

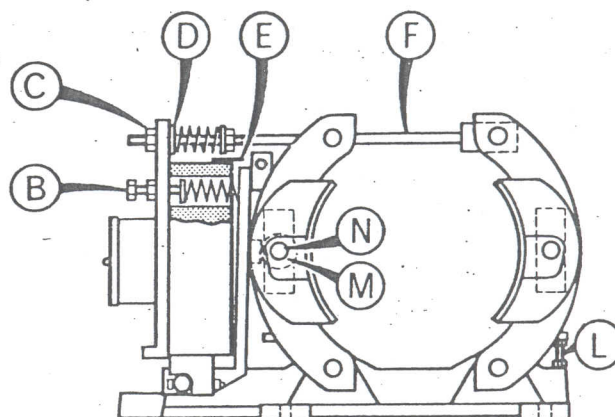


## INSTALLATION

- (1) The pivoted shoes of these brakes are self-aligning around the brake drum making very exact height adjustment unnecessary. Fixing heights within  $\pm 1/32"$  or 1 mm of the heights given in the dimension table will be satisfactory.

Care should be taken however to fix the brakes with the shoes parallel with the face of the brake drum so that the linings bear on the drum at all points.

- (2) The brake torque springs, and the magnet air gap are set before the brakes are despatched from our works. If these settings are disturbed, for example if the brake has been dismantled in order to fit it to the machine, they may be re-set as follows:



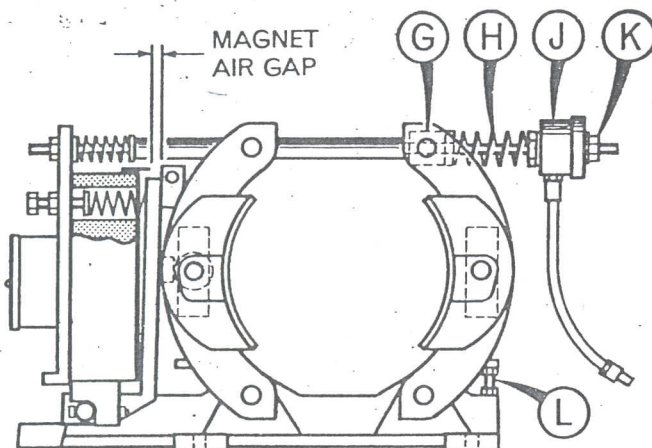
**Springs:** The springs themselves are not visible, being built into the magnet housing, but are set by adjustment screws 'B' to the dimension given on the setting plate attached to the magnet body. This setting will give approximately the full torque for which the brake is rated, subject to manufacturing tolerances and bedding of the friction linings (in common with all friction brakes the full torque will not be obtained until the linings have bedded in after a period of work.)

**Magnet air gap:** The gap can be adjusted by turning nut 'C'. The actual gap cannot be measured due to the guard plate, but an indicator 'E' is fitted to the top of the magnet to which the gap should be set.

- (3) Finally equalise the clearance between each shoe and the drums by adjusting screw 'L' while magnet is energised.

The brake is now correctly set. The only further adjustment which may be necessary will be a final adjustment of the brake torque to suit site conditions. The brake springs can be slackened to reduce torque if required, but should not be overtightened since this may overload the magnet and prevent the brake shoes releasing properly.

## BRAKES WITH HYDRAULIC OVERRIDE - TYPE ZO



These brakes are installed and maintained in exactly the same way as the 'ZA' brakes. The only difference between the two types of brake is the method of attaching the brake rod to the brake arm furthest from the magnet.

In the case of the 'ZA' brake this attachment consists of a rod-end pinned directly to the brake arm. This applies the pressure from the springs to the brake arm to give the braking torque.

The rod on the 'ZO' brake however passes through a trunnion block 'G' fitted to the brake arms, and carries a buffer spring 'H' and a hollow plunger hydraulic cylinder 'J' retained by a self-locking nut 'K', the spring pressure being transmitted via this nut, and the hydraulic cylinder and buffer spring, to the brake arm.

No adjustment is necessary to this spring/cylinder assembly, but when oil pressure is applied to the hydraulic cylinder from the pedal operated master cylinder, the piston pushes the brake arms and shoes on to the brake drum via the buffer spring to apply the brake while the magnet is energised, the trunnion block on the brake arm moving along the rod to make this possible.

The function of the buffer spring is to prevent excessive pressure being put on the brake arms. The spring is preset at works before despatch, but if disturbed it should be pre-compressed just sufficiently so that there is little or no further compression when the brake is operated electrically. Excess pressure should however compress the spring further, thus limiting the extra pressure which can be put on the brake arm.

Only Lockheed Super Heavy Duty Fluid SAE70, or vegetable oil, Ministry of Supply Spec. OF24, must be used in the hydraulic systems. **IMPORTANT** Mineral oil must not on any account be used. This oil will damage the rubber cylinder seals.

The fluid supply tank must be installed at the highest point of the system. All horizontal pipe runs should be level without 'humps' to trap air. The hydraulic system should be bled in the usual way to eliminate air, the bleeding screw provided on the brake cylinder being loosened for this purpose. Diagrams for the identification of the hydraulic fittings will be supplied with the brakes.

See over for maintenance

TORVALE TRANSMISSIONS LTD.

## MAINTENANCE

- (A) The magnet air gap will increase as the brake linings wear, and must be periodically reset as described in (2) and in any case before the maximum gap stamped on the indicator plate is reached, otherwise the magnet may refuse to pull in and release the brake.

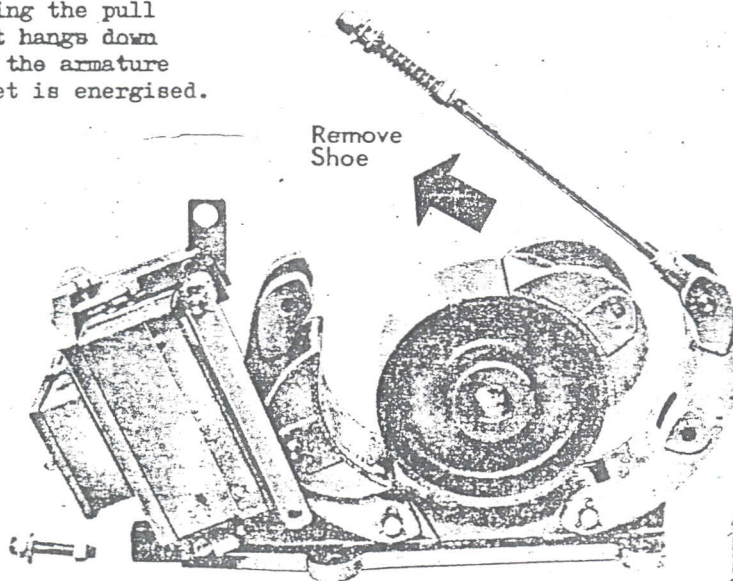
Wear will be more rapid when the linings are new while the high spots are wearing down, and an initial re-adjustment of air gap should be made soon after the brake has been put into service.

N.B. Once set, the springs will require no further re-adjustment, being automatically reset when the brake is re-adjusted for wear of linings.

- (B) Hinge pins are lubricated with a special non-hardening grease when assembled at our works. After the brake is installed they should be lubricated by oil can in the course of normal maintenance.
- (C) Periodically open out the magnet gap and clean the pole faces.
- (D) Relining the brakes: to remove the shoes slacken back nut 'C', disengage the spring locating collar 'D', and swing the brake rod 'F' up clear of the brake arms. Remove the shoe equaliser stud or run set screw 'L' down as far as it will go. The brake arms will then open out and the shoes can be lifted out between the brake arms after removing the shoe pins 'N'. The special retaining clips should be replaced on the pins after removing shoes to avoid loss.

When replacing the shoes take care to replace roller 'M' on the shoe pin inside the brake arm. This roller transmits the pressure from the torque springs via the magnet armature to the brake arm.

- (E) The magnet coils are potted into the housing with thermo-setting resin. The coils are continuously rated, and cannot be burnt out by being left in circuit continuously provided the rated voltage or current is not exceeded.
- (F) The position of the hand release lever should be set by adjusting the pull rod so that it hangs down parallel with the armature when the magnet is energised.



SHOE EQUALISER  
STUD - Fitted  
opposite end  
From 1977

## COIL LOADING

BRAKE inch.	SIZE mm.	COIL watts.
6	160	90
8	200	110
10	250	170
12	315	210
15	—	350
16	400	350



INSTRUCTIONS AND  
REULAND GUARANTEE

**RATED OUTPUT** — We guarantee that the apparatus manufactured by us will deliver successfully its rated output as indicated on the nameplate, provided such apparatus is properly connected to the power supply stamped on the nameplate with adequate size wire, overload protection, and fused circuits based on the full load ampere rating shown on the nameplate. This guarantee covers our apparatus that is properly installed, maintained and operated under normal conditions with competent supervision. We will not be responsible for any damage resulting from shipment, improper storage or handling, or consequential damage from failure to meet the above conditions.

**GUARANTEE PERIOD** — The maximum guarantee period is 12 months from date of shipment from our works. We agree to correct by repair or replacement (FOB our factory) any defects of material or workmanship in said apparatus which may develop under normal and proper use during guarantee period when purchaser gives us immediate written notice of such defects and inspection substantiates the claim. Such correction shall constitute a fulfillment of all obligation to the purchaser.

Two alternate procedures for handling such corrections are provided:

1. Order replacement parts or a complete replacement unit from the factory by contacting the nearest Reuland representative or factory. With the aid of modern air freight systems factory replacement with new parts is often faster than local repair.
2. Where time is extremely important or the repair can be readily accomplished, the unit should be taken to the nearest competent repair shop of the purchaser's choice. If, upon inspection, the repair shop approves the claim under this guarantee, a brief description of the trouble, together with the motor serial number and invoice covering the repair, will secure payment when forwarded to our factory. Reuland Electric Co. will not accept billing for work performed at rates higher than those considered to be accepted standards for the type of service rendered. Charges made for removal and re-installation of motors or any charges for overtime will not be allowed.

When contacting the Reuland factory, always give complete nameplate data, and particularly the serial number.

Reuland Electric Co. takes pride in the design and quality of its product. Great care is taken during manufacture to insure each part against defects in workmanship or material. We would consider it a favor to have cases of unsatisfactory service from Reuland Electric products brought to our attention.

INSTALLATION AND CARE

This Reuland motor has been precision manufactured of high quality materials. With proper installation and maintenance, it will deliver years of trouble-free service.

Check motor carefully to be sure it has not been damaged in shipment. Connect motor to line of proper specification as stamped on motor nameplate; check voltage, frequency, phase, etc.

Connection diagram will be found in terminal box or on nameplate except 3-lead polyphase and 2-lead single phase that do not require a diagram.

Provide suitable overload protection based on full load ampere rating shown on nameplate, as recommended by control manufacturer.

Protect wiring circuit with proper size fuses selected according to local code requirements.

The bearings in ball bearing motors have been especially selected according to our policy of precision manufacture. To avoid bearing damage, coupling, pulleys, etc., SHOULD NOT BE DRIVEN ON MOTOR SHAFT. A light press fit or light tap fit is recommended.

MOTOREDUCERS APPLICATION

Hollow shaft motoreducers SHOULD NOT be forced or pounded onto the driven shaft.

Never rigidly restrain the torque reaction end of the torque arm. Ball-rod mount and spring-rod mount units must be installed per instructions furnished with the motoreducer. Pulleys or sprockets should be mounted on output shaft as close as practical to the housing. Belt or chain drives should be properly aligned and tensioned. Overly tight belts or chains cause destructive wear and vibration. If the unit is to be direct connected, shim under the motor feet, if necessary, to get true alignment of driving and driven shaft. Foot, face, and flange mounted units must be securely bolted to flat and rigid bases.

It is important that the driven load does not impose a greater torque on the output shaft than the rated output torque of the motoreducer. High inertia loads that are stopped quickly by a braking action on the rotor shaft, or the self-locking characteristics of the higher ratios of worm units can impose a reverse torque many times the capacity of the motoreducer.

# REULAND ELECTRIC COMPANY

Effective 9/1/79  
New

17969 E. RAILROAD ST., INDUSTRY, CALIFORNIA 91749 PHONE: 213 964-6411  
1050 S. CYPRESS ST. "G", LA HABRA, CALIFORNIA 90631 PHONE: 213 964-6411  
4500 E. GRAND RIVER AVE., HOWELL, MICHIGAN 48843 PHONE: 517 546-4400

Page No. 100 B

## LUBRICATION MAINTENANCE

**MOTORS:** Reuland motors are normally supplied with shielded ball bearings packed by the bearing manufacturer with Chevron SRI-2 grease ( $-20^{\circ}\text{F}$  to plus  $329^{\circ}\text{F}$ ) and do not require periodic greasing. If the motor is taken apart and the bearings are replaced make sure they are the same type packed with this grease or equivalent. Repack chamber in end bell behind bearing with the same type of grease. Bearings on special application motors may be supplied with grease fittings. These applications require the addition of a small amount of ball bearing grease every 1000 operating hours.

### BALL BEARING GREASE

Amb. Temp. $^{\circ}\text{F}$	Reuland Supplied	Mobile Oil	Shell Oil	Chevron	Texaco
$-20^{\circ}\text{F}$ — $+329^{\circ}\text{F}$	Chevron SRI-2	Mobilux EP 2	Dolium Grease R	Chevron SRI-2	Regal AFB 2 or Multifak 2

**MOTOREDUCERS:** Reuland motoreducers\* are shipped with the proper amount of oil for the duty and mounting position specified and for ambient temperature of  $15^{\circ}\text{F}$  to  $125^{\circ}\text{F}$ . BEFORE STARTING remove plug from highest hole in gear case and install pressure relief valve furnished with the unit. For other ambient temperatures replace oil with type shown below.

**MAINTENANCE:** Change oil after 100 operating hours; thereafter, every six months or 2500 hours of normal operation, whichever comes first.

### HELICAL GEAR OIL

Amb. Temp. $^{\circ}\text{F}$	Kendall Refining	Mobile Oil	Shell Oil	Chevron	Texaco
$15^{\circ}$ — $125^{\circ}$	Kenoil R&O 065 EP $\Delta$	Mobilgear 629	—	—	—
$50^{\circ}$ — $125^{\circ}$	—	—	Tellus Oil 220 Tellus Oil 320	Chevron EP Machine Oil 320	Regal Oil R&O 150
$15^{\circ}$ — $60^{\circ}$	—	—	Tellus Oil 68	Chevron EP Machine Oil 68	Regal Oil R&O 68
$15^{\circ}$ and below	ATF	Mobilgear 626	Donax T 6	ATF Dexron II	Texamatic Fluid

### WORM AND HELICAL - WORM OIL

Amb. Temp. $^{\circ}\text{F}$	Kendall Refining	Mobile Oil	Shell Oil	Chevron	Texaco
$15^{\circ}$ — $125^{\circ}$	Kendall Three Star Gear Lube $\Delta$	Mobilgear 634	—	—	—
$50^{\circ}$ — $125^{\circ}$	—	—	Omala Oil 680	Chevron NL Gear Compound 680	Meropa 680 or Honor Cyl. Oil 680 $\Omega$
$15^{\circ}$ — $60^{\circ}$	—	—	Omala Oil 460	Chevron NL Gear Compound 460	Meropa 220 or Vanguard Cyl. Oil 460 $\Omega$
$15^{\circ}$ and below	ATF	Mobilgear 629	Donax T 6	—	Texamatic Fluid

\*Motoreducers with gear units OTHER THAN REULAND will be shipped without oil in the gear case. Lubricate in accordance with reducer nameplate instructions.

$\Delta$  Available from Reuland Electric Company in one gallon cans.

$\Omega$  NOTE: Use these oils only where food, drink or animal feed are concerned.

NOTE: Special application motoreducers that have the gear case packed with Pennzoil No. 704 Moly Lube are suitable for operation in ambient temperatures of  $50^{\circ}\text{F}$  to  $130^{\circ}\text{F}$ . Under normal operating conditions of load and temperature, it is not necessary to change lubricant. The above oil and grease types are based on the oil companies recommendations.



# LOCATION DIMENSIONS

AKE	XZ
SIZE A	1.31
SIZE B	2.31

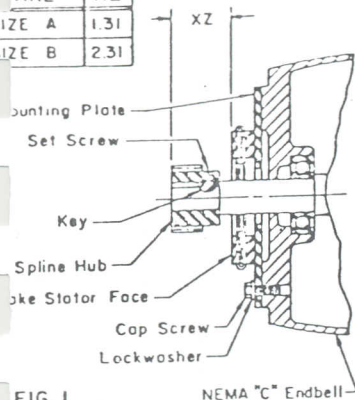


FIG. 1

MAINTENANCE INSTRUCTIONS  
THE SIMPLICITY OF DESIGN IN THE REULAND MAGNETIC DISC BRAKE HAS PRACTICALLY ELIMINATED BRAKE MAINTENANCE PROBLEMS. WEAR COMPENSATING ADJUSTMENTS ARE NOT REQUIRED. THE STATOR ARMATURE AIR GAP IS FACTORY SET AND REQUIRES NO RESSETTING. EVEN WHEN INSTALLING A NEW FRICTION DISC. HOWEVER, AS WITH ANY ELECTRO-MECHANICAL DEVICE PERIODIC INSPECTION WILL INSURE OPTIMUM PERFORMANCE. RECOMMENDED INSPECTION PROCEDURE IS AS FOLLOWS:

1. INSPECT BRAKE DISC EVERY 3000 CYCLES. THE DISC SHOULD BE REPLACED WHEN WORN TO 475 "THICKNESS.
2. INSPECT BRAKE DISC FOR GENERAL CONDITION AND SIGNS OF UNUSUAL WEAR. REMOVE ANY BUILD-UP OF WEAR PARTICLES.
3. INSPECT ALL BOLTS, MUP SET SCREWS, ETC. FOR TIGHTNESS.

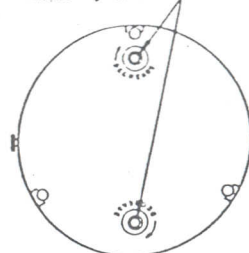
## WARNING

BRAKE FAILURE MAY BE CAUSED BY IMPROPER APPLICATION AND/OR LACK OF MAINTENANCE.

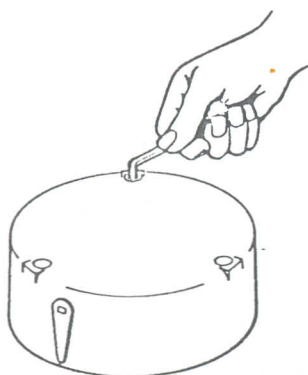
ADDITIONAL MEANS SHALL BE PROVIDED TO INSURE SAFETY OF PERSONNEL IF INJURY COULD BE CAUSED BY BRAKE FAILURE.

DO NOT ENERGIZE BRAKE WITH COVER ASSEMBLY REMOVED. WOUND STATOR CAN BE DAMAGED VOIDING WARRANTY.

## Adjusting Screws

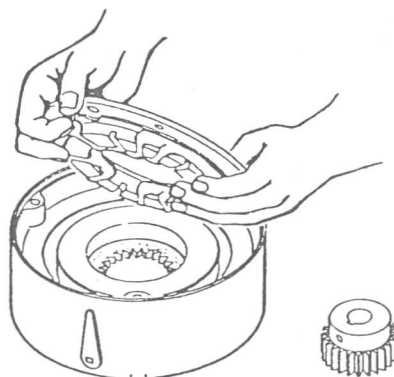


ADJUSTABLE SIZE "A" BRAKE ADJUSTING SCREW INSTRUCTIONS: TURN BOTH ADJUSTING SCREWS IN CW DIRECTION TO DECREASE TORQUE, CCW TO INCREASE TORQUE. ADJUST SCREWS FOR STOPPING DESIRED. ADJUSTMENT IS NOT CRITICAL AND AMOUNT OF TORQUE NEEDED VARIES WITH EACH INDIVIDUAL LOAD AND PREFERENCE.



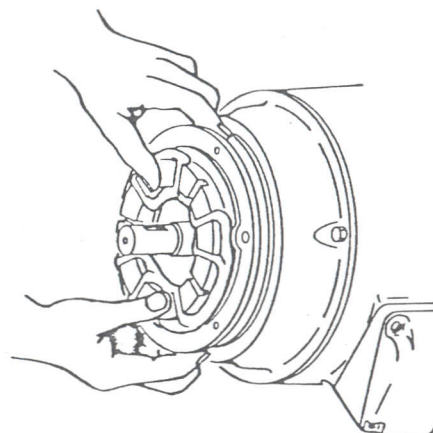
STEP 1

REMOVE THREE CAP SCREWS FROM COVER.



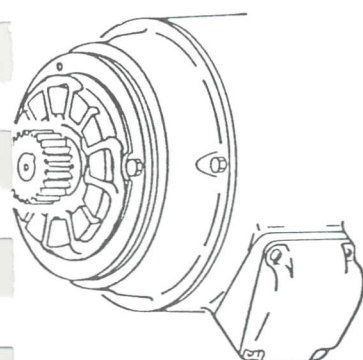
STEP 2

BRAKE NOW COMES APART IN THREE PIECES. MOUNTING PLATE, COMPLETE WITH WINDING; SPLINE HUB; AND HOUSING ASSEMBLY.



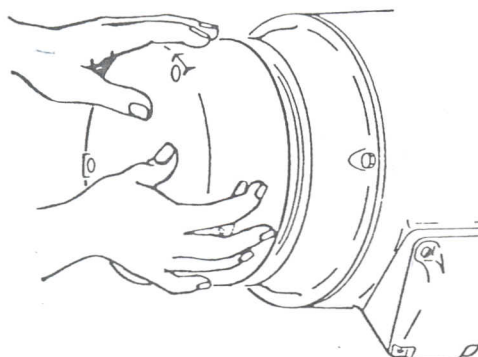
STEP 3

ALIGN BRAKE LEAD HOLE IN MOUNTING PLATE WITH CORRESPONDING HOLE IN MOTOR AND FEED BRAKE LEADS INTO MOTOR. MOUNT BRAKE PLATE TO MOTOR, USING CARE TO INSURE THE "LINING UP" OF DIAMETER OF BRAKE MOUNTING PLATE WITH THE REGISTER ON MOTOR ENDBELL FOR PROPER FIT OF HOUSING ASSEMBLY. USE CAP SCREWS OF DESIGNATED SIZE, (SIZE "A" & "B" BRAKE USE 1/2 X 3/4 SCREWS, SIZE "C" BRAKE USE 1/2 X 2 SCREWS) WITH LOCKWASHERS, TO SECURE MOUNTING PLATE IN PLACE.



STEP 4

POSITION BRAKE SPLINE HUB ON MOTOR SHAFT (SEE FIG. 1 FOR INSTALLATION LOCATION). TIGHTEN SET SCREWS.



STEP 5

USING CARE TO INSURE PROPER MATING OF HUB SPLINE AND BRAKE LINING DISC, SECURE HOUSING ASSEMBLY TO MOUNTING PLATE. IF HOUSING ASSEMBLY FAILS TO ALIGN EASILY WITH REGISTER OF MOTOR ENDBELL, RELEASING OF BRAKE RELEASE LEVERS MOMENTARILY WILL ALLOW CENTERING OF BRAKE DISC (OR DISCS) AND ALIGNMENT OF FIT. SECURE WITH CAP SCREWS FURNISHED, AND RETURN RELEASE LEVERS TO NORMAL POSITION.



TO REPLACE BRAKE LINING DISC IN HOUSING ASSEMBLY, A "DOWN-AND-TURN" PRESSURE RELEASES COMPRESSION RING. RING, SPRINGS, ARMATURE AND BRAKE LINING DISC MAY NOW BE REMOVED. REASSEMBLE IN REVERSE ORDER.

## REULAND BRAKE MOUNTING INSTRUCTIONS NEMA "C" FACE MOUNTING FOR SIZE 'A' OR 'B' BRAKE

REULAND ELECTRIC CO.  
Industry, Calif.  
Howell, Mich.

Revision C  
4/19/78

ED-K1140

## Maintenance Procedure For Bridge And Trolley Wheels

### 1. Lubrication

The wheel bearings and flange bearings of the bridge and trolley wheels are to be lubricated with lubricating grease (Irving-Lubex EP2). A grease gun is to be used. The location of the grease nipples is shown on the Lubrication Chart on Page \_\_\_\_\_. The ring gear and pinion of the drive wheels (both bridge and trolley) are to be lubricated with open gear grease (Irving T Grease).

### 2. Dismantling of the Support Wheels

After chocking up the end carriage of the crane, or the trolley, dismantle the support wheels in the following manner - (refer to Fig. 1)

- a) Detach grease line (1) if applicable.
- b) Remove bolts (2) and axle locking plate (3).
- c) Knock out axle (4), watch for thrust washers (5) to fall.
- d) Roll out wheel (6).
- e) Mark the wheel, axle and thrust washers so that they are not interchanged with other units.
- f) Remove seals and snap ring (7) for bearing inspection.

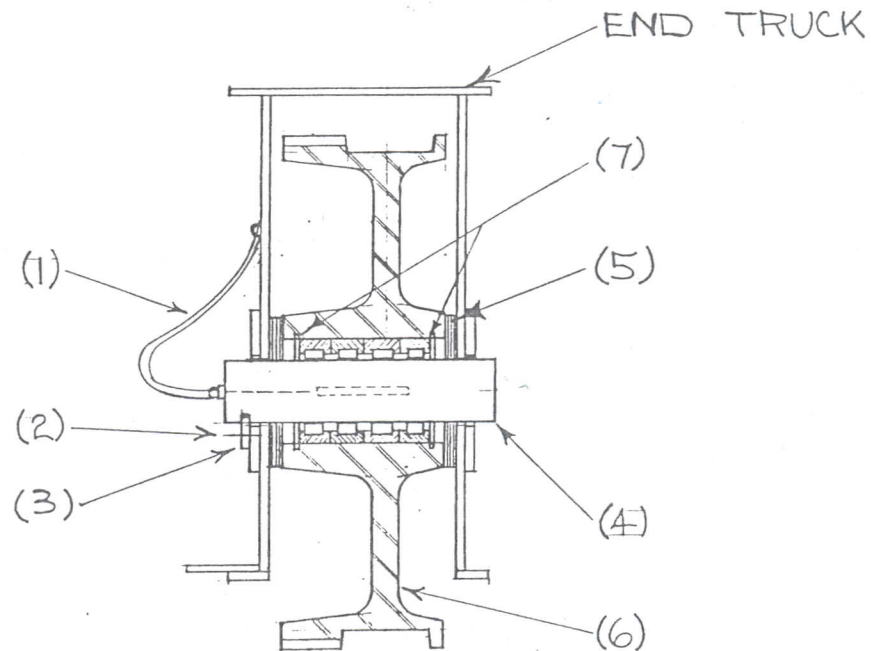


FIG. 1

# OVERHEAD CRANE INSPECTION AND MAINTENANCE CHECKLIST

The following checklist is furnished by the Crane Manufacturers Association of America, Inc. (CMAA) as an aid to owners of overhead cranes when conducting periodic maintenance inspections. The proper installation, operation, testing, and maintenance of cranes are a continuing responsibility of the owner/user, in accordance with ANSI B30.2.0 - 1976 Safety Standards for "Overhead and Gantry Cranes" and Section 1910.179 of OSHA. In addition to these two documents, the crane operators, inspectors, and service personnel also must be thoroughly familiar with CMAA's "Crane Operator's Manual" and the maintenance and repair manual as supplied by the manufacturer of the equipment being inspected. Failure to read and understand these instructions can result in serious physical injury and/or property damage.

This checklist includes instructions for a variety of equipment, and it should be understood that all information does not apply to all equipment, and there might very well be other important items requiring frequent inspection which are not covered by this checklist. Check with the crane manufacturer regarding any special information about specific items. Use only factory authorized repair parts.

A formal schedule of inspection should be established with the designated inspector completing, signing, and dating the checklist after each inspection. Separate inspection files should be maintained for each crane. Special emphasis should be given to the inspection and maintenance of hoisting equipment and safety devices. Inspection intervals shown are for an average industrial operation, based on a 40 hour work week. Depending on the crane activity, severity of service, and environment, more frequent inspection and maintenance may be required. Inspectors or maintenance personnel should never go on a crane without first notifying the crane operator of exactly what they are doing and what they expect the operator to do. Before repairs are conducted, place all controllers in the "off" position, lock the main switch open, and add a warning sign to the switch, indicating that a man is on the crane.

CMAA and its member companies assume no liability for general or special damage which may arise in connection with this checklist. This inspection in no way represents that the requirements of OSHA have been met. The responsibility for the interpretation of current OSHA standards and the adherence to any such interpretation rest with the owner and/or user of the equipment.



CRANE MANUFACTURERS ASSOCIATION OF AMERICA  
CRANE INSPECTION SCHEDULE AND MAINTENANCE REPORT

Customer: \_\_\_\_\_ Date: \_\_\_\_\_

Capacity: \_\_\_\_\_ Span: \_\_\_\_\_ Type: \_\_\_\_\_

Mfr. Ser. No.: \_\_\_\_\_ Cust. Idnt. No.: \_\_\_\_\_

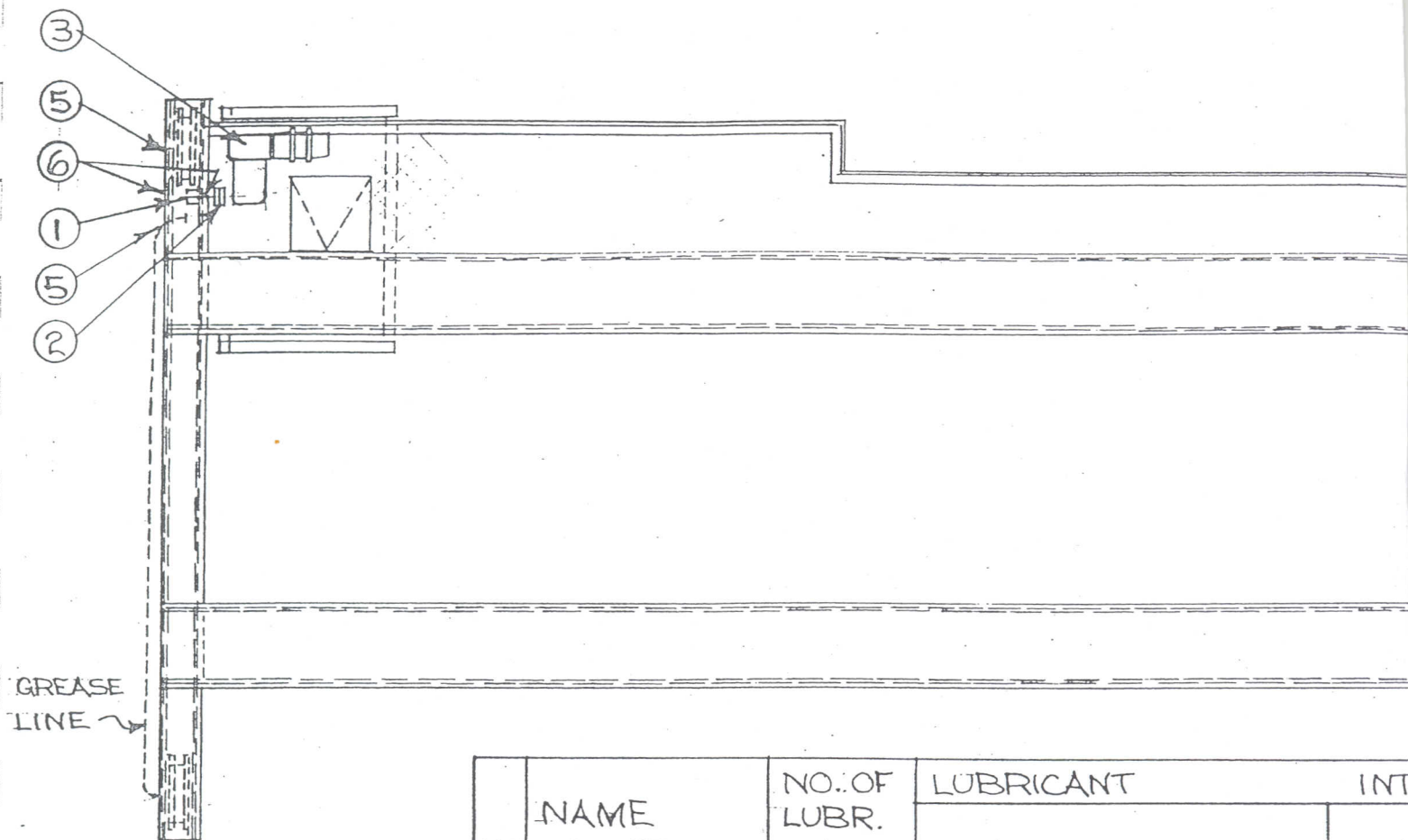
	Component & Location	Inspection Interval			Condition						Corrective Notes
Location	Component	Weekly	Monthly	Semi-An'l.	OK	Adjust	Repair	Replace	Lubricate	Clean	Describe, Initial, and Date When Corrected
Bridge	Motor			<input type="radio"/>							
	Brake & Hydraulics	<input type="radio"/>									
	Control Panels			<input type="radio"/>							
	Control Operation		<input type="radio"/>								
	Resistors			<input type="radio"/>							
	Lights		<input type="radio"/>								
	Trolley Conductors			<input type="radio"/>							
	Runway Collectors		<input type="radio"/>								
	Reducer		<input type="radio"/>								
	Couplings		<input type="radio"/>								
	Line Shaft Bearings		<input type="radio"/>								
	Wheels		<input type="radio"/>								
	Wheel Gearing		<input type="radio"/>								
	Wheel Bearings		<input type="radio"/>								
	Girder Connections			<input type="radio"/>							
	Align. & Tracking			<input type="radio"/>							
	Trol. Rails & Stops			<input type="radio"/>							
	Guards & Covers		<input type="radio"/>								
	Bumpers			<input type="radio"/>							
	Rail Sweeps			<input type="radio"/>							
Cab	Master Switches	<input type="radio"/>									
	Mainline Disconnect	<input type="radio"/>									
	Warning Device	<input type="radio"/>									
	Fire Extinguisher		<input type="radio"/>								



Component & Location		Inspection Interval			Condition						Corrective Notes
Location	Component	Weekly	Monthly	Semi-An'l	OK	Adjust	Repair	Replace	Lubricate	Clean	Describe, Initial, and Date When Corrected
Main Hoist	Motor			<input type="radio"/>							
	Holding Brake	<input type="radio"/>									
	Elec. Control Brake		<input type="radio"/>								
	Control Panels			<input type="radio"/>							
	Control Operation		<input type="radio"/>								
	Resistors			<input type="radio"/>							
	Upper Limit Switch	<input type="radio"/>									
	Mech. Load Brake		<input type="radio"/>								
	Reducer		<input type="radio"/>								
	Couplings		<input type="radio"/>								
	Upper Sheaves			<input type="radio"/>							
	Rope Drum			<input type="radio"/>							
	Wire Rope	<input type="radio"/>									
	Bottom Block		<input type="radio"/>								
	Hook & Latch	<input type="radio"/>									
Auxiliary Hoist	Motor			<input type="radio"/>							
	Holding Brake	<input type="radio"/>									
	Elec. Control Brake		<input type="radio"/>								
	Control Panels			<input type="radio"/>							
	Control Operation		<input type="radio"/>								
	Resistors			<input type="radio"/>							
	Upper Limit Switch	<input type="radio"/>									
	Mech. Load Brake		<input type="radio"/>								
	Reducer		<input type="radio"/>								
	Couplings		<input type="radio"/>								
	Upper Sheaves			<input type="radio"/>							
	Rope Drum			<input type="radio"/>							
	Wire Rope	<input type="radio"/>									
	Bottom Block		<input type="radio"/>								
	Hook & Latch	<input type="radio"/>									

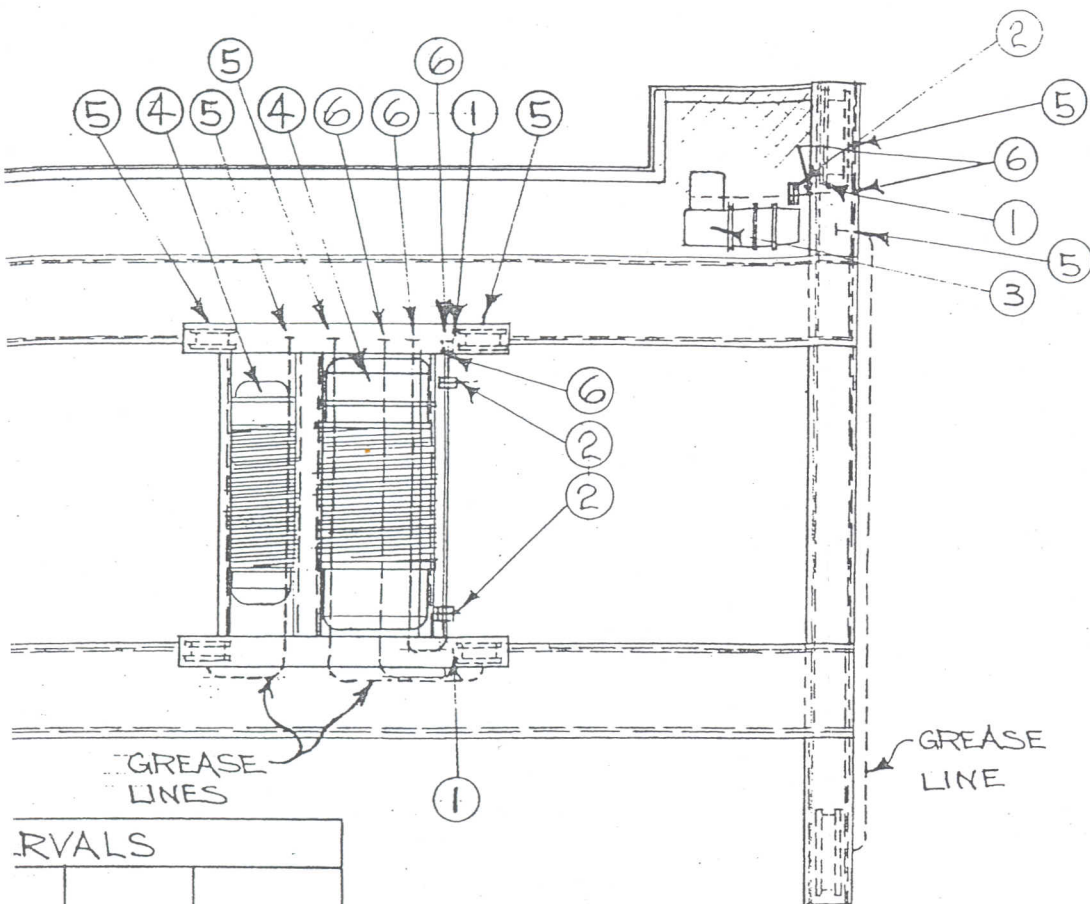
Component & Location		Inspection Interval			Condition						Corrective Notes
Location	Component	Weekly	Monthly	Semi-An'l	OK	Adjust	Repair	Replace	Lubricate	Clean	Describe, Initial, and Date When Corrected
Trolley	Motor			<input type="radio"/>							
	Brake	<input type="radio"/>									
	Control Panels			<input type="radio"/>							
	Control Operation		<input type="radio"/>								
	Resistors			<input type="radio"/>							
	Trolley Collectors		<input type="radio"/>								
	Reducer		<input type="radio"/>								
	Couplings		<input type="radio"/>								
	Wheels		<input type="radio"/>								
	Wheel Gearing		<input type="radio"/>								
	Wheel Bearings		<input type="radio"/>								
	Bumpers			<input type="radio"/>							
	Rail Sweeps			<input type="radio"/>							
Miscellaneous	Gen. Cond. & Hskpg.	<input type="radio"/>									
	Runway Rails - Span			<input type="radio"/>							
	Runway Rails - Joints			<input type="radio"/>							
	Runway Rails - Wear			<input type="radio"/>							
	Main Conductors			<input type="radio"/>							
	Pushbutton Station	<input type="radio"/>									
	Cable Reels		<input type="radio"/>								
	Grabs & Attachments	<input type="radio"/>									
	Cap. & Warn. Signs		<input type="radio"/>								
	Wind Anchors		<input type="radio"/>								
Remarks											
Crane Inspector _____											
Maintenance Foreman _____											
<div style="text-align: right;"> CMAA  5M 10/1/80  5M 8/1/81 </div>											





NO	NAME OF ITEM	NO. OF LUBR. PLACES	LUBRICANT	INT
			IRVING	2 YR
1	OPEN GEARS	4	T GREASE	
2	FLEXIBLE CPLGS	4	LUBEX EP 2	
3	GEARBOX	2	D & E 220 <sup>100</sup>	
4	GEARBOX	2	D & E 185 - Coolin.	
5	WHEEL BRGS.	8	LUBEX EP 2	
6	FLANGE BRGS.	8	LUBEX EP 2	
7	WIRE ROPE	2	T GREASE	

Irving  
 =  
 8552333  
 655  
 And  
 R. L. ...  
 n.D. open gear on w.r. lub.  
 1602 Amend.  
 210-601-6



RVALS		
S:	1YR.	6MO.
		X
		X
		X
		X
	X	
	X	
	X	

LUBRICATION CHART