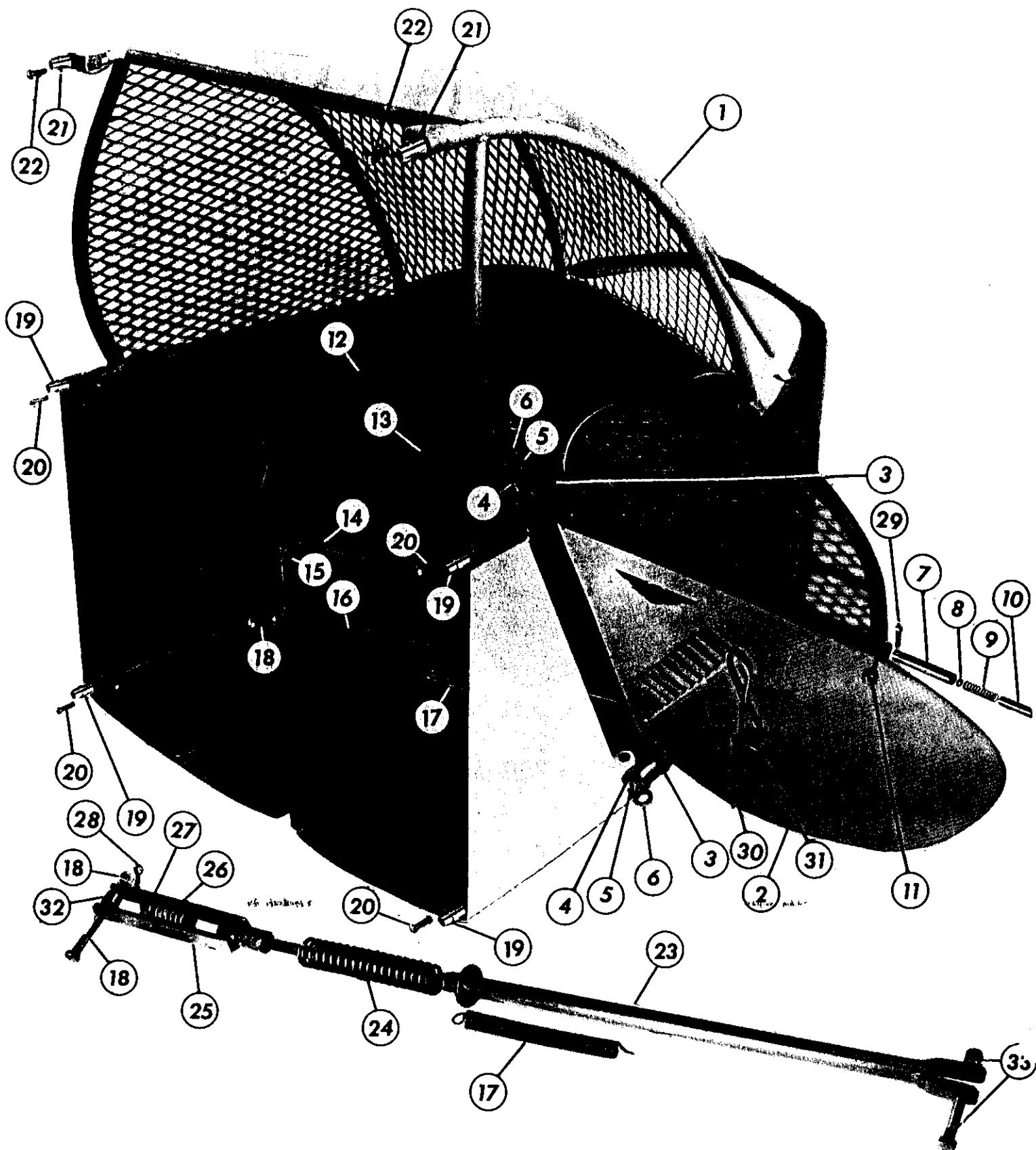


REF. NO.	PART NO.	NAME OF PART	NO. REQ.	REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	L-66	COLUMN ASSEMBLY	1	10	L-120A	END PLATE BOLT & LOCKWASHER	4
2	L-1	PENDULUM SPROCKET	2	11	L-166A	BOLT ASSEMBLY	4
3	L-121	PENDULUM ASSEMBLY	2	12	O-25	PIN	4
4	L-116	COUNTERWEIGHT ASSEMBLY	2	13	O-25A	COTTER KEY	4
5	L-119	SHAFT SEAL RING	2	14	O-25B	WASHER	8
6	L-169	SHAFT THRUST WASHER	4	15	L-121A	BOLT ASSEMBLY	4
7	O-380C	SHAFT OIL SEAL	4	16	O-275	ZERK FITTING	2
8	L-268	PENDULUM BUSHING	4	*	L-1A	SPROCKET BOLT ASSEMBLY	16
9	L-120	SHAFT END PLATE	2				

* Not Illustrated.



CAR ASSEMBLY





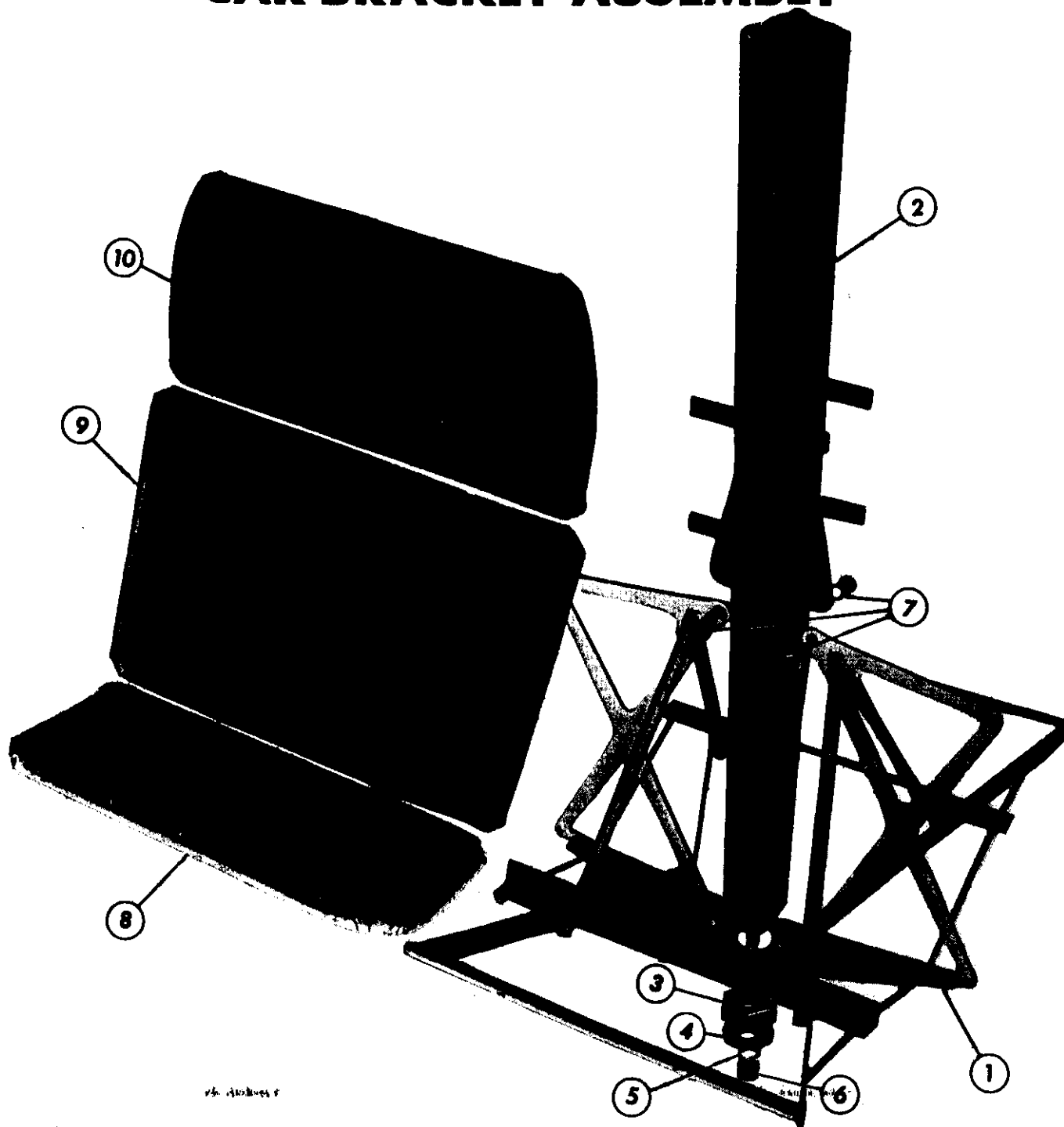
CAR ASSEMBLY

REF. NO.	PART NO.	NAME OF PART	NO. REQ.	REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	L-453	CAR (R. H.)	2	21	L-402	CAR GUIDE PIN (Short)	4
2	L-448	CAR DOOR (R. H.)	2	22	L-402A	CAR BOLT ASSEMBLY (Short)	8
3	W-90	HINGE BUSHING	8	23	L-420	CAR BELT BAR TIE ROD	4
4	W-89	HINGE PIN	8	24	W-91	BELT PRESSURE SPRING	4
5	W-89A	HINGE LOCKWASHER	8	25	W-96	TIE ROD CLEVIS	4
6	W-89B	HINGE NUT	8	26	W-92	BELT CUSHION SPRING	4
7	W-130	DOOR LATCH TUBE	4	27	W-362	BELT CUSHION SPRING SPACER	4
8	W-130A	DOOR LATCH TUBE WASHER	4	28	W-362A	BELT CUSHION SPRING COTTER KEY	4
9	W-94	DOOR LATCH SPRING	4	29	W-130A	DOOR LATCH TUBE BOLT ASSEMBLY	4
10	W-131	DOOR LATCH PLUNGER	4	30	W-97A	CAR BELT BAR SAFETY KEY	4
11	W-131A	DOOR LATCH KNOB	4	31	W-96A	CAR BELT BAR SAFETY KEY STRAP	4
12	L-421	CAR BELT BAR	4	32	W-96C	TIE ROD CLEVIS SPACER	4
13	L-451	SAFETY BELT	4	33	W-96D	TIE ROD BOLT ASSEMBLY (Short)	4
14	W-98	CAR BELT BAR HINGE PIN	4	*	L-454	CAR (L. H.)	2
15	L-421A	CAR BELT BAR STOP ASSEMBLY	4	*	L-444	CAR ASSEMBLY COMPLETE (R. H.)	2
16	L-452	CAR BELT BAR TIE ROD ASSEMBLY	4	*	L-445	CAR ASSEMBLY COMPLETE (L. H.)	2
17	L-455	BELT LIFT SPRING	4	*	L-449	CAR DOOR (L. H.)	2
18	W-96B	TIE ROD BOLT ASSEMBLY (Long)	4	*	L-450	CAR COVER	2
19	L-401	CAR GUIDE PIN (Long)	8	*	W-98A	BELT BAR HINGE PIN COTTER KEY	4
20	L-401A	CAR BOLT ASSEMBLY (Long)	8				

* Not Illustrated.

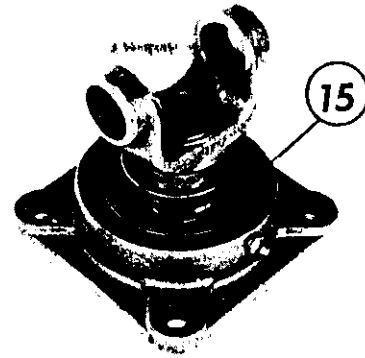
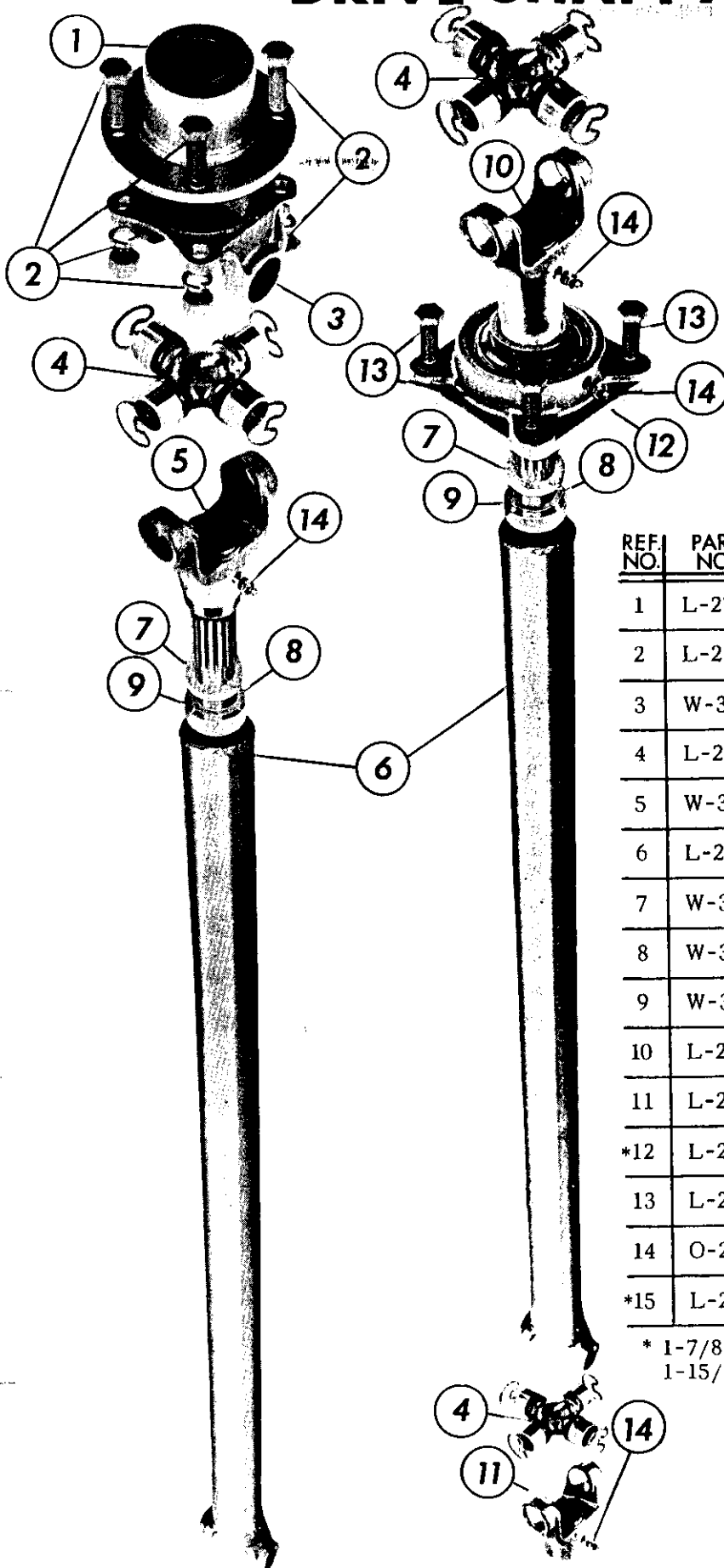


CAR BRACKET ASSEMBLY



REF. NO.	PART NO.	NAME OF PART	NO. REQ.	REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	L-290	CAR BRACKET	2	7	L-290A	CAR BRACKET BOLT ASSEMBLY	4
2	L-121	PENDULUM ASSEMBLY	2	8	L-337	CAR SEAT UPHOLSTERY (L. H.)	2
3	L-12A	PENDULUM NUT (Large)	2	9	L-338	CAR SEAT BACK UPHOLSTERY	4
4	L-248	PENDULUM WASHER	2	10	L-363	CAR SEAT HEAD REST UPHOLSTERY	4
5	L-12C	PENDULUM LOCKWASHER	2	*	L-290B	CAR BRACKET SET SCREW ASSEMBLY	4
6	L-12B	PENDULUM NUT (Small)	2	*	L-337A	CAR SEAT UPHOLSTERY (R. H.)	2

DRIVE SHAFT ASSEMBLY

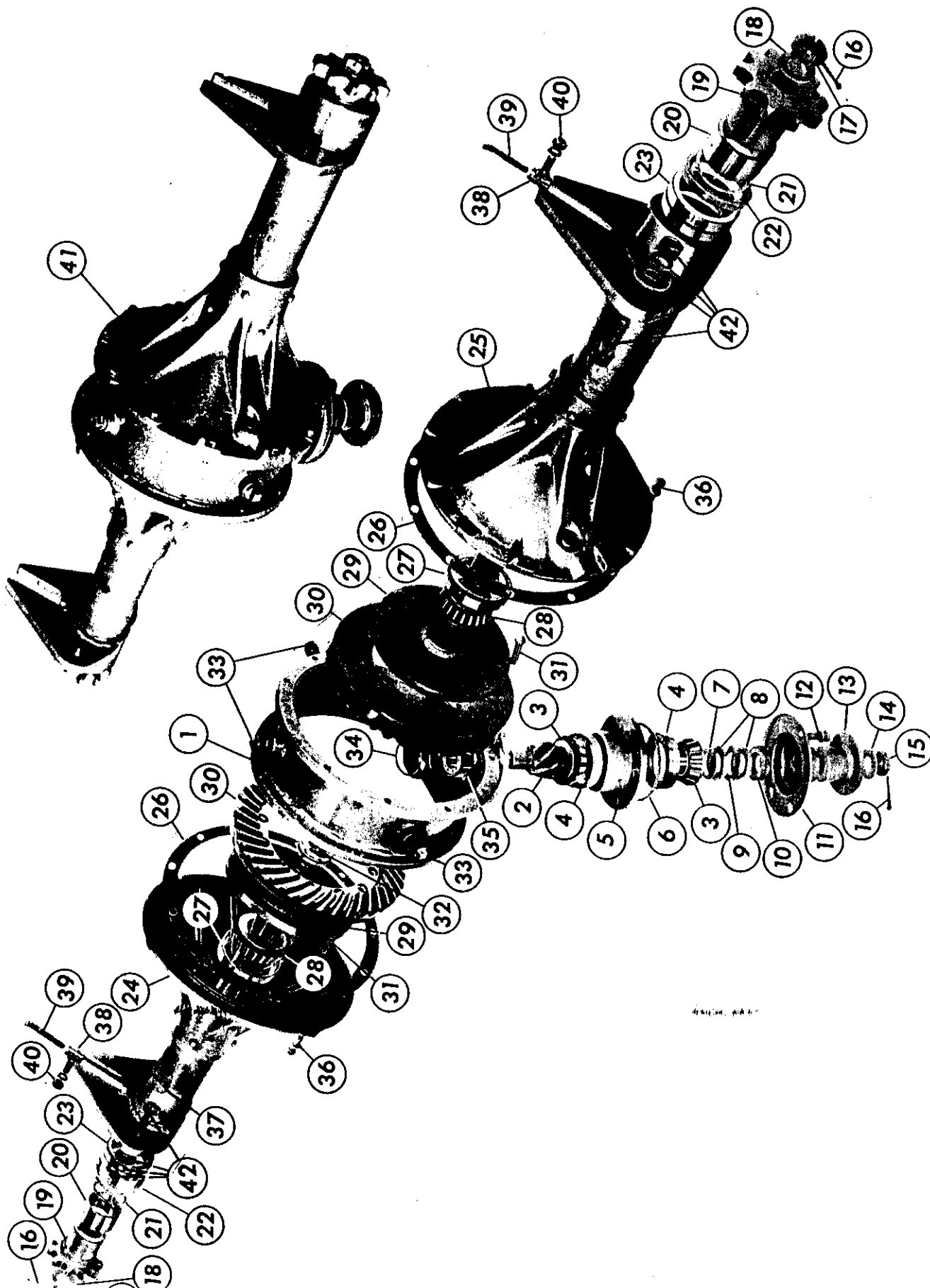


REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	L-277	DRIVE HUB	1
2	L-277A	DRIVE HUB BOLT, NUT & LOCKWASHER	4
3	W-337	FLANGE YOKE	1
4	L-255	CROSS JOURNAL & BEARING KIT	3
5	W-342	SLEEVE YOKE ASSEMBLY (Upper)	1
6	L-252	DRIVE SHAFT	2
7	W-343	CORK SEAL	2
8	W-344	CORK SEAL WASHER	2
9	W-345	CORK SEAL RETAINER	2
10	L-254	SLEEVE YOKE (Intermediate)	1
11	L-253	SLEEVE YOKE (Lower)	1
*12	L-254A	INTERMEDIATE BEARING	1
13	L-254B	INTERMEDIATE BEARING BOLT ASSY.	4
14	O-275	ZERK FITTING	4
*15	L-254C	INTERMEDIATE BEARING & YOKE ASSY.	1

* 1-7/8" FAFNIR Serial No. 1500 to 1521
1-15/16" SEAL MASTER Serial No. 1522 and beyond.



UPPER GEAR DRIVE ASSEMBLY





UPPER GEAR DRIVE ASSEMBLY

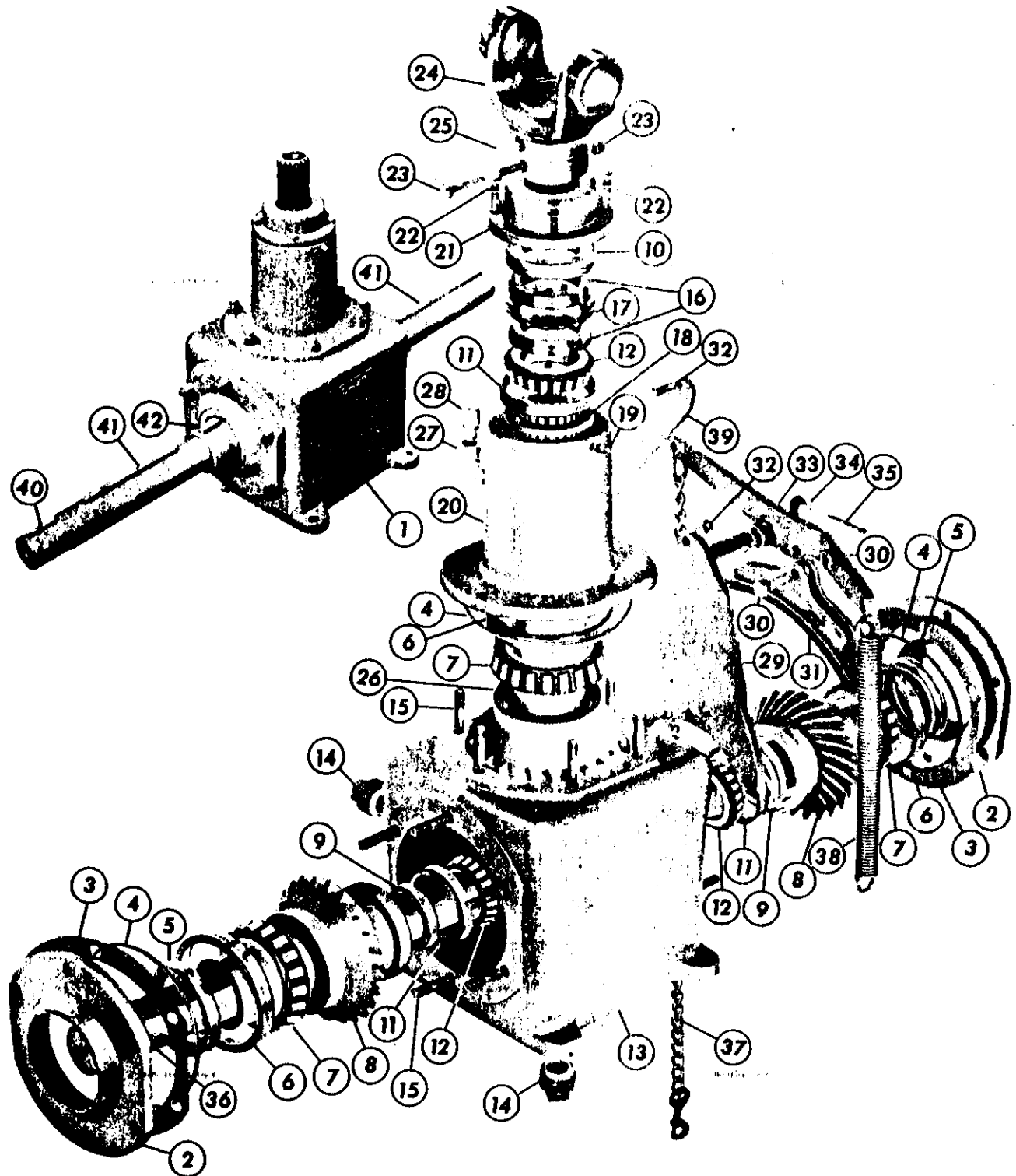
REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	L-9	UPPER GEAR HOUSING BANJO	1
2	O-120	PINION GEAR (6 Tooth)	1
3	O-113B	PINION BEARING CONE	2
4	O-113	PINION BEARING CUP	2
5	O-111	PINION SLEEVE	1
6	O-540	PINION SLEEVE "O" RING	1
7	O-113A	PINION BEARING WASHER	1
8	O-115	PINION BEARING NUT	2
9	O-116	PINION BEARING LOCK WASHER	1
10	O-539	PINION COVER PLATE SEAL	1
11	O-358	PINION COVER PLATE	1
12	O-358A	CAP SCREW & LOCK WASHER	6
13	L-277	DRIVE HUB	1
14	L-277A	DRIVE HUB WASHER	1
15	O-120A	PINION GEAR NUT	1
16	O-120B	COTTER KEY	3
17	L-23A	DRIVE SHAFT NUT	2
18	L-17C	DRIVE SPROCKET WASHER	2
19	L-17	DRIVE SPROCKET	2
20	L-263	UPPER GEAR DRIVE OUTER BEARING (Inner Race)	2
21	L-17B	UPPER GEAR DRIVE OUTER BEARING LOCK RING	2
22	L-264	UPPER GEAR DRIVE OUTER BEARING SEAL	2
23	L-262	UPPER GEAR DRIVE OUTER BEARING (Outer Race)	2
24	L-16L	UPPER GEAR DRIVE HOUSING (Left Hand)	1

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
25	L-16R	UPPER GEAR DRIVE HOUSING (Right Hand)	1
26	O-103	UPPER GEAR DRIVE HOUSING GASKET	2
27	O-112	UPPER GEAR DRIVE INNER BEARING CUP	2
28	L-260	UPPER GEAR DRIVE INNER BEARING CONE	2
29	L-23	UPPER GEAR DRIVE SHAFT (Less Ring Gear)	2
30	O-536	RING GEAR	2
31	O-536A	RING GEAR RIVET	2
32	L-259	DRIVE SHAFT THRUST BEARING	1
33	O-767	PIPE PLUG	1
34	L-327	PINION PILOT BEARING RETAINER RING	1
35	O-114	PINION PILOT BEARING	1
36	L-16A	HOUSING CAPSCREW & LOCK WASHER	2
37	L-456	BREATHER	1
38	L-3	CHAIN TIGHTENER	1
39	L-330	ADJUSTING SCREW	2
40	L-3A	NUT & LOCK WASHER	2
41	L-468	UPPER GEAR DRIVE ASSEMBLY	1
42	L-16B	HOUSING BOLT ASSEMBLY	1
*	L-17A	DRIVE SPROCKET KEY	1
*	O-120C	PINION GEAR KEY	1
*	O-402C	RING GEAR THRUST BLOCK	1
*	O-402D	RING GEAR THRUST BLOCK PIN	1
*	L-23B	UPPER GEAR DRIVE SHAFT WITH RING GEAR	1

* Not Illustrated.



LOWER GEAR BOX ASSEMBLY





LOWER GEAR BOX ASSEMBLY

REF. NO.	PART NO.	NAME OF PART	NO. REQ.	REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	L-467	LOWER GEAR BOX ASSEMBLY	1	23	L-454	BOLT & NUT ASSEMBLY	1
2	L-47	GEAR BOX BEARING CARRIER	2	24	L-253	UNIVERSAL SLEEVE YOKE (Short)	1
3	L-448	BEARING CARRIER SHIM	-	25	O-275	ZERK FITTING	1
4	L-223	GEAR BOX "O" RING	3	26	L-176	GEAR BOX SHAFT & GEAR ASSY. (Upper)	1
5	L-220	GEAR BOX BEARING SEAL (Outer)	2	27	L-455	STREET ELL	1
6	L-215	GEAR BOX BEARING CUP (Outer)	3	28	L-456	BREATHER	1
7	L-216	GEAR BOX BEARING CONE (Outer)	3	29	L-275	BRAKE ANCHOR PLATE	1
8	L-410	GEAR BOX SHAFT & GEAR ASSY. (Outer)	2	30	L-457	BRAKE SHOE BOLT, LOCKWASHER & NUT	1
9	L-222	GEAR BOX BEARING SEAL (Inner)	2	31	L-299	BRAKE SHOE	1
10	L-221	GEAR BOX CAP SEAL	1	32	L-458	BOLT, LOCKWASHER & NUT ASSY.	1
11	L-217	GEAR BOX BEARING CUP (Inner)	3	33	L-276	BRAKE LEVER	1
12	L-218	GEAR BOX BEARING CONE (Inner)	3	34	L-459	BRAKE LEVER WASHER	1
13	L-148	GEAR BOX	1	35	L-460	BRAKE LEVER COTTER KEY	1
14	L-449	PIPE PLUG	2	36	L-186	GEAR BOX SHAFT (Inner)	1
15	L-450	STUD, LOCKWASHER & NUT ASSY. (Short)	14	37	L-461	BRAKE LEVER CHAIN ASSEMBLY	1
16	L-226	GEAR BOX BEARING NUT	2	38	L-462	BRAKE LEVER SPRING	1
17	L-227	GEAR BOX BEARING NUT LOCKWASHER	1	39	L-463	ANCHOR PLATE BRACE	1
18	L-177	GREASE RETAINING WASHER	1	40	L-464	COUPLING KEY	1
19	L-452	ZERK FITTING	1	41	L-429	CLUTCH BODY KEY	2
20	L-173	BEARING CARRIER (Upper)	1	42	L-465	CLUTCH BOWL KEY	2
21	L-180	GEAR BOX CAP	1	*	L-466	STUD, LOCKWASHER & NUT ASSY. (Long)	4
22	L-453	CAP SCREW & LOCKWASHER ASSY.	4				

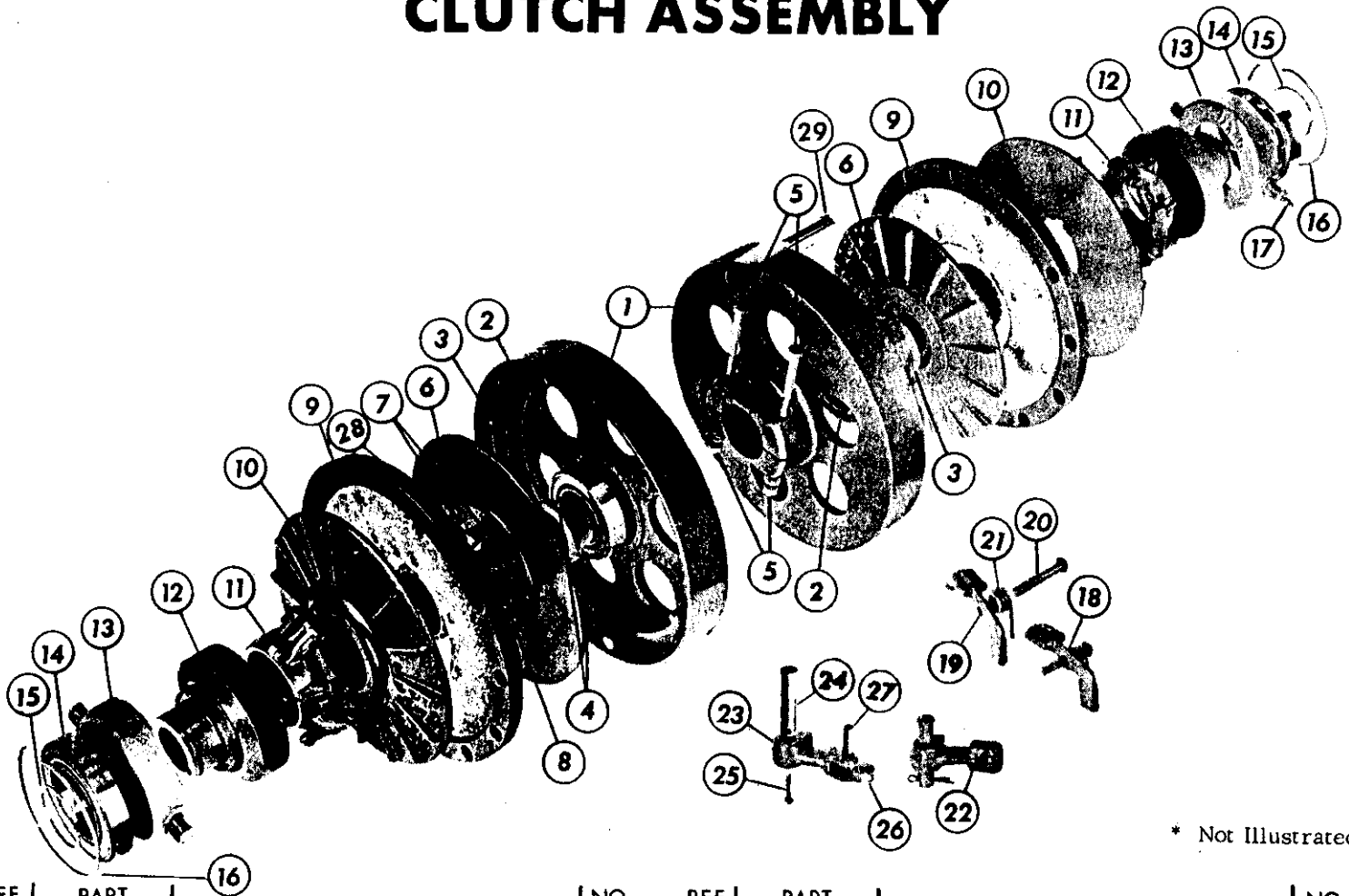
* Not Illustrated

NOTE:

Should major repairs become necessary on this unit, we recommend that you return it to us for replacement on an exchange basis.



CLUTCH ASSEMBLY

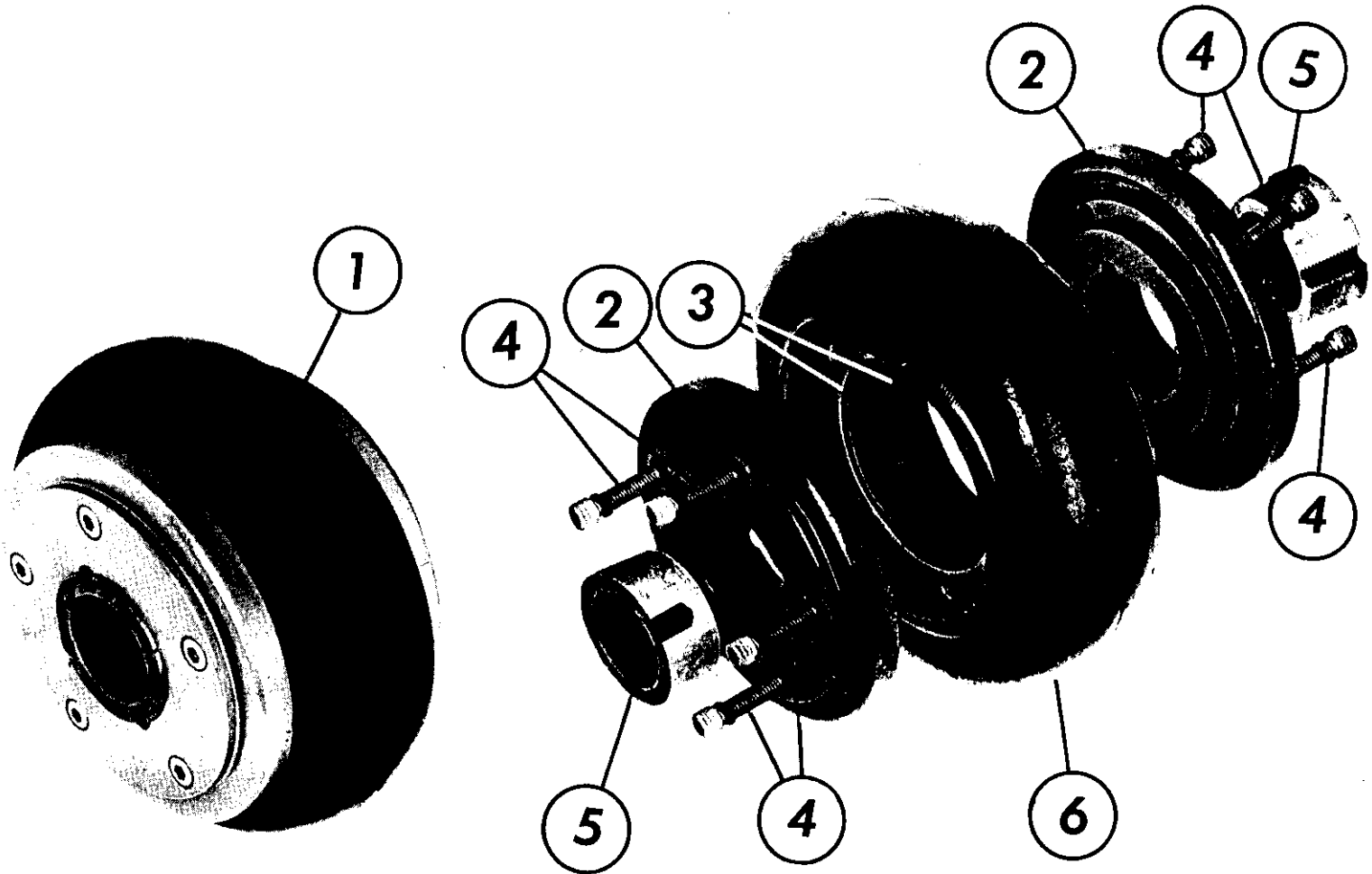


* Not Illustrated

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	L-147	BOWL	2
2	L-219	BOWL BEARING	2
3	L-156	CLUTCH BEARING INNER RING	2
4	L-156A	SET SCREW	4
5	L-147A	BOLT ASSEMBLY	4
6	O-257	BODY	2
7	O-256	RELEASE SPRING	8
8	O-269	BODY SET SCREW	4
9	O-260	DISC WITH CLUTCH LINING	2
10	O-261	PLATE	2
11	O-268	ADJUSTER ASSEMBLY (Complete)	2
12	O-266	CAM	2
13	O-271	SHIFTER RING	2
14	O-272	SHIFTER RING BEARING	2
15	O-273	LOCK RING (Small)	2

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
16	O-273	LOCK RING (Large)	2
17	O-275A	ZERK FITTING (1/4")	2
18	O-267	LOCK LEVER ASSEMBLY	2
19	O-267A	LOCK LEVER	2
20	O-267C	LOCK LEVER PIN	2
21	O-267B	LOCK LEVER SPRING	2
22	O-262	ROLLER LEVER ASSEMBLY	6
23	O-262A	ROLLER LEVER	6
24	O-263	ROLLER LEVER PIN	6
25	O-263A	COTTER KEY	6
26	O-265	ROLLER	6
27	O-264	ROLLER PIN	6
28	O-257A	TIT KEY	2
29	O-259	DRIVE PIN	12
*	O-258	CLUTCH LINING WITH NAILS	1

FLEXIBLE COUPLING ASSEMBLY



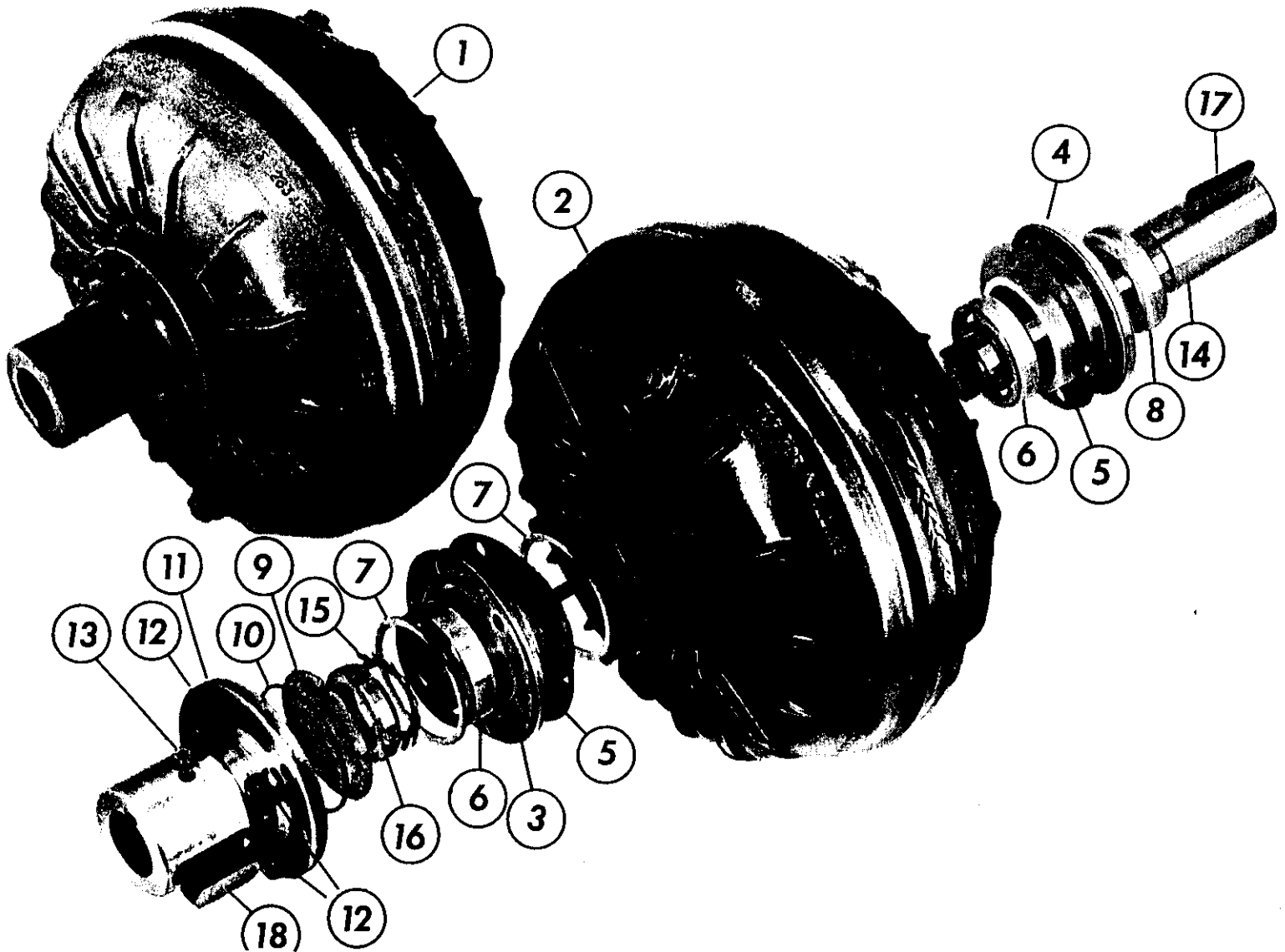
REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	L-257	FLEXIBLE COUPLING ASSEMBLY	1
2	L-477	HUB	2
3	L-478	HUB INNER FLANGE	2
4	L-478A	HUB CAP SCREW & LOCK WASHER	10

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
5	L-257A	HUB BUSHING & SET SCREWS	2
6	L-257B	RUBBER ELEMENT	1
*	L-430	KEY	1

* Not Illustrated.



FLUID DRIVE ASSEMBLY

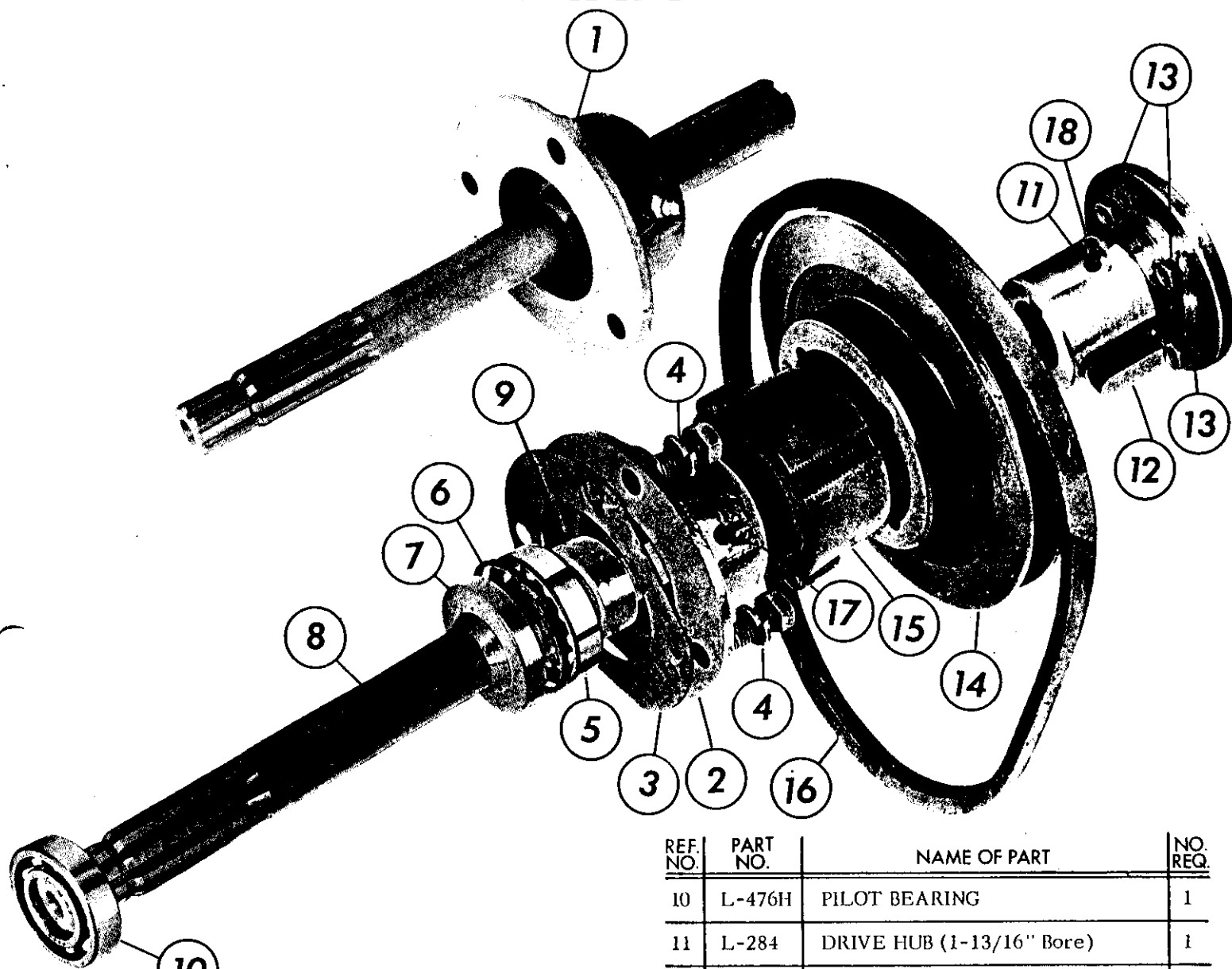


REF. NO.	PART NO.	NAME OF PART	NO. REQ.
*1	L-471	FLUID COUPLING ASSEMBLY	1
2	W-262	HOUSING & IMPELLER ASSEMBLY	1
3	W-259	BEARING CARRIER (Front)	1
4	L-473	BEARING CARRIER (Rear)	1
5	W-260	GASKET	2
6	W-258	BEARING	2
7	W-266	BEARING SNAP RING	2
8	W-329	BEARING OIL SEAL	1
9	W-322	BEARING SEAL DISC (211348)	1

** Remove hub from coupling before pressing it on

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
10	W-328	"O" RING (2-7/8" X 3/32")	1
11	L-284	DRIVE HUB	1
12	L-284C	DRIVE HUB NUT & LOCKWASHER	6
13	L-284D	DRIVE HUB SET SCREW	2
14	L-285	SHAFT	1
15	W-272	LOCKWASHER	1
16	W-264	NUT	1
17	L-430	FLEXIBLE COUPLING KEY	1
18	L-284B	DRIVE HUB BUSHING KEY	1
*	W-263	SHAFT KEY	1

CLUTCH SHAFT ASSEMBLY



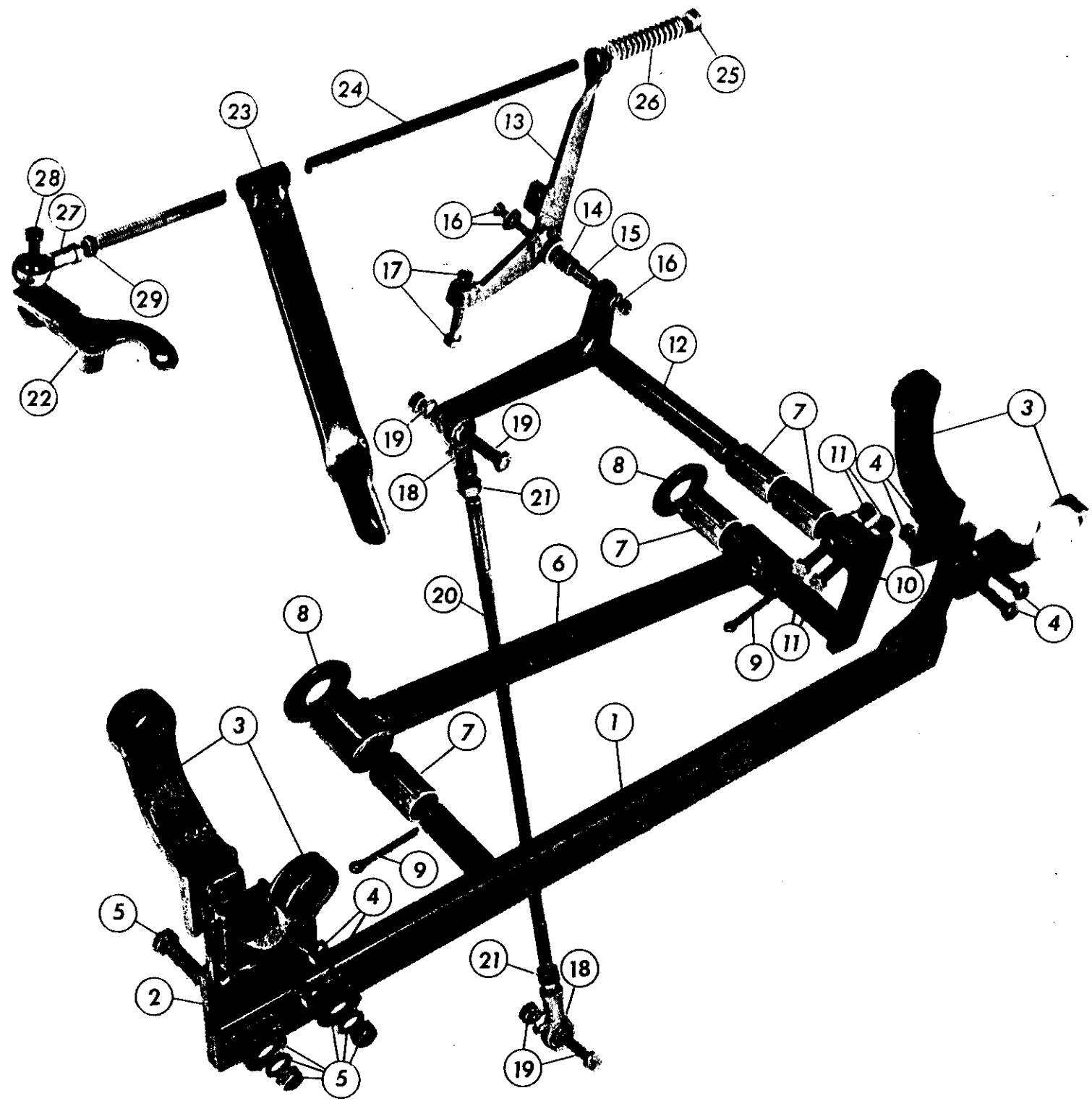
REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	L-472	CLUTCH SHAFT ASSEMBLY	1
2	L-476	BEARING HOUSING	1
3	L-476A	BEARING HOUSING GASKET	1
4	L-476B	CAP SCREW & LOCKWASHER	3
5	W-241	BEARING (Outer)	1
6	L-476D	BEARING SNAP RING	1
7	L-476E	BEARING OIL SEAL	1
8	L-476F	CLUTCH SHAFT	1
9	L-476G	SPACER SLEEVE	1

* Not Illustrated.

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
10	L-476H	PILOT BEARING	1
11	L-284	DRIVE HUB (1-13/16" Bore)	1
12	L-284B	DRIVE HUB BUSHING KEY (3/8" X 5/8" X 1-3/4")	1
13	L-284C	DRIVE HUB NUT & LOCKWASHER	6
14	L-249	HYDRAULIC PUMP DRIVE SHEAVE	1
15	L-249A	DRIVE SHEAVE BUSHING	1
16	L-251	HYDRAULIC PUMP "V" BELT	1
17	O-275A	ZERK FITTING (1/4"-45 degree)	1
18	L-284D	DRIVE HUB SET SCREW (3/8" X 1/4")	1
*	L-284E	DRIVE HUB SET SCREW (3/8" X 3/8")	1
*	L-284A	CLUTCH SHAFT KEY (3/8" X 3/8" X 3-3/8")	1



CLUTCH THROWOUT ASSEMBLY



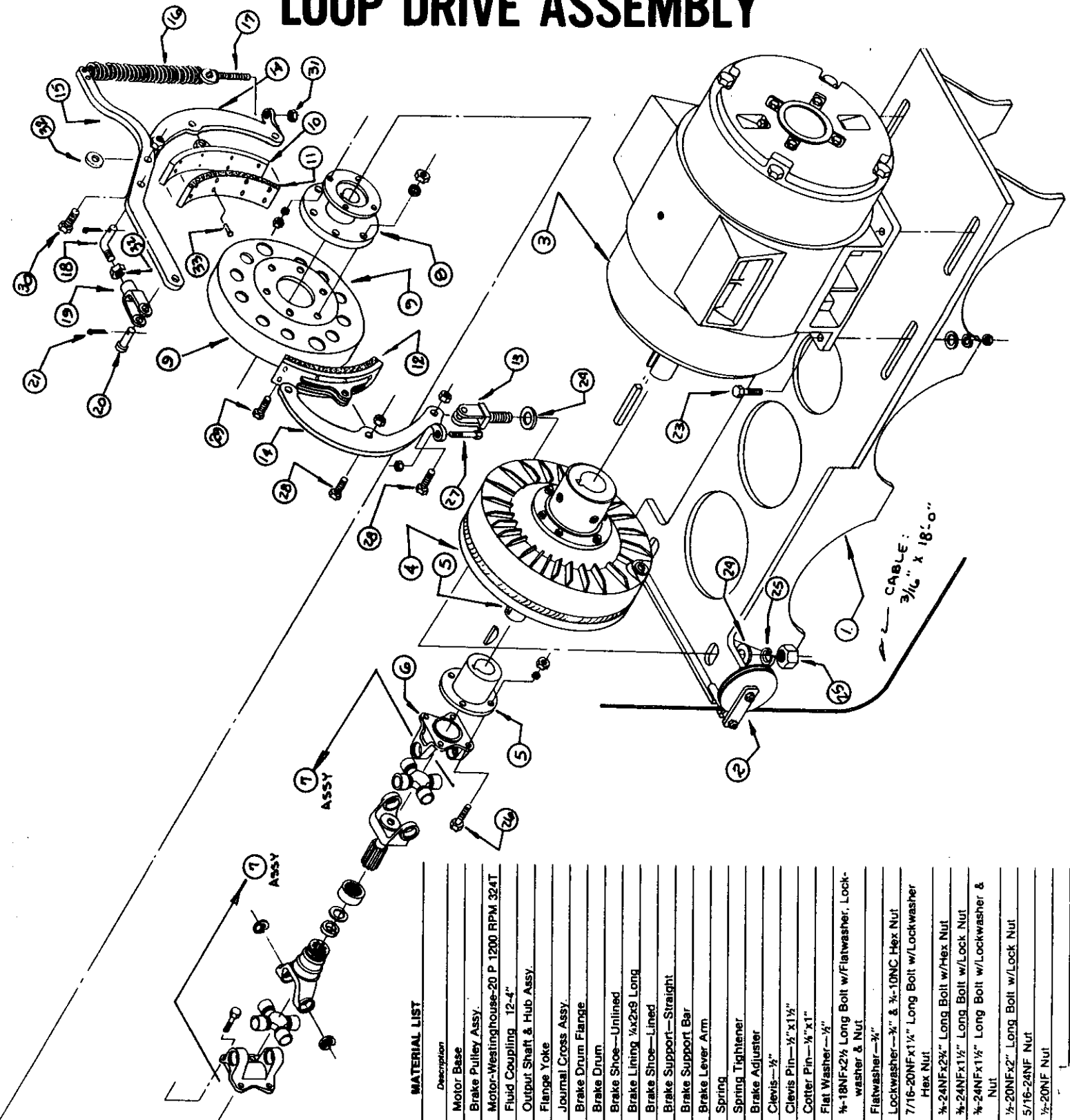


CLUTCH THROWOUT ASSEMBLY

REF. NO.	PART NO.	NAME OF PART	NO. REQ.	REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	L-387	CLUTCH SHIFTER BAR	1	15	L-287	THROTTLE LEVER SPACER	1
2	L-386	CLUTCH SHIFTER ADJUSTER	1	16	L-423A	THROTTLE LEVER BOLT ASSEMBLY	1
3	O-270	SHIFTER YOKE (Pair)	2	17	L-423B	THROTTLE LEVER ADJUSTER BOLT ASSY.	1
4	O-270A	SHIFTER YOKE BOLT ASSEMBLY	4	18	O-551	CLUTCH CONTROL ROD END	2
5	L-286A	ADJUSTER BOLT ASSEMBLY	2	19	O-551C	ROD END BOLT & NUT	2
6	L-388	CLUTCH SHIFTER LINK	1	20	L-360	CONTROL ROD (Vertical)	1
7	L-256	CLUTCH LEVER BUSHING	4	21	L-360B	CONTROL ROD NUT	2
8	L-388A	WASHER	2	22	L-424	ALLIS-CHALMERS THROTTLE ALTERATION	1
9	L-388B	COTTER KEY	2	23	L-425	THROTTLE ROD GUIDE	1
10	L-385	CLUTCH SHIFTER CRANK	1	24	L-426	THROTTLE ROD	1
11	L-385A	CRANK BOLT ASSEMBLY	2	25	L-432	THROTTLE LEVER SPRING LOCK COLLAR	1
12	L-422	CLUTCH SHIFTER LEVER	1	26	L-435	THROTTLE ROD SPRING	1
13	L-423	CLUTCH THROTTLE LEVER	1	27	L-427	ROD END (5/16")	1
14	L-287A	SPACER BUSHING	1	28	L-427A	ROD END BOLT	1
				29	L-426A	THROTTLE ROD NUT	1



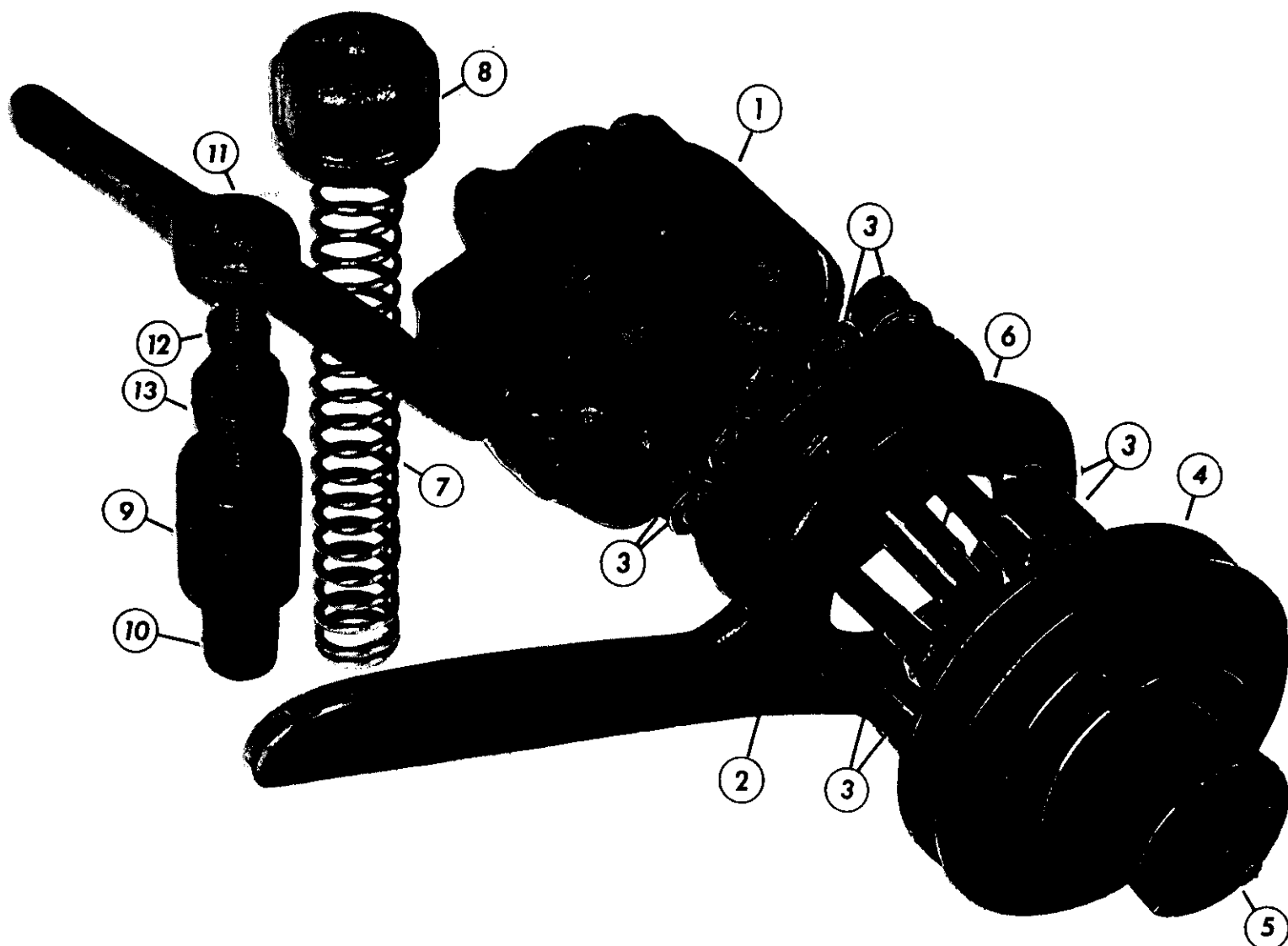
LOOP DRIVE ASSEMBLY



MATERIAL LIST

Item No.	Part No.	Description
1	PKL-8	Motor Base
2	PKL-17	Brake Pulley Assy.
3	1	Motor-Westinghouse-20 P 1200 RPM 324T
4	1	L-581 Fluid Coupling 12-4"
5	1	L-578 Output Shaft & Hub Assy.
6	1	W-337 Flange Yoke
7	1	W-338 Journal Cross Assy.
8	1	W-315 Brake Drum Flange
9	1	RR-427 Brake Drum
10	2	RR-79C Brake Shoe—Unlined
11	2	RR-79D Brake Lining 1/2x2x9 Long
12	2	RR-405 Brake Shoe—Lined
13	2	RR-370 Brake Support—Straight
14	2	RR-79 Brake Support Bar
15	1	PKL-5 Brake Lever Arm
16	1	M-60 Spring
17	1	O-688 Spring Tightener
18	1	RR-80 Brake Adjuster
19	1	Clevis—1/2"
20	1	Clevis Pin—1/2"x1 1/2"
21	2	Cotter Pin—1/2"x1"
22	1	Flat Washer—1/2"
23	4 ea.	1/8-18NFx2 1/2" Long Bolt w/Flatwasher, Lockwasher & Nut
24	4	Flatwasher—3/4"
25	2 ea.	Lockwasher—3/4" & 3/16-10NC Hex Nut
26	8 ea.	7/16-20NFx1 1/2" Long Bolt w/Lockwasher Hex Nut
27	1 ea.	3/4-24NFx2 1/2" Long Bolt w/Hex Nut
28	4 ea.	3/4-24NFx1 1/2" Long Bolt w/Lock Nut
29	6 ea.	3/4-24NFx1 1/2" Long Bolt w/Lockwasher & Nut
30	1 ea.	1/2-20NFx2" Long Bolt w/Lock Nut
31	1	5/16-24NF Nut
32	1	1/2-20NF Nut
33	8	

HYDRAULIC PUMP ASSEMBLY



REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	PR-789	PUMP ASSEMBLY	1
2	L-371	PUMP MOUNTING PLATE	1
3	L-371A	MOUNTING PLATE BOLT ASSY.	6
4	L-250	PUMP SHEAVE	1
5	L-250A	PUMP SHEAVE BUSHING	1
6	L-249B	PUMP SHAFT KEY	1
7	L-372	BELT TENSION SPRING	1

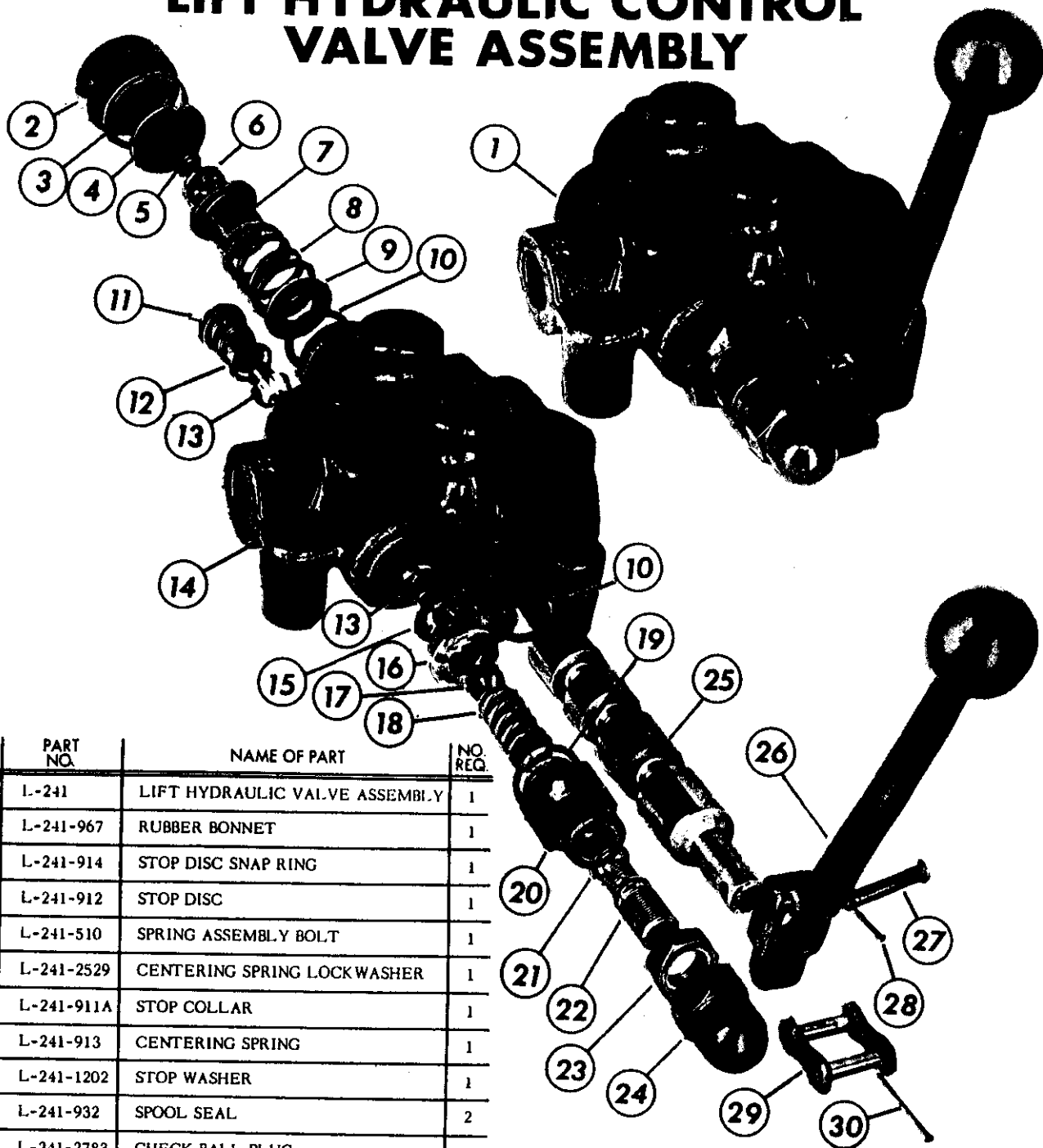
REF. NO.	PART NO.	NAME OF PART	NO. REQ.
8	L-373	BELT TENSION SPRING CAP	1
9		PIPE COUPLING (1")	1
10	PR-784	SPACER	1
11	PR-786	BELT TIGHTENER HANDLE	1
12		NUT (1/2" 13 NC)	1
13	PR-788	MODIFIED PIPE PLUG	1

NOTE:

Should major repairs become necessary on this unit, we recommend that you return it to us for replacement on an exchange basis.



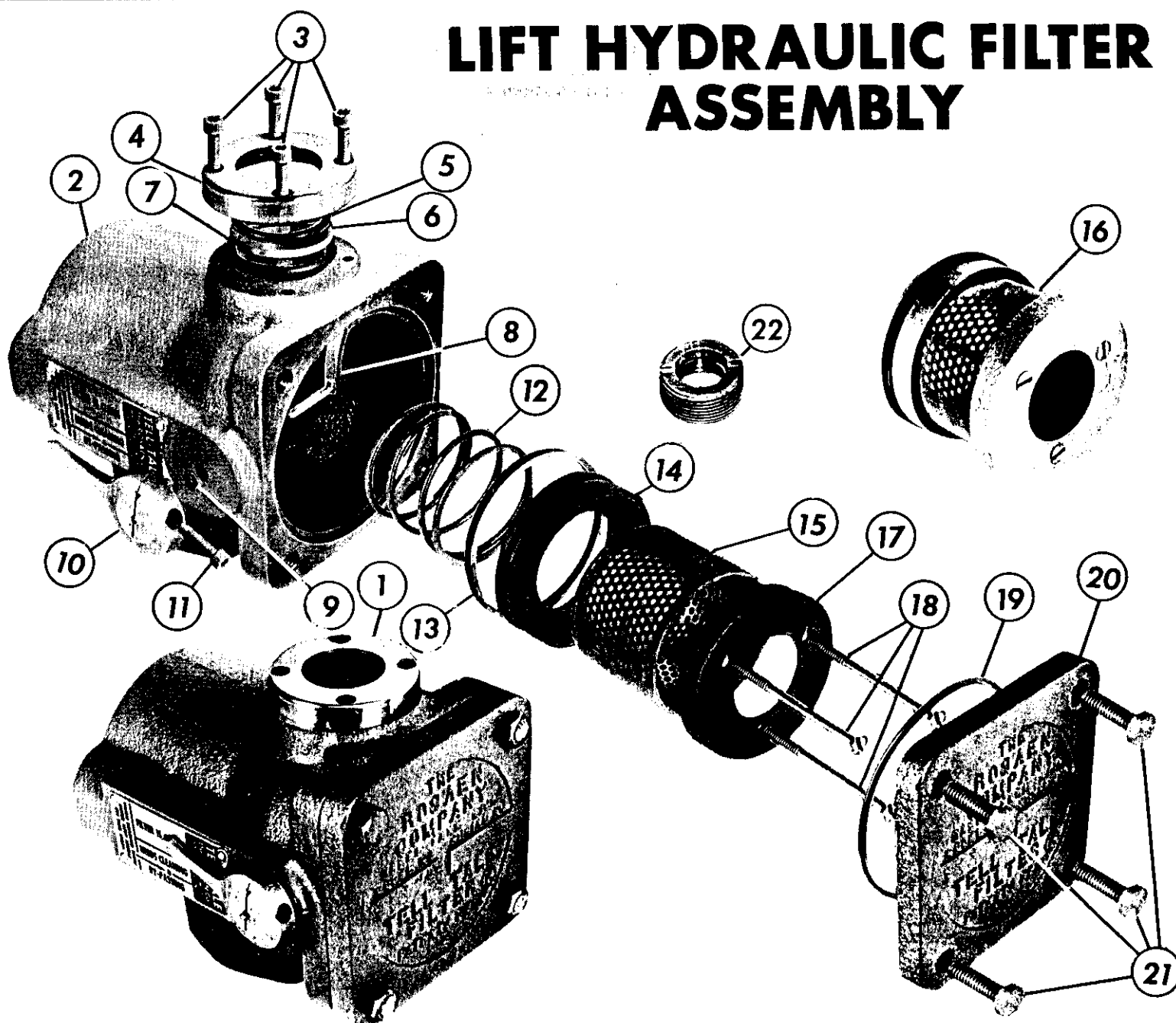
LIFT HYDRAULIC CONTROL VALVE ASSEMBLY



REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	L-241	LIFT HYDRAULIC VALVE ASSEMBLY	1
2	L-241-967	RUBBER BONNET	1
3	L-241-914	STOP DISC SNAP RING	1
4	L-241-912	STOP DISC	1
5	L-241-510	SPRING ASSEMBLY BOLT	1
6	L-241-2529	CENTERING SPRING LOCK WASHER	1
7	L-241-911A	STOP COLLAR	1
8	L-241-913	CENTERING SPRING	1
9	L-241-1202	STOP WASHER	1
10	L-241-932	SPOOL SEAL	2
11	L-241-2783	CHECK BALL PLUG	1
12	L-241-1141	CHECK BALL PLUG "O" RING	1
13	L-241-2781	CHECK POPPET	2
14	*L-241-2701	VALVE HOUSING	1
15	L-241-2706	RELIEF VALVE SEAT "O" RING	1
16	L-241-2784	RELIEF VALVE SEAT	1
17	L-241-014	RELIEF VALVE BALL	1
18	L-241-922	RELIEF SPRING	1
19	L-241-923	RELIEF BODY GASKET	1
20	L-241-924	RELIEF BODY	1
21	L-241-926	ADJUSTING SCREW "O" RING	1

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
22	L-241-925	ADJUSTING SCREW	1
23	L-241-973	ADJUSTING SCREW JAM NUT	1
24	L-241-974	ACORN CAP	1
25	*L-241-904	SPOOL	1
26	L-241-2580	HANDLE	1
27	L-241-553	HANDLE PIN	1
28	L-241-086	HANDLE COTTER PIN	1
29	L-241-928	HANDLE LINK ASSEMBLY	1
30	L-241-929	HANDLE LINK COTTER PIN	1

LIFT HYDRAULIC FILTER ASSEMBLY



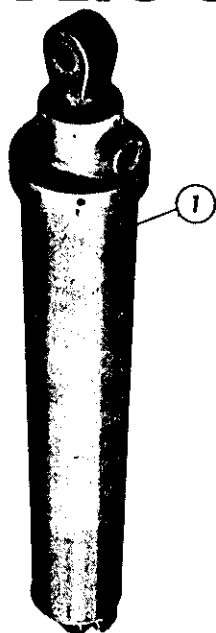
REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	L-351	FILTER ASSEMBLY	1
2	L-351-1	FILTER HOUSING	1
3	L-351-2	INSPECTION GLASS ASSEMBLY SCREW	4
4	L-351-3	INSPECTION GLASS BODY	1
5	L-351-4	INSPECTION GLASS "O" RING (Upper)	1
6	L-351-5	INSPECTION GLASS	1
7	L-351-6	INSPECTION GLASS "O" RING (Lower)	1
8	L-351-7	DIRT INDICATOR OPERATING LEVER	1
9	L-351-8	DIRT INDICATOR OPERATING LEVER "O" RING	1
10	L-351-9	DIRT INDICATOR	1
11	L-351-10	DIRT INDICATOR RETAINING SCREW	1

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
12	L-351-11	PRESSURE DROP CONTROL SPRING	1
13	L-351-12	PISTON RING ASSEMBLY	1
14	L-351-13	FRONT CARTRIDGE CAP	1
15	L-351-14	FILTER SCREEN ASSEMBLY	1
16	L-351-15	FILTER CARTRIDGE ASSEMBLY	1
17	L-351-16	REAR CARTRIDGE CAP	1
18	L-351-17	FILTER CARTRIDGE ASSEMBLY SCREW	3
19	L-351-18	COVER PLATE "O" RING	1
20	L-351-19	COVER PLATE	1
21	L-351-20	COVER PLATE SCREW	4
*22	L-351-21	INSPECTION GLASS	1

* Optional



LIFT HYDRAULIC CYLINDER ASSEMBLY



REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	L-239	LIFT HYDRAULIC CYLINDER ASSEMBLY	1
2	L-239-2	PISTON ROD	1
3	L-239-3	PISTON ROD WIPER RING	1
4	L-239-4	SNAP RING	1
5	L-239-5	BACKUP RING (Piston Rod Packing)	1
6	L-239-6	PISTON ROD PACKING	1
7	L-239-7	CYLINDER HEAD	1
8	L-239-8	CYLINDER HEAD "O" RING	1
9	L-239-9	PISTON PACKING RETAINER PLATE	2
10	L-239-10	PISTON PACKING	2
11	L-239-11	PISTON	1
12	L-239-12	PISTON NUT	1
13	L-239-13	RETAINING RING (Cylinder Head Nut)	1
14	L-239-14	CYLINDER HEAD NUT	1
15	L-239-15	SET SCREW (Cylinder Head Nut)	1
16	L-239-16	CYLINDER	1
17	L-171	CLEVIS PIN	2
18	L-171A	COOPER KEY (Clevis Pin)	4
19	L-469	HYD. BUSHING (Upper, 11, 64" Orifice) (Special)	1

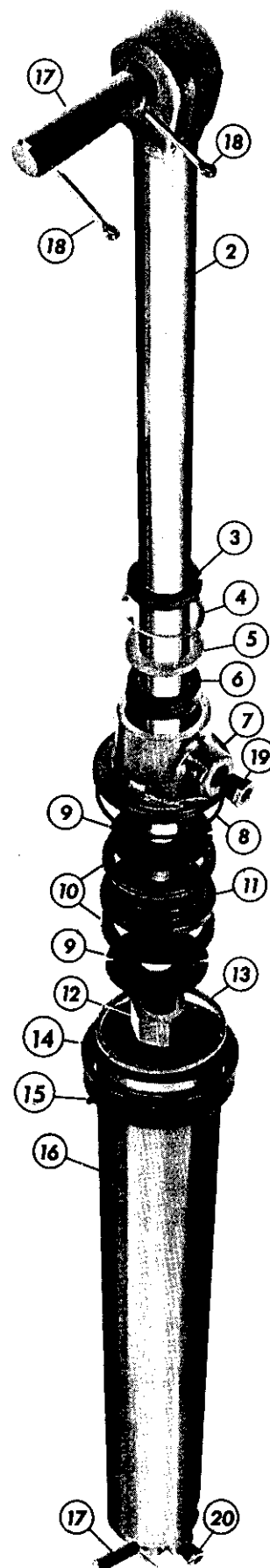
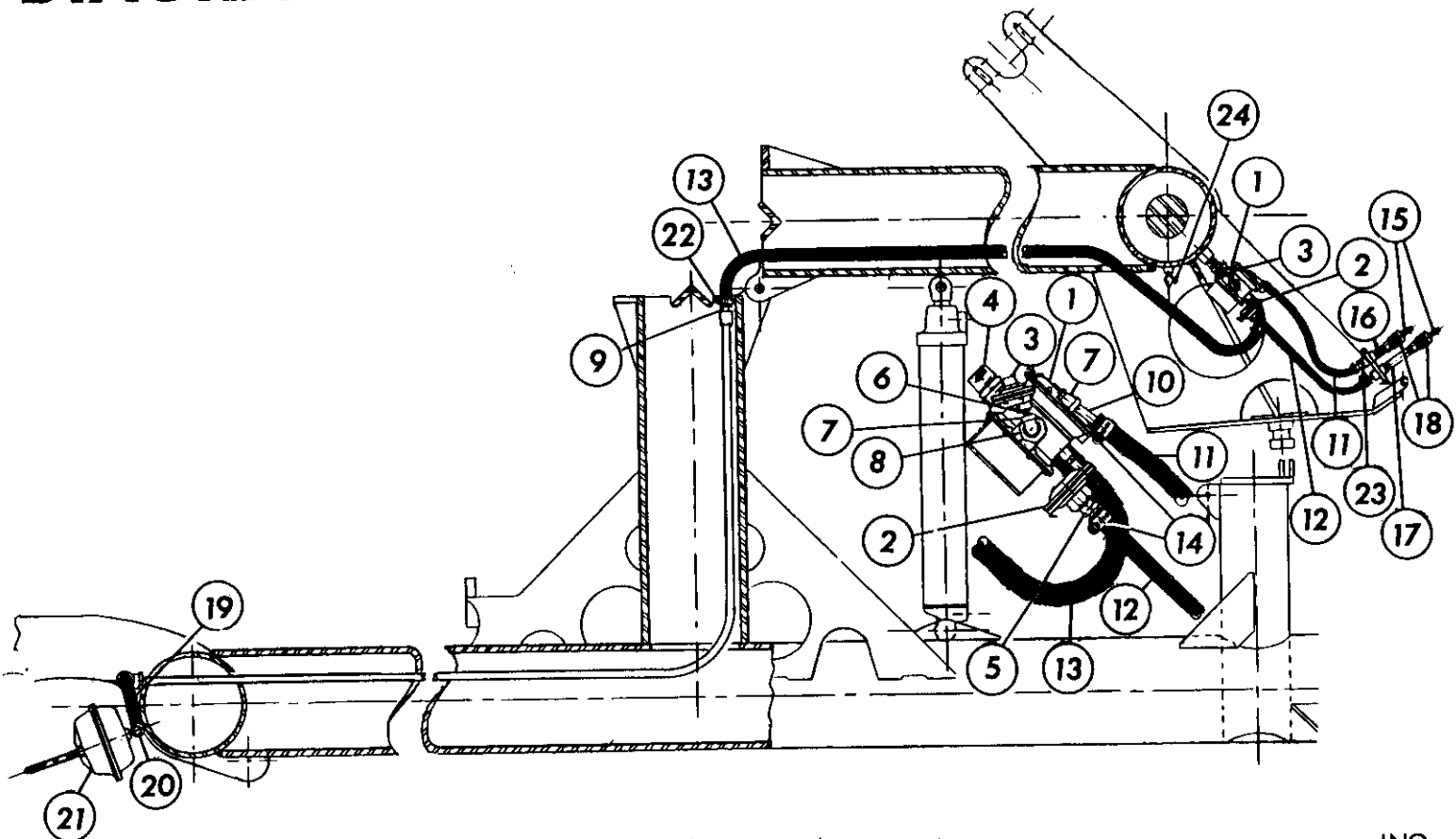


DIAGRAM OF VACUUM BRAKE CONTROLS



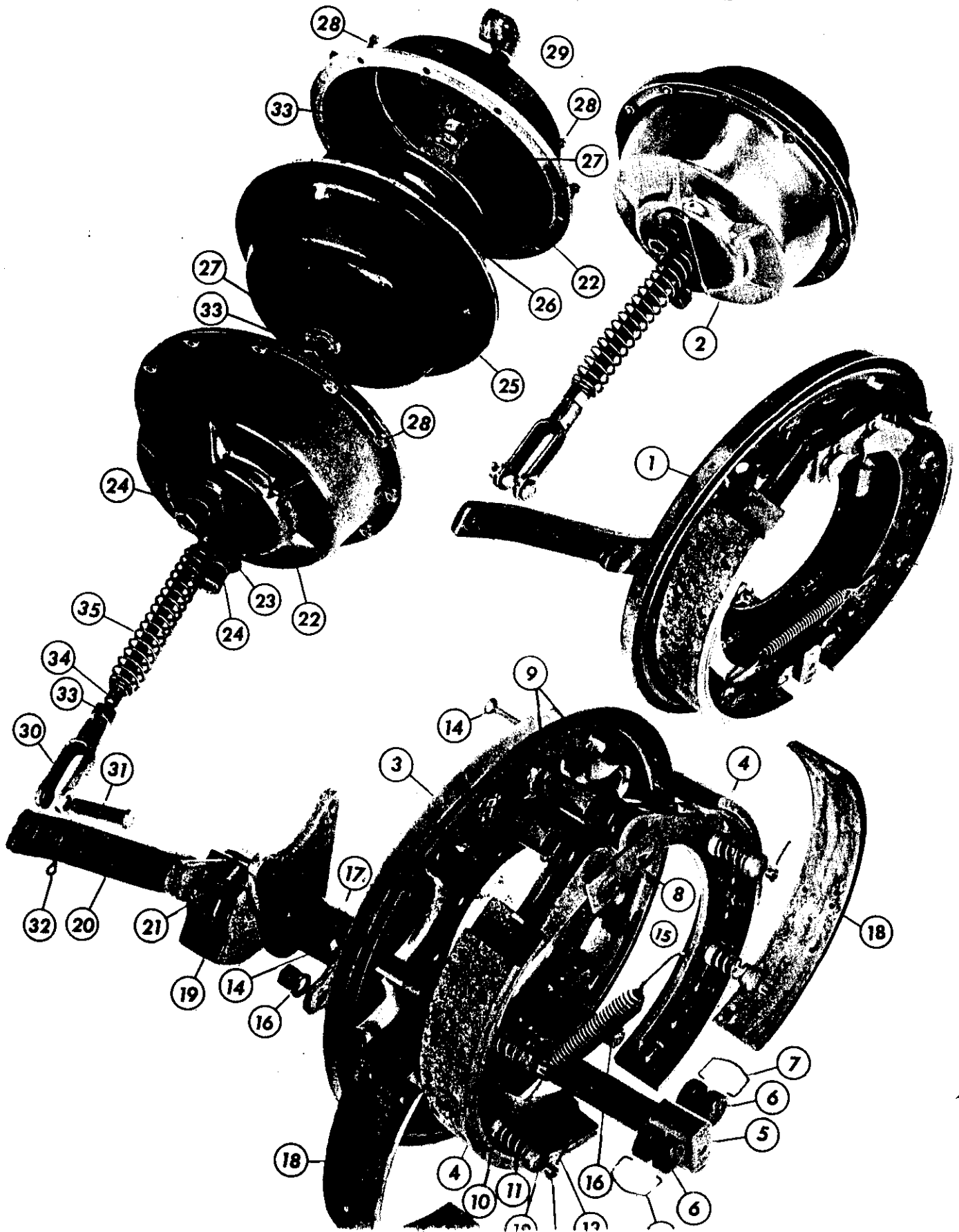
REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	L-331	TANK VALVE	1
2	L-331A	CHECK VALVE	1
3	L-345	STOP LIGHT SWITCH	1
4	L-331B	TANK VALVE NIPPLE (1" Machine)	1
5	L-331K	HOSE NIPPLE (1/2")	4
6	L-345A	NIPPLE (1/8")	1
7	L-345B	STREET ELL (1/8")	2
8	L-345C	PIPE BUSHING (3/4" X 1/8")	1
9	L-331C	HOSE NIPPLE (3/4")	1
10	L-331D	PIPE NIPPLE (1/8")	2
11	L-331E	CONTROL HOSE (3/8")	1
12	L-331F	MANIFOLD HOSE (1/2")	1
13	L-343	MAIN VACUUM HOSE (3/4")	1

* Not Illustrated.

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
14	L-331G	HOSE CLAMP (Small)	8
15	L-333	TRAILER COUPLER DUMMY	2
16	L-334A	TRAILER COUPLER NIPPLE (Short)	1
17	L-334B	TRAILER COUPLER NIPPLE (Long)	1
18	L-334	TRAILER COUPLER	2
19	L-326A	BRAKE CAN HOSE (1/2")	2
20	L-326B	HOSE ELBOW (1/2")	2
21	L-326	BRAKE CAN ASSEMBLY	2
22	L-331J	HOSE CLAMP (Large)	2
23	L-334C	PIPE BUSHING (1/2" X 1/8")	2
24	L-455	RESERVOIR DRAIN COCK	1
*	L-331H	HOSE ELBOW (3/4")	1
*	L-326C	PIPE BUSHING (3/4" X 1/2", Brake Can Hose)	2



VACUUM BRAKE ASSEMBLY





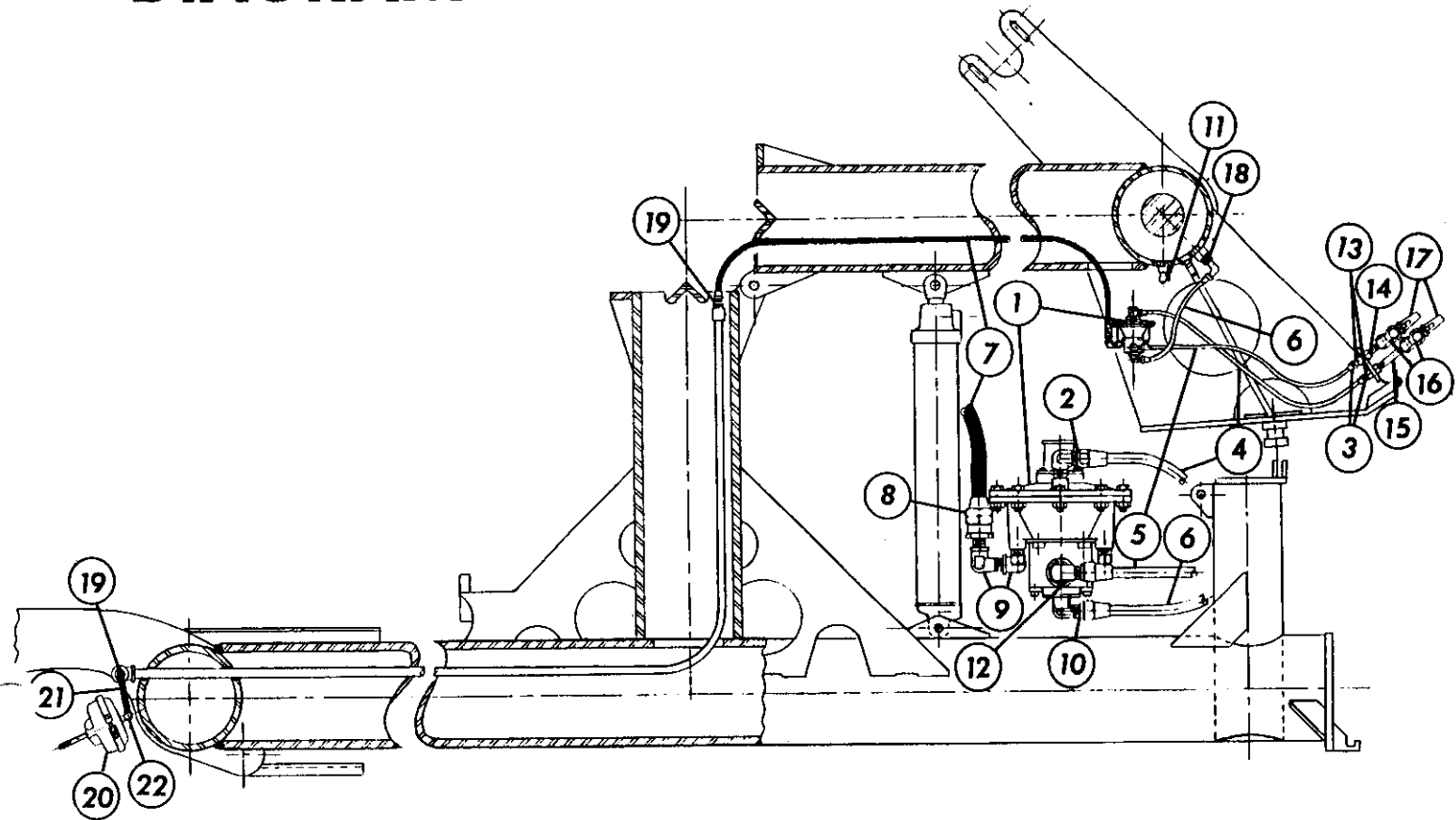
VACUUM BRAKE ASSEMBLY

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	L-479R	BRAKE ASSEMBLY (R. H.)	1
2	L-326	BRAKE CAN ASSEMBLY (Vacuum)	2
3	L-206	WHEEL BRAKE PLATE	2
4	L-273	BRAKE SHOE WITH LINING	4
5	L-237	BRAKE CAM SHAFT (R. H.)	1
5	L-238	BRAKE CAM SHAFT (L. H.)	1
6	L-233	BRAKE ROLLER	4
7	L-234	BRAKE ROLLER RETAINER	4
8	L-274	BRAKE PILOT SPACER	2
9	L-274A	COTTER KEY	4
10	L-300B	BRAKE POSITIONING CUP	16
11	L-300	BRAKE POSITIONING SPRING	8
12	L-300C	BRAKE POSITIONING NUT	8
	L-300D	BRAKE POSITIONING COTTER KEY	8
14	L-300A	BRAKE POSITIONING BOLT	8
15	L-299	BRAKE RELEASE SPRING	2
16	L-231	BRAKE SHAFT HOUSING BOLT ASSEMBLY	4
17	L-228	BRAKE SHAFT HOUSING	2
18	L-273A	BRAKE LINING WITH RIVETS	4

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
19	L-235	BRAKE ADJUSTER (R. H.)	1
19	L-236	BRAKE ADJUSTER (L. H.)	1
20	L-243	BRAKE ADJUSTER EXTENSION	2
21	L-243A	BRAKE ADJUSTER EXTENSION BOLT ASSEMBLY	4
22	L-326C	BRAKE ASSEMBLY CAN	2
23	L-326H	BRAKE ASSEMBLY CAN RETAINER PLATE	2
24	L-326B	BRAKE ASSEMBLY CAN NUT & LOCKWASHER	4
25	L-326D	BRAKE ASSEMBLY CAN DIAPHRAGM	2
26	L-326-I	BRAKE ASSEMBLY CAN DIAPHRAGM PLATE	2
27	L-326R	BRAKE ASSEMBLY CAN FLAT WASHER	4
28	L-326K	BRAKE CAN BOLT ASSEMBLY	24
29	L-326J	BRAKE CAN STREET ELL	2
30	O-294	BRAKE ASSEMBLY CAN ROD END	2
31	O-294A	BRAKE ASSEMBLY CAN ROD END PIN	2
32	L-326N	BRAKE ASSEMBLY CAN PIN COTTER KEY	2
33	L-326O	BRAKE ASSEMBLY CAN ROD LOCK NUT	6
34	L-326P	BRAKE ASSEMBLY CAN PULL ROD	2
35	L-326Q	BRAKE ASSEMBLY CAN RETURN SPRING	2
*	L-479L	BRAKE ASSEMBLY (L. H.)	1

* Not Illustrated.

DIAGRAM OF AIR BRAKE CONTROLS



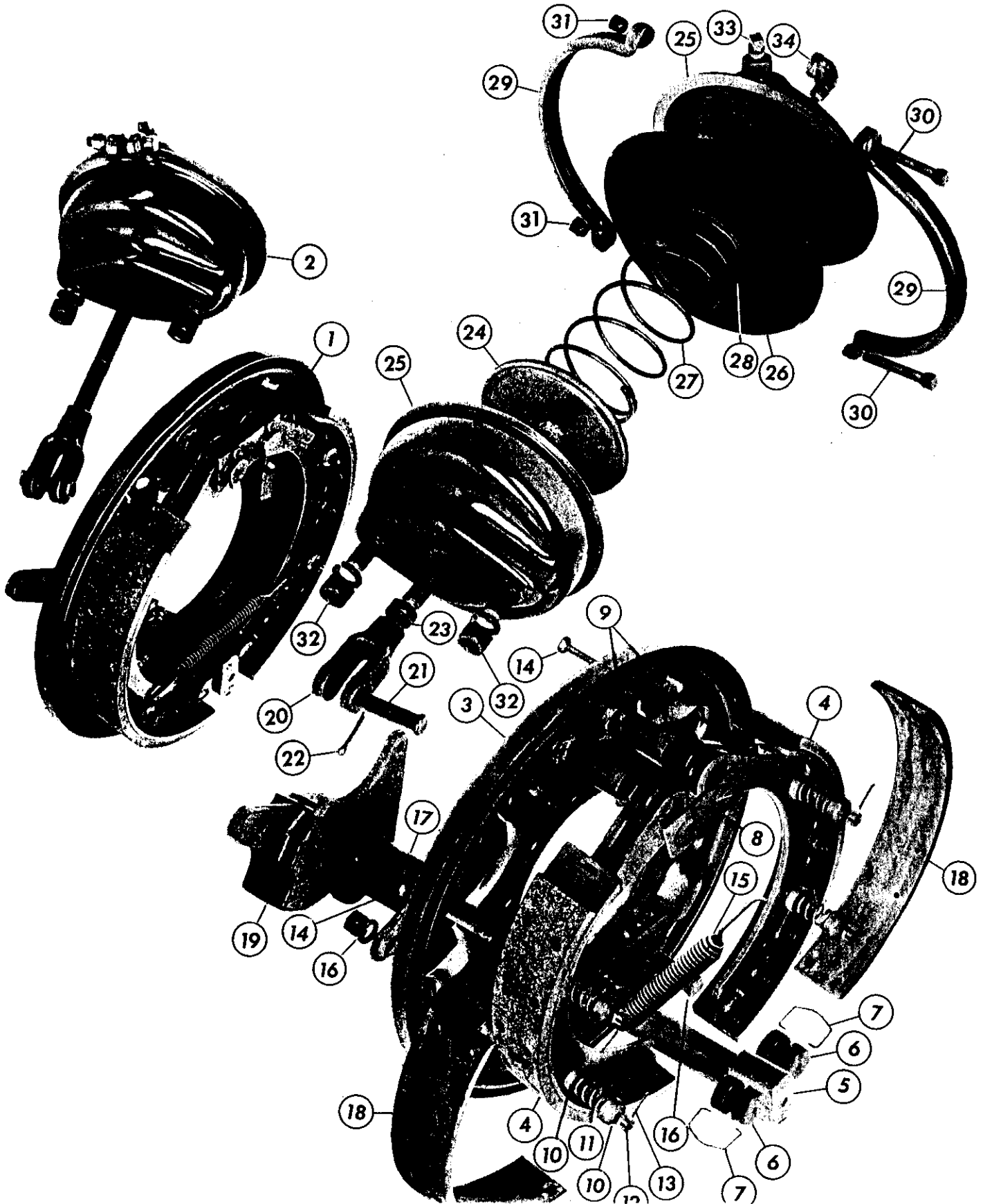
REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	L-453	REMOTE CONTROL VALVE	1
2	L-453A	AIR FITTING (Ell, 1/4" to 3/8")	1
3	L-453B	AIR FITTING (Straight 1/4" to 3/8")	2
4	L-453C	COPPER TUBING (3/8", Service)	1
5	L-453D	COPPER TUBING (3/8", Emergency)	1
6	L-453E	COPPER TUBING (1/2" Reservoir)	1
7	L-454	HOSE (3/8", Long)	1
8	L-454A	HOSE FITTING	6
9	L-453F	STREET ELL (1/4", Brass)	2
10	L-453G	AIR FITTING (Ell, 3/8" to 1/2")	2
11	L-455	RESERVOIR DRAIN COCK	1
12	L-453H	AIR FITTING (Ell, 3/8")	1

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
13	L-456A	PIPE BUSHING (1/2" to 1/4")	2
14	L-456B	NIPPLE (1/2" Close)	1
15	L-456C	NIPPLE (1/2" X 4")	1
16	L-456	AIR COUPLER	2
17	L-456D	AIR COUPLER DUMMY	2
18	L-454B	PIPE BUSHING (1" to 3/8")	1
19	L-454C	PIPE BUSHING (3/4" to 1/4")	3
20	L-325	AIR CAN ASSEMBLY	2
21	L-457	AIR HOSE (Air Can)	2
22	L-457A	STREET ELL (1/4")	2
*	L-453J	PIPE BUSHING (1/2" to 3/8")	1

* Not Illustrated.



AIR BRAKE ASSEMBLY





AIR BRAKE ASSEMBLY

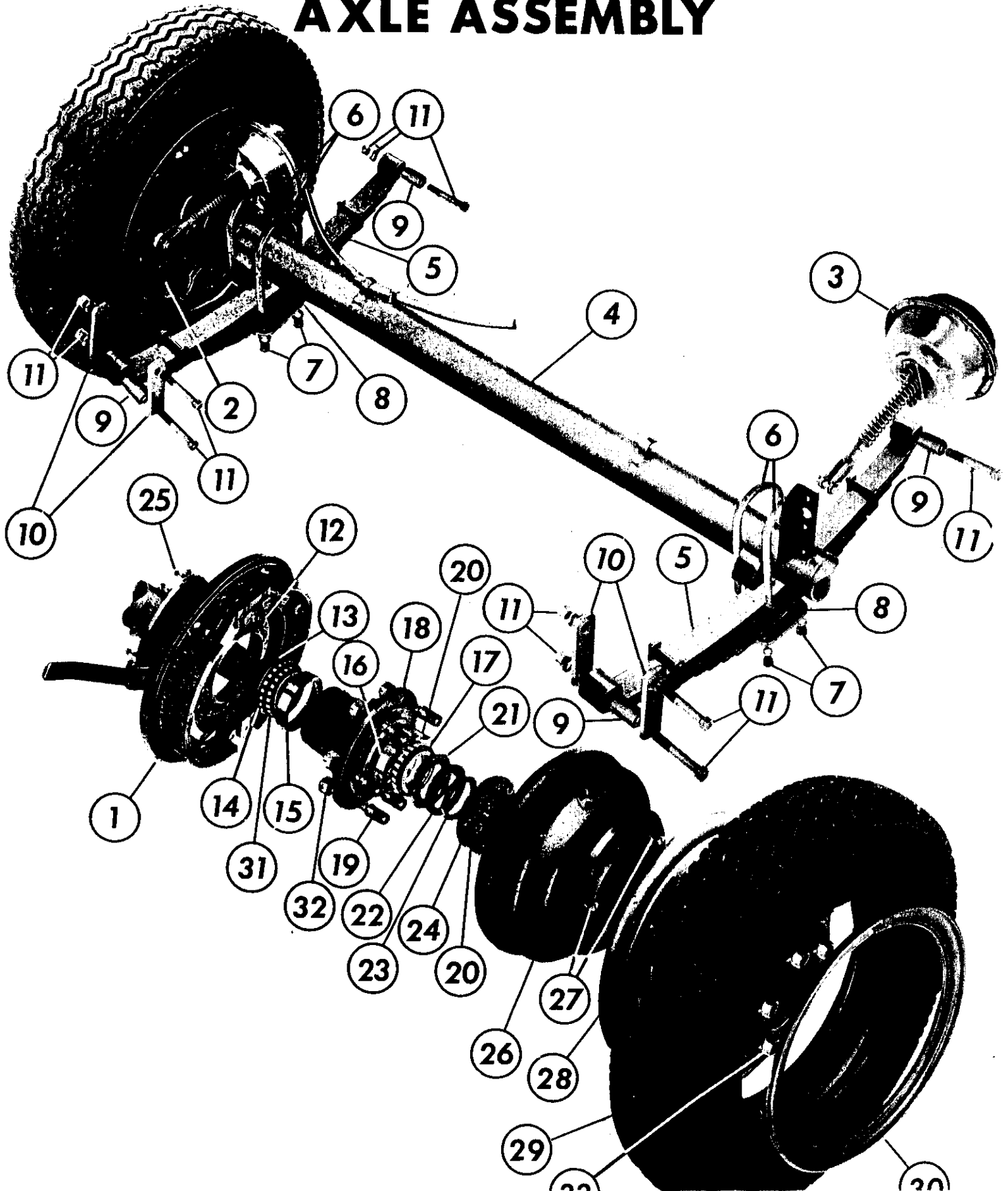
REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	L-480R	BRAKE ASSEMBLY (R. H.)	1
2	L-325	BRAKE CAN ASSEMBLY (Air)	2
3	L-206	WHEEL BRAKE PLATE	2
4	L-273	BRAKE SHOE WITH LINING	4
5	L-237	BRAKE CAM SHAFT (L. H.)	1
5	L-238	BRAKE CAM SHAFT (R. H.)	1
6	L-233	BRAKE ROLLER	4
7	L-234	BRAKE ROLLER RETAINER	4
8	L-274	BRAKE PILOT SPACER	2
9	L-274A	BRAKE PILOT SPACER COTTER KEY	4
10	L-300B	BRAKE POSITIONING CUP	16
11	L-300	BRAKE POSITIONING SPRING	8
12	L-300C	BRAKE POSITIONING NUT	8
	L-300D	BRAKE POSITIONING COTTER KEY	8
14	L-300A	BRAKE POSITIONING BOLT	8
15	L-299	BRAKE RELEASE SPRING	2
16	L-231	BRAKE SHAFT HOUSING BOLT ASSEMBLY	4
17	L-228	BRAKE SHAFT HOUSING	2

* Not Illustrated.

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
18	L-273A	BRAKE LINING WITH RIVETS	4
19	L-235	BRAKE ADJUSTER (L. H.)	1
19	L-236	BRAKE ADJUSTER (R. H.)	1
20	L-325M	BRAKE ASSEMBLY CAN ROD END	2
21	L-325G	BRAKE ASSEMBLY CAN ROD END PIN	2
22	L-325N	BRAKE ASSEMBLY CAN PIN COTTER KEY	2
23	L-325O	BRAKE ASSEMBLY CAN ROD END LOCK NUT	2
24	L-325F	BRAKE ASSEMBLY CAN PUSH ROD	2
25	L-325C	BRAKE ASSEMBLY CAN	2
26	L-325D	BRAKE ASSEMBLY CAN DIAPHRAGM	2
27	L-325E	BRAKE ASSEMBLY CAN RETURN SPRING	2
28	L-325-I	BRAKE ASSEMBLY CAN SPRING PLATE	2
29	L-325K	BRAKE ASSEMBLY CAN CLAMP	4
30	L-325A	BRAKE ASSEMBLY CAN CLAMP BOLT	4
31	L-325H	BRAKE ASSEMBLY CAN CLAMP BOLT NUT	4
32	L-325B	BRAKE ASSEMBLY CAN NUT & LOCKWASHER	4
33	L-325J	PIPE PLUG (1/4")	2
34	L-325L	STREET ELL (1/4")	2
*	L-480L	BRAKE ASSEMBLY (L. H.)	1



AXLE ASSEMBLY





AXLE ASSEMBLY

REF. NO.	PART NO.	NAME OF PART	NO. REQ.	REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	L-479R	WHEEL BRAKE ASSEMBLY (R. H. Vacuum)	1	20	L-322	END PLATE STUD ASSEMBLY	16
2	L-479L	WHEEL BRAKE ASSEMBLY (L. H. Vacuum)	1	21	L-317	BEARING NUT (Inner)	2
3	L-326	BRAKE CAN ASSEMBLY (Vacuum)	2	22	L-318	BEARING NUT LOCKWASHER	2
4	L-161	AXLE (Vacuum Brakes)	1	23	L-319	BEARING NUT (Outer)	2
5	L-160	SPRING	2	24	L-320	END PLATE	2
6	L-162	SPRING "U" BOLT	4	25	L-294	BACK-UP PLATE BOLT ASSEMBLY	24
7	L-162A	SPRING "U" BOLT NUT & LOCKWASHER	8	26	L-313	BRAKE DRUM	2
8	L-164	"U" BOLT PLATE	2	27	L-314	BRAKE DRUM SCREW	6
9	L-160A	SPRING BUSHING	6	28	L-328	WHEEL	2
10	L-375	SPRING SHACKLE	4	29	L-329	TIRE & TUBE	2
11	L-375A	SPRING SHACKLE BOLT ASSEMBLY	6	30	L-328A	WHEEL RIM	2
12	L-293	GREASE PLATE	2	31	L-306	SEAL RETAINING RING	2
13	L-305	WHEEL HUB SEAL	2	32	L-311	WHEEL STUD NUT (Inner)	12
14	L-307	WHEEL BEARING CONE (Inner)	2	33	L-312L	WHEEL STUD NUT (L. H. Outer)	6
15	L-308	WHEEL BEARING CUP (Inner)	2	33	L-312R	WHEEL STUD NUT (R. H. Outer)	6
16	L-315	WHEEL BEARING CUP (Outer)	2	*	L-161A	AXLE (Air Brakes)	1
17	L-316	WHEEL BEARING CONE (Outer)	2	*	L-480R	WHEEL BRAKE ASSEMBLY (R. H. Air)	1
18	L-309	WHEEL HUB	2	*	L-480L	WHEEL BRAKE ASSEMBLY (L. H. Air)	1
19	L-310R	WHEEL STUD (R. H.)	6	*	L-309A	WHEEL HUB WITH STUDS & NUTS	2
19	L-310L	WHEEL STUD (L. H.)	6	*	L-325	BRAKE CAN ASSEMBLY (Air)	2

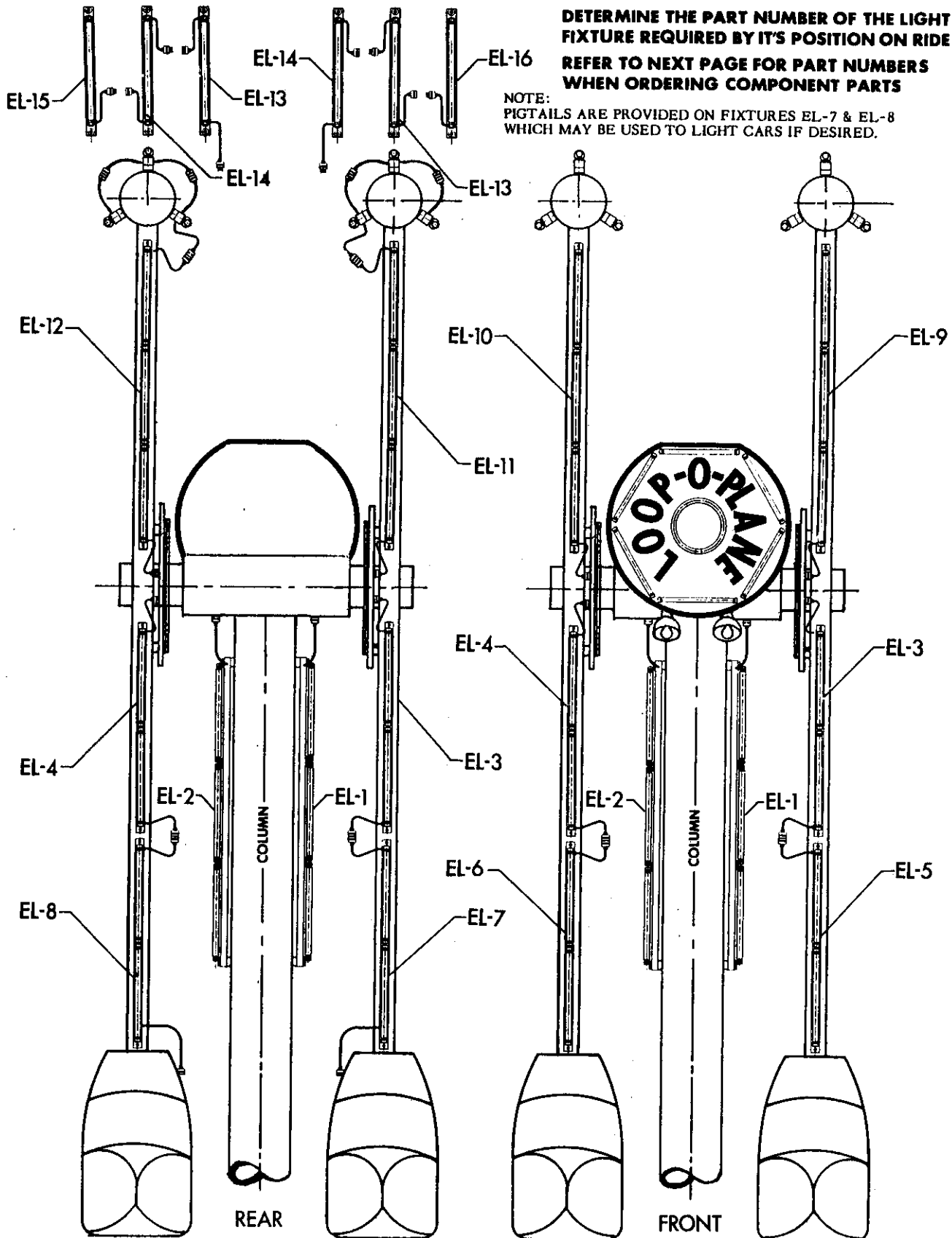
* Not Illustrated.



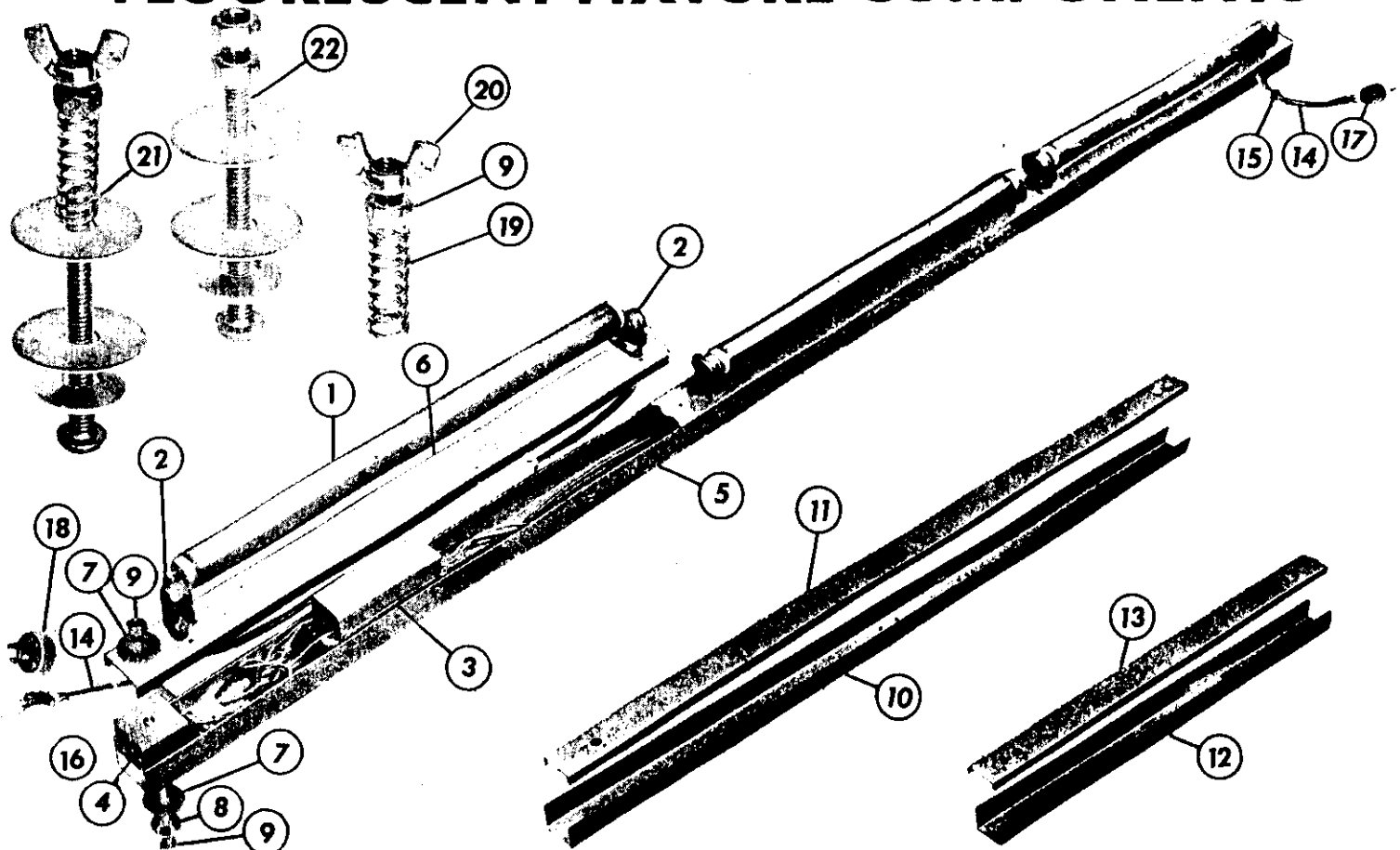
FLUORESCENT FIXTURES

DETERMINE THE PART NUMBER OF THE LIGHT FIXTURE REQUIRED BY ITS POSITION ON RIDE
REFER TO NEXT PAGE FOR PART NUMBERS
WHEN ORDERING COMPONENT PARTS

NOTE:
 PIGTAILS ARE PROVIDED ON FIXTURES EL-7 & EL-8
 WHICH MAY BE USED TO LIGHT CARS IF DESIRED.



FLUORESCENT FIXTURE COMPONENTS



REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	E-1G	FLUORESCENT LAMP (Green)	**
1	E-1GO	FLUORESCENT LAMP (Gold)	**
1	E-1R	FLUORESCENT LAMP (Red)	**
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	E-12	WASHER (Flat)	4
8	E-13	WASHER (Curved)	2
9	E-14	MOUNTING BOLTS & NUTS	2
10	E-22	BOX (Two Lamp Fixture)	
11	E-21	BOX COVER (Two Lamp Fixture)	
12	E-16	BOX (One Lamp Fixture)	
13	E-19	BOX COVER (One Lamp Fixture)	
14	E-2	FLUORESCENT FIXTURE CORD (9")	
14	E-2A	FLUORESCENT FIXTURE CORD (15")	
14	E-2B	FLUORESCENT FIXTURE CORD (18")	
14	E-2C	FLUORESCENT FIXTURE CORD (22")	
14	E-2D	FLUORESCENT FIXTURE CORD (24")	

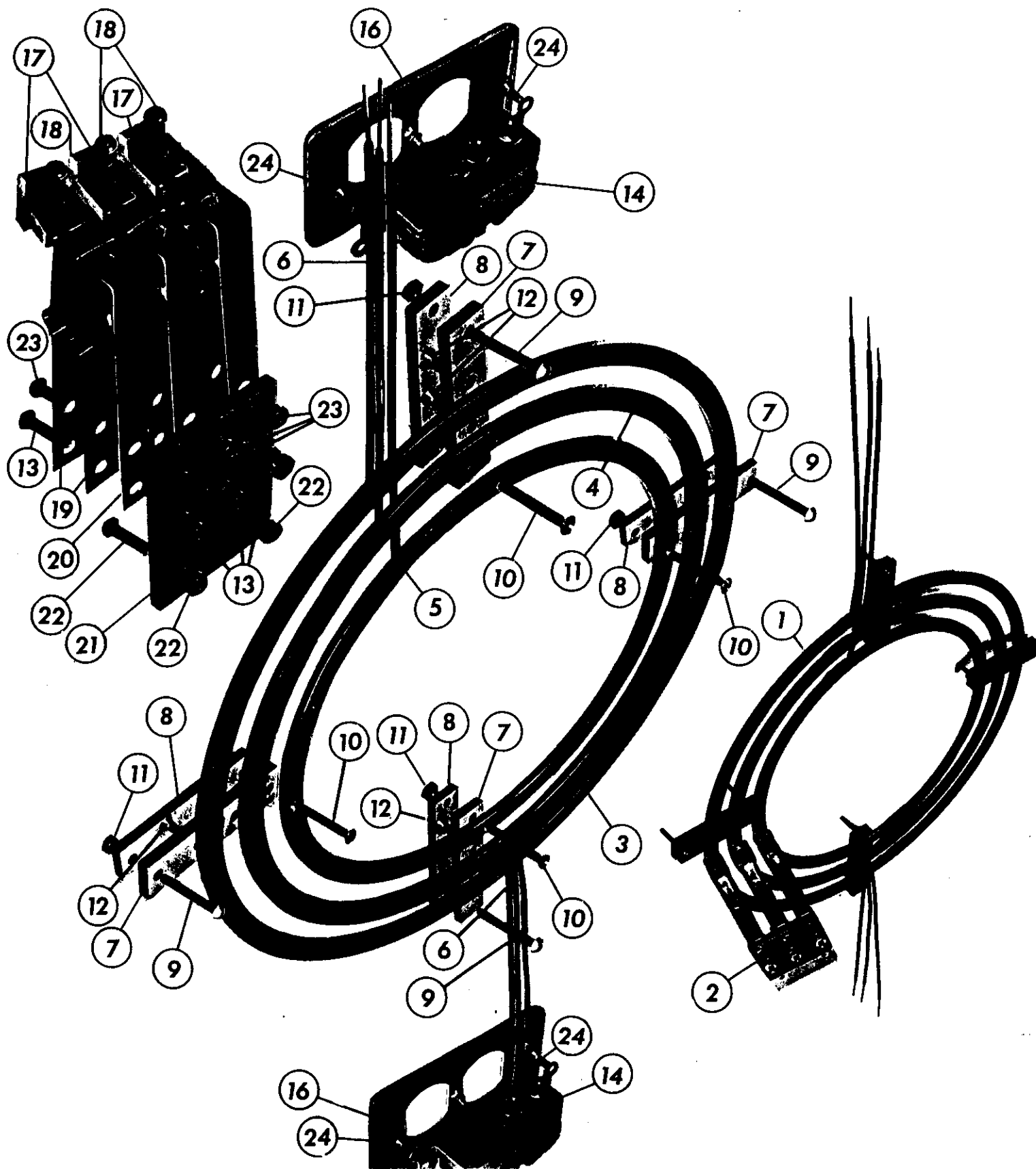
REF. NO.	PART NO.	NAME OF PART	NO. REQ.
14	E-2E	FLUORESCENT FIXTURE CORD (26")	
14	E-2F	FLUORESCENT FIXTURE CORD (28")	
14	E-2G	FLUORESCENT FIXTURE CORD (32")	
14	E-2H	FLUORESCENT FIXTURE CORD (36")	
14	E-2J	FLUORESCENT FIXTURE CORD (40")	
14	E-2K	FLUORESCENT FIXTURE CORD (48")	
14	E-2L	FLUORESCENT FIXTURE CORD (53")	
14	E-2M	FLUORESCENT FIXTURE CORD (63")	
15	E-9	CORD GRIP	2
16	E-20	MALE CAP (Midget)	1
17	E-17	CONNECTOR BODY (Midget)	1
18	E-3	MALE CAP	1
19	E-7	SPRING (Mounting) Standard Ride	2
20	E-5	WING NUT(Mounting Bolt) Standard Ride	2
21	E-14A	MOUNTING BOLT ASSY. (Standard Ride)	
22	E-14B	MOUNTING BOLT ASSY. (Portable Ride)	
*	E-11A	MACHINE SCREW ASSEMBLY	
*	E-8A	SHEET METAL SCREW (Box Cover)	

NOTE: The "No. Req." column indicates the number of each part required for a Three Lamp Fixture.

* Not Illustrated. ** Specify Number Required



LIGHT RING ASSEMBLY





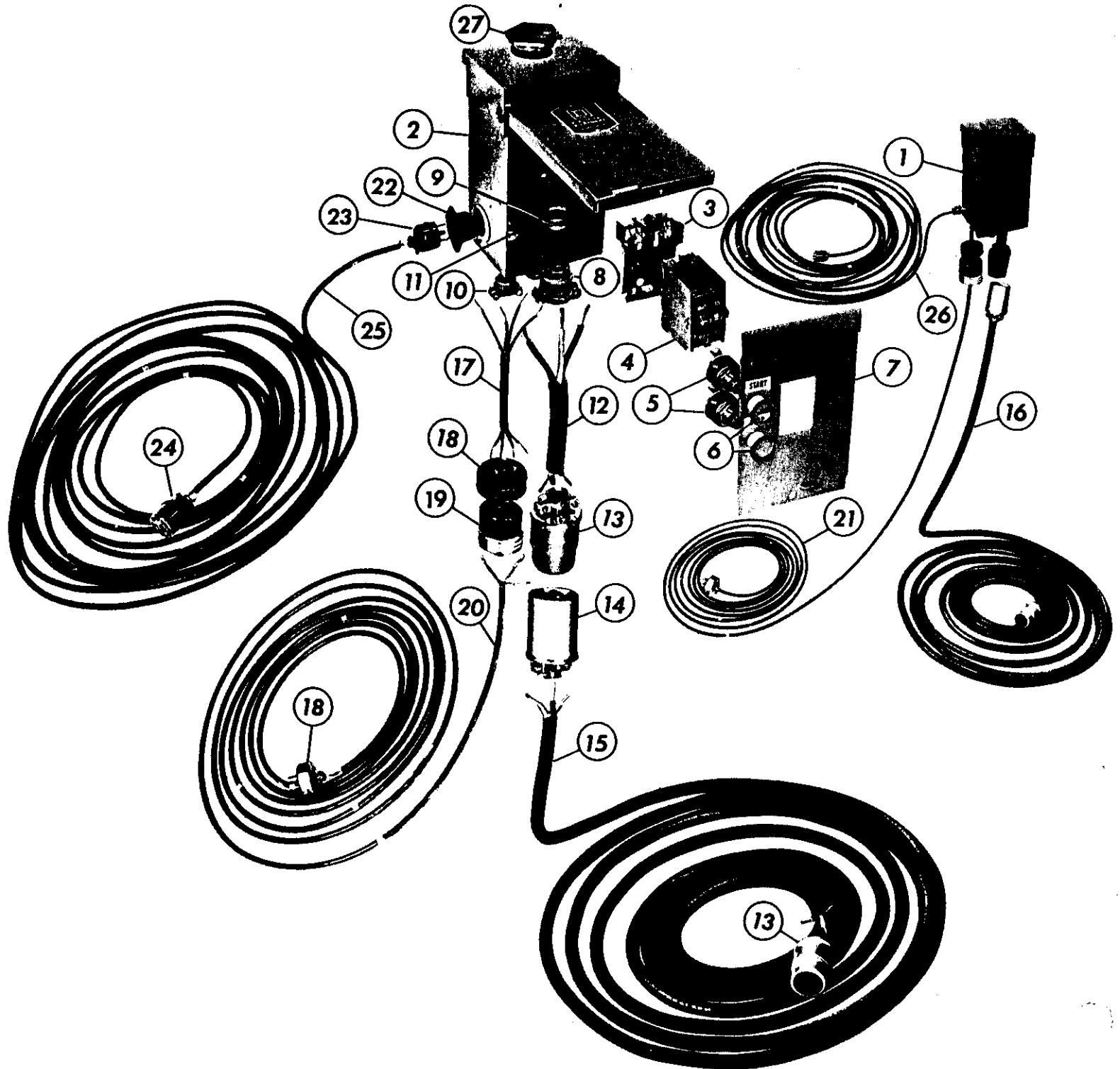
LIGHT RING ASSEMBLY

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	E-101	LIGHT RING ASSEMBLY	2
2	E-102	BRUSH ASSEMBLY	2
3	E-103	OUTER LIGHT RING	2
4	E-104	INTERMEDIATE LIGHT RING	2
5	E-105	INNER LIGHT RING	2
6	E-89	WIRE INSULATION	12
7	E-106	SECONDARY INSULATION STRIP	8
8	E-107	PRIMARY INSULATION STRIP	8
9	E-90	INSULATION BOLT (Round Head)	8
10	E-91	INSULATION BOLT (Long, Flat Head)	8
11	E-92	INSULATION BOLT NUT	16
12	E-93	INSULATION BOLT (Short, Flat Head)	16

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
13	E-94	CONNECTOR ASSEMBLY	4
14	E-73	DUPLEX OUTLET	4
15	E-95	GASKET, Cover Plate	4
16	E-96	COVER PLATE	4
17	E-54	BRUSH CONTACT	6
18	E-55A	BRUSH BOLT	6
19	E-98	BRUSH CONDUCTOR STRIP	12
20	E-99	BRUSH SPRING	6
21	E-100	BRUSH INSULATOR BLOCK	2
22	E-97	BRUSH MOUNTING BOLT ASSEMBLY	4
23	E-56	BRUSH BOLT ASSEMBLY (Short)	6
24	E-55	BRUSH BOLT ASSEMBLY (Long)	6



ELECTRICAL CONTROL ASSEMBLY (115 VOLTS)





ELECTRICAL CONTROL ASSEMBLY

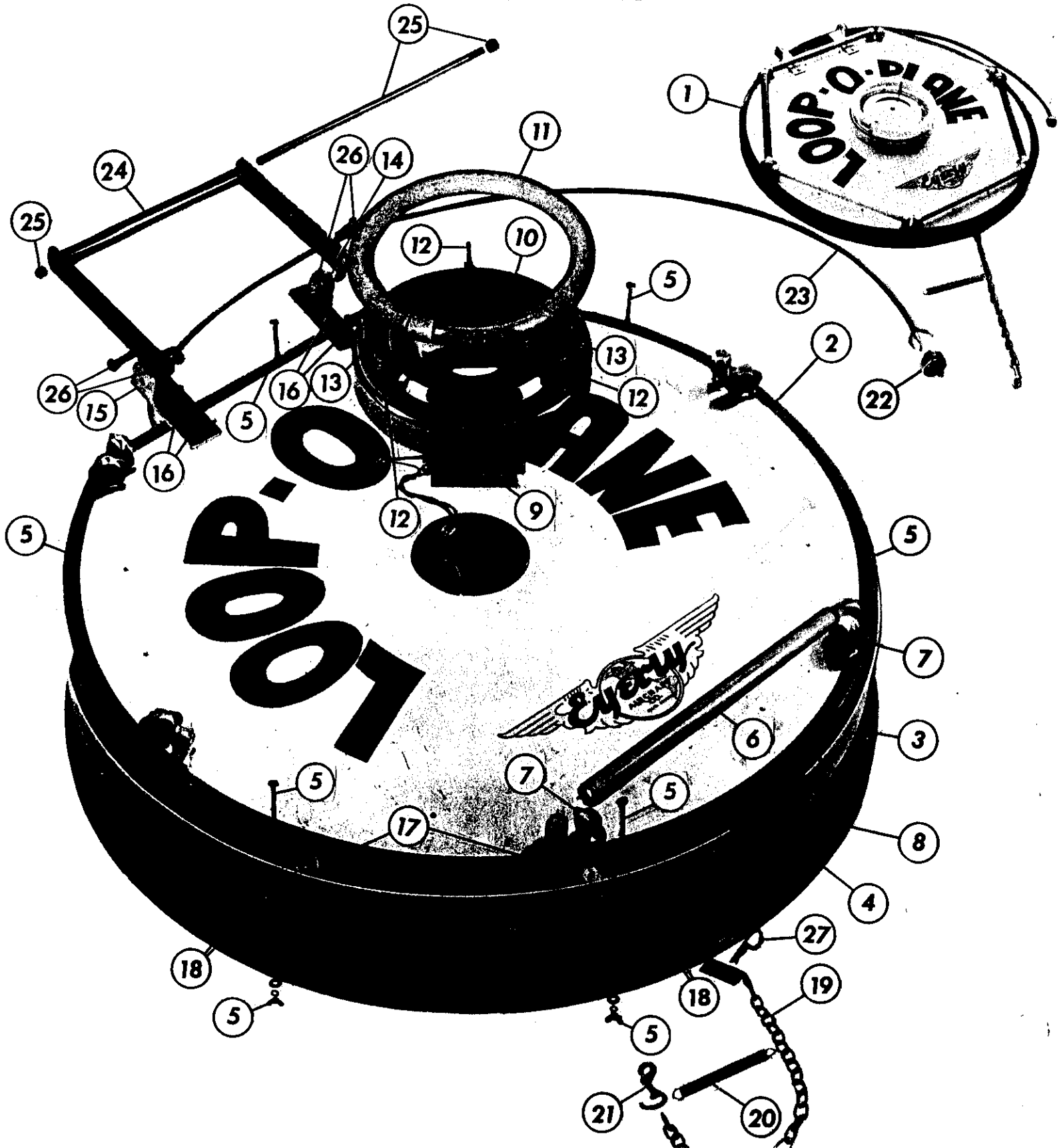
(115 VOLTS)

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	E-27	ELECTRICAL CONTROL BOX ASSEMBLY	1
2	E-26	ELECTRICAL CONTROL BOX	1
3	E-28	BREAKER MOUNTING BASE	1
4	E-139	BREAKER	1
5	E-30	START & STOP SWITCH	2
6	E-30A	START & STOP SWITCH MOUNTING NUT	2
7	E-31	ELECTRICAL CONTROL BOX COVER PLATE	1
8	E-32	LIGHT CORD CONNECTOR	1
9	E-32A	LIGHT CORD CONNECTOR MOUNTING NUT	1
	E-33	MOTOR CORD CONNECTOR	1
11	E-33A	MOTOR CORD CONNECTOR MOUNTING NUT	1
12	E-34	LIGHT CORD LEAD	1
13	E-35	LIGHT CORD FEMALE PLUG	2
14	E-36	LIGHT CORD MALE PLUG	1

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
15	E-140	LIGHT CORD	1
16	E-141	LIGHT CORD ASSEMBLY	1
17	E-39	MOTOR CORD LEAD	1
18	E-40	MOTOR CORD MALE PLUG	2
19	E-41	MOTOR CORD FEMALE PLUG	1
20	E-142	MOTOR CORD	1
21	E-143	MOTOR CORD ASSEMBLY	1
22	E-44	TICKET BOOTH LIGHT CORD OUTLET	1
23	E-20	TICKET BOOTH LIGHT CORD MALE PLUG	1
24	E-46	TICKET BOOTH LIGHT CORD FEMALE PLUG	1
25	E-144	TICKET BOOTH LIGHT CORD	1
26	E-145	TICKET BOOTH LIGHT CORD ASSEMBLY	1
27	E-49	ELECTRICAL CONTROL BOX CAP	1



SIGN ASSEMBLY





SIGN ASSEMBLY

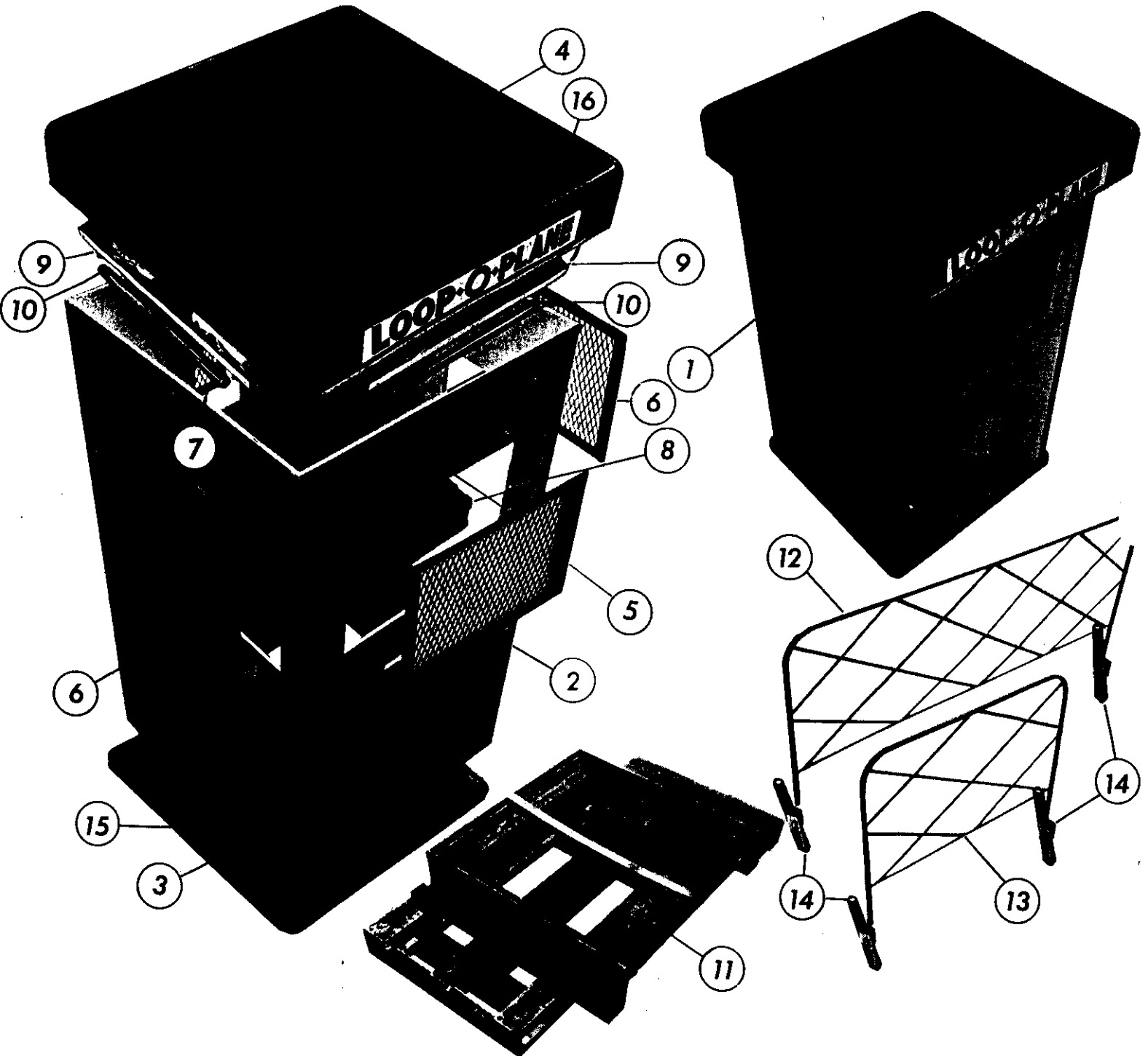
REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	L-364	SIGN ASSEMBLY, Complete	1
2	L-394	SIGN FRONT	1
3	L-394A	SIGN BAND	1
4	L-393	SIGN BACK	1
5	L-394B	SIGN BOLT ASSEMBLY	6
6	E-1	FLUORESCENT LAMP	6
7	E-4	FLUORESCENT LAMP HOLDER	12
8	E-11	BALLAST	6
9	E-147	CIRCLINE BALLAST	1
10	E-147	CIRCLINE FIXTURE	1
11	E-148	CIRCLINE LAMP	1
12	E-149	CIRCLINE LAMP CLIP	3
13	E-147A	CIRCLINE FIXTURE BOLT ASSEMBLY	2
14	L-244	SIGN HINGE BRACKET (R. H.)	1

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
15	L-244A	SIGN HINGE BRACKET (L. H.)	1
16	L-244B	SIGN HINGE BRACKET BOLT ASSEMBLY	4
17	L-394B	SIGN BLOCKS	6
18	L-394C	SIGN BLOCK SCREW	12
19	L-389A	SIGN SAFETY CHAIN	1
20	W-93	SIGN SAFETY CHAIN SPRING	1
21	L-389C	SIGN SAFETY CHAIN SNAP	1
22	E-3	MALE PLUG	1
23	E-150	CORD	1
24	L-346	SIGN HINGE	1
25	L-346A	SIGN HINGE BOLT ASSEMBLY (Long)	1
26	L-346B	SIGN HINGE BOLT ASSEMBLY (Short)	2
27	W-83A	SAFETY KEY	1
*	L-389	SIGN SAFETY CHAIN ASSEMBLY	1

* Not Illustrated.



TICKET BOOTH & FENCE ASSEMBLY





TICKET BOOTH & FENCE ASSEMBLY

REF. NO.	PART NO.	NAME OF PART	NO. REQ.
1	L-391	TICKET BOOTH ASSEMBLY	1
2	L-395	TICKET BOOTH PANEL ASSEMBLY (Complete with Screens)	1
3	L-396	TICKET BOOTH BASE	1
4	L-397	TICKET BOOTH TOP	1
5	L-395A	TICKET BOOTH FRONT SCREEN	1
6	L-395B	TICKET BOOTH SIDE SCREEN	2
7	L-395C	TICKET BOOTH BACK SCREEN	1
8	L-398	TICKET BOOTH TRAY	1
9	E-151	FLUORESCENT LIGHT FIXTURE ASSEMBLY (Outside)	1

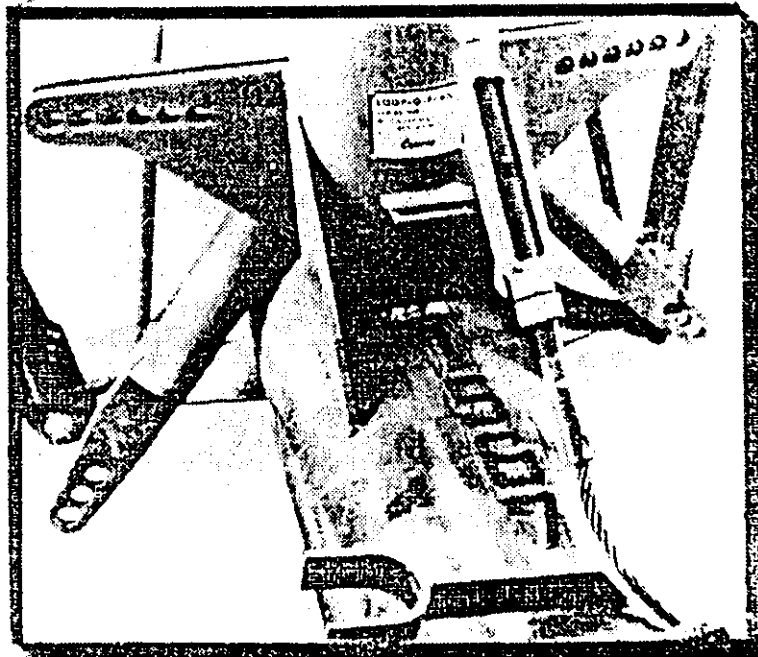
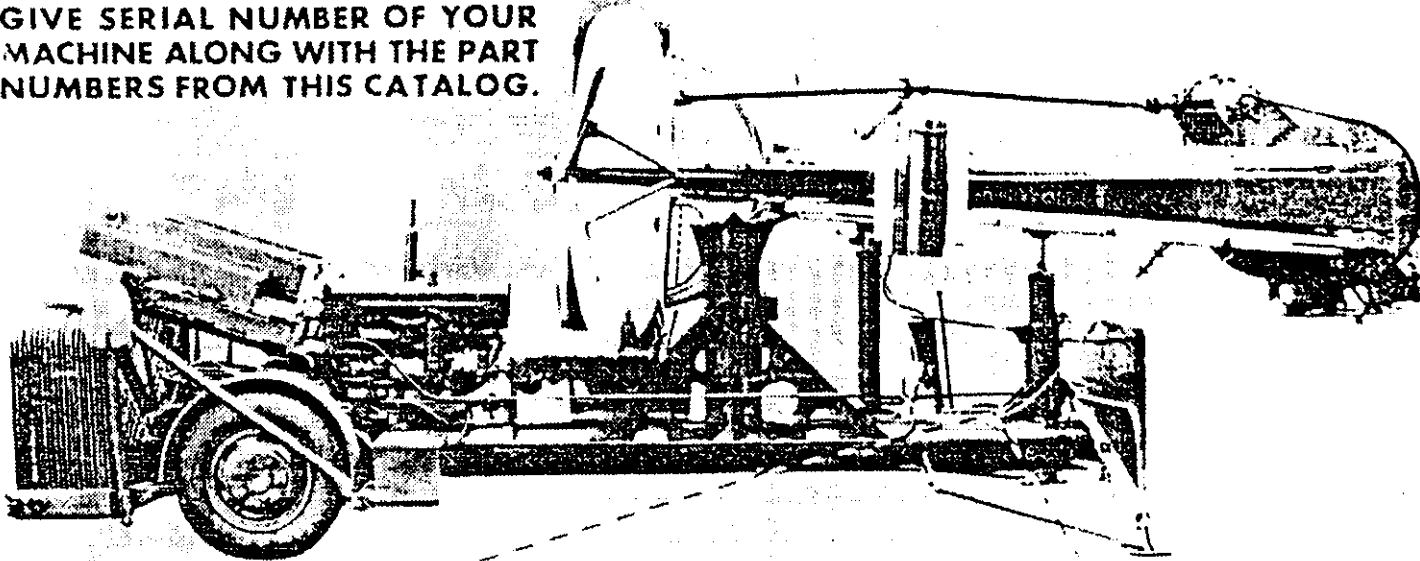
REF. NO.	PART NO.	NAME OF PART	NO. REQ.
10	E-1	FLUORESCENT TUBE (Outside)	3
11	L-279	TICKET BOOTH RACK	1
12	O-542	FENCE SECTION (Long)	19
13	O-543	FENCE SECTION (Short)	5
14	O-146	FENCE JACK	25
15	L-396A	STAY BOLT	4
16	L-397A	LOOP-O-PLANE SIGN	1
*	E-152	FLUORESCENT LIGHT FIXTURE ASSEMBLY (Inside)	1
*	E-153	FLUORESCENT TUBE (Inside)	1

* Not Illustrated.



LOCATION OF LOOP-O-PLANE SERIAL NUMBER

NOTE:
WHEN ORDERING PARTS PLEASE
GIVE SERIAL NUMBER OF YOUR
MACHINE ALONG WITH THE PART
NUMBERS FROM THIS CATALOG.

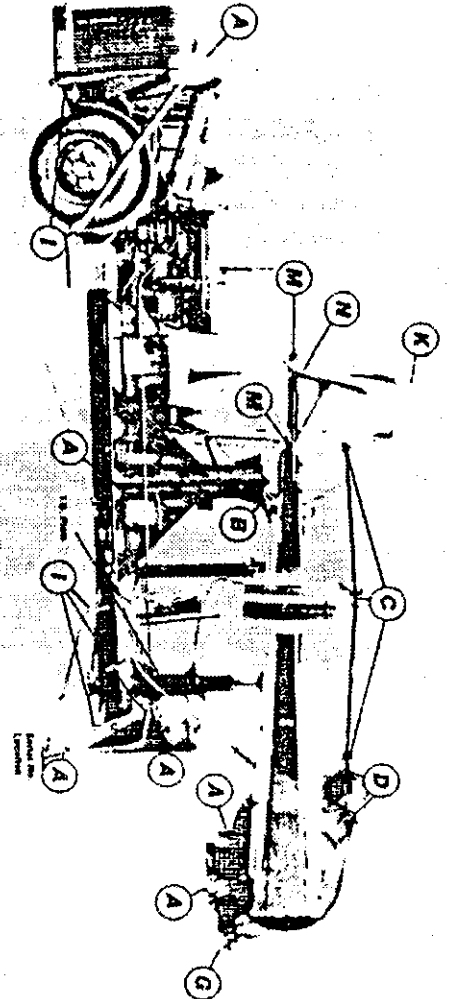


THE SERIAL NUMBERS ASSIGNED TO THE
PARK MODEL LOOP-O-PLANE START AT
1301 AND THE PORTABLE MODEL STARTS
AT 1500.



LOOP-O-PLANE INSPECTION CHECK LIST

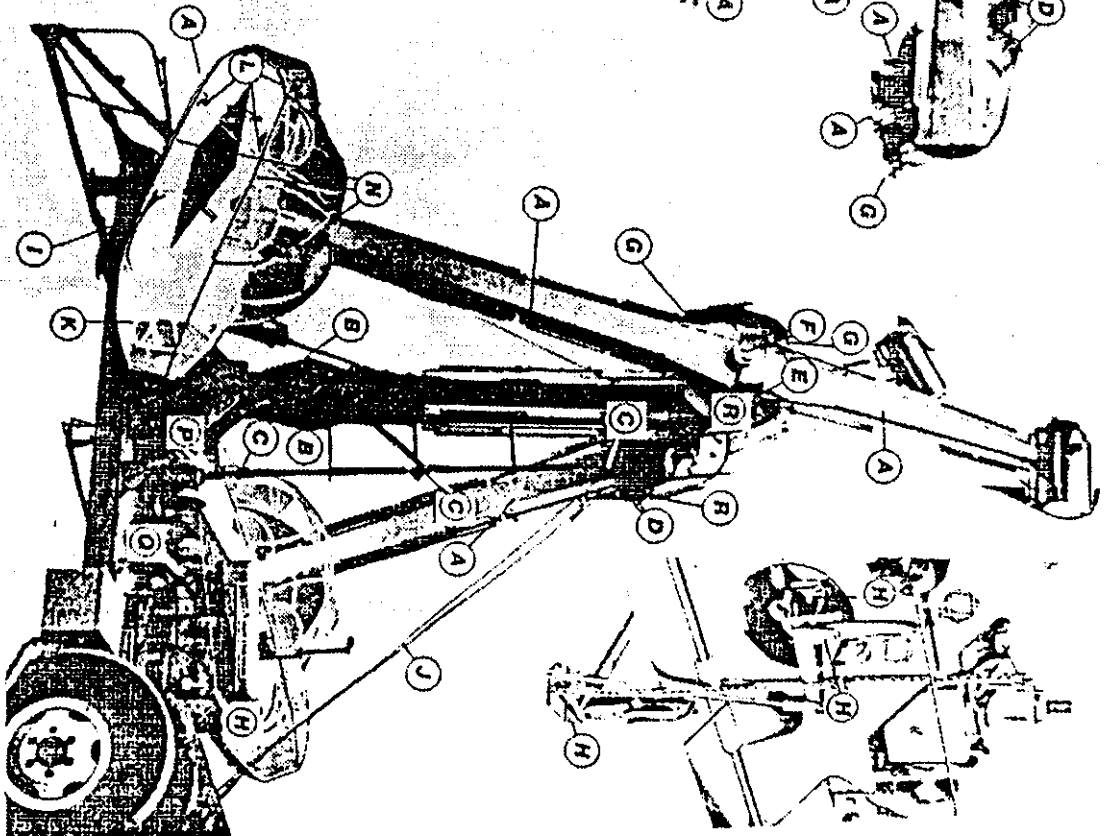
- A. Inspect weld area for cracks and structural damage.
- B. Check condition of hinge pin and clamping bolt.
- C. Gas model, check condition of universal and mounting bearings.
- D. Check rear end for loose pinion nuts or sprockets.
- E. Check bolts for condition.
- F. Check bushing for wear; 1" movement at car indicated, 0.50 maximum wear in bushing—end play not to exceed .030.
- G. Check condition of sign hinge.
- H. Inspect wear areas of linkage.
- I. Inspect attaching bolts and pins.
- J. Guy cables are to be equally lightened—can cause cars to strike ride if hinge pin has wear and cables unevenly lightened. Check for cable and turn-buckle condition.
- K. Inspect cars for broken or worn tubes, broken screen, bent automatic door return bar—lost or broken springs, worn bolts, enlarged attaching holes, safety key wearing end of bar which safeties door and worn or damaged door safety key. (See Bulletin L-1-70).



- L. Inspect condition of door latch and hinges. Remove, play and align as necessary.
- M. Inspect car bracket main nuts and safety nut for looseness and upper bolts for wear.
- N. Inspect car attaching bolts for wear or looseness, see Bulletin L-2-75. Note, if structural damage is found, contact factory for proper repair procedures.
- P. Inspect gear box for clutch condition and any shaft movement. Repair as required.
- Q. Check engine clutch for spring wear and bearing failure.
- R. Check for loose or worn chains.

General Information:

Maximum weight 340 lbs. per car
Maximum RPM is 20—see adjustment in parts book. Ride should be level side-to-side and remove weight from aisle when set up. Service rate as required.



SALES & SERVICE
Turf & Co., Inc.—Chicago
(408) 547-8138
Elyria, Ill.
P.O. Box 12755
21441 Turpin Ave. S.E.
Salem, Oregon 97308
(503) 399-7746

See "Loop-O-Plane" printed in L-1-70



CLUTCH & THROTTLE ADJUSTMENTS

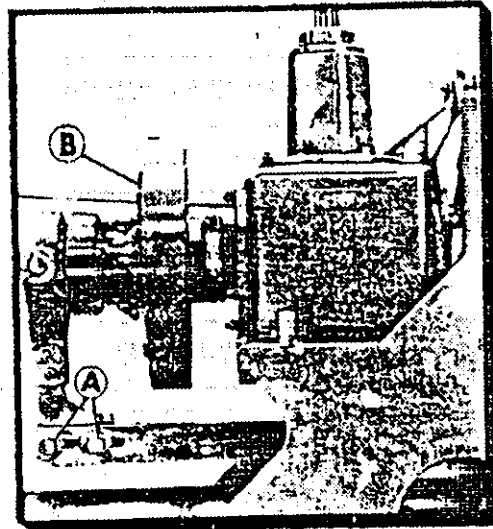
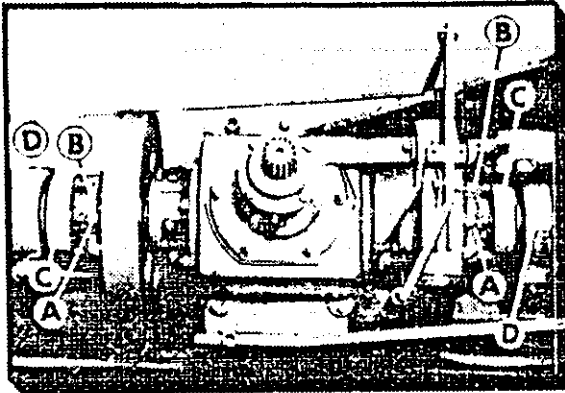


FIG. 2

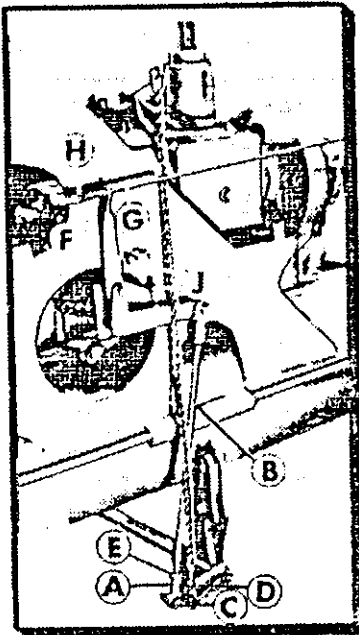
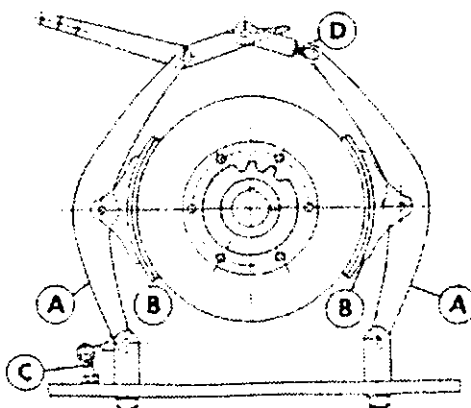


FIG. 3

ELECTRIC MODEL BRAKE ADJUSTMENT



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 adjustment 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 (I) 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.

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.



LUBRICATION INSTRUCTIONS

REF. NO.	NAME OF PART	BEARING TYPE	FREQUENCY	
			*GREASE	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

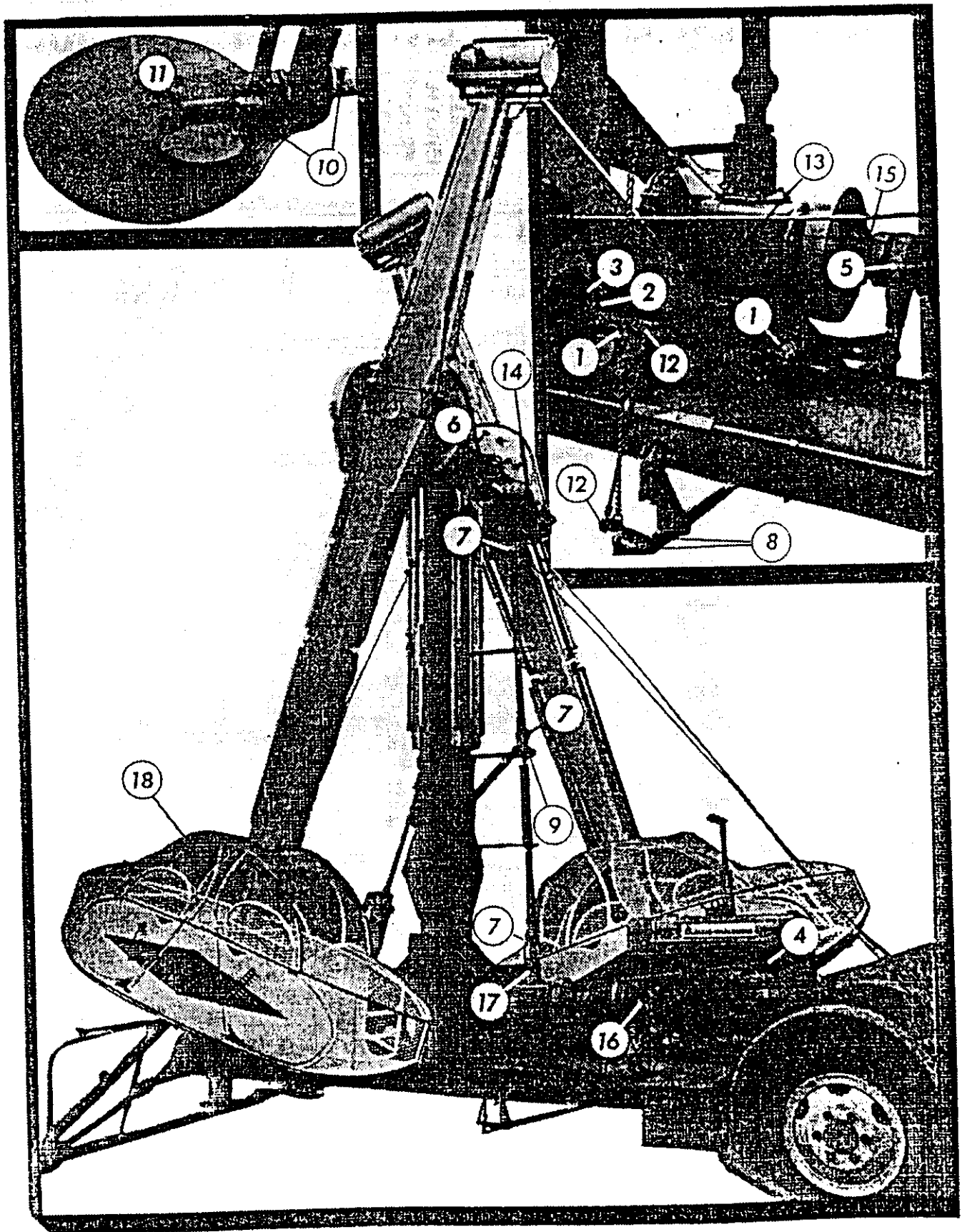
*USE A MULTI-PURPOSE WATER RESISTANT GREASE WITH AN ACCEPTED EXTREME PRESSURE ADDITIVE, SUCH AS MOLYBDENUM DISULFIDE, ON ALL PRESSURE GUN FITTINGS.

LUBRICATE THE CHAINS EVERY TWO WEEKS WITH AN APPROVED LUBRICANT.

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

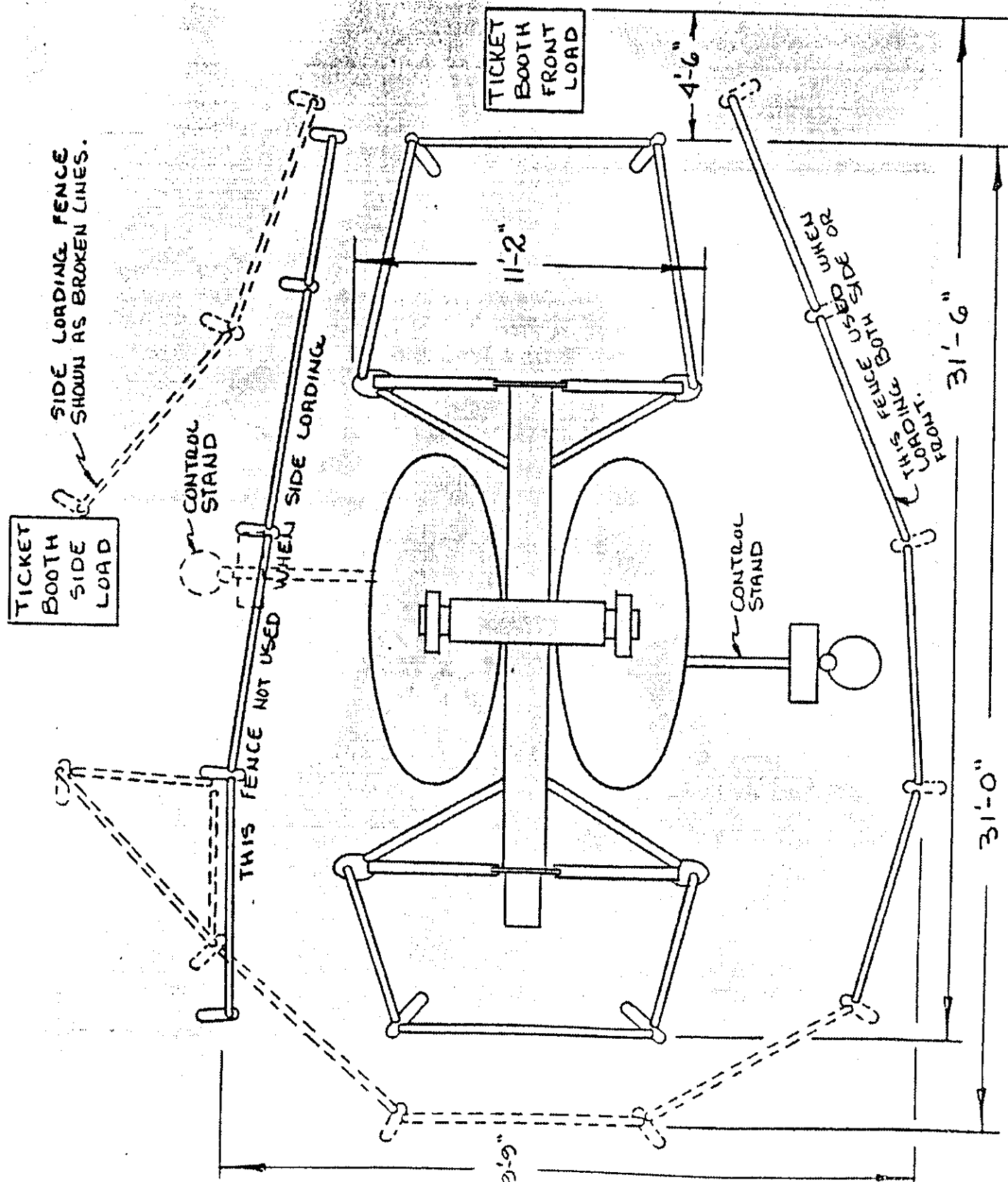
THE ABOVE FREQUENCY OF GREASING THE BEARING IS FOR AVERAGE

LUBRICATION INSTRUCTIONS

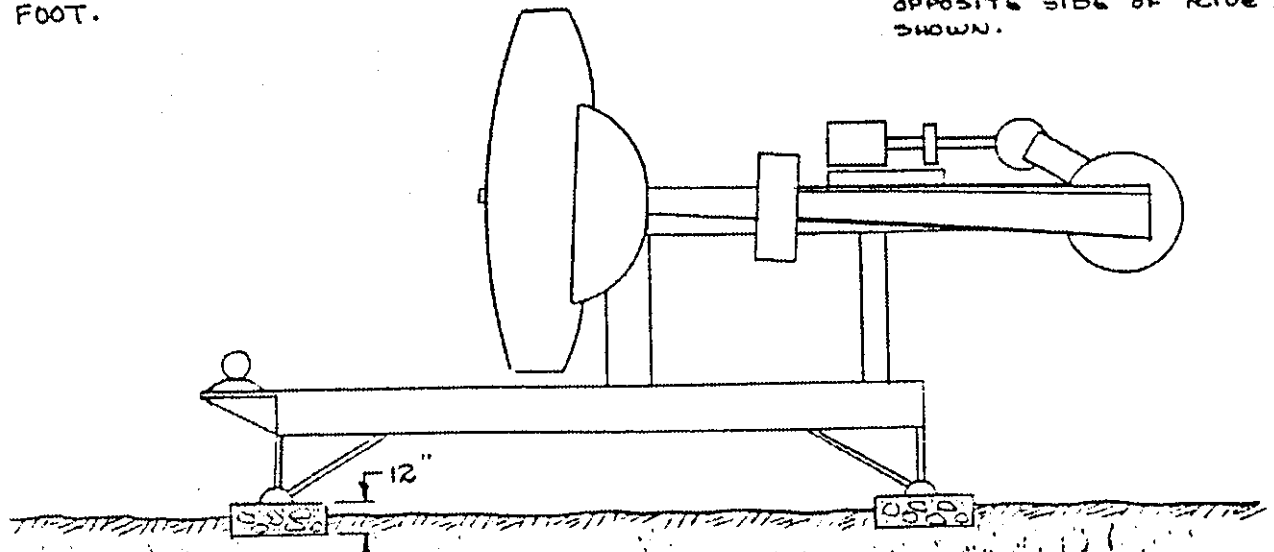
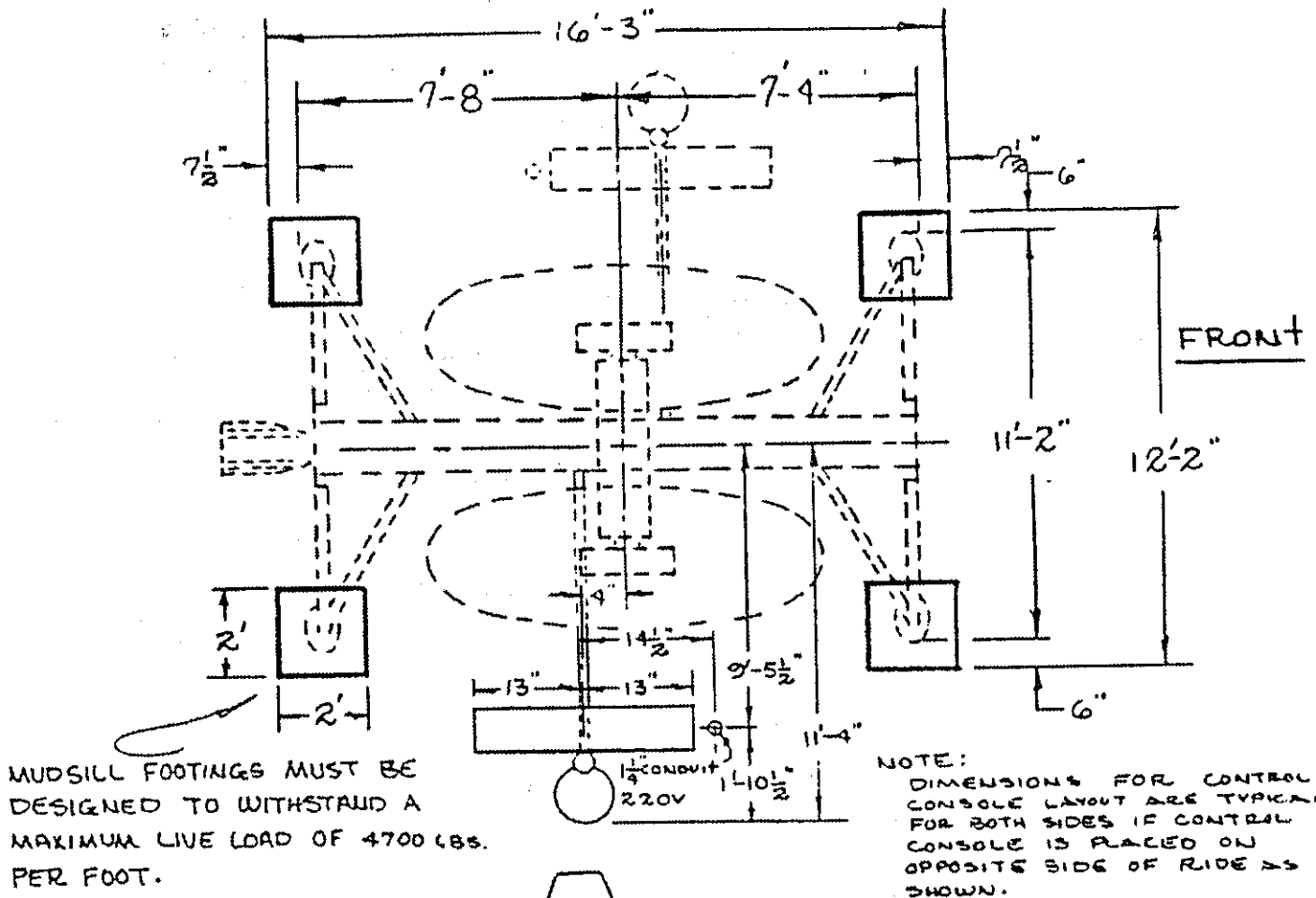




PLAN VIEW & FENCE LAYOUT—PARK MODEL



SPACE REQUIREMENTS—PARK MODEL



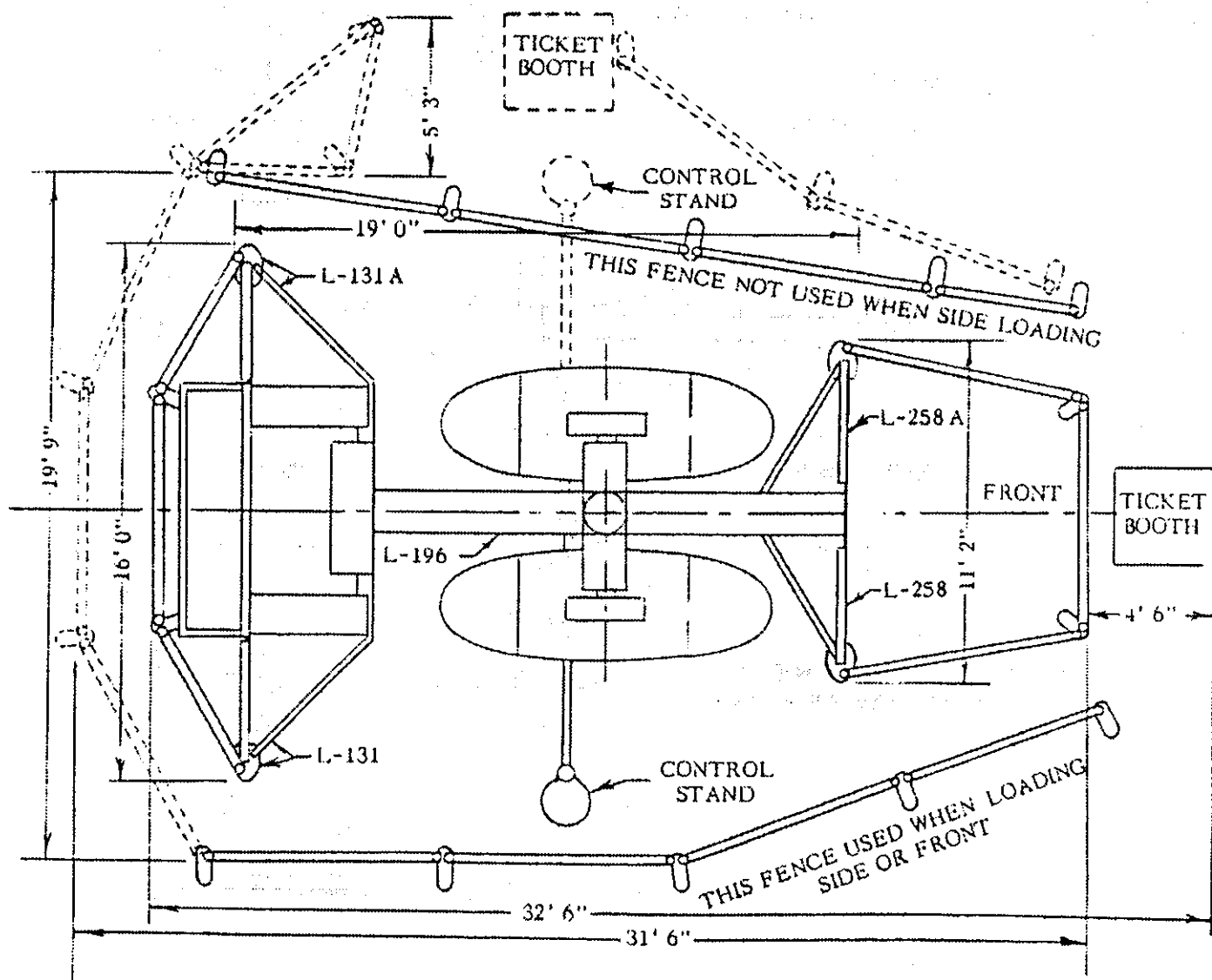
POWER REQUIREMENTS:

ONE MAIN 1 1/4" CONDUIT WITH 3-#2 T.W. BLACK,
1-#10 WHITE (NEUTRAL) PLUS #8 FOR GROUND
INPUT: 208/220V, 3 ϕ , 60~ 117V, 1 ϕ , 60~



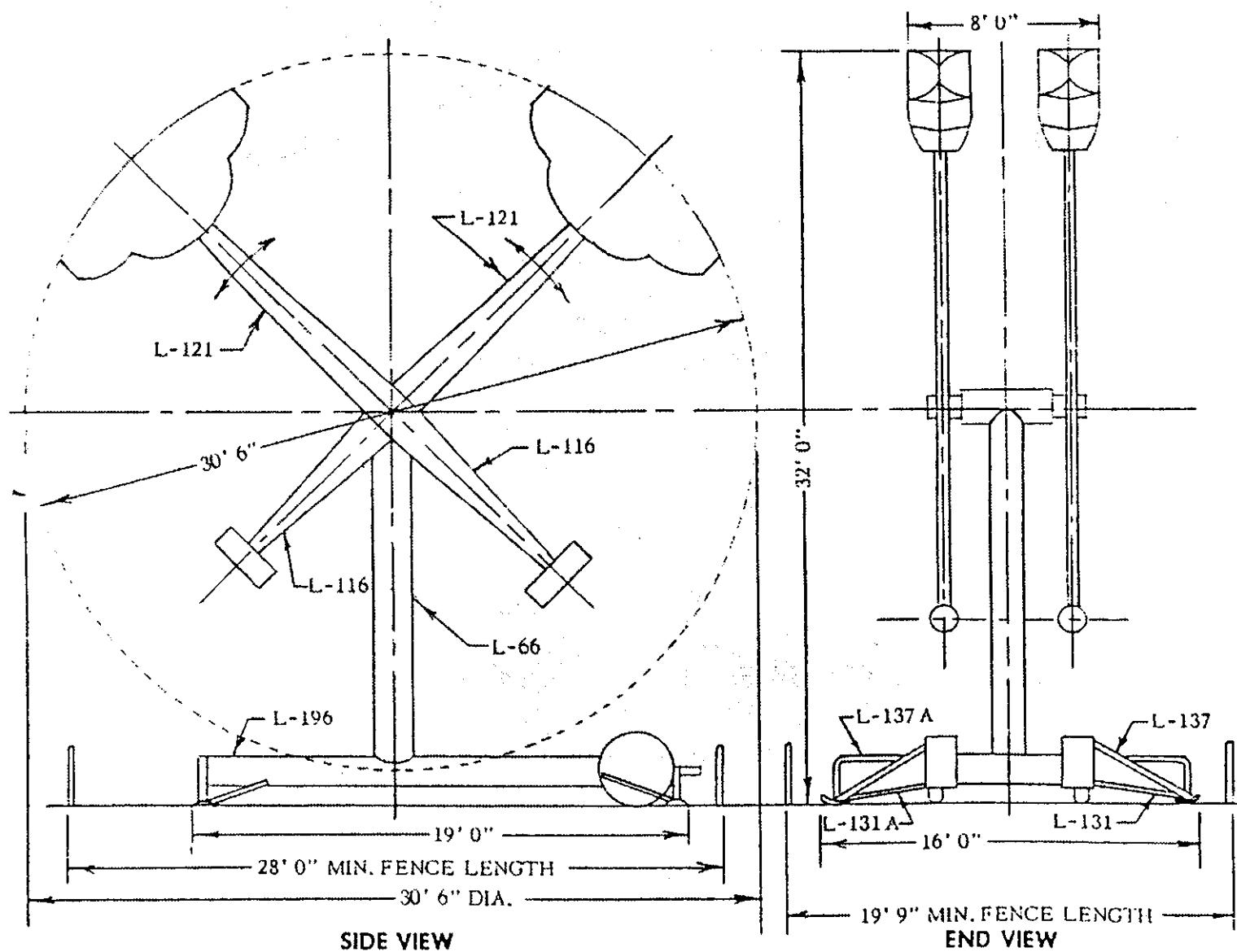
PLAN VIEW & FENCE LAYOUT

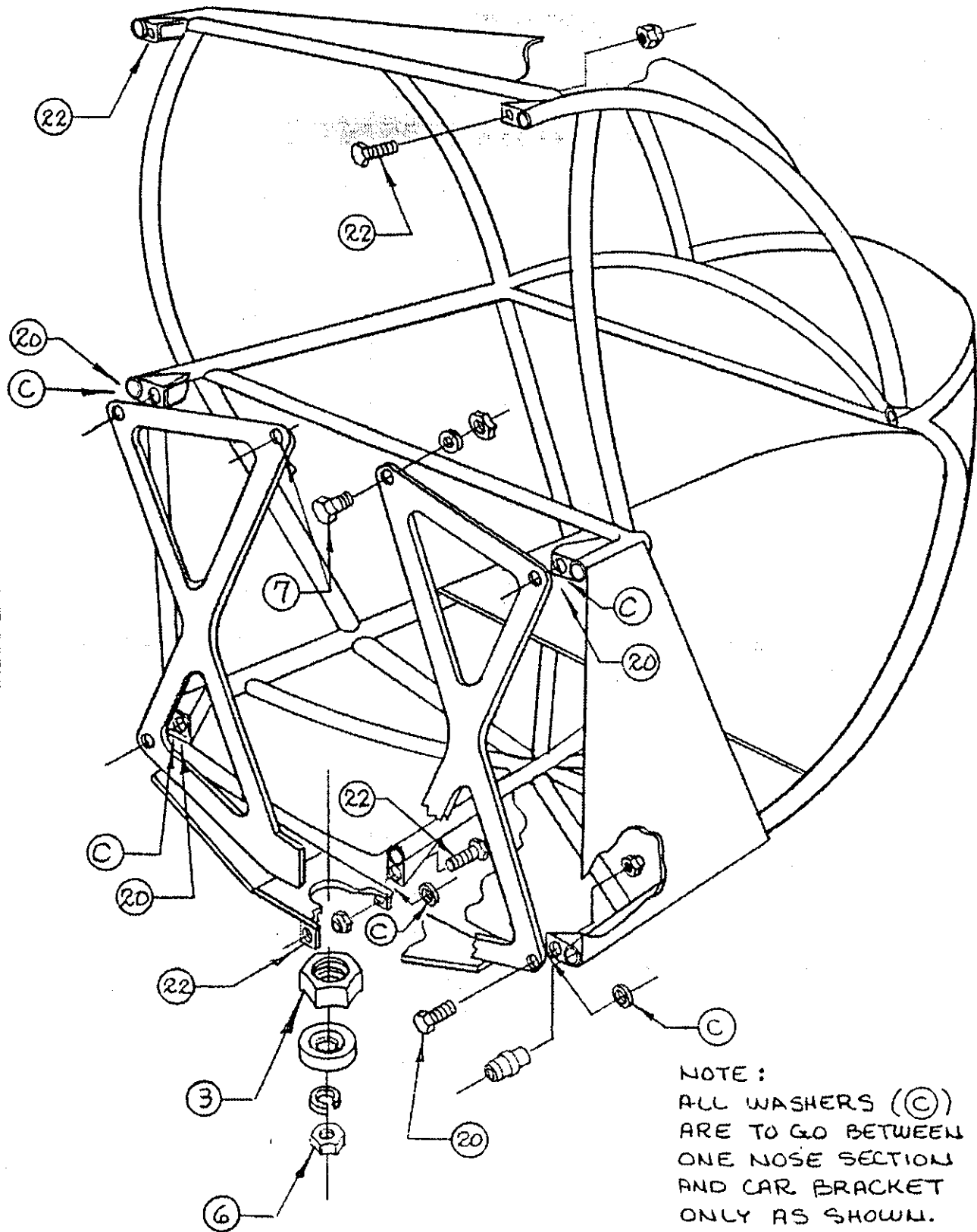
SIDE LOADING FENCE AND TICKET BOOTH
SHOWN AS BROKEN LINES





SPACE REQUIREMENTS





LOOP CAR ATTACHING BOLT BULLETIN

DRAWN BY:
NEA

SCALE:
~

NO. REQ'D.:
~

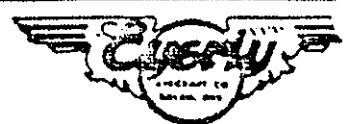
MATERIAL:
~

DATE:
9.9.75

NEXT ASSY.:
~

SDS. NO.:

SDD. BY NO.:



Drg. No. BULLETIN L-2

LOOP-O-PLANE CAR ATTACHING BOLT REPLACEMENT

FACTORY CHECKING OF SEVERAL UNITS HAS REVEALED SOME INSTANCES OF IMPROPER TIGHTENING OF THE ATTACHING BOLTS AND OTHER MAINTENANCE FAILINGS WHICH MAY RESULT IN FAILURES IN THE BOLT BRACKETS AND ADJACENT MEMBERS. SHOULD YOU FIND ANY LOOSENESS EVIDENT AT THE ATTACHING AREAS CAREFULLY INSPECT ALL AREAS OF CAR ASSEMBLY. ANY FRACTURES SHOULD BE REPORTED TO THE FACTORY IMMEDIATELY TO DETERMINE PROPER REPAIRING PROCEDURE.

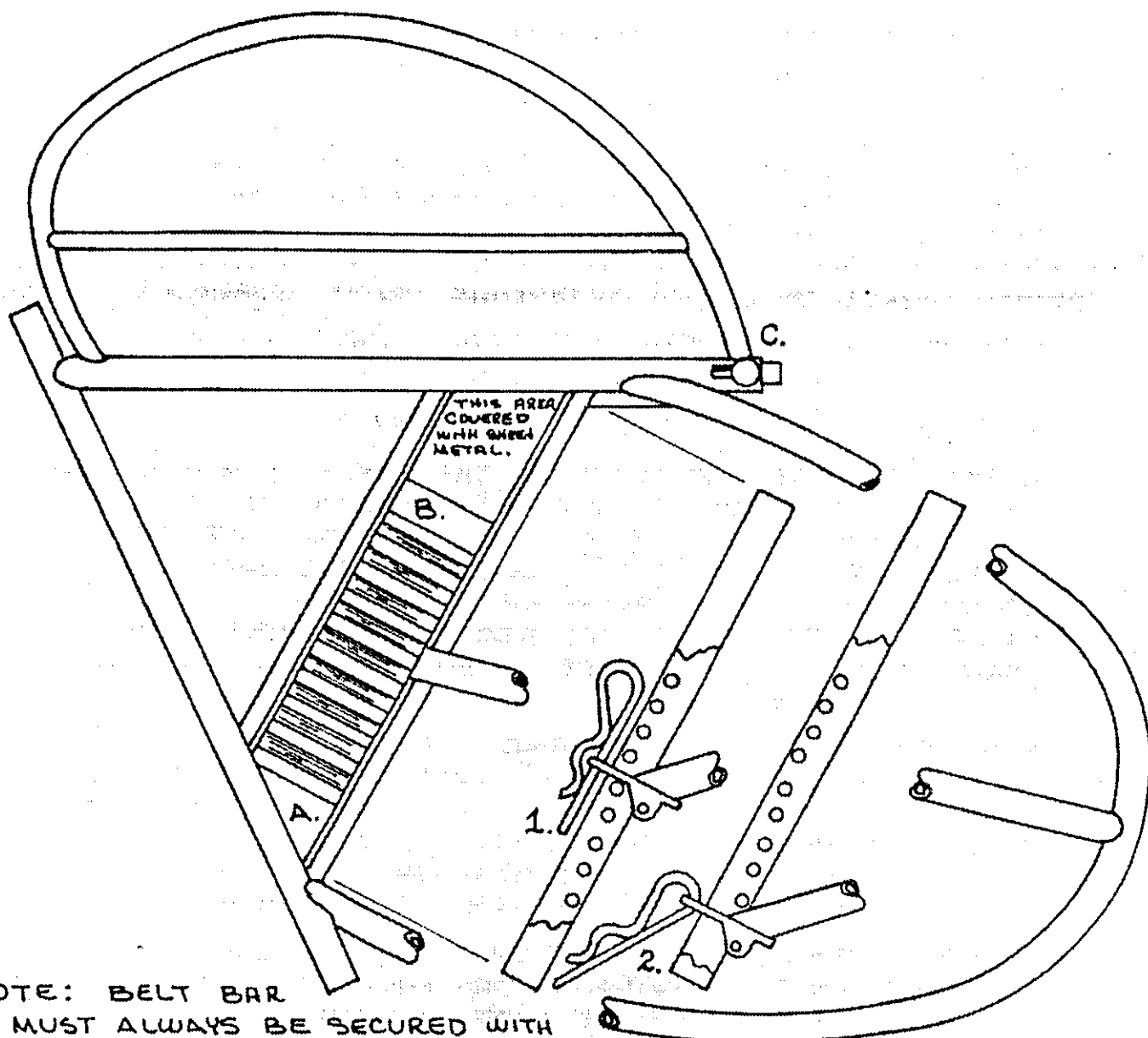
1. REMOVE ALL SEAT UPHOLSTERY AND HEAD RESTS.
2. BACK NUTS OFF ON THE FOUR $\frac{3}{8} \times 1\frac{1}{2}$ (20) BOLTS AND THE FOUR $\frac{3}{8} \times 1$ (22) BOLTS NOT MORE THAN $\frac{1}{4}$ ".
3. REMOVE & REPLACE, ONE AT A TIME, THE FOUR $\frac{3}{8} \times 1\frac{1}{2}$ (20) BOLTS WITH THE NEW GRADE 8 $\frac{3}{8} \times 1\frac{1}{2}$ BOLTS SUPPLIED IN THE KIT. WHEN REPLACING EACH (20) BOLT ADD ONE $\frac{3}{8}$ " SAE FLATWASHER (C) BETWEEN ONE CAR NOSE SECTION AND CAR BRACKET ONLY. THE PLACING OF THE WASHERS BETWEEN THE NOSE AND BRACKET IS TO ASSURE A PROPER CLAMPING LOAD BETWEEN THE THREE ASSEMBLIES. DO NOT TIGHTEN BOLTS AT THIS TIME.
4. REMOVE & REPLACE, ONE AT A TIME, THE FOUR $\frac{3}{8} \times 1$ (22) BOLTS WITH THE NEW GRADE 8 $\frac{3}{8} \times 1$ BOLTS SUPPLIED IN THE KIT. START WITH THE TWO BOLTS AT THE TOP OF THE CAR ASSEMBLY. WHEN REPLACING THE TWO BOTTOM CENTER BOLTS, MAKE SURE THE WASHER (C) IS PLACED BETWEEN THE SAME NOSE SECTION AND CAR BRACKET AS WASHERS WERE PLACED IN STEP #3.
5. USING A TORQUE WRENCH TIGHTEN THE GRADE 8 BOLTS TO 40 TO 50 FOOT POUNDS DRY. DRY MEANS THE THREADED AREA OF THE NUT & BOLT HAVE NO LUBRICANT ON THEM.
6. CHECK THE TWO (7) BOLT ASSEMBLIES ON EACH CAR BRACKET FOR PROPER TIGHTNESS, REPLACING IF LOOSE OR WORN WITH GRADE 5 OR BETTER. TORQUE TO 200 TO 250 FOOT POUNDS DRY.
7. CHECK (3) NUT FOR LOOSENESS ON BOTTOM OF EACH CAR ASSEMBLY BY BACKING OFF (6) NUT AND APPLYING UP TO 1000 FOOTPOUNDS TORQUE DRY TO (3) NUT AND RETIGHTEN (6) NUT TO 160 FOOT POUNDS TORQUE DRY.
8. REPLACE ALL UPHOLSTERY.

LOOP CAR ATTACHING BOLT BULLETIN

DRAWN BY: NEA	SCALE: ~	NO. REQ'D.: ~	MATERIAL: ~
DATE: 9-75	NEXT ASSY.: ~	SOS. NO.: ~	SOD. BY NO.: ~



Drg. No. BULLETIN # L-2



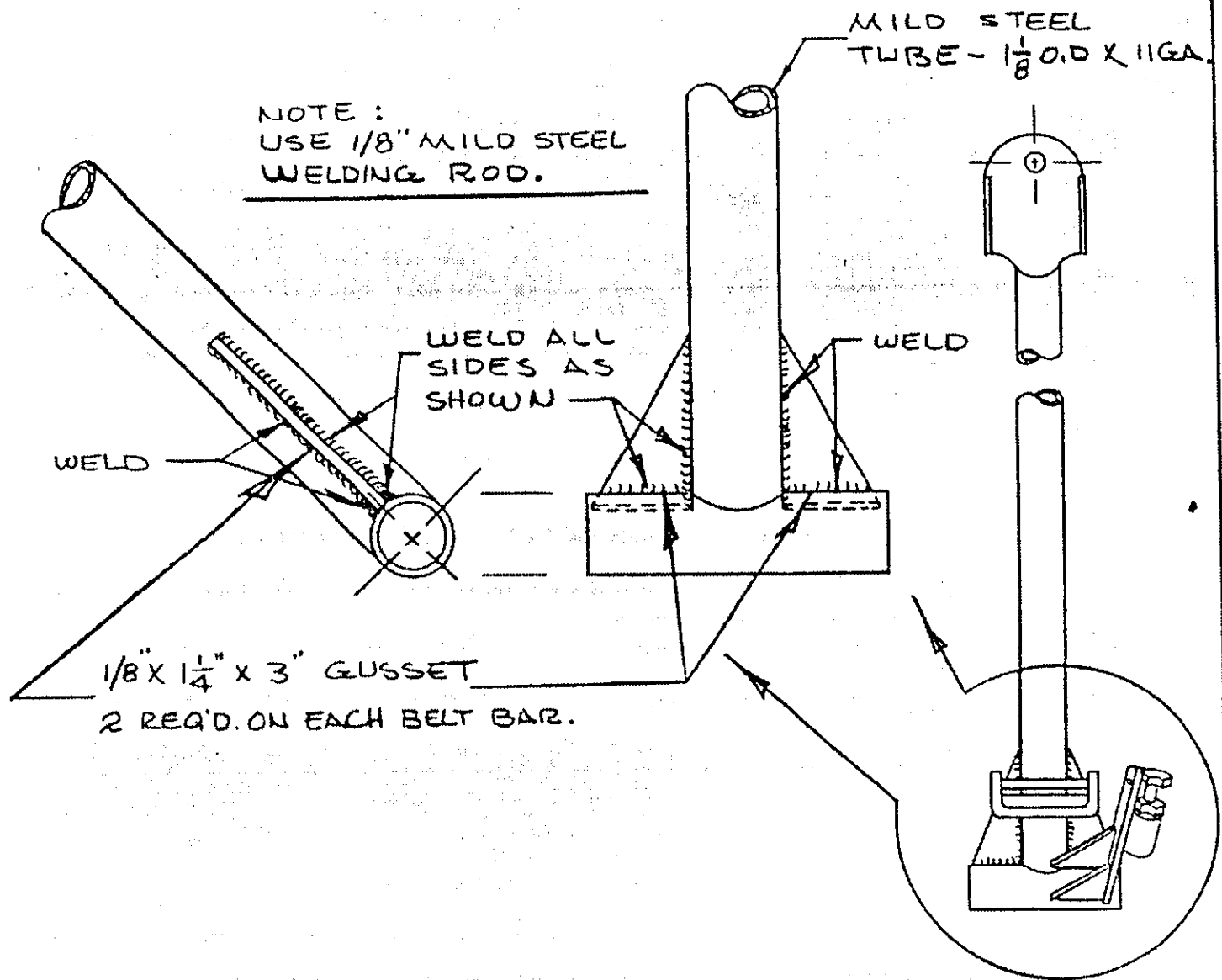
NOTE: BELT BAR MUST ALWAYS BE SECURED WITH BELT TAUT OVER PASSENGERS BETWEEN UPPER AND LOWER DOOR LADDER RUNGS. SPRING SAFETY KEY MUST BE RETAINED AT FIRST DETENT (FIG. 1.). IF BELT BAR IS IMPROPERLY SECURED BELOW BOTTOM RUNG (POINT A) OR ABOVE TOP RUNG (POINT B.) IN DOOR LADDER AND IF SAFETY KEY IS IMPROPERLY THROUGH BELT BAR PAST DETENT TO THE TOP OF THE LOOP (FIG. 2.) AND IF SEPARATE DOOR LATCH (FIG. C.) IS NOT PROPERLY FASTENED, DOOR MAY OPEN.

FACTORY APPROVED AND RECOMMENDED MODIFICATION :
INSTALL GUSSETS ($\frac{1}{8}$ " MATERIAL) AT POINTS A & B COMPLETELY FILLING AREA TO WITHIN $\frac{1}{2}$ " OF NEAREST LADDER RUNG. ATTACH BY WELDING.

THIS INSTRUCTION MAY ALSO BE USED WITH FLY-O, ROCK-O & ROLL-O-PLANE CAR DOORS.

DOOR MODIFICATION BULLETIN			
DRAWN BY: AEA	SCALE: NONE	NO. REQ'D.: ~	MATERIAL: ~
DATE: 4-6-78	NEXT ASSY.: ~	SDS. NO.: ~	SDO. BY NO.: ~

Drg. No. L-8-78



DUE TO IMPROPER OPERATIONAL PRACTICES,
THERE HAVE BEEN REPORTED FAILURES OF THE CAR
BELT BAR ASSEMBLY (L-421). REINFORCEMENT
GUSSETS ARE REQUIRED TO ELIMINATE THIS
PROBLEM. GUSSETS SHOULD BE INSTALLED AS
SHOWN IN THE ABOVE DRAWING.

BELT BAR REINFORCEMENT

DRAWN BY: NFA	SCALE: NONE	NO. REQ'D.: —	MATERIAL: AS SHOWN
DATE: 7-15-70	NEXT ASSY.: —	SOS. NO.:	EFF. W/SN:
		SDD. BY NO.:	EFF. W/SN:



Drg. No. L-1-70

ASSEMBLY INSTRUCTIONS

NOTE: TAPERS TO BE CLEANED WITH SUITABLE SOLVENT AND WIPED DRY. DO NOT USE MOLYBDENUM DISULFIDED OR EQUIVALENT FRICTION REDUCING COMPOUNDS ON FASTENERS OR TAPER.

1. INSTALL SEAL AND NEEDLE BEARING IN REAR BEARING CARRIER.
2. INSTALL "O" RING IN COUPLING FACE. MOUNT REAR BEARING CARRIER 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. 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 OR OUTPUT FLANGE ASSEMBLY AND PRESS BALL BEARING ONTO OUTPUT SHAFT UNTIL BEARING INNER RACE OVERHANGS SHAFT END 0.060" TO 0.120".
CAUTION: DO NOT PRESS FLUSH WITH SHAFT END. PRESS FORCE NEVER TO EXCEED 24,000 LBS. INSTALL ROLL PINS IN RETAINER WASHER. INSTALL RETAINER WASHER WITH ROLL PINS AND CAPSCREW 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 CAPSCREW WITH "O" RINGS TO INPUT END. TORQUE 27-30 LB.FT.
6. CHECK AIR TIGHTNES WITH 5-10 PSI PRESSURE APPLIED THRU FILLER HOLE.

SERVICE DISASSEMBLY INSTRUCTIONS

1. REMOVE THE TWO PIPE PLUGS 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 LAYER OF TEFLON TAPE TO SEAL AGAINST HIGH GREASE PRESSURE. INSERT SCREW THROUGH 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 INSTRUCTION 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" OD X 2.06" ID X 7.00" LONG)

RECOMMENDED REPLACEMENTS FOR OVERHAUL:

1. SEAL
2. BEARINGS
3. ALL "O" RINGS

MODELS 12.4 HC, HCF, HCM, HBM FLUID COUPLINGS
UNIT ASSEMBLY AND SERVICE INSTRUCTIONS

DRAWN BY: <i>NEA</i>	SCALE: <i>~</i>	NO. REQ'D.: <i>~</i>	MATERIAL: <i>~</i>
DATE: 6-20-77	NEXT ASSY.: <i>~</i>	SOS. NO.: SDD. BY NO.:	



Drg. No. **L-7-77**



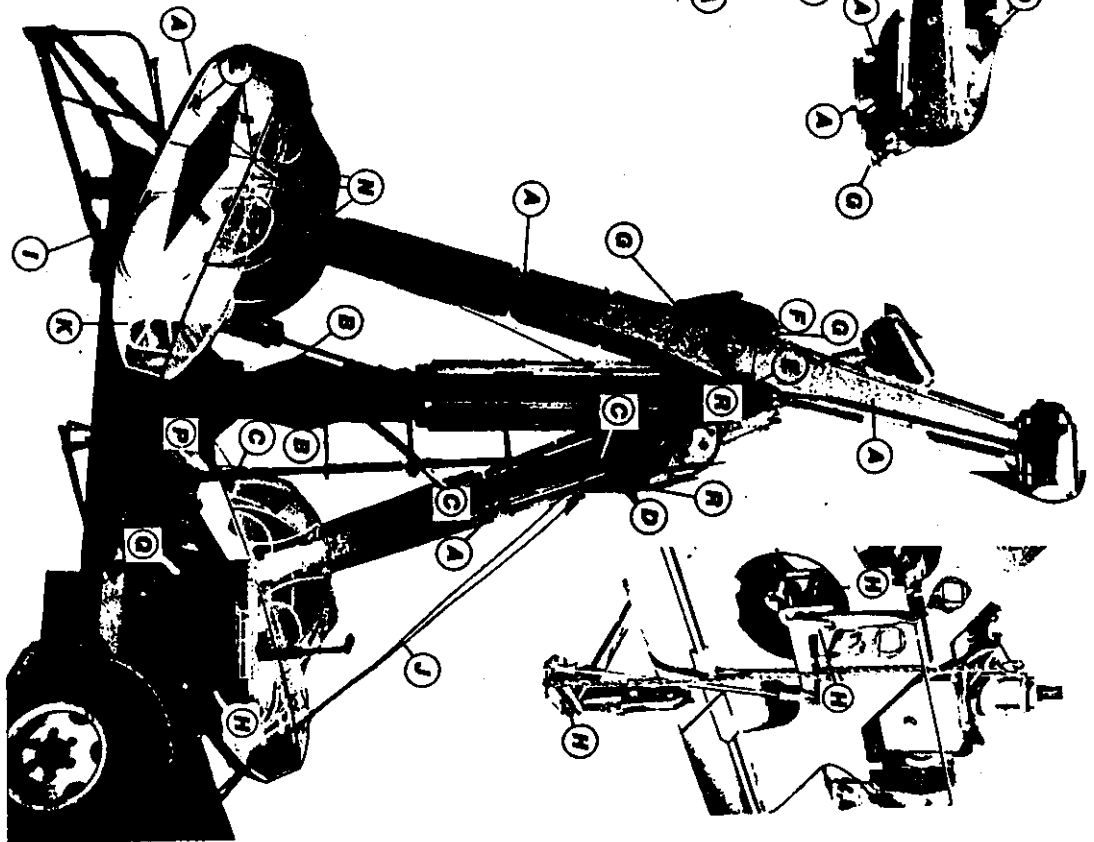
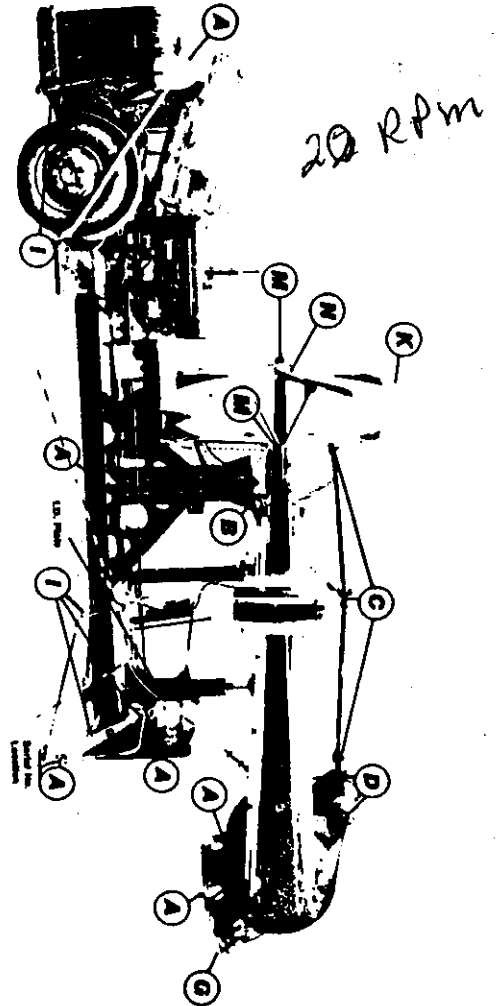
LOOP-O-PLANE

INSPECTION CHECK LIST

- A. Inspect weld area for cracks and structural damage.
- B. Check condition of hinge pin and clamping bolt.
- C. Gas model, check condition of universal and mounting bearings.
- D. Check rear end for loose pinion nuts or sprockets.
- E. Check bolts for condition.
- F. Check bushing for wear; 1" movement at car indicated, .060 maximum wear in bushing—and play not to exceed .030.
- G. Check condition of sign hinge.
- H. Inspect wear areas of linkage.
- I. Inspect attaching bolts and pins.
- J. Guy cables are to be equally tightened—can cause cars to strike ride if hinge pin has wear and cables unevenly tightened. Check for cable and turn-buckle condition.
- K. Inspect cars for broken or worn tubes, broken screen, bent automatic door return bar—lost or broken springs, worn bolts, enlarged attaching holes, safety key wearing end of bar which safeties door, and worn or damaged door safety key. (See Bulletin L-1-70)

- L. Inspect condition of door latch and hinges. Remove play and align as necessary.
- M. Inspect car bracket main nuts and safety nut for looseness and upper bolts for wear.
- N. Inspect car attaching bolts for wear or looseness, see Bulletin L-2-75. Note: If structural damage is found, contact factory for proper repair procedures.
- P. Inspect gear box for clutch condition and any shaft movement. Repair as required.
- Q. Check engine clutch for spring wear and bearing failure.
- R. Check for loose or worn chains.

General Information:
Maximum weight 340 lbs. per car.
Maximum RPM is 20—see adjustment in parts book. Ride should be level side-to-side and remove weight from axle when set up. Service axle as required.

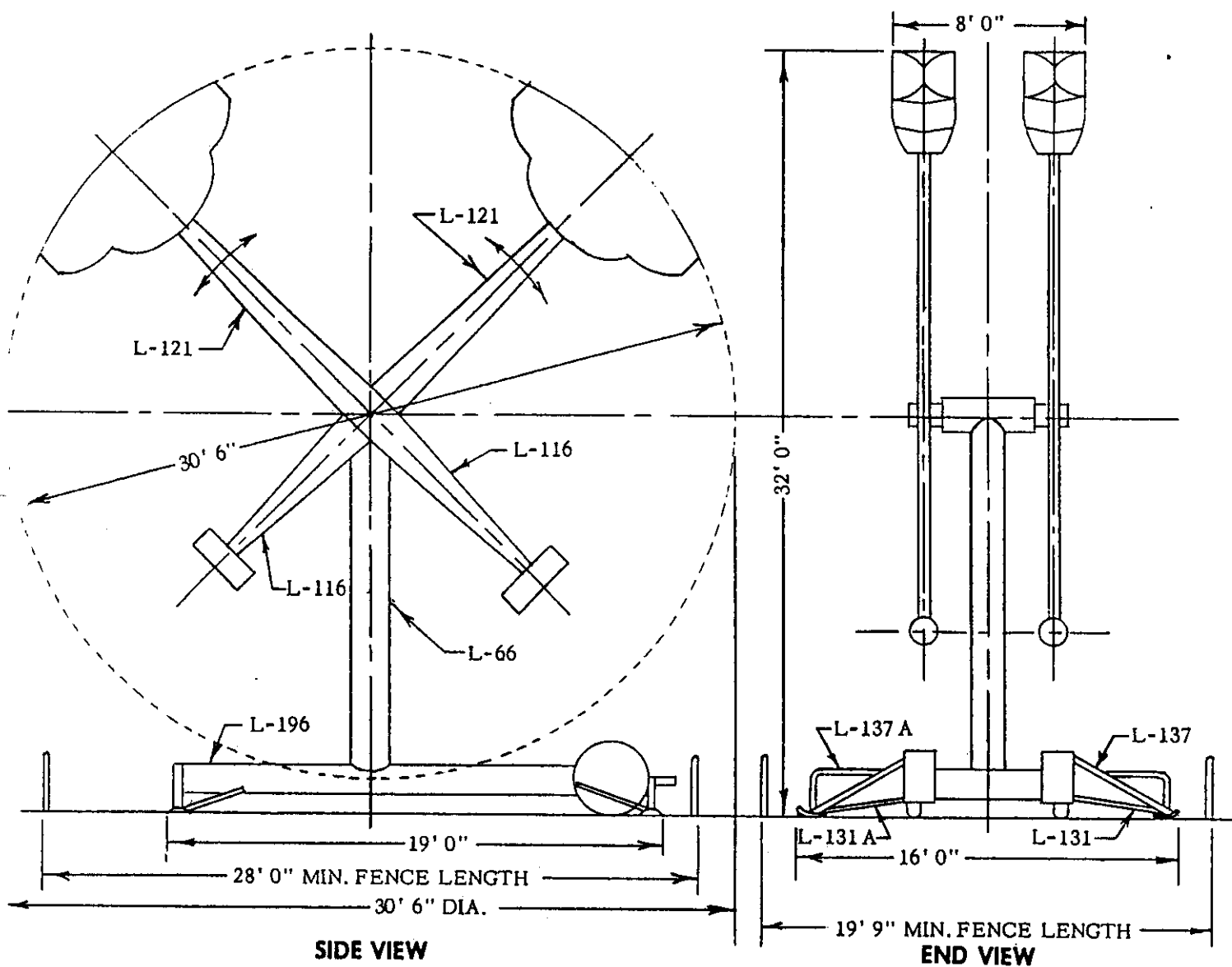


SALES & SERVICE
Toll Free outside Oregon
Every Inc.
P.O. Box 12155
2050 Turner Rd. S.E.
Salem, Oregon 97309
503-399-7706

NOVEMBER 1977 PRINTED IN U.S.A.



SPACE REQUIREMENTS



LOOP-O-PLANE CAR ATTACHING BOLT REPLACEMENT

FACTORY CHECKING OF SEVERAL UNITS HAS REVEALED SOME INSTANCES OF IMPROPER TIGHTENING OF THE ATTACHING BOLTS AND OTHER MAINTENANCE FAILINGS WHICH MAY RESULT IN FAILURES IN THE BOLT BRACKETS AND ADJACENT MEMBERS. SHOULD YOU FIND ANY LOOSENESS EVIDENT AT THE ATTACHING AREAS CAREFULLY INSPECT ALL AREAS OF CAR ASSEMBLY. ANY FRACTURES SHOULD BE REPORTED TO THE FACTORY IMMEDIATELY TO DETERMINE PROPER REPAIRING PROCEDURE.

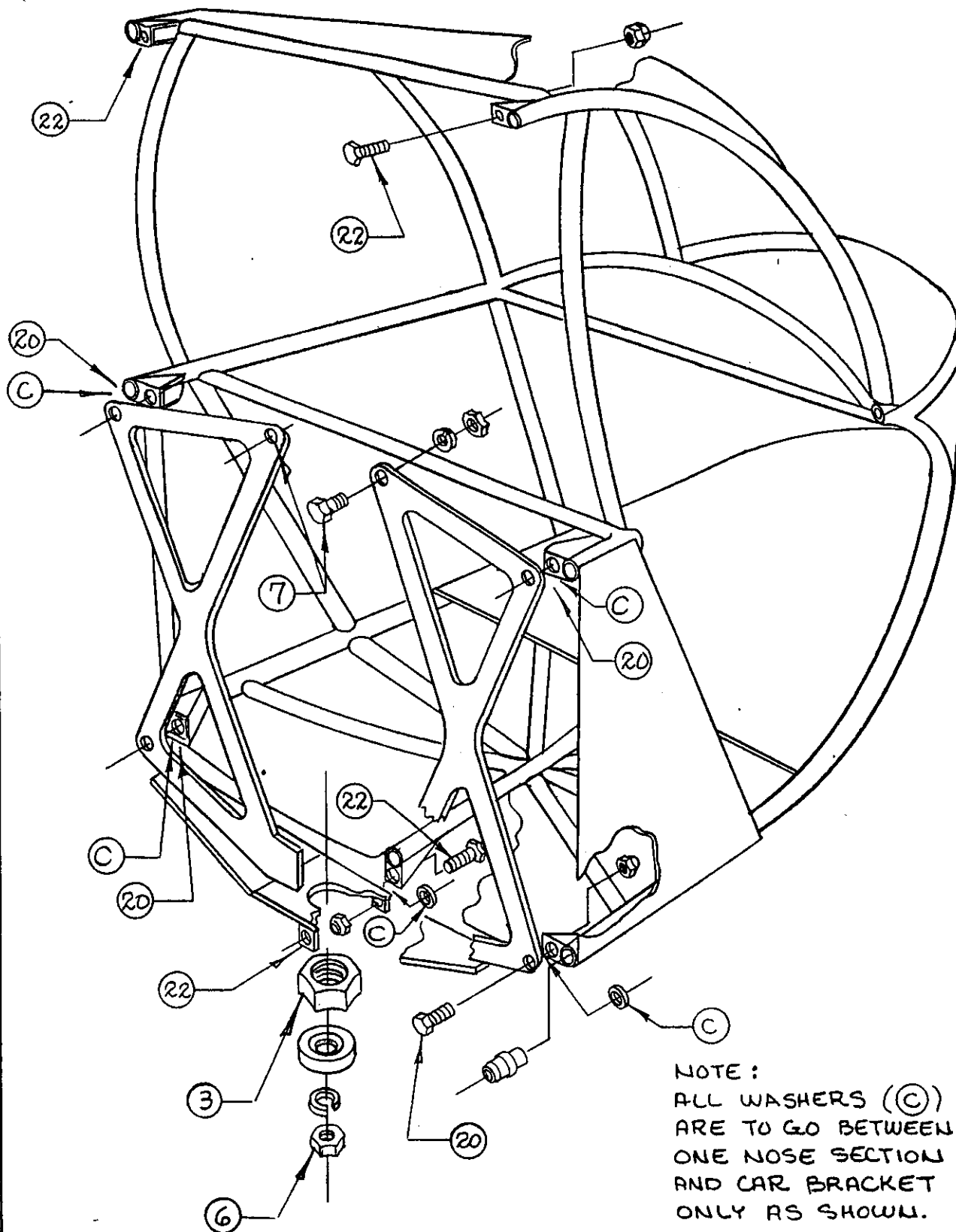
1. REMOVE ALL SEAT UPHOLSTERY AND HEAD RESTS.
2. BACK NUTS OFF ON THE FOUR $\frac{3}{8} \times 1\frac{1}{2}$ " (20) BOLTS AND THE FOUR $\frac{3}{8} \times 1$ " (22) BOLTS NOT MORE THAN $\frac{1}{4}$ ".
3. REMOVE & REPLACE, ONE AT A TIME, THE FOUR $\frac{3}{8} \times 1\frac{1}{2}$ " (20) BOLTS WITH THE NEW GRADE 8 $\frac{3}{8} \times 1\frac{1}{2}$ " BOLTS SUPPLIED IN THE KIT. WHEN REPLACING EACH (20) BOLT ADD ONE $\frac{3}{8}$ " SAE FLATWASHER (C) BETWEEN ONE CAR NOSE SECTION AND CAR BRACKET ONLY. THE PLACING OF THE WASHERS BETWEEN THE NOSE AND BRACKET IS TO ASSURE A PROPER CLAMPING LOAD BETWEEN THE THREE ASSEMBLIES. DO NOT TIGHTEN BOLTS AT THIS TIME.
4. REMOVE & REPLACE, ONE AT A TIME, THE FOUR $\frac{3}{8} \times 1$ " (22) BOLTS WITH THE NEW GRADE 8 $\frac{3}{8} \times 1$ " BOLTS SUPPLIED IN THE KIT. START WITH THE TWO BOLTS AT THE TOP OF THE CAR ASSEMBLY. WHEN REPLACING THE TWO BOTTOM CENTER BOLTS, MAKE SURE THE WASHER (C) IS PLACED BETWEEN THE SAME NOSE SECTION AND CAR BRACKET AS WASHERS WERE PLACED IN STEP #3.
5. USING A TORQUE WRENCH TIGHTEN THE GRADE 8 BOLTS TO 40 TO 50 FOOT POUNDS DRY. DRY MEANS THE THREADED AREA OF THE NUT & BOLT HAVE NO LUBRICANT ON THEM.
6. CHECK THE TWO (7) BOLT ASSEMBLIES ON EACH CAR BRACKET FOR PROPER TIGHTNESS, REPLACING IF LOOSE OR WORN WITH GRADE 5 OR BETTER. TORQUE TO 200 TO 250 FOOT POUNDS DRY.
7. CHECK (3) NUT FOR LOOSENESS ON BOTTOM OF EACH CAR ASSEMBLY BY BACKING OFF (6) NUT AND APPLYING UP TO 1000 FOOTPOUNDS TORQUE DRY TO (3) NUT AND RETIGHTEN (6) NUT TO 160 FOOT POUNDS TORQUE DRY.
8. REPLACE ALL UPHOLSTERY.

LOOP CAR ATTACHING BOLT BULLETIN

DRAWN BY: NEA	SCALE: ~	NO. REQ'D.: ~	MATERIAL: ~
DATE: 9-9-75	NEXT ASSY.: ~	SOS. NO.: SDD. BY NO.:	



Drg. No. BULLETIN # A-2

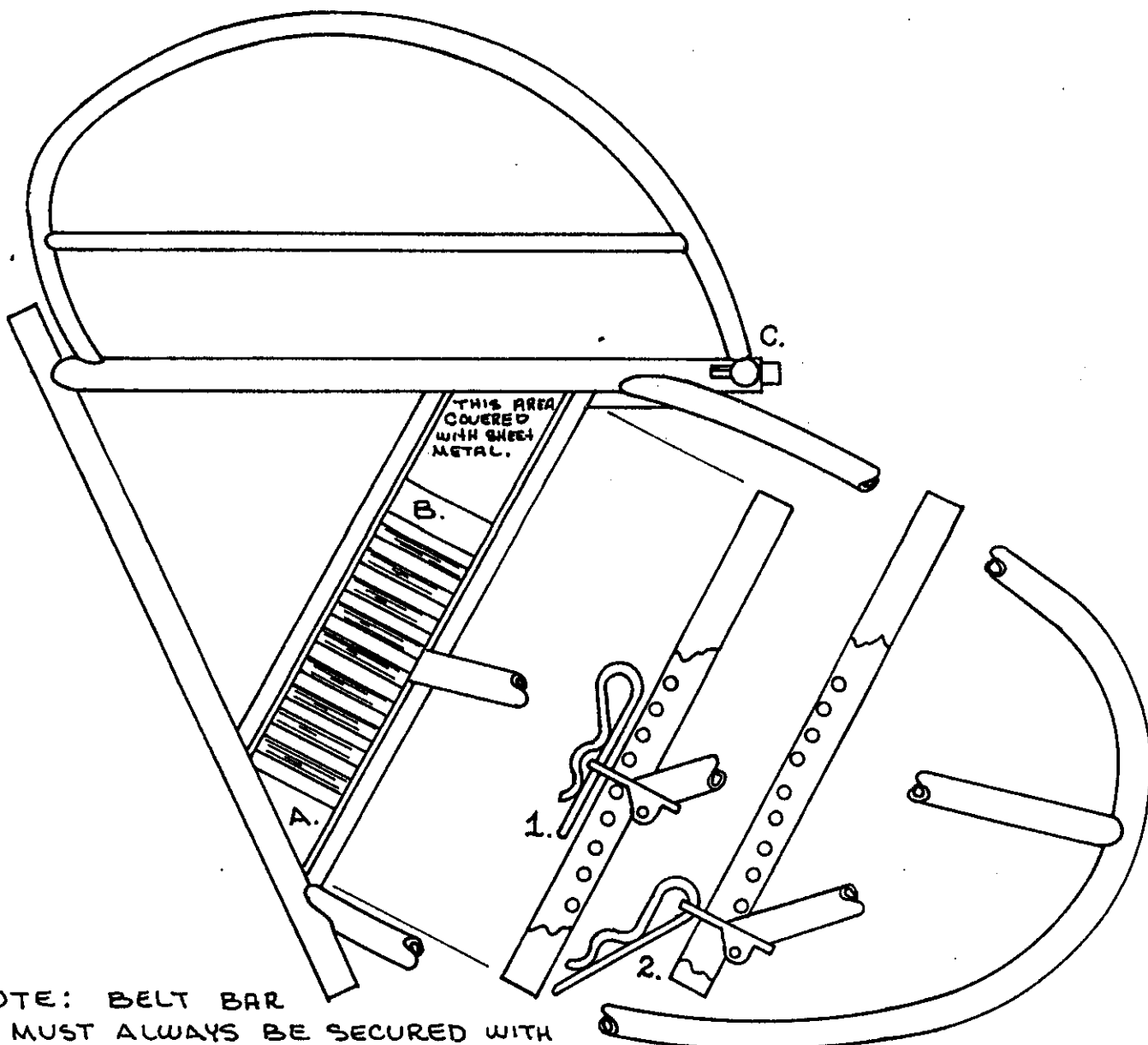


LOOP CAR ATTACHING BOLT BULLETIN

DRAWN BY: NEA	SCALE: ~	NO. REQ'D.: ~	MATERIAL: ~
DATE: 9-9-75	NEXT ASSY.: ~	SDS. NO.:	SDD. BY NO.:



Drg. No. BULLETIN # L-2



NOTE: BELT BAR MUST ALWAYS BE SECURED WITH BELT TAUT OVER PASSENGERS BETWEEN UPPER AND LOWER DOOR LADDER RUNGS. SPRING SAFETY KEY MUST BE RETAINED AT FIRST DETENT (FIG. 1.). IF BELT BAR IS IMPROPERLY SECURED BELOW BOTTOM RUNG (POINT A) OR ABOVE TOP RUNG (POINT B.) IN DOOR LADDER AND IF SAFETY KEY IS IMPROPERLY THROUGH BELT BAR PAST DETENT TO THE TOP OF THE LOOP (FIG. 2.) AND IF SEPARATE DOOR LATCH (FIG. C.) IS NOT PROPERLY FASTENED, DOOR MAY OPEN.

FACTORY APPROVED AND RECOMMENDED MODIFICATION :
 INSTALL GUSSETS ($\frac{1}{8}$ " MATERIAL) AT POINTS A & B COMPLETELY FILLING AREA TO WITHIN $\frac{1}{2}$ " OF NEAREST LADDER RUNG. ATTACK BY WELDING.

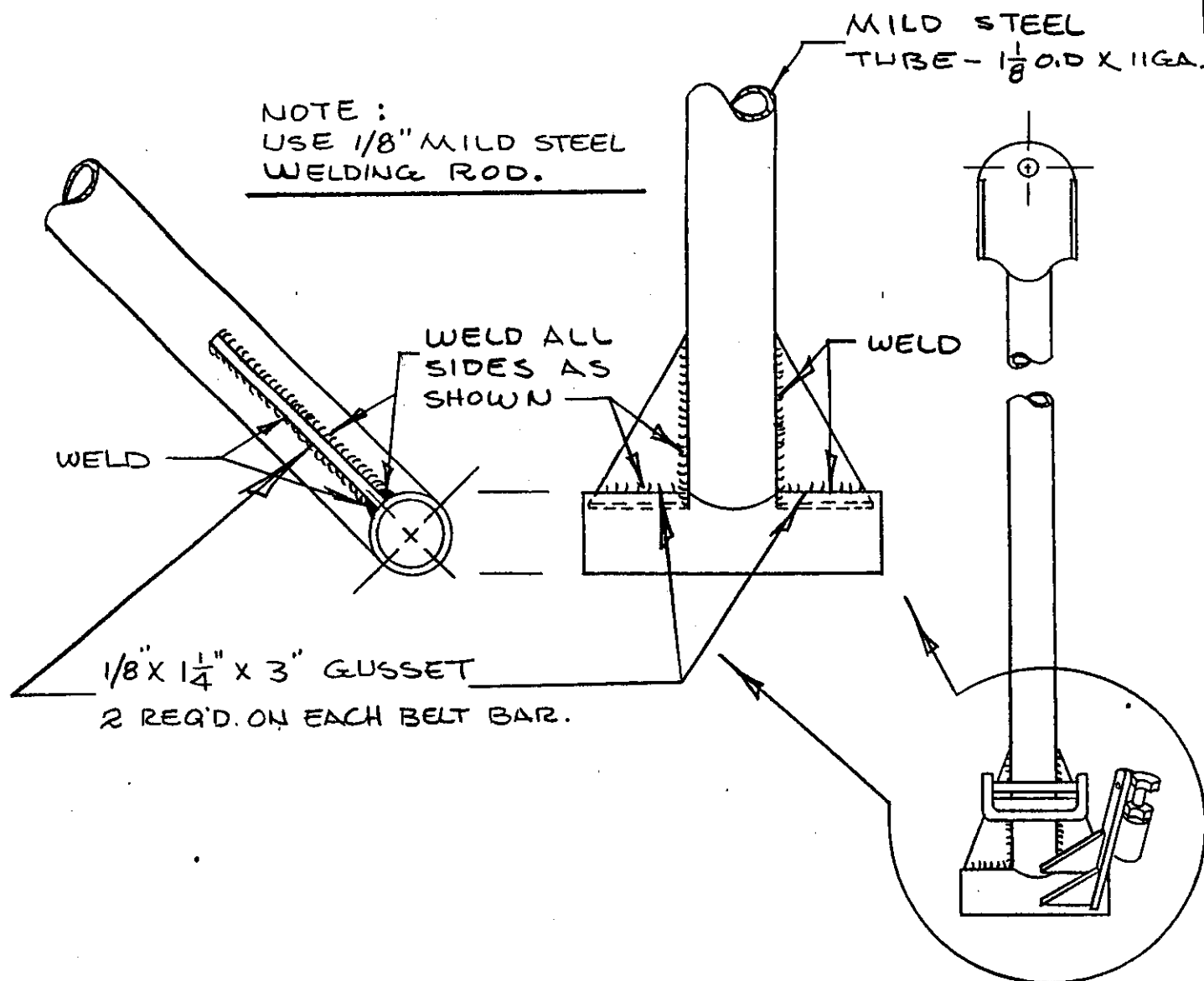
THIS INSTRUCTION MAY ALSO BE USED WITH FLY-O, ROCK-O & ROLL-O-PLANE CAR DOORS.

DOOR MODIFICATION BULLETIN

DRAWN BY: NEA	SCALE: NONE	NO. REQ'D.: ~	MATERIAL: ~
DATE: 4-6-78	NEXT ASSY.: ~	SDS. NO.:	SDD. BY NO.:



Drg. No. L-8-78



DUE TO IMPROPER OPERATIONAL PRACTICES,
THERE HAVE BEEN REPORTED FAILURES OF THE CAR
BELT BAR ASSEMBLY (L-421). REINFORCEMENT
GUSSETS ARE REQUIRED TO ELIMINATE THIS
PROBLEM. GUSSETS SHOULD BE INSTALLED AS
SHOWN IN THE ABOVE DRAWING.

BELT BAR REINFORCEMENT

DRAWN BY: NEA	SCALE: NONE	NO. REQ'D.: ~	MATERIAL: AS SHOWN
DATE: 7-15-70	NEXT ASSY.: ~	SDS. NO.:	EFF. W/SN:
		SDD. BY NO.:	EFF. W/SN:



Drg. No. L-1-70

ASSEMBLY INSTRUCTIONS

NOTE: TAPERS TO BE CLEANED WITH SUITABLE SOLVENT AND WIPE DRY. DO NOT USE MOLYBDENUM DISULFIDED OR EQUIVALENT FRICTION REDUCING COMPOUNDS ON FASTENERS OR TAPER.

1. INSTALL SEAL AND NEEDLE BEARING IN REAR BEARING CARRIER.
2. INSTALL "O" RING IN COUPLING FACE. MOUNT REAR BEARING CARRIER 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. 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 OR OUTPUT FLANGE ASSEMBLY AND PRESS BALL BEARING ONTO OUTPUT SHAFT UNTIL BEARING INNER RACE OVERHANGS SHAFT END 0.060" TO 0.120".
CAUTION: DO NOT PRESS FLUSH WITH SHAFT END. PRESS FORCE NEVER TO EXCEED 24,000 LBS. INSTALL ROLL PINS IN RETAINER WASHER. INSTALL RETAINER WASHER WITH ROLL PINS AND CAPSCREW 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 CAPSCREW WITH "O" RINGS TO INPUT END. TORQUE 27-30 LB. FT.
6. CHECK AIR TIGHTNESS WITH 5-10 PSI PRESSURE APPLIED THRU FILLER HOLE.

SERVICE DISASSEMBLY INSTRUCTIONS

1. REMOVE THE TWO PIPE PLUGS 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 THROUGH 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 INSTRUCTION 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" OD X 2.06" ID X 7.00" LONG)

RECOMMENDED REPLACEMENTS FOR OVERHAUL:

1. SEAL
2. BEARINGS
3. ALL "O" RINGS

MODELS 12.4 HC, HCF, HCM, HBM FLUID COUPLINGS			
UNIT ASSEMBLY AND SERVICE INSTRUCTIONS			
DRAWN BY: NEA	SCALE: ~	NO. REQ'D.: ~	MATERIAL: ~
DATE: 6-20-77	NEXT ASSY.: ~	SDS. NO.: SDS. BY NO.:	


Drg. No. L-7-77

MANUFACTURERS OF AMUSEMENT RIDES

TELEPHONE
399-7709
AREA CODE 303

CABLE ADDRESS
IRLYRIDE SALEM



LEE U. EYERLY
1892-1963

JACK V. EYERLY
PRESIDENT

P. O. Box 12441

SALEM, OREGON 97309

RE: Door Modification Bulletin
Eyerly ROLL-O-PLANE, ROCK-O-PLANE,
FLY-O-PLANE and LOOP-O-PLANE amuse-
ment rides, all models and production
series. Drawing L-8-78

Gentlemen:

Enclosed is Drawing L-8-78, pertaining to a
recommended door modification to the rides indicated
above.

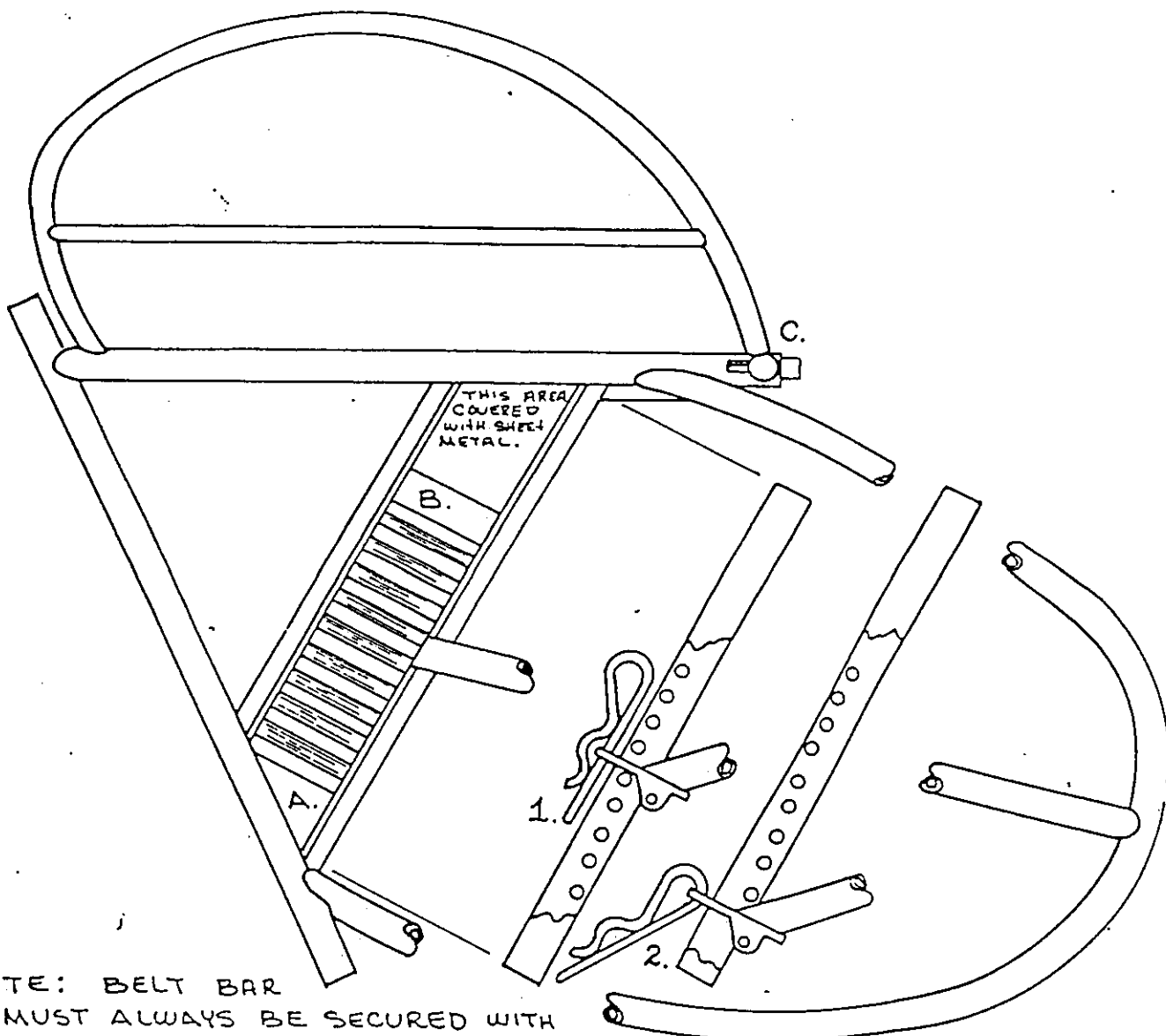
The modification to the door is hereby re-
commended and approved providing the instructions
shown on this drawing are followed.

Sincerely,

EYERLY AIRCRAFT COMPANY

Jon V. Eyerly
Jon V. Eyerly
Vice President

Enc.



NOTE: BELT BAR MUST ALWAYS BE SECURED WITH BELT TAUT OVER PASSENGERS BETWEEN UPPER AND LOWER DOOR LADDER RUNGS. SPRING SAFETY KEY MUST BE RETAINED AT FIRST DETENT (FIG. 1). IF BELT BAR IS IMPROPERLY SECURED BELOW BOTTOM RUNG (POINT A) OR ABOVE TOP RUNG (POINT B.) IN DOOR LADDER AND IF SAFETY KEY IS IMPROPERLY THROUGH BELT BAR PAST DETENT TO THE TOP OF THE LOOP (FIG. 2.) AND IF SEPARATE DOOR LATCH (FIG. C.) IS NOT PROPERLY FASTENED, DOOR MAY OPEN.

FACTORY APPROVED AND RECOMMENDED MODIFICATION:
INSTALL GUSSETS (1/8" MATERIAL) AT POINTS A & B COMPLETELY FILLING AREA TO WITHIN 1/2" OF NEAREST LADDER RUNG. ATTACH BY WELDING.

THIS INSTRUCTION MAY ALSO BE USED WITH FLY-O, ROCK-O & ROLL-O-PLANE CAR DOORS.

DOOR MODIFICATION BULLETIN

DRAWN BY: NEA	SCALE: NONE	NO REQ'D: ~	MATERIAL: ~
DATE: 4-6-78	NEXT ASSY.: ~	SDS NO.:	SDS BY NO.:



Drg. No. L-8-78