

S P A R E P A R T S B U L L E T I N S

T I T L E S H E E T

VENDOR'S SERIAL NO. HOU-2088-A

PURCHASER'S ORDER NO. CONTRACT NO. DA-22-079-eng-286

PURCHASED BY: U.S. ARMY ENGINEER WATERWAYS EXPERIMENT STATION, CORPS OF ENGINEERS
VICKSBURG, MISSISSIPPI

SHIPPED TO: SAME AS ABOVE

DESCRIPTION OF UNIT: ONE (1) 50/10 TON CAPACITY, TOP RIDING, 68'-3" SPAN
"LOAD-CHIEF" CRANE (440-3-60) FLOOR CONTROLLED

IMPORTANT

This Bulletin is intended as an aid in ordering spare parts as well as a guide for the care and operation of your equipment.

Read ordering instructions carefully before ordering parts.

YOUR STOCK OF PARTS

An adequate stock of spare parts will prevent costly production tie-ups. Upon request we will gladly submit a quotation on spare parts, which experience has proven useful in times of emergency.

ALL PARTS TO BE ORDERED DIRECT FROM

CRANE HOIST ENGINEERING CORPORATION OF TEXAS
301 FRIO STREET BOX 5416
HOUSTON 12, TEXAS

CRANE HOIST ENGINEERING CORPORATION
HOUSTON 20, TEXAS

SUGGESTED ERECTION PROCEDURES

The items listed below are given as suggestions to aid you in erecting this equipment and getting it into satisfactory operation from the start. These may vary slightly from one crane to another. Wiring diagrams and bridge conductor location sheets are sent with each crane order. Your Plant Superintendent has crane clearance diagrams which he has approved.

1. ___ Check mounting direction of crane with respect to drive, cab and location of runway conductor. If several cranes and runways involved, make sure cranes are mounted with proper orientation.
2. ___ Erect crane - trucks, drive girder, idler girder, trolleys and cab if furnished - hook up couplings between cross shaft and drive wheel axles or truck wheel pinion shafts.
3. ___ Mount conductors across the bridge according to conductor location diagram for the crane.
4. ___ Mount collectors on trolley and bridge and hook up same.
5. ___ Make connections to cab. Check push button and pendant.
6. ___ Check motor brushes on all slip ring or D.C. motors, making sure connections are secure and up out of the way. Brush holders must be tight.
7. ___ Lubrication - check all oil levels and grease fittings, coat open gears with gear compound.
8. ___ Make sure line voltage to bridge collectors is within 5% of rated voltage.
9. ___ Check limit switch operation and contactor sequence.
10. ___ Double check collector adjustment at all points across the bridge.
11. ___ Make sure there is no interference between trolley and bridge; between cable and end trucks.
12. ___ Run bridge down runway carefully, checking clearances and collector adjustment all the way. Note any tight spots in runway span.
13. ___ Check end stops at both ends of runway.
14. ___ If capacity load available, make load test a short distance off the floor first.

NOTES

1. IF NECESSARY TO SPREAD SINGLE I-BEAM MOTOR DRIVEN TROLLEYS FOR ERECTION BE SURE TO REMOVE THE CROSS DRIVE SHAFT FIRST TO PREVENT BENDING SAME.
2. ALL ASSEMBLIES ARE CHECKED AND RUN OUT LIGHT BEFORE SHIPPING. ALL SMALL HOISTS AND CRANE TROLLEYS OF SHEPARD DESIGN ARE THOROUGHLY TESTED WITH FULL DRUM LOAD BEFORE SHIPPING.

SOUTH WORTH, MO. U.S.A.

100% COTTON FIBER

MOTORS VARIABLE SPEED

SALES COMPANY
~~3041 SAN JACINTO STREET, ROOM-13~~
~~HOUSTON 4, TEXAS~~

NEW ADDRESS
2308 BINGLE ROAD
HOUSTON 24, TEXAS
HO 8-4339

CRANE HOIST ENGINEERING CORPORATION

Parts List, Drawing 531-3

- 4 - M500 Sarkes Tarzian Rectifiers
- 1 - .02 MFD. 600 V Condenser
- 1 - 50 OHM 1 Watt Resistor
- 1 - $\frac{1}{8}$ KVA 440/220 volt Utility Dry Type Transformer

MOTORS VARIABLE SPEED

SALES COMPANY

~~3011 SAN JACINTO STREET, ROOM 13~~

~~HOUSTON 4, TEXAS~~

NEW ADDRESS

2308 BINGLE ROAD

HOUSTON 24, TEXAS

HO 8-4339

CRANE HOIST ENGINEERING CORPORATION

Parts List, Drawing 531-2

- 4 - M500 Sarkes Tarzian Rectifiers
- 1 - .02 MFD. 600 V Condenser
- 1 - 50 Ohm 1 Watt Resistor
- 1 - $\frac{1}{2}$ KVA 440/220 Volt Utility Dry Type Transformer

MOTORS VARIABLE SPEED

SALES COMPANY
~~3011 SAN JACINTO STREET, ROOM 13~~
~~HOUSTON 4, TEXAS~~

NEW ADDRESS
2308 BINGLE ROAD
HOUSTON 24, TEXAS
HO 8-4339

CRANE HOIST ENGINEERING CORPORATION

Parts List, Drawing 531-1

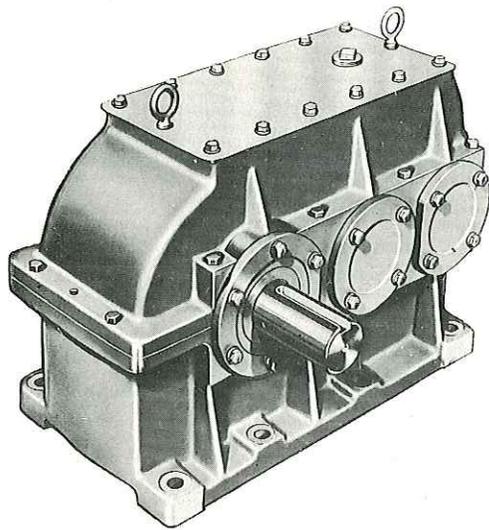
- 4 - 40J2 Sarkes Tarzian Silicone Diode Rectifiers
- 1 - .02 MFD. 600 V Condenser
- 1 - 50 ohm 1 Watt Resistor
- 1 - 1½ KVA 440/220 volt Utility Dry Type Transformer

INSTALLATION

LUBRICATION

MAINTENANCE

INSTRUCTIONS



7300 SERIES

Base Type

SPEED REDUCERS

CAUTION READ LUBRICATION INSTRUCTIONS
INSIDE THIS BULLETIN BEFORE STARTING
FILL SPEED REDUCER TO PROPER LEVEL WITH
A GOOD GRADE OF MOTOR OIL

INSTALLATION INSTRUCTIONS

Be sure that the base supporting the reducer and motor is solid and that the anchor bolts are securely fastened to a good foundation. If the reducer is to be direct connected to an electric motor by means of a flexible coupling, care should be exercised that there is a space of at least 1/8" between the end of the motor shaft and the end of the input shaft of the reducer. Both the motor shaft and the reducer input shaft should be aligned as closely as possible so that a minimum of misalignment is obtained in the assembly. In this way the coupling will give better service than when misaligned.

Should the speed reducer be driven with a V-Belt drive, the sheave which is fitted to the input shaft of the reducer should be mounted as closely to the reducer as possible to reduce the overhung load. The same is true for a sprocket which may be mounted on the output shaft.

Before mounting couplings, sheaves, or sprockets on the shafts of the reducers, a thin coat of grease should be applied to the shafts, which will help in removing any of these items at a later date.

Be sure to fill the reducer with the correct grade of oil to the proper oil level before operating.

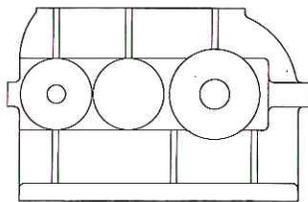
LUBRICATION INSTRUCTIONS

Before operating any new speed reducer, be sure to fill the reducer with the proper grade of oil, to the proper level. After the first 100 hours of operation, the oil in the speed reducer should be drained, the magnetic drain plug cleaned, and the speed reducer inspected for any leakage.

Refill the speed reducer with clean oil to the proper oil level. Do not overfill, as too much oil causes excess heating and leakage through the oil seals, and decreases the efficiency of the reducer.

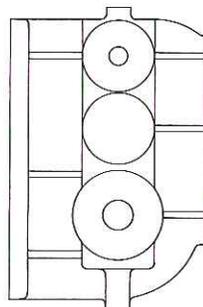
The oil should be inspected at regular intervals, and should be changed at least twice each year. Use any good motor oil in the speed reducer, but do not use any heavy transmission lubricant.

When reducers are exposed to outside weather conditions and are not operated during the winter season, the reducers should be completely filled with oil during the nonoperating winter season. This will prevent water from forming in the reducer due to temperature changes, which will cause the bearings to rust and shorten the life of the reducer. Drain oil to proper oil level before restarting the reducer in operation.



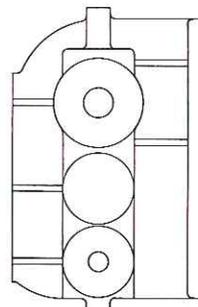
FLOOR MOUNTED

Oil Capacity
12 Quarts



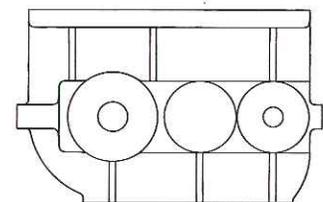
WALL MOUNTED

Input Shaft Above
Oil Capacity
12 Quarts



WALL MOUNTED

Input Shaft Below
Oil Capacity
10 Quarts



CEILING MOUNTED

Oil Capacity
8 Quarts

Use SAE 30 motor oil for temperatures over 32 degrees F.
Use SAE 10 motor oil for temperatures below 32 degrees F.

MAINTENANCE INSTRUCTIONS

Keep the speed reducer clean by removing the dust and fine material that may be deposited on it. This will keep the reducer from becoming overheated. Inspect oil for the correct level. Inspect oil for any foreign material by rubbing between the fingers. If it feels gritty, change the oil.

Inspect and clean the breather plug to be sure that the air vent hole is open. This allows air to circulate in the reducer and prevents oil being pumped through the oil seals.

Inspect and clean the magnetic drain plug with compressed air, if available, to remove any metal particles from the magnet before replacing the plug in the reducer.

Check anchor bolts that secure the reducer to the base to be sure that they are tight and check all cap screws which secure the bearing caps to the reducer to be sure that they are tight.

When servicing a speed reducer we suggest the following operations:

Inspect all shafts for end play by trying to pull or push the shaft endwise in the bearings. If any looseness is noted the bearing cap should be removed from the housing and one or more of the fibre shims removed. After the removal of the shims the shaft again should be checked by replacing the bearing cap to the housing to be sure that the bearings are not binding and that the shaft has a slight end play. If it is necessary to remove or to add an additional shim this should be done so that the shaft has only a slight end play in the bearings. This is the same adjustment that is used for the bearings on the front wheel spindles of an automobile.

After the adjustment for shims has been made the bearing cap should be removed from the housing and cleaned with alcohol or paint thinner to remove the old Permatex. Apply fresh Permatex or a shellac to the bearing cap so that it will make a tight seal against the housing when re-assembled. The cap screws that hold the bearing cap to the housing should be brushed with Permatex or shellac before the final assembly to prevent oil leakage through the threads of the screws.

When new oil seals are installed in the bearing caps, the outside diameter of the oil seals should be coated with Permatex to prevent a leak between the oil seal and the bearing cap. After oil seals are installed, the reducer should not be put into service for 8 hours, which will give the Permatex sufficient time to set.

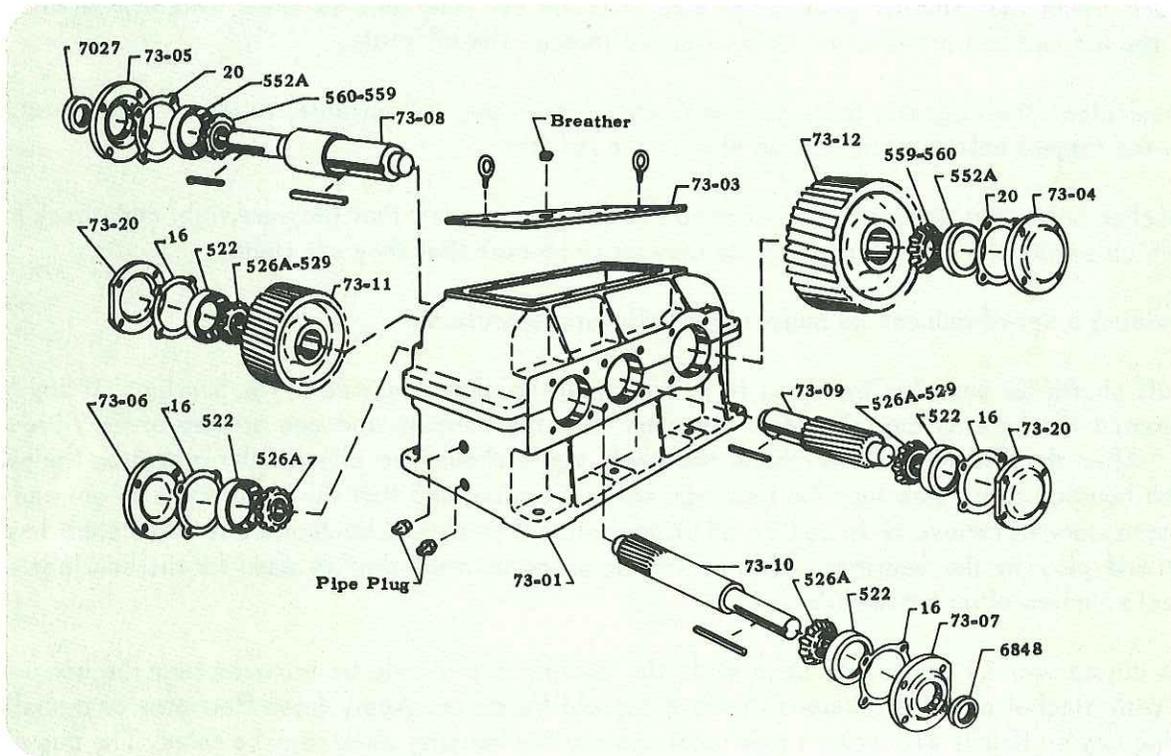
Caution: When installing oil seals over any shaft it is best to wrap the shaft with heavy paper so the sharp edges of the keyway will not cut the oil seal. Remove paper after oil seal and bearing cap are in proper place. A slight cut may not be noticed, but may cause leakage through the oil seal.

When replacement parts are required they can be ordered from the parts list on the back cover of this instruction sheet. When ordering parts it is necessary that the model number and serial number is furnished to the factory as there are changes made in the gearing of the reducers over a period of time. These changes are made to improve the quality of the reducers and re-designed parts will fit housings in the field when sets of parts are ordered at the same time. For this reason it is a good policy to install both the pinion and gear when either member of the gear set requires replacement. It is not necessary that both the high speed and low speed gear sets be changed at the same time.

When disassembling the upper and lower parts of the housing, it is necessary to remove the tapered dowel pins at each end of the housing. These pins are located in the flange on the centerline of the housing, and must be driven upwards to be removed. The tapered dowel pins align the upper and lower parts of the housing and must be replaced before tightening the cap screws for reassembly.

PARTS LIST FOR 7300 SERIES SPEED REDUCERS

Always give Model Number and Serial Number when ordering parts.



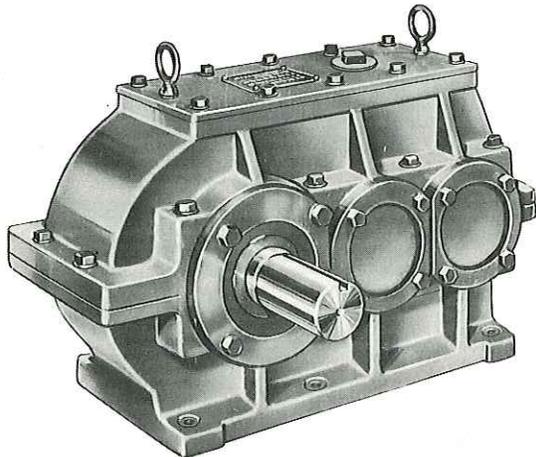
PART NAME

PART NUMBER

Case assembly. Sold only as an assembly	73-01
Cover plate & breather assembly	73-03
Low speed closed cap	73-04
Low speed open cap	73-05
Intermediate cap	73-20
High speed closed cap	73-06
High speed open cap	73-07
Low speed shaft	73-08
Low speed shaft double extended	73-08 DE
Intermediate pinion shaft	73-09
High speed pinion shaft	73-10
High speed pinion shaft double extended	73-10 DE
Intermediate gear	73-11
Low speed gear	73-12
Timken bearing cup H.S.	522
Timken bearing cone H.S.	526A
Timken bearing cup Int.	522
Timken bearing cone Int.	526A-529
Timken bearing cup L.S.	552A
Timken bearing cone L.S.	559-560
Timken shims	16-20
High speed shaft oil seal	6848
Low speed shaft oil seal	7027

**INSTALLATION
LUBRICATION
MAINTENANCE
INSTRUCTIONS**

4600 SERIES



Base Type

SPEED REDUCERS

CAUTION READ LUBRICATION INSTRUCTIONS
INSIDE THIS BULLETIN BEFORE STARTING
FILL SPEED REDUCER TO PROPER LEVEL WITH
A GOOD GRADE OF MOTOR OIL

INSTALLATION INSTRUCTIONS

Be sure that the base supporting the reducer and motor is solid and that the anchor bolts are securely fastened to a good foundation. If the reducer is to be direct connected to an electric motor by means of a flexible coupling, care should be exercised that there is a space of at least 1/8" between the end of the motor shaft and the end of the input shaft of the reducer. Both the motor shaft and the reducer input shaft should be aligned as closely as possible so that a minimum of misalignment is obtained in the assembly. In this way the coupling will give better service than when misaligned.

Should the speed reducer be driven with a V-Belt drive, the sheave which is fitted to the input shaft of the reducer should be mounted as closely to the reducer as possible to reduce the overhung load. The same is true for a sprocket which may be mounted on the output shaft.

Before mounting couplings, sheaves, or sprockets on the shafts of the reducers, a thin coat of grease should be applied to the shafts, which will help in removing any of these items at a later date.

Be sure to fill the reducer with the correct grade of oil to the proper oil level before operating.

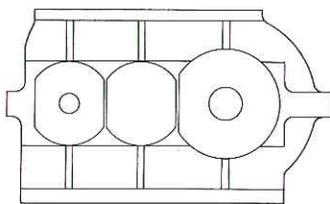
LUBRICATION INSTRUCTIONS

Before operating any new speed reducer, be sure to fill the reducer with the proper grade of oil, to the proper level. After the first 100 hours of operation, the oil in the speed reducer should be drained, the magnetic drain plug cleaned, and the speed reducer inspected for any leakage.

Refill the speed reducer with clean oil to the proper oil level. Do not overfill, as too much oil causes excess heating and leakage through the oil seals, and decreases the efficiency of the reducer.

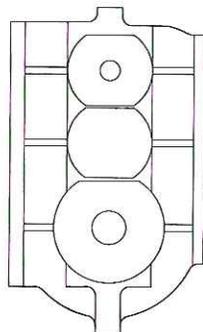
The oil should be inspected at regular intervals, and should be changed at least twice each year. Use any good motor oil in the speed reducer, but do not use any heavy transmission lubricant.

When reducers are exposed to outside weather conditions and are not operated during the winter season, the reducers should be completely filled with oil during the nonoperating winter season. This will prevent water from forming in the reducer due to temperature changes, which will cause the bearings to rust and shorten the life of the reducer. Drain oil to proper oil level before restarting the reducer in operation.



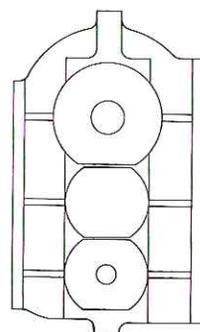
FLOOR MOUNTED

Oil Capacity
3 Quarts



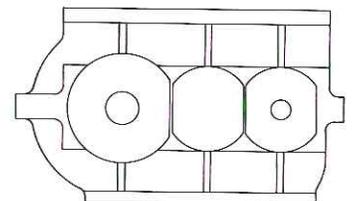
WALL MOUNTED

Input Shaft Above
Oil Capacity
4 Quarts



WALL MOUNTED

Input Shaft Below
Oil Capacity
4½ Quarts



CEILING MOUNTED

Oil Capacity
3 Quarts

Use SAE 30 motor oil for temperatures over 32 degrees F.
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MAINTENANCE INSTRUCTIONS

Keep the speed reducer clean by removing the dust and fine material that may be deposited on it. This will keep the reducer from becoming overheated. Inspect oil for the correct level. Inspect oil for any foreign material by rubbing between the fingers. If it feels gritty, change the oil.

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Inspect and clean the magnetic drain plug with compressed air if available, to remove any metal particles from the magnet before replacing the plug in the reducer.

Check anchor bolts that secure the reducer to the base to be sure that they are tight and check all cap screws which secure the bearing caps to the reducer to be sure that they are tight.

When servicing a speed reducer we suggest the following operations:

Inspect all shafts for end play by trying to pull or push the shaft endwise in the bearings. If any looseness is noted the bearing cap should be removed from the housing and one or more of the fibre shims removed. After the removal of the shims the shaft again should be checked by replacing the bearing cap to the housing to be sure that the bearings are not binding and that the shaft has a slight end play. If it is necessary to remove or to add an additional shim this should be done so that the shaft has only a slight end play in the bearings. This is the same adjustment that is used for the bearings on the front wheel spindles of an automobile.

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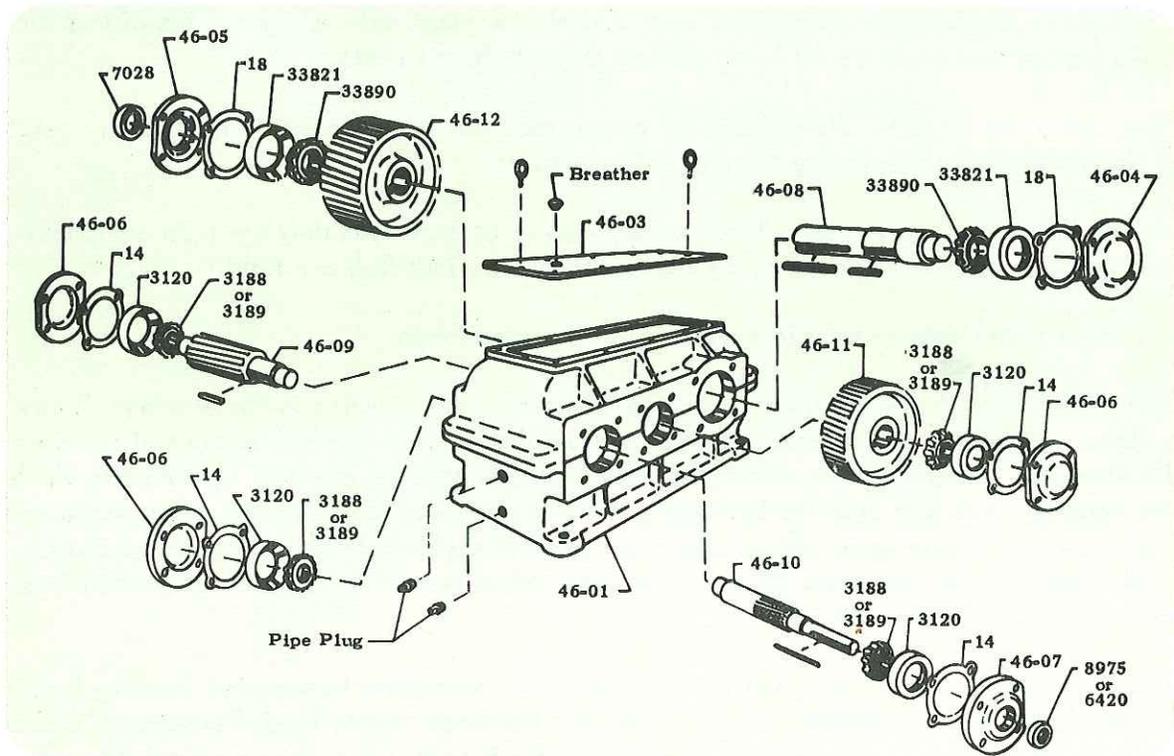
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PARTS LIST FOR 4600 SERIES SPEED REDUCERS

Always give Model Number and Serial Number when ordering parts.



PART NAME

PART NUMBER

Case assembly. Sold only as an assembly
 Cover plate & breather assembly
 Low speed closed cap
 Low speed open cap
 Intermediate cap
 High speed open cap
 Low speed shaft
 Low speed shaft double extended
 Intermediate pinion shaft
 High speed pinion shaft
 High speed pinion shaft double extended
 Intermediate gear
 Low speed gear
 Timken bearing cup H.S. & Int.
 Timken bearing cone H.S. & Int.
 Timken bearing cup L.S.
 Timken bearing cone L.S.
 Timken shims
 High speed shaft oil seal
 Low speed shaft oil seal

46-01
 46-03
 46-04
 46-05
 46-06
 46-07
 46-08
 46-08 DE
 46-09
 46-10
 46-10 DE
 46-11
 46-12
 3120
 3188-3189
 33821
 33890
 14-18
 8975-6420
 7028

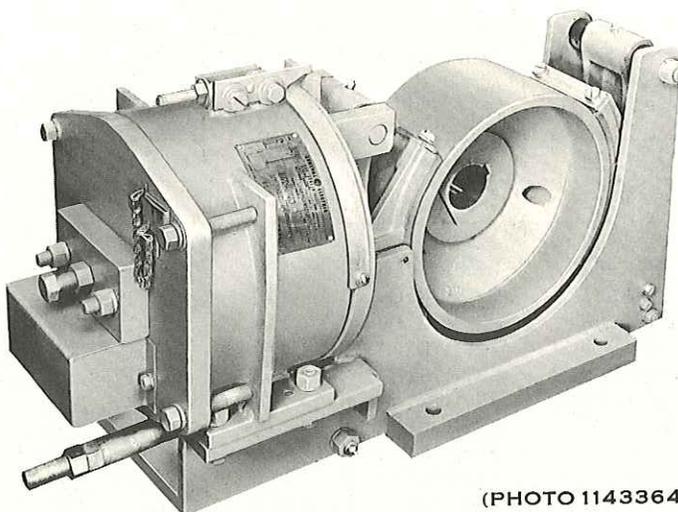


RENEWAL PARTS

IC9528 MAGNETIC BRAKES

(also CR9528)

IC9528-A100A, -A100J, -A101A, -A101J, -A102A, -A102J,
-A103A, -A103J, -A104A, -A104J, -A105A and -A105J



(PHOTO 1143364)

IC9528-A102A magnetic brake

PARTS RECOMMENDED FOR NORMAL STOCK

Ref. No.	Number Required for IC9528-						Catalog Number	Description
	A100	A101	A102	A103	A104	A105		
1	1	1	1	1	1	1	----- Magnet coil (see tables on pages 2 and 3)	
9	2	-	-	-	-	-	282A785G1 Lining and supporting plate assembly	
9	-	2	-	-	-	-	282A786G1 Lining and supporting plate assembly	
9	-	-	2	-	-	-	282A787G1 Lining and supporting plate assembly	
9	-	-	-	2	-	-	282A788G1 Lining and supporting plate assembly	
9	-	-	-	-	2	-	282A789G1 Lining and supporting plate assembly	
9	-	-	-	-	-	2	282A790G1 Lining and supporting plate assembly	
62	1	-	-	-	-	-	5144475 Torque spring	
62	-	1	-	-	-	-	5144472 Torque spring	
62	-	-	1	-	-	-	5144470 Torque spring	
62	-	-	-	1	-	-	5144467 Torque spring	
62	-	-	-	-	1	-	5144480 Torque spring	
62	-	-	-	-	-	1	5144457 Torque spring, outer	
	-	-	-	-	-	1	5144458 Torque spring, inner	
20	2	-	-	-	-	-	5144476 Spring for friction plug	
20	-	2	-	-	-	-	2418892 Spring for friction plug	
20	-	-	2	2	-	-	2418884 Spring for friction plug	
20	-	-	-	-	2	-	2418893 Spring for friction plug	
20	-	-	-	-	-	2	5144464 Spring for friction plug	
36	1	1	-	-	-	-	5144474 Compression spring for tie rod	
36	-	-	1	-	-	-	5144482 Compression spring for tie rod	
36	-	-	-	1	-	-	5144483 Compression spring for tie rod	
36	-	-	-	-	1	-	5144484 Compression spring for tie rod	
36	-	-	-	-	-	1	5144473 Compression spring for tie rod	

When ordering renewal parts, give quantity, catalog number, description of each item required, and complete nameplate reading.



IC9528 MAGNETIC BRAKES

MAGNET COILS, RESISTORS, AND TERMINAL BOARDS

NOTE:- The magnet coil, set of resistors, and terminal board are identified by the suffix 1, 2, etc. following the Cat. No. of the complete brake, stamped on the nameplate.

EXAMPLE:- IC9528-A100A2 requires magnet coil Cat. No. 1D176G2, set of resistors Cat. No. 284A462, and terminal board Cat. No. 229B781G1.

Brake Cat. No. Suffix	Ref. No. 1		Ref. No. 2		Brake Cat. No. Suffix	Ref. No. 1		Ref. No. 2	
	Magnet Coil	Set of Resistors	Terminal Board			Magnet Coil	Set of Resistors	Terminal Board	
	Cat. No.	Cat. No.	Cat. No.			Cat. No.	Cat. No.	Cat. No.	
IC9528-A100A AND -A100J									
1	1D176G1	284A460	229B781G1	108	1D176G108	-----	229B781G1		
2	1D176G2	284A462	229B781G1	109	1D176G109	-----	229B781G1		
3	1D176G1	284A461	229B781G1	110	1D176G110	-----	229B781G1		
4	1D176G2	284A463	229B781G1	111	1D176G111	-----	229B781G1		
5	1D176G3	285A976G1	229B781G1	112	1D176G112	-----	229B781G1		
6	1D176G3	285A999G1	229B781G1	113	1D176G113	-----	229B781G1		
7	1D176G1	287A819G1	229B781G1	114	1D176G114	-----	229B781G1		
8	1D176G3	284A460	229B781G1	115	1D176G115	-----	229B781G1		
100	1D176G100	-----	229B781G1	116	1D176G116	-----	229B781G1		
101	1D176G101	-----	229B781G1	117	1D176G117	-----	229B781G1		
102	1D176G102	-----	229B781G1	118	1D176G118	-----	229B781G1		
103	1D176G103	-----	229B781G1	119	1D176G119	-----	229B781G1		
104	1D176G104	-----	229B781G1	120	1D176G120	-----	229B781G1		
105	1D176G105	-----	229B781G1	121	1D176G121	-----	229B781G1		
106	1D176G106	-----	229B781G1	122	1D176G122	-----	229B781G1		
107	1D176G107	-----	229B781G1						
IC9528-A101A AND -A101J									
1	1D177G1	284A468	229B781G1	102	1D177G102	-----	229B781G1		
2	1D177G2	284A469	229B781G1	103	1D177G103	-----	229B781G1		
3	1D177G1	284A470	229B781G1	104	1D177G104	-----	229B781G1		
4	1D177G2	284A471	229B781G1	105	1D177G105	-----	229B781G1		
5	1D177G1	287A820	229B781G1	106	1D177G106	-----	229B781G1		
6	1D177G5	573A754	229B781G1	107	1D177G107	-----	229B781G1		
7	1D177G5	573A753	229B781G1	108	1D177G108	-----	229B781G1		
8	1D177G5	284A470	229B781G1	109	1D177G109	-----	229B781G13		
9	1D177G6	-----	229B781G1	110	1D177G110	-----	229B781G13		
10	1D177G6	-----	229B781G1	111	1D177G111	-----	229B781G13		
100	1D177G100	-----	229B781G1	112	1D177G112	-----	229B781G13		
101	1D177G101	-----	229B781G1						
IC9528-A102A AND -A102J									
1	1D178G1	284A450	229B781G3	15	1D178G8	-----	229B781G9		
2	1D178G2	284A454	229B781G3	100	1D178G100	-----	229B781G9		
3	1D178G1	284A451	229B781G3	101	1D178G101	-----	229B781G9		
4	1D178G2	284A455	229B781G3	102	1D178G102	-----	229B781G9		
5	1D178G3	284A452	229B781G3	103	1D178G103	-----	229B781G9		
6	1D178G3	284A453	229B781G3	104	1D178G104	-----	229B781G9		
7	1D178G4	285A977	229B781G3	105	1D178G105	-----	229B781G9		
8	1D178G4	285A976	229B781G3	106	1D178G106	-----	229B781G9		
9	1D178G4	286A588	229B781G3	107	1D178G107	-----	229B781G9		
10	1D178G4	573A752	229B781G3	108	1D178G108	-----	229B781G9		
11	1D178G4	573A752	229B781G3	109	1D178G109	-----	229B781G9		
12	1D178G4	573A752	229B781G3	110	1D178G110	-----	229B781G9		
13	1D178G7	-----	229B781G9	111	1D178G111	-----	229B781G9		
14	1D178G7	-----	229B781G9	112	1D178G112	-----	229B781G9		
IC9528-A103A AND -A103J									
1	1D179G1	284A464	229B781G7	4	1D179G2	284A467	229B781G7		
2	1D179G2	284A466	229B781G7	5	1D179G3	285A754	229B781G7		
3	1D179G1	284A465	229B781G7	6	1D179G3	285A755	229B781G7		

IC9528 MAGNETIC BRAKES

GEF-4022B

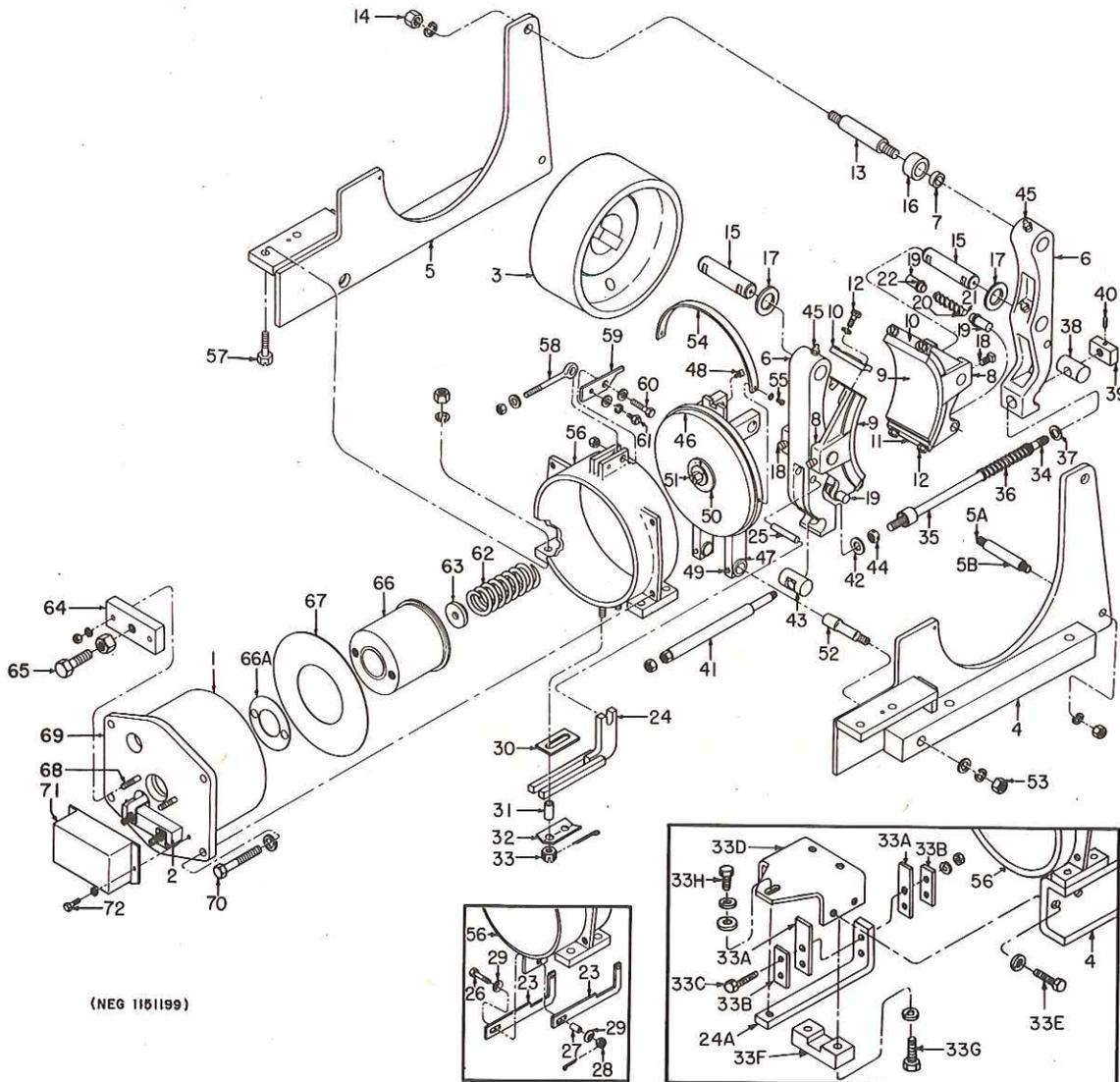
Brake Cat. No. Suffix	Ref. No. 1		Ref. No. 2		Brake Cat. No. Suffix	Ref. No. 1		Ref. No. 2	
	Magnet Coil		Terminal Board			Magnet Coil		Terminal Board	
	Cat. No.	Set of Resistors Cat. No.	Cat. No.	Set of Resistors Cat. No.		Cat. No.	Set of Resistors Cat. No.	Cat. No.	Set of Resistors Cat. No.
IC9528-A103A AND -A103J (CONT'D.)									
7	1D179G3	284A464	229B781G7	104	1D179G104	-----	229B781G4		
8	1D179G6	-----	229B781G4	105	1D179G105	-----	229B781G4		
100	1D179G100	-----	229B781G4	106	1D179G106	-----	229B781G4		
101	1D179G101	-----	229B781G4	107	1D179G107	-----	229B781G4		
102	1D179G102	-----	229B781G4	108	1D179G108	-----	229B781G10		
103	1D179G103	-----	229B781G4	109	1D179G109	-----	229B781G10		
IC9528-A104A AND -A104J									
1	1D180G1	284A456	229B781G8	101	1D180G101	-----	229B781G14		
2	1D180G2	284A472	229B781G8	102	1D180G102	-----	229B781G6		
3	1D180G1	284A457	229B781G8	103	1D180G103	-----	229B781G6		
4	1D180G2	284A473	229B781G8	104	1D180G104	-----	229B781G6		
5	1D180G1	573A751	229B781G8	105	1D180G105	-----	229B781G6		
6	1D180G3	-----	229B781G14	106	1D180G106	-----	229B781G14		
7	1D180G3	-----	229B781G14	107	1D180G107	-----	229B781G14		
100	1D180G100	-----	229B781G14	108	1D180G108	-----	229B781G14		
IC9528-A105A AND -A105J									
1	1D181G1	285A791	229B781G8	104	1D181G104	-----	229B781G6		
2	1D181G2	285A793	229B781G8	105	1D181G105	-----	229B781G6		
3	1D181G1	285A792	229B781G8	106	1D181G106	-----	229B781G6		
4	1D181G2	285A794	229B781G8	107	1D181G107	-----	229B781G6		
5	1D181G3	284A456	229B781G8	108	1D181G108	-----	229B781G6		
6	1D181G3	284A457	229B781G8	109	1D181G109	-----	229B781G6		
7	1D181G3	285A795	229B781G8	110	1D181G110	-----	229B781G6		
8	1D181G3	285A796	229B781G8	111	1D181G111	-----	229B781G6		
100	1D181G100	-----	229B781G6	112	1D181G112	-----	229B781G6		
101	1D181G101	-----	229B781G6	113	1D181G113	-----	229B781G6		
102	1D181G102	-----	229B781G6	114	1D181G114	-----	229B781G6		
103	1D181G103	-----	229B781G6						

COMPLETE LIST OF PARTS

Ref. No.	Number Required for IC9528-						Catalog Number	Description
	A100	A101	A102	A103	A104	A105		
3	1	1	1	1	1	1	----- Brake wheel (order by Cat. No. stamped on wheel)	
4	1	-	-	-	-	-	171C229P1 Frame, front (For A100A)	
4	1	-	-	-	-	-	171C229P3 Frame, front (For A100J)	
4	-	1	-	-	-	-	171C262G1 Frame, front (For A101A)	
4	-	1	-	-	-	-	171C262G5 Frame, front (For A101J)	
4	-	-	1	-	-	-	171C232G1 Frame, front (For A102A)	
4	-	-	1	-	-	-	171C232G5 Frame, front (For A102J)	
4	-	-	-	1	-	-	171C247G1 Frame, front (For A103A)	
4	-	-	-	1	-	-	171C247G5 Frame, front (For A103J)	
4	-	-	-	-	1	-	171C246G1 Frame, front (For A104A)	
4	-	-	-	-	1	-	171C246G5 Frame, front (For A104J)	
4	-	-	-	-	-	1	171C230G1 Frame, front (For A105A)	
4	-	-	-	-	-	1	171C230G5 Frame, front (For A105J)	
5	1	-	-	-	-	-	171C229P2 Frame, rear (For A100A)	
5	1	-	-	-	-	-	171C229P4 Frame, rear (For A100J)	
5	-	1	-	-	-	-	171C262G2 Frame, rear (For A101A)	

IC9528 MAGNETIC BRAKES

Ref. No.	Number Required for IC9528-						Catalog Number	Description
	A100	A101	A102	A103	A104	A105		
5	-	1	-	-	-	-	171C262G6	Frame, rear (For A101J)
5	-	-	1	-	-	-	171C232G2	Frame, rear (For A102A)
5	-	-	1	-	-	-	171C232G6	Frame, rear (For A102J)
5	-	-	-	1	-	-	171C247G2	Frame, rear (For A103A)
5	-	-	-	1	-	-	171C247G6	Frame, rear (For A103J)
5	-	-	-	-	1	-	171C246G2	Frame, rear (For A104A)
5	-	-	-	-	1	-	171C246G6	Frame, rear (For A104J)
5	-	-	-	-	-	1	171C230G2	Frame, rear (For A105A)
5	-	-	-	-	-	1	171C230G6	Frame, rear (For A105J)
5A	-	1	-	-	-	-	N22P29088B	Tie bolt for front and rear frames (1/2 in. -13, 5 1/2 in. hex. hd. pro. fin)
5A	-	-	-	1	-	-	282A872P4	Tie stud for front and rear frames
5A	-	-	-	-	2	-	282A872P5	Tie stud for front and rear frames
5A	-	-	-	-	-	2	282A872P6	Tie stud for front and rear frames
5B	-	1	-	-	-	-	229B790P2	Spacer for tie stud
5B	-	-	-	1	-	-	229B790P10	Spacer for tie stud
5B	-	-	-	-	2	-	229B790P11	Spacer for tie stud
5B	-	-	-	-	-	2	229B790P12	Spacer for tie stud
6	2	-	-	-	-	-	171C266G19	Yoke with bushings, right-hand or left-hand
6	-	2	-	-	-	-	171C266G20	Yoke with bushings, right-hand or left-hand



Ref. No.	Number Required for IC9528-						Catalog Number	Description
	A100	A101	A102	A103	A104	A105		
6	-	-	2	-	-	-	171C266G21	Yoke with bushings, right-hand or left-hand
6	-	-	-	2	-	-	171C266G22	Yoke with bushings, right-hand or left-hand
6	-	-	-	-	2	-	171C266G23	Yoke with bushings, right-hand or left-hand
6	-	-	-	-	-	2	171C266G24	Yoke with bushings, right-hand or left-hand
7	8	-	-	-	-	-	573A608P1	Bushing for yoke
7	-	8	-	-	-	-	573A608P2	Bushing for yoke
7	-	-	8	-	-	-	573A608P3	Bushing for yoke
7	-	-	-	8	-	-	573A608P5	Bushing for yoke
7	-	-	-	-	8	-	573A608P7	Bushing for yoke
7	-	-	-	-	-	8	573A608P9	Bushing for yoke
8	2	-	-	-	-	-	171C213P1	Brake shoe, right-hand or left-hand
8	-	2	-	-	-	-	171C215P1	Brake shoe, right-hand or left-hand
8	-	-	2	-	-	-	171C217P1	Brake shoe, right-hand or left-hand
8	-	-	-	2	-	-	171C219P1	Brake shoe, right-hand or left-hand
8	-	-	-	-	2	-	171C221P1	Brake shoe, right-hand or left-hand
8	-	-	-	-	-	2	171C223P1	Brake shoe, right-hand or left-hand
9	2	-	-	-	-	-	282A785G1	Lining and supporting plate assembly
9	-	2	-	-	-	-	282A786G1	Lining and supporting plate assembly
9	-	-	2	-	-	-	282A787G1	Lining and supporting plate assembly
9	-	-	-	2	-	-	282A788G1	Lining and supporting plate assembly
9	-	-	-	-	2	-	282A789G1	Lining and supporting plate assembly
9	-	-	-	-	-	2	282A790G1	Lining and supporting plate assembly
10	2	-	-	-	-	-	282A875P7	Clamp for lining and supporting plate assembly, upper
10	-	2	-	-	-	-	282A875P8	Clamp for lining and supporting plate assembly, upper
10	-	-	2	-	-	-	282A875P9	Clamp for lining and supporting plate assembly, upper
10	-	-	-	2	-	-	282A875P10	Clamp for lining and supporting plate assembly, upper
10	-	-	-	-	2	-	282A875P11	Clamp for lining and supporting plate assembly, upper
10	-	-	-	-	-	2	282A875P12	Clamp for lining and supporting plate assembly, upper
11	2	-	-	-	-	-	282A875P1	Clamp for lining and supporting plate assembly, lower
11	-	2	-	-	-	-	282A875P2	Clamp for lining and supporting plate assembly, lower
11	-	-	2	-	-	-	282A875P3	Clamp for lining and supporting plate assembly, lower
11	-	-	-	2	-	-	282A875P4	Clamp for lining and supporting plate assembly, lower
11	-	-	-	-	2	-	282A875P5	Clamp for lining and supporting plate assembly, lower
11	-	-	-	-	-	2	282A875P6	Clamp for lining and supporting plate assembly, lower
12	8	-	-	-	-	-	N22P23012B	Screw fastening upper or lower clamp to brake shoe (5/16 in.-18, 3/4 in. hex. hd. pro. fin.)
12	-	8	-	-	-	-	N22P23010B	Screw fastening upper or lower clamp to brake shoe (5/16 in.-18, 5/8 in. hex. hd. pro. fin.)
12	-	-	8	8	-	-	N22P29016B	Screw fastening upper or lower clamp to brake shoe (1/2 in.-13, 1 in. hex. hd. pro. fin.)
12	-	-	-	-	8	-	N22P33020B	Screw fastening upper or lower clamp to brake shoe (5/8 in.-11, 1 1/4 in. hex. hd. pro. fin.)
12	-	-	-	-	-	8	N22P33016B	Screw fastening upper or lower clamp to brake shoe (5/8 in.-11, 1 in. hex. hd. pro. fin.)
13	1	-	-	-	-	-	282A864P1	Bearing pin for right-hand yoke
13	-	1	-	-	-	-	282A864P2	Bearing pin for right-hand yoke
13	-	-	1	-	-	-	282A864P3	Bearing pin for right-hand yoke
13	-	-	-	1	-	-	282A864P4	Bearing pin for right-hand yoke
13	-	-	-	-	1	-	282A864P5	Bearing pin for right-hand yoke
13	-	-	-	-	-	1	282A864P6	Bearing pin for right-hand yoke
14	2	2	-	-	-	-	245P29B6	Nut for bearing pin, Cat. No. 282A864P1 or 282A864P2 (1/2 in.-13, hex. std, pro. fin.)
14	-	-	2	-	-	-	245P35B6	Nut for bearing pin, Cat. No. 282A864P3 (3/4 in.-10, hex. std, pro. fin.)
14	-	-	-	2	-	-	245P39B6	Nut for bearing pin, Cat. No. 282A864P4 (1 in.-8, hex. std, pro. fin.)
14	-	-	-	-	2	2	245P45B6	Nut for bearing pin, Cat. No. 282A864P5 or 282A864P6 (1 1/4 in.-7, hex. std, pro. fin.)
15	3	-	-	-	-	-	282A863P1	Bearing pin for brake shoe or left-hand yoke
15	-	3	-	-	-	-	282A863P2	Bearing pin for brake shoe or left-hand yoke

IC9528 MAGNETIC BRAKES

Ref. No.	Number Required for IC9528-						Catalog Number	Description
	A100	A101	A102	A103	A104	A105		
15	-	-	3	-	-	-	282A863P3	Bearing pin for brake shoe or left-hand yoke
15	-	-	-	3	-	-	282A863P4	Bearing pin for brake shoe or left-hand yoke
15	-	-	-	-	3	-	282A863P5	Bearing pin for brake shoe or left-hand yoke
15	-	-	-	-	-	3	282A863P6	Bearing pin for brake shoe or left-hand yoke
16	2	2	-	-	-	-	282A763P1	Seal for right-hand yoke
16	-	-	2	-	-	-	282A763P2	Seal for right-hand yoke
16	-	-	-	2	-	-	282A763P3	Seal for right-hand yoke
16	-	-	-	-	2	-	282A763P4	Seal for right-hand yoke
16	-	-	-	-	-	2	282A763P5	Seal for right-hand yoke
17	2	-	-	-	-	-	282A770P6	Thrust washer for left-hand yoke
17	-	2	-	-	-	-	282A770P7	Thrust washer for left-hand yoke
17	-	-	2	-	-	-	282A770P8	Thrust washer for left-hand yoke
17	-	-	-	2	-	-	282A770P9	Thrust washer for left-hand yoke
17	-	-	-	-	2	-	282A770P10	Thrust washer for left-hand yoke
17	-	-	-	-	-	2	282A770P11	Thrust washer for left-hand yoke
18	4	4	-	-	-	-	577A124P1	Set screw for brake shoe
18	-	-	4	-	-	-	577A124P2	Set screw for brake shoe
18	-	-	-	4	-	-	577A124P3	Set screw for brake shoe
18	-	-	-	-	4	4	577A124P4	Set screw for brake shoe
19	4	-	-	-	-	-	282A862P1	Friction plug for brake shoe
19	-	4	-	-	-	-	282A862P2	Friction plug for brake shoe
19	-	-	4	-	-	-	282A862P3	Friction plug for brake shoe
19	-	-	-	4	-	-	282A862P4	Friction plug for brake shoe
19	-	-	-	-	4	-	282A862P5	Friction plug for brake shoe
19	-	-	-	-	-	4	282A862P6	Friction plug for brake shoe
20	2	-	-	-	-	-	5144476	Spring for friction plug
20	-	2	-	-	-	-	2418892	Spring for friction plug
20	-	-	2	2	-	-	2418884	Spring for friction plug
20	-	-	-	-	2	-	2418893	Spring for friction plug
20	-	-	-	-	-	2	5144464	Spring for friction plug
21	2	-	-	-	-	-	282A869P4	Guide pin for spring
21	-	2	-	-	-	-	282A869P12	Guide pin for spring
21	-	-	2	-	-	-	282A869P1	Guide pin for spring
21	-	-	-	2	-	-	282A869P14	Guide pin for spring
21	-	-	-	-	2	-	282A869P11	Guide pin for spring
21	-	-	-	-	-	2	282A869P7	Guide pin for spring
22	4	-	-	-	-	-	N908P219B	Retaining ring for friction plug
22	-	4	-	-	-	-	N908P221B	Retaining ring for friction plug
22	-	-	4	4	-	-	N908P227B	Retaining ring for friction plug
22	-	-	-	-	4	-	N908P229B	Retaining ring for friction plug
22	-	-	-	-	-	4	N908P237B	Retaining ring for friction plug
23	2	-	-	-	-	-	282A880P1	Pivot arm for yoke (For A100A)
23	-	2	-	-	-	-	282A882P1	Pivot arm for yoke (For A101A)
24	-	-	1	-	-	-	233B552G1	Pivot arm for yoke (For A102A)
24	-	-	-	1	-	-	229B777G1	Pivot arm for yoke (For A103A)
24	-	-	-	-	1	-	229B771G1	Pivot arm for yoke (For A104A)
24	-	-	-	-	-	1	229B750G1	Pivot arm for yoke (For A105A)
24A	1	-	-	-	-	-	138A1173P1	Pivot arm for yoke (For A100J)
24A	-	1	-	-	-	-	138A1173P2	Pivot arm for yoke (For A101J)
24A	-	-	1	-	-	-	138A1173P3	Pivot arm for yoke (For A102J)
24A	-	-	-	1	-	-	138A1173P4	Pivot arm for yoke (For A103J)
24A	-	-	-	-	1	-	138A1173P5	Pivot arm for yoke (For A104J)
24A	-	-	-	-	-	1	138A1173P6	Pivot arm for yoke (For A105J)
25	1	-	-	-	-	-	282A762P1	Pivot pin for yoke and pivot arm
25	-	1	-	-	-	-	282A762P2	Pivot pin for yoke and pivot arm
25	-	-	1	-	-	-	282A762P3	Pivot pin for yoke and pivot arm
25	-	-	-	1	-	-	282A762P4	Pivot pin for yoke and pivot arm
25	-	-	-	-	1	-	282A762P5	Pivot pin for yoke and pivot arm
25	-	-	-	-	-	1	282A762P6	Pivot pin for yoke and pivot arm
26	1	1	-	-	-	-	282A792P1	Pivot screw for magnet frame and pivot arm (For A100A and A101A)

Ref. No.	Number Required for IC9528-						Catalog Number	Description
	A100	A101	A102	A103	A104	A105		
27	1	1	-	-	-	-	229B790P23	Spacer for pivot screw (For A100A and A101A)
28	1	1	-	-	-	-	N216P23B	Nut for pivot screw (5/16 in. -18, hex. slotted, pro. fin.) (For A100A and A101A)
29	2	2	-	-	-	-	414713	Spring washer (For A100A and A101A)
30	-	-	1	1	-	-	282A893P1	Slide shim between magnet frame and pivot arm (For A102A and A103A)
30	-	-	-	-	1	1	282A893P2	Slide shim between magnet frame and pivot arm (For A104A and A105A)
31	-	-	2	2	-	-	282A865P1	Spacer for pivot arm (For A102A and A103A)
31	-	-	-	-	2	-	282A865P2	Spacer for pivot arm (For A104A)
31	-	-	-	-	-	2	282A865P3	Spacer for pivot arm (For A105A)
32	-	-	1	1	-	-	282A799P1	Retaining plate for pivot arm (For A102A and A103A)
32	-	-	-	-	1	1	282A761P1	Retaining plate for pivot arm (For A104A and A105A)
33	-	-	2	2	-	-	N216P29B	Nut for magnet frame stud (1/2 in. -13, hex. slotted, pro. fin.) (For A102A and A103A)
33	-	-	-	-	2	2	N216P33B	Nut for magnet frame stud (5/8 in. -11, hex. slotted, pro. fin.) (For A104A and A105A)
33A	2	-	-	-	-	-	138A1174P1	Spring strip for pivot arm (For A100J)
33A	-	2	-	-	-	-	138A1174P2	Spring strip for pivot arm (For A101J)
33A	-	-	2	-	-	-	138A1174P3	Spring strip for pivot arm (For A102J)
33A	-	-	-	2	-	-	138A1174P4	Spring strip for pivot arm (For A103J)
33A	-	-	-	-	2	-	138A1174P5	Spring strip for pivot arm (For A104J)
33A	-	-	-	-	-	2	138A1174P6	Spring strip for pivot arm (For A105J)
33B	2	-	-	-	-	-	138A1178P1	Backing strip (For A100J)
33B	-	2	-	-	-	-	138A1178P2	Backing strip (For A101J)
33B	-	-	2	-	-	-	138A1178P3	Backing strip (For A102J)
33B	-	-	-	2	-	-	138A1178P4	Backing strip (For A103J)
33B	-	-	-	-	2	-	138A1178P5	Backing strip (For A104J)
33B	-	-	-	-	-	2	138A1178P6	Backing strip (For A105J)
33C	2	-	-	-	-	-	N22P21016B	Screw fastening spring strip and backing strip to pivot arm (1/4 in. -20, 1 in. hex. hd. pro. fin.) (For A100J)
33C	-	2	-	-	-	-	N22P23020B	Screw fastening spring strip and backing strip to pivot arm (5/16 in. -18, 1 1/4 in. hex. hd. pro. fin.) (For A101J)
33C	-	-	2	-	-	-	N22P23024B	Screw fastening spring strip and backing strip to pivot arm (5/16 in. -18, 1 1/2 in. hex. hd. pro. fin.) (For A102J)
33C	-	-	-	2	-	-	N22P25032B	Screw fastening spring strip and backing strip to pivot arm (3/8 in. -16, 2 in. hex. hd. pro. fin.) (For A103J)
33C	-	-	-	-	2	2	N22P29036B	Screw fastening spring strip and backing strip to pivot arm (1/2 in. -13, 2 1/4 in. hex. hd. pro. fin.) (For A104J and A105J)
33D	1	-	-	-	-	-	104B9965P1	Support for pivot arm (For A100J)
33D	-	1	-	-	-	-	104B9965P2	Support for pivot arm (For A101J)
33D	-	-	1	-	-	-	104B9965P3	Support for pivot arm (For A102J)
33D	-	-	-	1	-	-	104B9965P4	Support for pivot arm (For A103J)
33D	-	-	-	-	1	-	104B9965P5	Support for pivot arm (For A104J)
33D	-	-	-	-	-	1	104B9965P6	Support for pivot arm (For A105J)
33E	4	-	-	-	-	-	N22P23010B	Screw fastening support to front or rear frame (5/16 in. -18, 5/8 in. hex. hd. pro. fin.) (For A100J)
33E	-	4	-	-	-	-	N22P25012B	Screw fastening support to front or rear frame (3/8 in. -16, 3/4 in. hex. hd. pro. fin.) (For A101J)
33E	-	-	4	-	-	-	N22P25016B	Screw fastening support to front or rear frame (3/8 in. -16, 1 in. hex. hd. pro. fin.) (For A102J)

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Ref. No.	Number Required for IC9528-						Catalog Number	Description
	A100	A101	A102	A103	A104	A105		
33E	-	-	-	4	-	-	N22P29016B	Screw fastening support to front or rear frame (1/2 in. -13, 1 in. hex. hd. pro. fin.) (For A103J)
33E	-	-	-	-	4	-	N22P33020B	Screw fastening support to front or rear frame (5/8 in. -11, 1 1/4 in. hex. hd. pro. fin.) (For A104J)
33E	-	-	-	-	-	4	N22P33024B	Screw fastening support to front or rear frame (5/8 in. -11, 1 1/2 in. hex. hd. pro. fin.) (For A105J)
33F	1	-	-	-	-	-	138A1175P1	Guide for pivot arm (For A100J)
33F	-	1	-	-	-	-	138A1175P2	Guide for pivot arm (For A101J)
33F	-	-	1	-	-	-	138A1175P3	Guide for pivot arm (For A102J)
33F	-	-	-	1	-	-	138A1175P4	Guide for pivot arm (For A103J)
33F	-	-	-	-	1	-	138A1175P5	Guide for pivot arm (For A104J)
33F	-	-	-	-	-	1	138A1175P6	Guide for pivot arm (For A105J)
33G	2	-	-	-	-	-	N22P21016B	Screw fastening guide to support (1/4 in. -20, 1 in. hex. hd. pro. fin.) (For A100J)
33G	-	2	-	-	-	-	N22P25020B	Screw fastening guide to support (3/8 in. -16, 1 1/4 in. hex. hd. pro. fin.) (For A101J)
33G	-	-	2	-	-	-	N22P29020B	Screw fastening guide to support (1/2 in. -13, 1 1/4 in. hex. hd. pro. fin.) (For A102J)
33G	-	-	-	2	-	-	N22P29024B	Screw fastening guide to support (1/2 in. -13, 1 1/2 in. hex. hd. pro. fin.) (For A103J)
33G	-	-	-	-	2	2	N22P33032B	Screw fastening guide to support (5/8 in. -11, 2 in. hex. hd. pro. fin.) (For A104J and A105J)
33H	1	-	-	-	-	-	N25P23016	Adjusting screw for pivot arm (5/16 in. -18, 1 in. hex. hd. slot, brass) (For A100J)
33H	-	1	-	-	-	-	N25P25020B	Adjusting screw for pivot arm (3/8 in. -16, 1 1/4 in. hex. hd. slot, brass) (For A101J)
33H	-	-	1	-	-	-	N21P29020	Adjusting screw for pivot arm (1/2 in. -13, 1 1/4 in. hex. hd., brass) (For A102J)
33H	-	-	-	1	-	-	N21P29024	Adjusting screw for pivot arm (1/2 in. -13, 1 1/2 in. hex. hd., brass) (For A103J)
33H	-	-	-	-	1	-	N21P33032	Adjusting screw for pivot arm (5/8 in. -11, 2 in. hex. hd., brass) (For A104J)
33H	-	-	-	-	-	1	N22P35028B	Adjusting screw for pivot arm (3/4 in. -10, 1 3/4 in. hex. hd. pro. fin.) (For A105J)
34	1	-	-	-	-	-	233B564P1	Tie rod (For A100A)
34	1	-	-	-	-	-	104B9964P1	Tie rod (For A100J)
34	-	1	-	-	-	-	233B564P2	Tie rod (For A101A)
34	-	1	-	-	-	-	104B9964P2	Tie rod (For A101J)
34	-	-	1	-	-	-	233B564P3	Tie rod (For A102A)
34	-	-	1	-	-	-	104B9964P3	Tie rod (For A102J)
34	-	-	-	1	-	-	233B564P4	Tie rod (For A103A)
34	-	-	-	1	-	-	104B9964P4	Tie rod (For A103J)
34	-	-	-	-	1	-	233B564P5	Tie rod (For A104A)
34	-	-	-	-	1	-	104B9964P5	Tie rod (For A104J)
34	-	-	-	-	-	1	233B564P6	Tie rod (For A105A)
34	-	-	-	-	-	1	104B9964P6	Tie rod (For A105J)
35	1	-	-	-	-	-	229B798G1	Spacer for tie rod (For A100A)
35	1	-	-	-	-	-	577A142P17	Spacer for tie rod (For A100J)
35	-	1	-	-	-	-	229B798G2	Spacer for tie rod (For A101A)
35	-	1	-	-	-	-	577A142P18	Spacer for tie rod (For A101J)
35	-	-	1	-	-	-	229B798G3	Spacer for tie rod (For A102A)
35	-	-	1	-	-	-	577A142P19	Spacer for tie rod (For A102J)
35	-	-	-	1	-	-	229B798G4	Spacer for tie rod (For A103A)
35	-	-	-	1	-	-	577A142P20	Spacer for tie rod (For A103J)
35	-	-	-	-	1	-	229B798G5	Spacer for tie rod (For A104A)
35	-	-	-	-	1	-	577A142P21	Spacer for tie rod (For A104J)
35	-	-	-	-	-	1	229B798G6	Spacer for tie rod (For A105A)

Ref. No.	Number Required for IC9528-						Catalog Number	Description
	A100	A101	A102	A103	A104	A105		
35	-	-	-	-	-	1	138A1177G1	Spacer for tie rod (For A105J)
36	1	1	-	-	-	-	5144474	Compression spring for tie rod
36	-	-	1	-	-	-	5144482	Compression spring for tie rod
36	-	-	-	1	-	-	5144483	Compression spring for tie rod
36	-	-	-	-	1	-	5144484	Compression spring for tie rod
36	-	-	-	-	-	1	5144473	Compression spring for tie rod
37	1	-	-	-	-	-	N402P45B	Spring seat for compression spring
37	-	1	-	-	-	-	N402P17B	Spring seat for compression spring
37	-	-	1	-	-	-	N402P48B	Spring seat for compression spring
37	-	-	-	1	1	-	N402P50B	Spring seat for compression spring
37	-	-	-	-	-	1	285A820P1	Spring seat for compression spring
38	1	-	-	-	-	-	285A839P1	Rocker pin for tie rod
38	-	1	-	-	-	-	285A839P2	Rocker pin for tie rod
38	-	-	1	-	-	-	285A839P3	Rocker pin for tie rod
38	-	-	-	1	-	-	285A839P4	Rocker pin for tie rod
38	-	-	-	-	1	-	285A839P5	Rocker pin for tie rod
38	-	-	-	-	-	1	285A839P6	Rocker pin for tie rod
39	1	-	-	-	-	-	233B565P1	Nut for tie rod
39	-	1	-	-	-	-	233B565P2	Nut for tie rod
39	-	-	1	-	-	-	233B565P3	Nut for tie rod
39	-	-	-	1	1	-	233B565P4	Nut for tie rod
39	-	-	-	-	-	1	233B565P5	Nut for tie rod
40	1	1	-	-	-	-	N70P1606B	Set screw for tie rod nut (10-32, 3/8 in. hex. socket hd., cup point, pro. fin.)
40	-	-	1	-	-	-	N72P2108B	Set screw for tie rod nut (1/4 in. -20, 1/2 in. sq. hd., cup point, pro. fin.)
40	-	-	-	1	1	-	N72P2110B	Set screw for tie rod nut (1/4 in. -20, 5/8 in. sq. hd., cup point, pro. fin.)
40	-	-	-	-	-	1	N72P23010B	Set screw for tie rod nut (5/16 in. -18, 5/8 in. sq. hd., cup point, pro. fin.)
	1	-	-	-	-	-	282A796P1	Stop bracket for tie rod, Ref. No. 34
	-	-	1	-	-	-	282A796P2	Stop bracket for tie rod, Ref. No. 34
	2	-	-	-	-	-	N22P23010B	Screw fastening stop bracket to front frame (5/16 in. -18, 5/8 in. hex. hd. pro. fin.)
	-	-	2	-	-	-	N22P25014B	Screw fastening stop bracket to front frame (3/8 in. -16, 7/8 in. hex. hd. pro. fin.)
41	1	-	-	-	-	-	233B548G1	Nut extension for tie rod (For A100A)
41	-	1	-	-	-	-	233B553G1	Nut extension for tie rod (For A101A)
41	-	-	1	-	-	-	233B551G1	Nut extension for tie rod (For A102A)
41	-	-	-	1	-	-	233B554G1	Nut extension for tie rod (For A103A)
41	-	-	-	-	1	-	233B554G2	Nut extension for tie rod (For A104A)
41	-	-	-	-	-	1	233B545G1	Nut extension for tie rod (For A105A)
42	1	-	-	-	-	-	282A770P6	Washer for nut extension (For A100A)
42	-	1	-	-	-	-	282A770P2	Washer for nut extension (For A101A)
42	-	-	1	-	-	-	282A770P3	Washer for nut extension (For A102A)
42	-	-	-	1	1	-	282A770P4	Washer for nut extension (For A103A and A104A)
42	-	-	-	-	-	1	282A770P5	Washer for nut extension (For A105A)
43	1	-	-	-	-	-	233B544P1	Rocker pin (For A100A)
43	1	-	-	-	-	-	138A1176P1	Rocker pin (For A100J)
43	-	1	-	-	-	-	233B544P3	Rocker pin (For A101A)
43	-	1	-	-	-	-	138A1176P2	Rocker pin (For A101J)
43	-	-	1	-	-	-	233B544P5	Rocker pin (For A102A)
43	-	-	-	1	-	-	138A1176P3	Rocker pin (For A102J)
43	-	-	-	-	1	-	233B544P7	Rocker pin (For A103A)
43	-	-	-	1	-	-	138A1176P4	Rocker pin (For A103J)
43	-	-	-	-	1	-	233B544P9	Rocker pin (For A104A)
43	-	-	-	-	1	-	138A1176P5	Rocker pin (For A104J)
43	-	-	-	-	-	1	233B544P11	Rocker pin (For A105A)
43	-	-	-	-	-	1	138A1176P6	Rocker pin (For A105J)

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Ref. No.	Number Required for IC-9528-						Catalog Number	Description
	A100	A101	A102	A103	A104	A105		
44	1	-	-	-	-	-	233B547P1	Collar for nut extension (For A100A)
44	-	1	-	-	-	-	233B547P2	Collar for nut extension (For A101A)
44	-	-	1	-	-	-	233B547P3	Collar for nut extension (For A102A)
44	-	-	-	1	1	-	233B547P4	Collar for nut extension (For A103A and A104A)
44	-	-	-	-	-	1	233B547P5	Collar for nut extension (For A105A)
45	4	4	-	-	-	-	247X16	Grease fitting for yoke or brake shoe (used on early models only)
45	-	-	4	4	4	4	91X453	Grease fitting for yoke or brake shoe (used on early models only)
46	1	-	-	-	-	-	229B796G1	Armature with bushings
46	-	1	-	-	-	-	229B796G2	Armature with bushings
46	-	-	1	-	-	-	229B796G3	Armature with bushings
46	-	-	-	1	-	-	229B796G4	Armature with bushings
46	-	-	-	-	1	-	229B796G5	Armature with bushings
46	-	-	-	-	-	1	229B796G6	Armature with bushings
47	2	2	-	-	-	-	282A871P1	Bushing for armature
47	-	-	2	-	-	-	282A797P1	Bushing for armature
47	-	-	-	2	-	-	282A798P1	Bushing for armature
47	-	-	-	-	2	-	282A898P1	Bushing for armature
47	-	-	-	-	-	2	282A857P1	Bushing for armature
48	2	2	-	-	-	-	577A124P1	Set screw for armature
48	-	-	2	-	-	-	577A124P2	Set screw for armature
48	-	-	-	2	-	-	577A124P3	Set screw for armature
48	-	-	-	-	2	2	577A124P4	Set screw for armature
49	-	-	-	-	2	2	91X453	Grease fitting for armature (used only on early models)
50	1	-	-	-	-	-	282A888P1	Spring seat
50	-	1	-	-	-	-	282A774P1	Spring seat
50	-	-	1	-	-	-	282A892P1	Spring seat
50	-	-	-	1	-	-	282A765P1	Spring seat
50	-	-	-	-	1	-	282A758P1	Spring seat
50	-	-	-	-	-	1	282A879P1	Spring seat
51	1	1	-	-	-	-	N22P25016B	Screw fastening spring seat to armature (3/8 in. -16, 1 in. hex. hd., pro. fin.)
51	-	-	1	1	1	-	N22P29020B	Screw fastening spring seat to armature (1/2 in. -13, 1 1/4 in. hex. hd., pro. fin.)
51	-	-	-	-	-	1	N22P29040B	Screw fastening spring seat to armature (1/2 in. -13, 2 in. hex. hd., pro. fin.)
52	1	-	-	-	-	-	282A864P1	Bearing pin for armature
52	-	1	-	-	-	-	282A864P2	Bearing pin for armature
52	-	-	1	-	-	-	282A864P3	Bearing pin for armature
52	-	-	-	1	-	-	282A864P4	Bearing pin for armature
52	-	-	-	-	2	-	282A899P1	Bearing pin for armature
52	-	-	-	-	-	2	282A858P1	Bearing pin for armature
53	2	2	-	-	-	-	N245P29B	Nut for bearing pin (1/2 in. -13, hex. std, pro. fin.)
53	-	-	2	-	-	-	N245P35B	Nut for bearing pin (3/4 in. -10, hex. std, pro. fin.)
53	-	-	-	2	-	-	N245P39B	Nut for bearing pin (1 in. -8, hex. std, pro. fin.)
53	-	-	-	-	2	2	N206P45B	Nut for bearing pin (1 1/4 in. -7, hex. std, pro. fin.)
54	1	-	-	-	-	-	282A775P1	Dust cap
54	-	1	-	-	-	-	282A775P2	Dust cap
54	-	-	1	-	-	-	282A775P3	Dust cap
54	-	-	-	1	-	-	282A775P4	Dust cap
54	-	-	-	-	1	-	282A775P5	Dust cap
54	-	-	-	-	-	1	282A775P6	Dust cap
55	3	3	3	3	3	3	N57P21008B	Screw fastening dust cap to armature (1/4 in. -20, 1/2 in. pan hd., pro. fin.)
56	1	-	-	-	-	-	171C235G1	Magnet frame (For A100A)
56	1	-	-	-	-	-	171C235G3	Magnet frame (For A100J)
56	-	1	-	-	-	-	171C264G1	Magnet frame (For A101A)
56	-	-	1	-	-	-	171C264G3	Magnet frame (For A101J)
56	-	-	-	1	-	-	171C243G1	Magnet frame (For A102A)
56	-	-	1	-	-	-	171C243G3	Magnet frame (For A102J)

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Ref. No.	Number Required for IC9528-						Catalog Number	Description
	A100	A101	A102	A103	A104	A105		
56	-	-	-	1	-	-	171C248G1	Magnet frame (For A103A)
56	-	-	-	1	-	-	171C248G3	Magnet frame (For A103J)
56	-	-	-	-	1	-	171C241G1	Magnet frame (For A104A)
56	-	-	-	-	1	-	171C241G3	Magnet frame (For A104J)
56	-	-	-	-	-	1	171C227G1	Magnet frame (For A105A)
56	-	-	-	-	-	1	171C227G3	Magnet frame (For A105J)
57	4	-	-	-	-	-	577A190P1	Screw fastening magnet frame in position
57	-	4	-	-	-	-	577A190P2	Screw fastening magnet frame in position
57	-	-	4	-	-	-	577A190P3	Screw fastening magnet frame in position
57	-	-	-	4	-	-	577A190P4	Screw fastening magnet frame in position
57	-	-	-	-	4	-	577A190P5	Screw fastening magnet frame in position
57	-	-	-	-	-	4	577A190P6	Screw fastening magnet frame in position
58	1	1	-	-	-	-	282A867P1	Manual-release rod (For A100A and A101A)
58	-	-	1	1	-	-	282A867P2	Manual-release rod (For A102A and A103A)
58	-	-	-	-	1	1	282A867P3	Manual-release rod (For A104A and A105A)
59	1	1	-	-	-	-	282A772P1	Armature gap indicator
59	-	-	1	-	-	-	282A885P1	Armature gap indicator
59	-	-	-	1	-	-	282A766P1	Armature gap indicator
59	-	-	-	-	1	1	282A760P1	Armature gap indicator
60	1	1	-	-	-	-	N22P25028B	Hinge screw (3/8 in. -16, 1 3/4 in. hex. hd. pro. fin.)
60	-	-	1	1	-	-	N22P29040B	Hinge screw (1/2 in. -13, 2 1/2 in. hex. hd. pro. fin.)
60	-	-	-	-	1	1	N22P39064B	Hinge screw (1 in. -8, 4 in. hex. hd. pro. fin.)
61	1	1	-	-	-	-	N530P806B	Drive screw fastening gap indicator to magnet frame (No. 10, 3/8 in. lg, pro. fin.)
61	-	-	1	1	1	1	N530P1008B	Drive screw fastening gap indicator to magnet frame (No. 14, 1/2 in. lg, pro. fin.)
62	1	-	-	-	-	-	5144475	Torque spring
62	-	1	-	-	-	-	5144472	Torque spring
62	-	-	1	-	-	-	5144470	Torque spring
62	-	-	-	1	-	-	5144467	Torque spring
62	-	-	-	-	1	-	5144480	Torque spring
62	-	-	-	-	-	1	5144457	Torque spring, outer
62	-	-	-	-	-	1	5144458	Torque spring, inner
63	1	-	-	-	-	-	282A886P1	Spring seat for torque spring
63	-	1	-	-	-	-	282A886P2	Spring seat for torque spring
63	-	-	1	-	-	-	282A886P3	Spring seat for torque spring
63	-	-	-	1	-	-	282A886P4	Spring seat for torque spring
63	-	-	-	-	1	-	282A886P5	Spring seat for torque spring
63	-	-	-	-	-	1	282A878P1	Spring seat for torque spring
64	1	-	-	-	-	-	282A750P1	Retainer for torque spring
64	-	1	-	-	-	-	282A751P1	Retainer for torque spring
64	-	-	1	-	-	-	282A752P1	Retainer for torque spring
64	-	-	-	1	-	-	282A753P1	Retainer for torque spring
64	-	-	-	-	1	-	282A754P1	Retainer for torque spring
64	-	-	-	-	-	1	282A755P1	Retainer for torque spring
65	1	-	-	-	-	-	282A768P1	Adjusting screw for torque spring
65	-	1	-	-	-	-	282A768P2	Adjusting screw for torque spring
65	-	-	1	-	-	-	282A768P3	Adjusting screw for torque spring
65	-	-	-	1	-	-	282A768P4	Adjusting screw for torque spring
65	-	-	-	-	1	-	282A768P5	Adjusting screw for torque spring
65	-	-	-	-	-	1	282A768P6	Adjusting screw for torque spring
66	1	-	-	-	-	-	282A856P1	Magnet core
66	-	1	-	-	-	-	282A873P1	Magnet core
66	-	-	1	-	-	-	978B347P1	Magnet core
66	-	-	-	1	-	-	978B347P2	Magnet core
66	-	-	-	-	1	-	978B347P3	Magnet core
66	-	-	-	-	-	1	978B347P4	Magnet core
66A	1	-	-	-	-	-	282A767P1	Shim between magnet core and back plate
66A	-	1	-	-	-	-	282A767P2	Shim between magnet core and back plate
66A	-	-	1	-	-	-	282A852P1	Shim between magnet core and back plate
66A	-	-	-	1	-	-	282A852P2	Shim between magnet core and back plate

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Ref. No.	Number Required for IC9528-						Catalog Number	Description
	A100	A101	A102	A103	A104	A105		
66A	-	-	-	-	1	-	282A852P3	Shim between magnet core and back plate
66A	-	-	-	-	-	1	282A852P4	Shim between magnet core and back plate
67	1	-	-	-	-	-	282A859P1	Retainer for magnet coil
67	-	1	-	-	-	-	282A859P2	Retainer for magnet coil
67	-	-	1	-	-	-	282A859P3	Retainer for magnet coil
67	-	-	-	1	-	-	282A859P4	Retainer for magnet coil
67	-	-	-	-	2	-	138A2586P1	Retainer for magnet coil
67	-	-	-	-	-	2	138A2586P2	Retainer for magnet coil
68	2	-	-	-	-	-	282A861P2	Stud for magnet core
68	-	2	-	-	-	-	282A861P9	Stud for magnet core
68	-	-	2	-	-	-	282A861P3	Stud for magnet core
68	-	-	-	2	-	-	282A861P8	Stud for magnet core
68	-	-	-	-	2	2	282A861P5	Stud for magnet core
69	1	-	-	-	-	-	282A883P1	Back plate
69	-	1	-	-	-	-	229B778P1	Back plate
69	-	-	1	-	-	-	229B759P1	Back plate
69	-	-	-	1	-	-	394B561P1	Back plate, outer
69	-	-	-	-	1	-	394B562P1	Back plate, outer
69	-	-	-	-	-	1	394B563P1	Back plate, outer
	-	-	-	1	-	-	394B588P1	Back plate, inner
	-	-	-	-	1	-	394B589P1	Back plate, inner
	-	-	-	-	-	1	394B590P1	Back plate, inner
70	4	4	-	-	-	-	N22P29052B	Screw fastening back plate to magnet frame (1/2 in. - 13, 3 1/4 in. hex. hd., pro. fin.)
70	-	-	4	-	-	-	N22P33064B	Screw fastening back plate to magnet frame (5/8 in. - 11, 4 in. hex. hd., pro. fin.)
70	-	-	-	4	-	-	N22P35072B	Screw fastening back plate to magnet frame (3/4 in. - 10, 4 1/2 in. hex. hd., pro. fin.)
70	-	-	-	-	4	4	N22P39096B	Screw fastening back plate to magnet frame (1 in. - 8, 6 in. hex. hd., pro. fin.)
71	1	1	-	-	-	-	229B756P1	Conduit cover (For A100A and A101A)
71	-	-	1	-	-	-	229B757P1	Conduit cover (For A102A)
71	-	-	-	1	-	-	229B770P1	Conduit cover (For A103A)
71	-	-	-	-	1	-	229B799P1	Conduit cover (For A104A)
71	-	-	-	-	-	1	229B751P1	Conduit cover (For A105A)
72	2	2	-	-	-	-	N22P23010B	Screw fastening conduit cover to back plate (5/16 in. - 18, 5/8 in. hex. hd., pro. fin.) (For A100A and A101A)
72	-	-	2	2	2	2	N44P25008B	Screw fastening conduit cover to back plate (3/8 in. - 16, 1/2 in. fill. hd., pro. fin.) (For A102A, A103A, A104A, and A105A)

PLAIN WASHERS

Catalog Number	Description
N402P13B	For 3/8 in. screw
N402P45B	For 1/2 in. screw
N402P49B	For 7/8 in. screw

NUTS

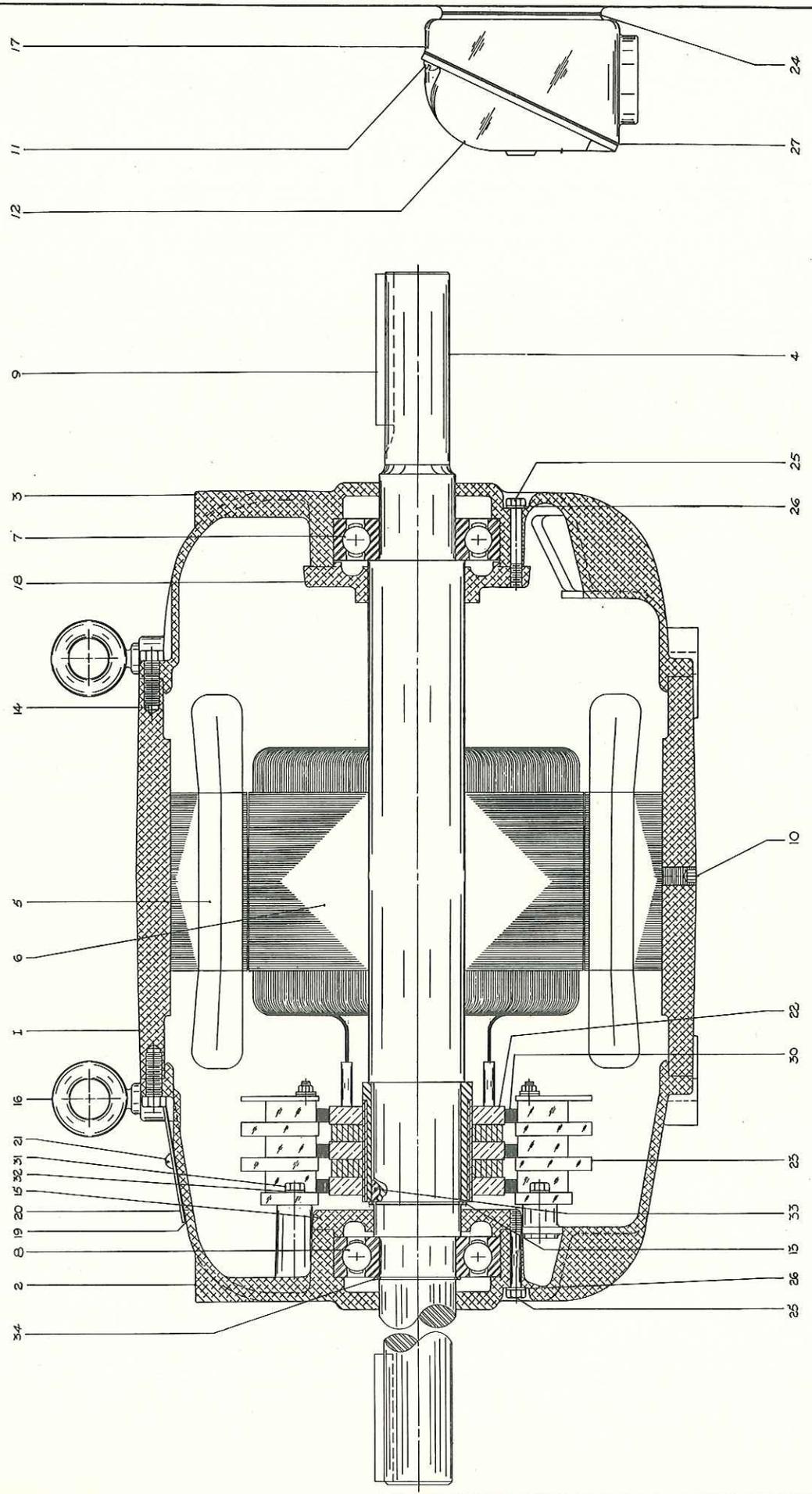
Catalog Number	Description
N203P25B	3/8 in. -16, hex. std, pro. fin.
N200P25	3/8 in. -16, hex. std, brass
N203P29B	1/2 in. -13, hex. std, pro. fin.
N200P29	1/2 in. -13, hex. std, brass
N203P33B	5/8 in. -11, hex. std, pro. fin.
N206P35B	3/4 in. -10, hex. std, pro. fin.
N206P39B	1 in. -8, hex. std, pro. fin.
N200P39	1 in. -8, hex. std, brass
N206P45B	1 1/4 in. -7, hex. std, pro. fin.

LOCK WASHERS

Catalog Number	Description
N405P42C3	For 5/16 in. screw
N405P43C3	For 3/8 in. screw
N405P45C3	For 1/2 in. screw
N405P47C3	For 5/8 in. screw
N405P48C3	For 3/4 in. screw
N405P50C3	For 1 in. screw
N405P52C3	For 1 1/4 in. screw

INDUSTRY CONTROL DEPARTMENT, GENERAL ELECTRIC COMPANY, SALEM, VA.

Crane Hook Engg. Corp. Order #2088A-6 *Revised #40445*



NOTE: ALL BEARINGS SHOWN WITH HOOPER NUMBERS

PARTS LIST		PARTS LIST		PARTS LIST							
NO.	DESCRIPTION	QTY.	SYMBOLS	NO.	DESCRIPTION	QTY.	SYMBOLS	NO.	DESCRIPTION	QTY.	SYMBOLS
1	FRAME	1	1/16	1	TERMINAL BOX	1	1/16	1	SCREEN CAP MESH AG	1	1/16
2	END BELL FRONT	1	1/16	2	TERMINAL BOX	1	1/16	2	LOCK WASHER	1	1/16
3	SHAFT	1	1/16	3	COVER INSPECTION PLATE	1	1/16	3	KEY HOOD RUFF	1	1/16
4	SHAFT MOTOR	1	1/16	4	ASSEMBLY ROTOR	1	1/16	4	RING SHARP WALLS	1	1/16
5	ASSEMBLY STATOR	1	1/16	5	PLATE INSPECTION	1	1/16	5			
6	ASSEMBLY ROTOR	1	1/16	6	SCREEN MESH AG	1	1/16	6			
7	BEARINGS POSITIONER	1	1/16	7	ASSEMBLY BRUSH HOLDER	1	1/16	7			
8	KEY MOTOR SHAFT	1	1/16	8	GASKET TERMINAL BOX	1	1/16	8			
9	KEY MOTOR SHAFT	1	1/16	9	TERMINAL BOX COVER	1	1/16	9			
10	COVER TERMINAL BOX	1	1/16	10	SCREEN MESH AG	1	1/16	10			
11	RING SHARP WALLS	1	1/16	11	LOCK WASHER	1	1/16	11			
12	CLOSURE BEARING	1	1/16	12	BRUSHES SLIP RING	12	1/16	12			

ASSEMBLY SECTION
 DOUBLE END SHAFT
 HOOPER ELECTRIC CO.
 E DP-4461

REULAND ELECTRIC CO.

WESTERN DIVISION PLANT
ALHAMBRA, CALIFORNIA

EASTERN DIVISION PLANT
HOWELL, MICHIGAN

Supersedes
Sheet #M-100
December 4, 1957

Sheet #M-100
May 11, 1960

IMPORTANT INSTRUCTIONS

Installation and Care

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 the coupling, pulleys, etc. SHOULD NOT BE DRIVEN ON MOTOR SHAFT. A light press fit or light tap fit is recommended.

Ball bearing motors are shipped with at least six months supply of grease in the housings and need only a small amount of high grade Ball Bearing Grease added every six months. Overgreasing will result in excessive bearing heat. Motors which have no lubrication fittings have sealed bearings that do not require periodic greasing.

If for any reason this motor is taken apart, thoroughly clean the old grease from the bearings and repack the chamber in the end bells behind the bearing full with a good grade of grease. See sheet #M-101 for list of manufacturers of Recommended Ball Bearing Greases.

* * * * *

REULAND ELECTRIC CO.

WESTERN DIVISION PLANT
ALHAMBRA, CALIFORNIA

EASTERN DIVISION PLANT
HOWELL, MICHIGAN

Supersedes
Sheet #M-101
Jan. 3, 1958

Sheet #M-101
April 4, 1960

RECOMMENDED BALL BEARING GREASES

The following is a non exclusive list of ball bearing greases suitable for use in our Motors and Motoreducers for Temperatures minus 40° F. to 20° F.

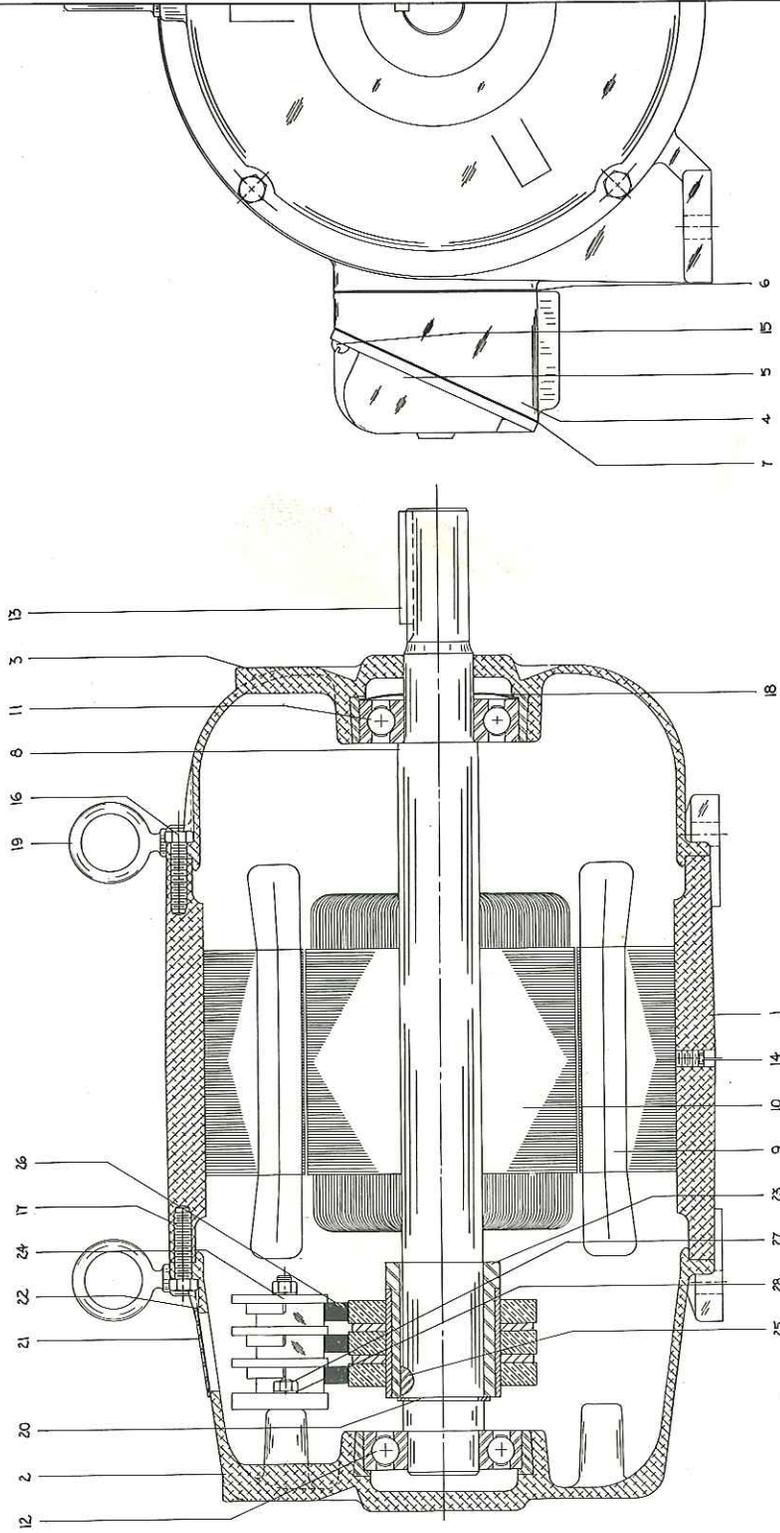
TRADE NAME	MANUFACTURER
283 AMOBAR S	AMERICAN OIL CO.
LUBRICO M3 DENSITY	MASTER LUBRICANTS CO.
RPM AVIATION GREASE NO. 1	STANDARD OIL CO. OF CALIF.
GULF PRECISION GREASE NO. 2	GULF OIL CORP.
RYKON GREASE NO. 1	STANDARD OIL CO. (INDIANA)
SHELL ALVANIA GREASE #1	SHELL OIL CO.
LITHOLINE INDUSTRIAL GR NO. OEP	SINCLAIR REFINING CO.
REGAL STARFAK #2 or MULTIFAK #2	THE TEXAS CO.
TYCOL ALITHO 0	TIDEWATER OIL CO. (EASTERN DIV.)
TYCOL ARMITAGE 10	TIDEWATER OIL CO.
MOBILUX GREASE NO. 1	GENERAL PETROLEUM CORP. SOCONY MOBIL OIL CO., INC. MAGNOLIA PETROLEUM CO.

FOR TEMPERATURES 10° F. to 250° F.

LUBRICO M6 DENSITY	MASTER LUBRICANTS CO.
BALLROLL GREASE NO. 1 or NO. 2	UNION OIL CO. OF CALIF.
LITHOLINE INDUSTRIAL GR NO. 2	SINCLAIR REFINING CO.
288 AMOBAR #2	AMERICAN OIL CO.
SHELL ALVANIA GREASE #2	SHELL OIL CO.
RYKON GREASE NO. 2	STANDARD OIL CO. (INDIANA)
GULF PRECISION GREASE NO. 2	GULF OIL CORP.
CHEVRON INDUSTRIAL GREASE-LIGHT	STANDARD OIL CO. OF CALIF.
REGAL STARFAK #2 or MULTIFAK #2	THE TEXAS CO.
TYCOL ARMITAGE 20 or VEEDOL ALL-PURPOSE GREASE	TIDEWATER OIL CO.
TYCOL ALITHO 20	TIDEWATER OIL CO. (EASTERN DIV.)
PENNS LUBE 704	PENNZOIL CO.
MOBILUX GREASE NO. 1	GENERAL PETROLEUM SOCONY MOBIL OIL CO., INC. MAGNOLIA PETROLEUM CO.

Orval Ybriest Engg. Corp. Order # 20887-A-6

Revised 4-10-45



NOTE: ALL BEARINGS SHOWN WITH HOOPER NUMBERS.

25-4U & 256U FRAMES

DADY'S LIST		DADY'S LIST	
NO.	DESCRIPTION	NO.	DESCRIPTION
1	FOAM	18	WASHED STEEL PIPE #30
2	PAD BELL-ROCK	19	SAFE BOLTS
3	STEEL MAIN BEARING	20	PLATE INSULATION #1U1
4	COVERED TERMINAL BOX	21	PLATE INSULATION
5	GASKET	22	" " " " " " " " " " " "
6	GASKET	23	ASSEMBLY BRUSH HOLDER
7	SHAFT MOTOR	24	KEY MOUNTED SET #405
8	ASSEMBLY STATOR	25	SHAFT MOTOR #1U1
9	BEARING HOOPER #1 1150B	26	WASHED STEEL PIPE #1/8
10	BEARING HOOPER #2 1150B	27	WASHED STEEL PIPE #1/8
11	KEY SHAFT	28	WASHED STEEL PIPE #1/8
12	SCREW		
13	SCREW		
14	SCREW		
15	SCREW		
16	SCREW		
17	SCREW		

ASSEMBLY SECTION	
STANDARD HORIZONTAL	REV. 1
SLIP RING MOTOR	REV. 2
RELAND ELECTRIC CO.	REV. 3
RELAND ELECTRIC CO.	REV. 4
RELAND ELECTRIC CO.	REV. 5
RELAND ELECTRIC CO.	REV. 6
RELAND ELECTRIC CO.	REV. 7
RELAND ELECTRIC CO.	REV. 8
RELAND ELECTRIC CO.	REV. 9
RELAND ELECTRIC CO.	REV. 10
RELAND ELECTRIC CO.	REV. 11
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RELAND ELECTRIC CO.	REV. 98
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RELAND ELECTRIC CO.	REV. 100

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REULAND ELECTRIC CO.

WESTERN DIVISION PLANT
ALHAMBRA, CALIFORNIA

EASTERN DIVISION PLANT
HOWELL, MICHIGAN

Supersedes
Sheet #M-100
December 4, 1957

Sheet #M-100
May 11, 1960

IMPORTANT INSTRUCTIONS

Installation and Care

Check motor carefully to be sure it has not been damaged in shipment.

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If for any reason this motor is taken apart, thoroughly clean the old grease from the bearings and repack the chamber in the end bells behind the bearing full with a good grade of grease. See sheet #M-101 for list of manufacturers of Recommended Ball Bearing Greases.

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REULAND ELECTRIC CO.

WESTERN DIVISION PLANT
ALHAMBRA, CALIFORNIA

EASTERN DIVISION PLANT
HOWELL, MICHIGAN

Supersedes
Sheet #M-101
Jan. 3, 1958

Sheet #M-101
April 4, 1960

RECOMMENDED BALL BEARING GREASES

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TRADE NAME	MANUFACTURER
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LUBRICO M3 DENSITY	MASTER LUBRICANTS CO.
RPM AVIATION GREASE NO. 1	STANDARD OIL CO. OF CALIF.
GULF PRECISION GREASE NO. 2	GULF OIL CORP.
RYKON GREASE NO. 1	STANDARD OIL CO. (INDIANA)
SHELL ALVANIA GREASE #1	SHELL OIL CO.
LITHOLINE INDUSTRIAL GR NO. OEP	SINCLAIR REFINING CO.
REGAL STARFAK #2 or MULTIFAK #2	THE TEXAS CO.
TYCOL ALITHO O	TIDEWATER OIL CO. (EASTERN DIV.)
TYCOL ARMITAGE 10	TIDEWATER OIL CO.
MOBILUX GREASE NO. 1	GENERAL PETROLEUM CORP. SOCONY MOBIL OIL CO., INC. MAGNOLIA PETROLEUM CO.

FOR TEMPERATURES 10° F. to 250° F.

LUBRICO M6 DENSITY	MASTER LUBRICANTS CO.
BALLROLL GREASE NO. 1 or NO. 2	UNION OIL CO. OF CALIF.
LITHOLINE INDUSTRIAL GR NO. 2	SINCLAIR REFINING CO.
288 AMOBAR #2	AMERICAN OIL CO.
SHELL ALVANIA GREASE #2	SHELL OIL CO.
RYKON GREASE NO. 2	STANDARD OIL CO. (INDIANA)
GULF PRECISION GREASE NO. 2	GULF OIL CORP.
CHEVRON INDUSTRIAL GREASE-LIGHT	STANDARD OIL CO. OF CALIF.
REGAL STARFAK #2 or MULTIFAK #2	THE TEXAS CO.
TYCOL ARMITAGE 20 or VEEDOL ALL-PURPOSE GREASE	TIDEWATER OIL CO.
TYCOL ALITHO 20	TIDEWATER OIL CO. (EASTERN DIV.)
PENNS LUBE 704	PENNZOIL CO.
MOBILUX GREASE NO. 1	GENERAL PETROLEUM SOCONY MOBIL OIL CO., INC. MAGNOLIA PETROLEUM CO.

REULAND ELECTRIC CO.

WESTERN DIVISION PLANT
ALHAMBRA, CALIFORNIA

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Supersedes
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REULAND ELECTRIC CO.

WESTERN DIVISION PLANT
ALHAMBRA, CALIFORNIA

EASTERN DIVISION PLANT
HOWELL, MICHIGAN

Supersedes
Sheet #M-101
Jan. 3, 1958

Sheet #M-101
April 4, 1960

RECOMMENDED BALL BEARING GREASES

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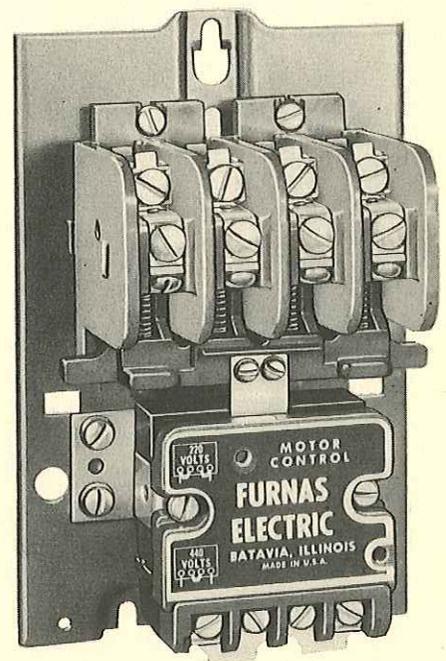
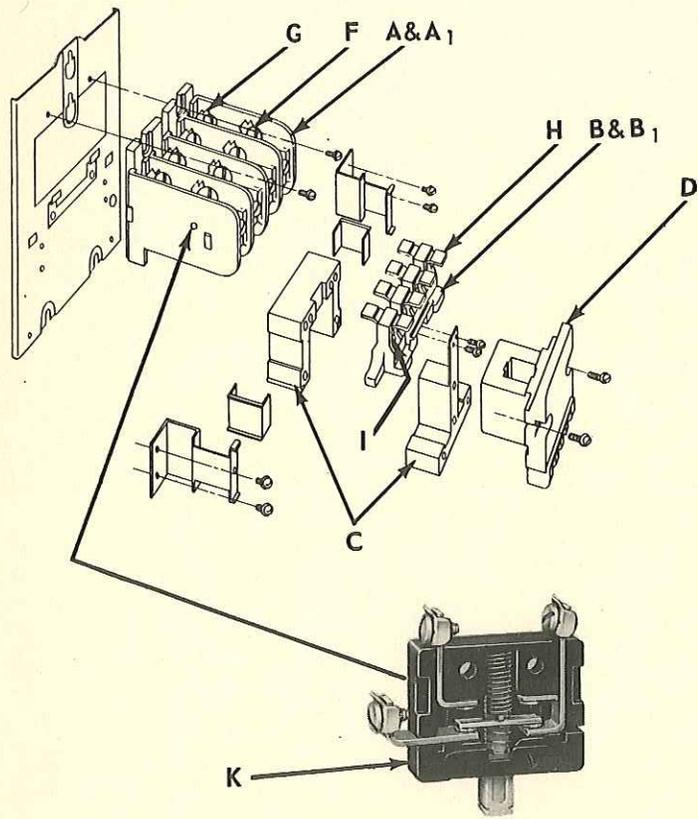
TRADE NAME	MANUFACTURER
283 AMOBAR S	AMERICAN OIL CO.
LUBRICO M3 DENSITY	MASTER LUBRICANTS CO.
RPM AVIATION GREASE NO. 1	STANDARD OIL CO. OF CALIF.
GULF PRECISION GREASE NO. 2	GULF OIL CORP.
RYKON GREASE NO. 1	STANDARD OIL CO. (INDIANA)
SHELL ALVANIA GREASE #1	SHELL OIL CO.
LITHOLINE INDUSTRIAL GR NO. OEP	SINCLAIR REFINING CO.
REGAL STARFAK #2 or MULTIFAK #2	THE TEXAS CO.
TYCOL ALITHO 0	TIDEWATER OIL CO. (EASTERN DIV.)
TYCOL ARMITAGE 10	TIDEWATER OIL CO.
MOBILUX GREASE NO. 1	GENERAL PETROLEUM CORP. SOCONY MOBIL OIL CO., INC. MAGNOLIA PETROLEUM CO.

FOR TEMPERATURES 10° F. to 250° F.

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LITHOLINE INDUSTRIAL GR NO. 2	SINCLAIR REFINING CO.
288 AMOBAR #2	AMERICAN OIL CO.
SHELL ALVANIA GREASE #2	SHELL OIL CO.
RYKON GREASE NO. 2	STANDARD OIL CO. (INDIANA)
GULF PRECISION GREASE NO. 2	GULF OIL CORP.
CHEVRON INDUSTRIAL GREASE-LIGHT	STANDARD OIL CO. OF CALIF.
REGAL STARFAK #2 or MULTIFAK #2	THE TEXAS CO.
TYCOL ARMITAGE 20 or VEEDOL ALL-PURPOSE GREASE	TIDEWATER OIL CO.
TYCOL ALITHO 20	TIDEWATER OIL CO. (EASTERN DIV.)
PENNS LUBE 704	PENNZOIL CO.
MOBILUX GREASE NO. 1	GENERAL PETROLEUM SOCONY MOBIL OIL CO., INC. MAGNOLIA PETROLEUM CO.

MAGNETIC CONTACTORS

APPLIES TO CONTACTOR SIZES 0, 1, 1½, 1¾ SERIES NUMBER 40CA, 40DA, 40EA



PART NAME	PART NUMBER & QUANTITY REQUIRED		
	SIZE 0-SERIES 40CA	SIZES 1, 1½-SERIES 40DA	SIZE 1¾-SERIES 40EA
A CONTACT BOARD ASM. (COMPLETE WITH CONTACTS)	(1)L18059	(1)L18060	(1)L18061
A ₁ A CONTACT BOARD (LESS HARDWARE)	(1)D16014-1	(1)D 16014-1	(1)D16014-1
B CROSS ARM ASM. (COMPLETE WITH CONTACTS)	(1)L17512	(1)L17516	(1)L17522
B ₁ CROSS ARM ASM. (LESS HARDWARE)	(1)D50876-1	(1)D50876-1	(1)D50876-1
C MAGNET & ARMATURE ASM.	(1)L17586	(1)L17586	(1)L17586
D COIL ASM. (SPECIFY VOLTS & CYCLES)	(1)L17488	(1)L17488	(1)L17488
F FRONT STATIONARY CONTACT	(AS REQ'D) L17456	(AS REQ'D) L17564	(AS REQ'D) L17574
G REAR STATIONARY CONTACT	(AS REQ'D) L17457	(AS REQ'D) L17565	(AS REQ'D) L17573
H MOVABLE CONTACT ONLY	(AS REQ'D) L17486	(AS REQ'D) D15748-1	(AS REQ'D) D15748-2
I CONTACT SPRINGS,	(AS REQ'D) D15747-1	(AS REQ'D) D15747-1	(AS REQ'D) D15747-1
K SWITCHLET	LEFT 49L100103 RIGHT 49L100102	LEFT 49L100103 RIGHT 49L100102	LEFT 49L100103 RIGHT 49L100102
L PARTS KIT	(2 & 4 POLE) PK 122 (3 POLE) PK 123	(2 & 4 POLE) PK 124 (3 POLE) PK 125	(2 & 4 POLE) PK 126 (3 POLE) PK 127

MINIMUM CHARGE \$1.00 FOR PARTS ORDERED FROM FACTORY



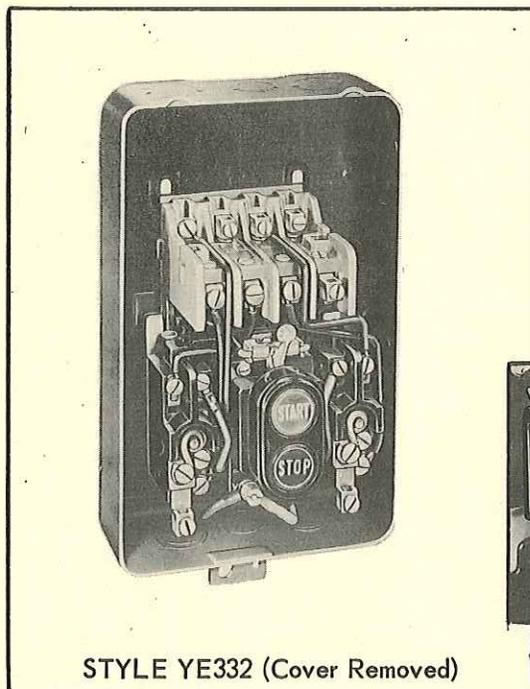


FURNAS ELECTRIC COMPANY, BATAVIA, ILLINOIS

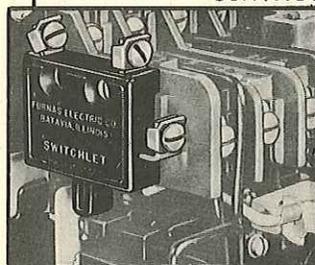
PARTS LIST

NO.	PL - YE -YT
DATE OF ISSUE	7 - 13 - 56
STYLE	YE - YT SERIES
CAPACITY	See H.P. Ratings

TYPE	MAGNETIC STARTER (With Overload Relay) Also CONTACTOR
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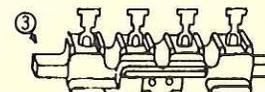
STYLE YE332 (Cover Removed)



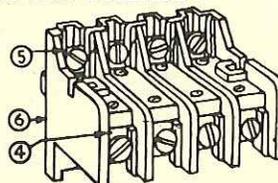
SWITCHLET ATTACHED



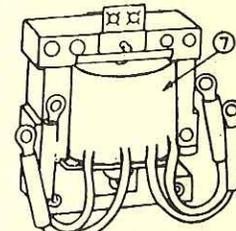
CROSS ARM ASSEMBLY



CROSS ARM ONLY



CONTACT BOARD ASSEMBLY



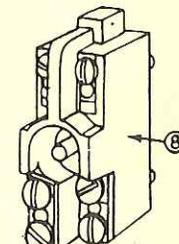
MAGNET ASSEMBLY



RELAY HEATER



SWITCHLET



OVERLOAD RELAY

ITEM	PART NO.	NAME	NUMBER PCS. REQUIRED		
			3 PHASE		2 PHASE 4 WIRE
			WITH SEL. SW.	N. O. INTERLOCK	
	L13925	Contact Board Assembly - Complete	1		
	L13847	Contact Board Assembly - Complete		1	
	L13918	Contact Board Assembly - Complete			1
6	D3843	Contact Board Only	1	1	1
4	L13846	Front Stationary Contact	3	3	4
	D10348-1	Front Stationary Terminal (Control Circuit)	1		
	L13914	Front Stationary Contact (Interlock)		1	
5	L13845	Rear Stationary Contact	3	3	4
	D10349-1	Rear Stationary Terminal (Control Circuit)	1		
	L13915	Rear Stationary Contact (Interlock)		1	
	L13924	Magnet Assembly - Complete	1	1	1
7	D4640	Magnet Coil Only (Specify Cycle & Voltage)	1	1	1
	L13920	Cross-Arm Assembly - Complete	1		
	L13848	Cross-Arm Assembly - Complete		1	
	L13926	Cross-Arm Assembly - Complete			1
3	L14531	Cross-Arm Only	1	1	1
1	L13849	Movable Contact Only	3	3	4
	L13850	Movable Contact Only (Interlock)		1	
2	D11211-1	Contact Spring Only	3	4	4
8	L3254	Thermal Overload Relay (Starters Only)	2	2	2
9	H-Series	Thermal Relay Heater Only (Starters Only)	2	2	2
10	L2457	Switchlet Complete			1

MINIMUM CHARGE \$1.00 FOR PARTS ORDERED FROM FACTORY



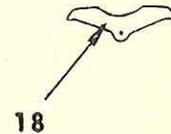
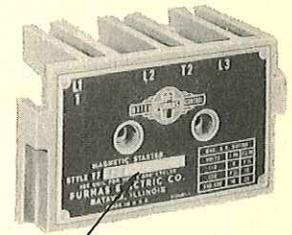
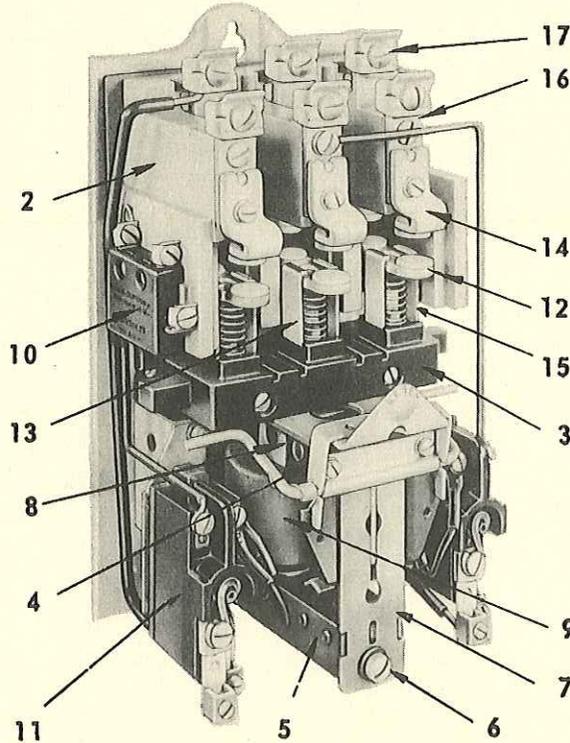
FURNAS ELECTRIC COMPANY, BATAVIA, ILLINOIS

PARTS LIST

NO.	PL YF -YU
DATE OF ISSUE	12 - 20 - 55
STYLE	YF & YFH Starters YU & YUH Contactors
CAPACITY	SEE BELOW

CONNECTION DIAGRAM	TYPE
OUTLINE DRAWING	MAGNETIC STARTER AND CONTACTOR Reversing and Non-Reversing

H. P. RATING					
Polyphase			Single Phase		
Volts		Volts	Volts		Volts
110	220	440	110	220	440
		550			550
7½	15	25	3	7½	10
8 HR. AMP. RATING			LAMP LOAD		
Open	Enclosed				
50	45		30		



ITEM	PART NO.	NAME OF PART	NUMBER OF PIECES REQUIRED				
			NON-REVERSING		REVERSING		
			3 POLE 3 PHASE	2 POLE SINGLE PHASE	3 POLE 3 PHASE	3 POLE SINGLE PHASE	2 POLE SINGLE PHASE
	L14207	Contact Board Assy. Complete Less Cover	1		2	2	
	L14235	Contact Board Assy. Complete Less Cover		1			2
1	D2088	Contact Board Cover	1	1	2	2	2
2	D2087	Contact Board Only Less Cover	1	1	2	2	2
3	L14201	Cross Arm Assembly Complete	1		2	2	
	L14234	Cross Arm Assembly Complete		1			2
	L14213	Cross Arm Only	1	1	2	2	2
4	D4107	Stationary Magnet Assembly	1	1	2	2	2
5	D11055	Armature Assembly	1	1	2	2	2
6	D11096-1	Clamp Screw and Lock Washer	1	1	2	2	2
7	D4111-1	Pusher	1	1	2	2	2
8	D11087	Coil Retainer	1	1	2	2	2
9	D4100	Magnet Coil	1	1	2	2	2
10	L2457	Interlock Switchlet	1	1	4	4	
11	*L3368	Thermal Overload Relay	2	1	2	1	1
12	D11112	Movable Contact Assembly	3	2	6	6	4
13	D11072	Contact Guide	3	2	6	6	4
14	D11111-1	Stationary Contact Assembly	6	4	12	12	8
15	D11124	Contact Spring	3	2	6	6	4
16	D11116	Front Terminal	3	2	6	6	4
17	D11065	Back Terminal	3	2	6	6	4
18	D11114	Interlock Bar			1	1	1

*Thermal Overloads Are Omitted on All YU Contactors.

MINIMUM CHARGE \$1.00 FOR PARTS ORDERED FROM FACTORY