

No. REQ. FIG.	DESCRIPTION	OHMS	PART #	ITEM N
2	1/2 SILICONE MOTOR LEAD WIRE 200° C ROCKBESTOS TABLE SR-ML OR EQUAL			
30	RESISTOR UNIT	.60	80231 D6	
6	RESISTOR UNIT	.50	80231 D5	
6	RESISTOR UNIT	.35	80231 D30	
	RESISTOR UNIT			
	RESISTOR UNIT			
	RESISTOR UNIT			
				8

(4).60 Ω UNITS TOTAL RES. 2.40 Ω	(4).60 Ω UNITS TOTAL RES. 2.40 Ω	(2).50 Ω UNITS TOTAL RES. 1.0 Ω	(2).60 Ω UNITS TOTAL RES. 1.20 Ω	(2).35 Ω UNITS TOTAL RES. .70 Ω
R1	R2	R3	R4	R5
R11	R12	R13	R14	R15
R21	R22	R23	R24	R25
				R26
				PHASE 1
				PHASE 2
				PHASE 3

CONNECTION DIAGRAM 101 W 2972

NOTE: ALL RESISTOR TUBES CONNECTED IN SERIES
UNLESS OTHERWISE SPECIFIED.

A	ITEM 8 REMOVED	12-18
	ITEM 2 INCREASED	E.9.1

HARNISCHFEEGER CORPORATION ELECTRICAL DEPARTMENT	
RESISTOR ASSEMBLY CLASS 151	MAGNETOQUE CONTROL
VOLT 2124 AMP 24	VOLT 2124 AMP 24
VOLT 2124 AMP 24	VOLT 2124 AMP 24

(2) .6 Ω UNITS	(2) .6 Ω UNITS
TOTAL RES. 1.2 Ω	TOTAL RES. 1.2 Ω

M

R60

R61

NOTE: ALL RESISTOR TUBES CONNECTED IN SERIES
UNLESS OTHERWISE SPECIFIED.

NO. REQ.	FIG.	DESCRIPTION	DIMS	PART #
2	1	#12 SILICONE MOTOR LEAD WIRE 200°C 5'-0" ROCKBESTOS TABLE SR-ML OR EQUAL		
4		RESISTOR UNIT	.6	80231D6
		RESISTOR UNIT		
		RESISTOR UNIT		
		RESISTOR UNIT		
		RESISTOR UNIT		
		RESISTOR UNIT		
1		RESISTOR ASSEM.		980E23

*

* See Drwg. following for details

MAGNETORQUE RESISTOR ASSEM. 72 H BRAKE, 10 H.P. 1700 R.P.M. Motor

DR. BY RFP

CH. BY E.A.B.

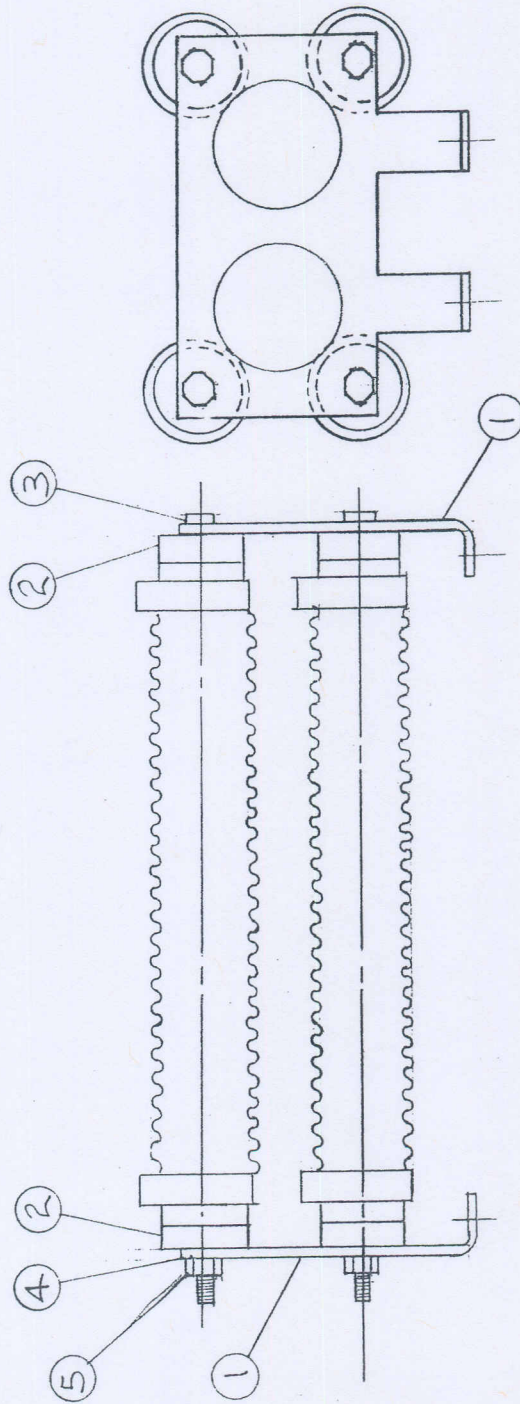
APP. BY JED

APP. FOR STD. 2A

H. RNISCHFEGGER CORPORATION
ELECTRICAL DEPARTMENT

DATE: 6-21-67 75242 RES

BILL OF MATERIAL		
	DESCRIPTION	PART NO.
2	RESISTANCE SUPPORT	316F839 1
8	WASHER	1844813 2
4	BOLT	2041857 3
4	1/4" LOCKWASHER	4
4	1/4"-20 HEX JAM NUT	5



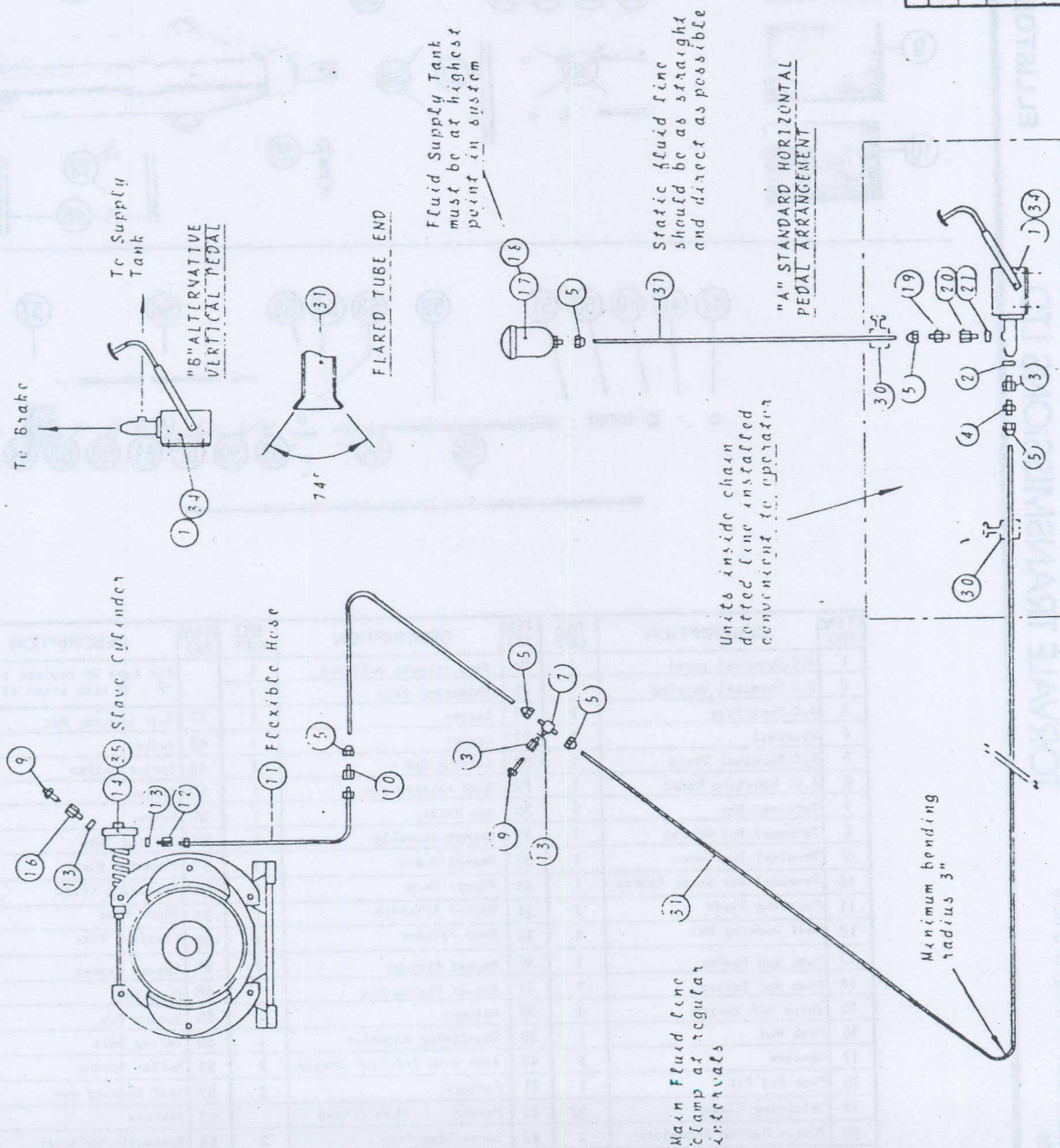
RESISTANCE ASSEMBLY
980E??

C901006

ITEM	PART NO.	NO. OFF	DESCRIPTION
1	C100010	1	Pedal (Master Cylinder)
2	C20001	1	Gasket
3	C190001	2	Adaptor
4	C190002	1	Adaptor
5	C190003	6	Tube Nut
7	C190015	1	Tee
9	C190016	2	Bleed Screw
10	C190004	1	Adaptor
11	C190005	1	Flexible Hose
12	C190006	1	Adaptor
13	C26002	3	Gasket
14	C190007	1	Slave Cylinder
16	C190018	1	Adaptor
17	C100012	1	Fluid Supply Tank
18	C280001	-	Hydraulic Fluid (SAE, J1703F)
19	C190008	1	Adaptor
20	C190009	1	Adaptor
21	C220003	1	Gasket

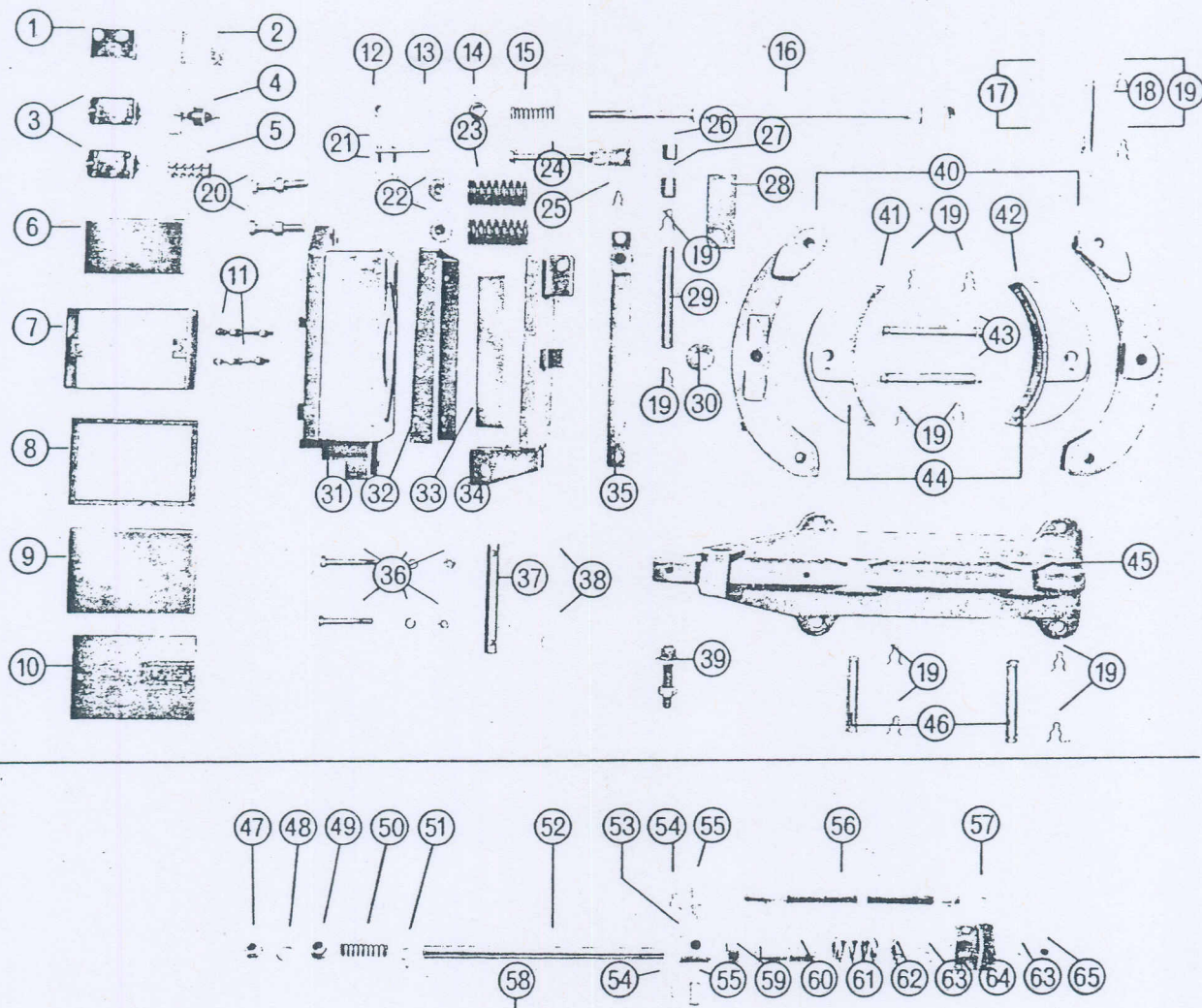
ADDITIONAL ITEMS AVAILABLE ON REQUEST:

30	C190010	2	Needle Valve
31	C190011	-	Fluid Line (Copper 5/16" o/dia.)
32	C260001	-	Teflon Sealing Tape
33	C290001	-	Tube Flaring Tool
34	C260002	-	Repair Kit (Master Cylinder)
35	C260003	-	Repair Kit (Slave Cylinder)



REVISIONS		MONDEL ENGINEERING LTD.	
NO.	DATE	BY	
1			
2			
3			
4			
5			

SCALE	MATERIAL
SCALE	MATERIAL
DATE	DATE
APP'D	APP'D



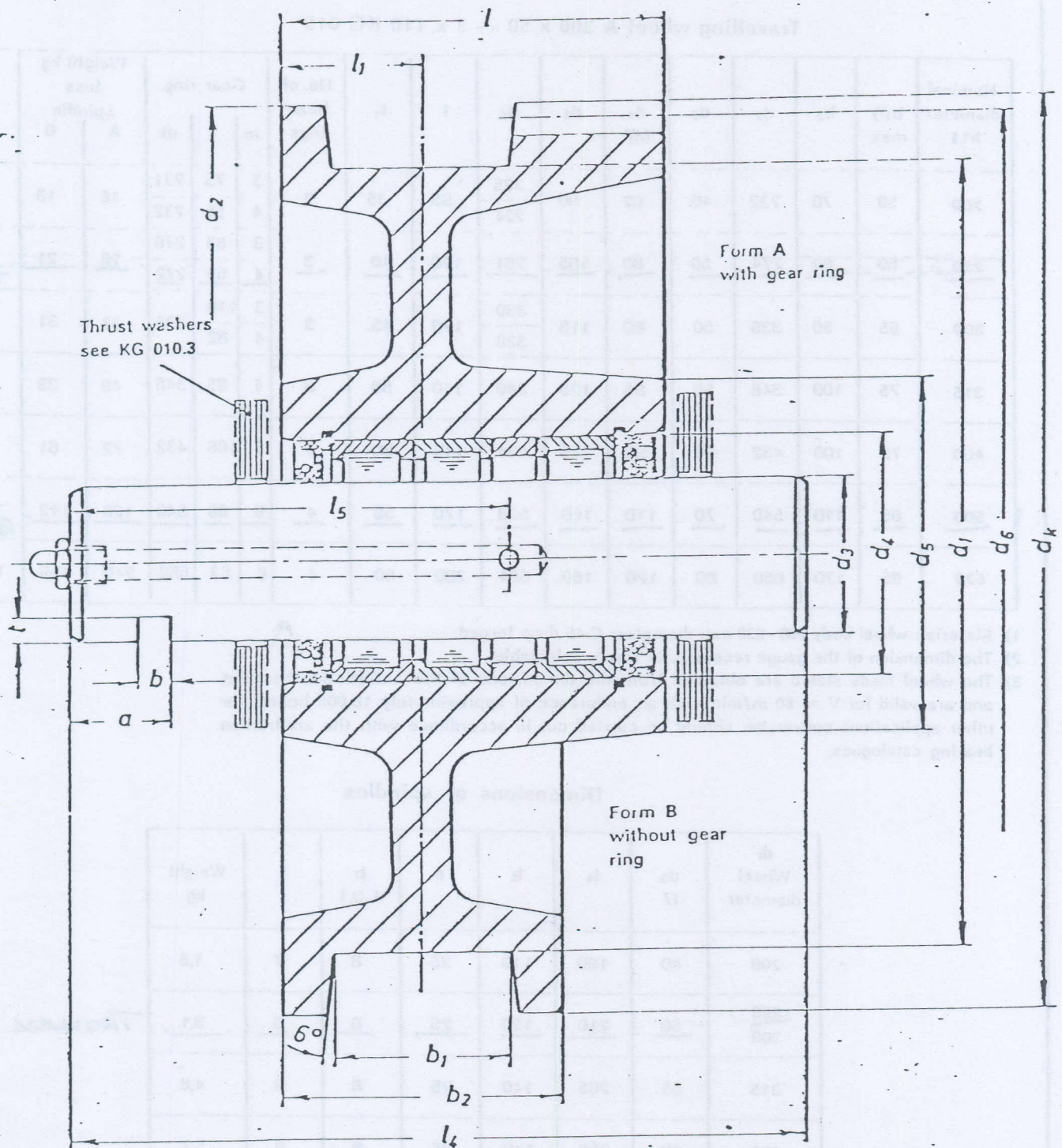
ITEM NO.	DESCRIPTION	NO. OFF	ITEM NO.	DESCRIPTION	NO. OFF	ITEM NO.	DESCRIPTION	NO. OFF
1	D.C. Terminal panel	1	24	Hand release pull rod	1		For type 20 replace items 12 - 18 with items 47 - 65	
2	D.C. Terminal backing	1	25	Retaining clip	1			
3	A.C. Rectifier	2	26	Spacer	1	47	Self Locking Nut	1
4	Metrosil	1	27	Spacer	1	48	Washer	1
5	A.C. Terminal Strip	1	28	Lifting Eye	1	49	Spring Collar	1
6	A.C. Mounting Panel	1	29	Hand release pin	1	50	Spring	1
7	Terminal Box	1	30	Arm Roller	1	51	Washer	1
8	Terminal Box Gasket	1	31	Magnet Assembly	1	52	Spacing Tube	1
9	Terminal Box Cover	1	32	Magnet Guard	1	53	Trunnion Block	1
10	Terminal Box Cover Gasket	1	33	Magnet Shim	1	54	Retaining Clips	2
11	Mounting Studs	2	34	Magnet Armature	1	55	Block Pins	2
12	Self Locking Nut	1	35	Hand release	1	56	Flexible Hose	1
13	Push Rod Washer	1	36	Magnet Fixings	2	57	Copper Gasket	1
14	Push Rod Collar	1	37	Magnet Fixing Pin	1	58	Push Rod	1
15	Throw off Spring	1	38	Washers	2	59	Spring Cup	1
16	Push Rod	1	39	Equalising Adjustor	1	60	Spring Bolt	1
17	Spacers	2	40	Arms with friction device	2	61	Buffer Spring	1
18	Push Rod Pin	1	41	Linings	2	62	Self Locking nut	1
19	Retaining Clips	12	42	Rivets when fitted		63	Washers	2
20	Torque Spring Adjustors	2	43	Loose Shoe Pins	2	64	Hydraulic Cylinder	1
21	Setting Plate	1	44	Loose Shoes	2	65	Self Locking Nut	1
22	Torque Spring Collars	2	45	Long Base	1			
23	Torque Springs	2	46	Base Pins	2			

precision cylindrical roller bearings

similar to DIN 18049

KG 010

The functional dimensions are binding. The form is left to the supplier.



Supplied complete with all internal components and the appropriate wheel spindle of hardened anti-friction bearing steel.

Pinion see KG 010.5

PRECISION CYLINDRICAL ROLLER BEARINGS

similar to DIN 11049

Designation of a travelling wheel form A with gear ring, nominal diameter $d_1 = 300$ mm, gauge $b_1 = 50$ mm, complete with cylindrical roller bearings, radial shaft seal rings and hardened spindle 50 mm diameter x 210 mm long, Module 3 and number of teeth 110, material C45 1):

Travelling wheel A 300 x 50 — 3 x 110 KG 015

Nominal diameter h11	b_1 ? max.	b_2	d_2	d_3	d_4 M7	d_5	d_6	l	l_1	No. of bearings	Gear ring			Weight kg less spindle		Max. wheel load da N ²⁾
											m	t	dk	A	B	
200	50	70	232	40	62	90	225	95	35	3	3	75	231	16	13	3300
							224				4	56	232			
250	60	80	274	50	80	105	264	120	40	3	3	88	270	28	21	5300
											4	66	272			
300	65	90	336	50	80	115	330	120	45	3	3	110	336	37	31	6000
							328				4	82	336			
315	75	100	348	55	85	125	340	140	50	3	4	85	348	49	39	6300
400	75	100	432	60	90	145	424	140	50	4	4	106	432	72	61	9000
500	85	110	540	70	110	160	528	170	55	4	6	88	540	128	112	14000
																BRIDGE
630	95	120	630	80	120	180	664	200	60	4	8	83	680	240	155	18000

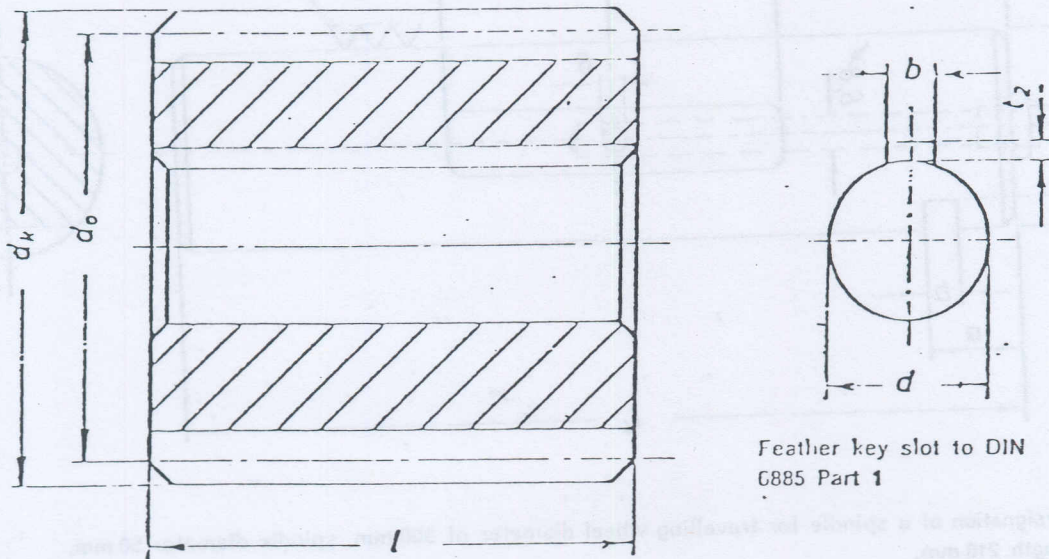
- 1) Material: wheel body 200 - 630 mm diameter: C 45 drop forged.
- 2) The dimension of the gauge recess b_1 is freely selectable.
- 3) The wheel loads stated are obtained from the dimensions of the anti-friction bearings and are valid for $V \approx 60$ m/min with an endurance of approximately 10,000 hours. For other applications conversion should be carried out in accordance with the anti-friction bearing catalogues.

Dimensions of spindles

d_1 Wheel diameter	d_3 17	l_4	l_5	a	b + 0,1	t	Weight kg
200	40	190	110	25	8	7	1,8
250 300	50	210	120	25	8	8	3,1
315	55	265	140	25	8	9	4,8
400	60	265	140	25	8	9	5,7
500	70	285	150	25	10	10	8,5
							BRIDGE
630	80	335	160	25	10	10	13,0

Material: 100 Cr Mn 6 hardened to HRc 58-60

Dimensions in mm



Designation of a pinion module = 3, number of teeth = 18, length $l = 60$ mm, bore diameter $d = 20$ mm H7, feather key slot to DIN 6885 part 1:

Pinion 3 x 18 x 60 x 20 KG 010.5

Module m	Number of teeth t	l	d H7	d_o	d_k	Feather key slot	
						b J9	t_2 + 0.2
3	18	40-60	20	54	60	6	2.8
	25		30	75	81	8	3.3
4	18	60-80	25	72	80	8	3.3
	25		40	100	108	12	3.3
6	17	90	40	102	114	12	3.3
	23		50	138	150	14	3.8
8	17	105	50	136	152	14	3.8

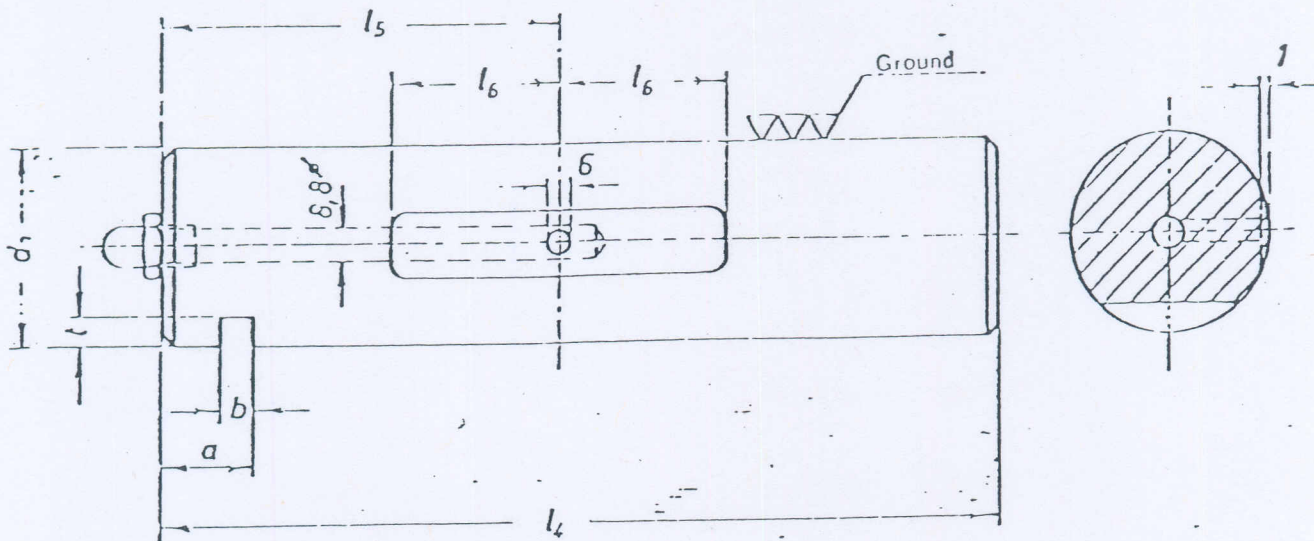
Trolley

Bridge

Material: 41 Cr 4 or St 60

Variant dimensions should be stated with order.

Dimensions in mm



Designation of a spindle for travelling wheel diameter of 300 mm, spindle diameter 50 mm, length 210 mm,

Material 100 Cr Mn 6:

Spindle 50/210 KG 010.4

Supplied with spherical grease nipple AM 10 x 1 DIN 3402

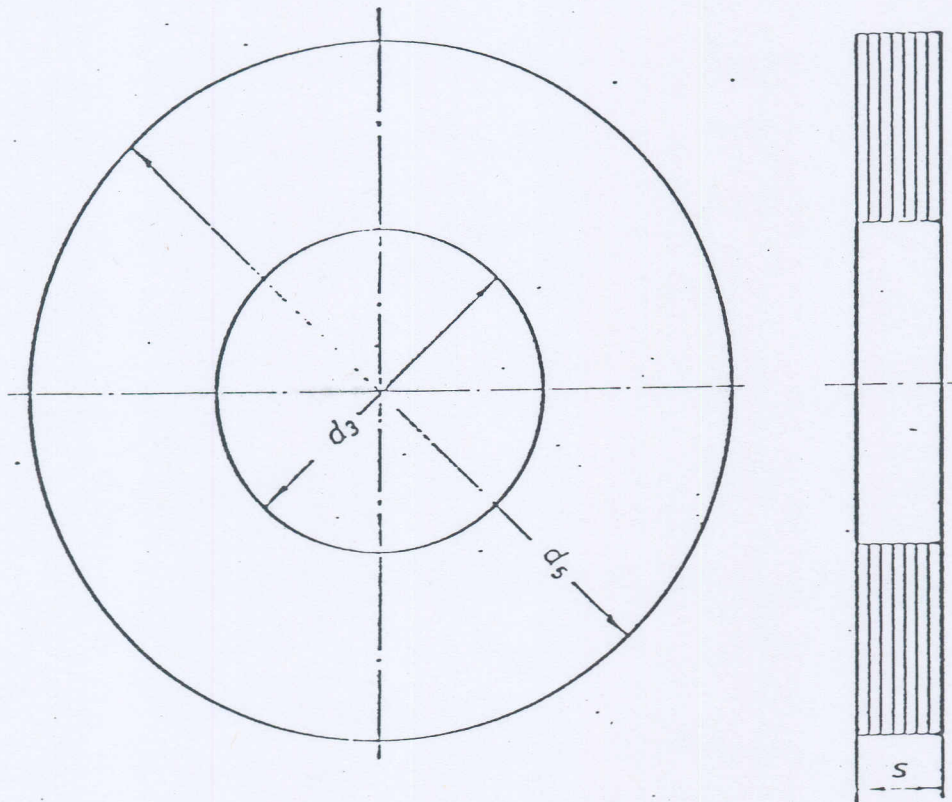
Wheel diameter d_1	d_3 17	l_4	l_5	l_6	a	b + 0,1	t	Weight kg
200	40	190	100	30	25	8	7	1,8
250 300	50	210	110	30	25	8	8	3,1
315	55	265	135	40	25	8	9	4,8
400	60	265	135	40	25	8	9	5,7
500	70	285	150	50	25	10	10	8,5
630	80	335	170	50	25	10	10	13,0

Trolley

Bridge

Material: 100 Cr Mn 6, unhardened

Dimensions in mm



Designation of a thrust washer for 300 mm travelling wheel diameter, spindle diameter, $d_3 = 50$ mm, thickness of washer $s = 10$ mm

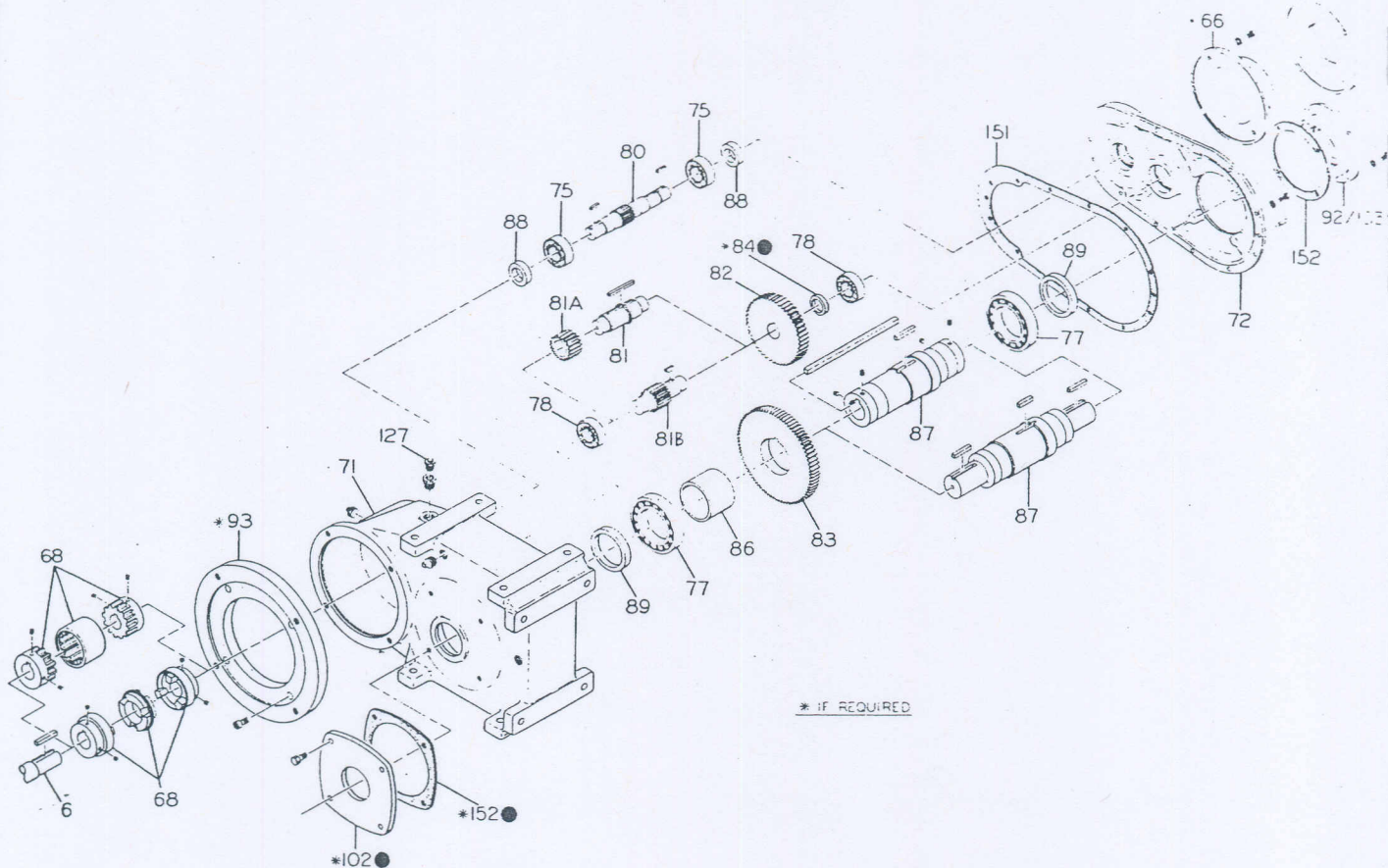
Thrust washer 50 x 10 KG 010.3

Wheel diameter d_1	d_3 $+1,0$ $+0,5$	s $\pm 0,2$ mm	d_5
200	40	5 10	90
250	50	5 10	110
300	55	5 10	120
315	60	5 10	140
400	70	5 10	160
500	80	5 10	170
630			

Trolley

Bridge

Material: resin bonded densified laminated wood



PARTS ILLUSTRATION

REULAND DOUBLE REDUCTION HELICAL MOTOREDUCER TYPE LOBQ, LOHQ, LOBR & LOHR

WHEN ORDERING REPLACEMENT PARTS YOU MUST
GIVE PART NAME, ALSO TYPE, FRAME, MODEL AND
SERIAL NUMBER FROM MOTOR NAMEPLATE.

RENEWAL PARTS LIST

Item	Part Name	Item	Part Name
6	MOTOR SHAFT	93	GEAR CASE ADAPTER
66	SHAFT COVER	102	BEARING PLATE
68	COUPLING	127	PRESSURE RELIEF VALVE
71	GEAR CASE	151	GEAR CASE COVER GASKET
72	GEAR CASE COVER	152	BEARING PLATE SHIM
73	GEAR CASE COVER ADAPTER		
75	BEARING		
77	BEARING		
78	BEARING		
80	PINION (FIRST)		
81	PINION SHAFT		
81A	PINION GEAR (SECOND) 81B C'SHAFT/2ND PINION CUT ON		
82	FIRST GEAR		
83	SECOND GEAR		
84	SPACER		
86	OUTPUT SHAFT SPACER		
87	OUTPUT SHAFT		
88	SEAL		
89	SEAL		
92/103	BEARING PLATE		

REULAND ELECTRIC CO.

Industry, California
Howell, Michigan

◆ REVISED

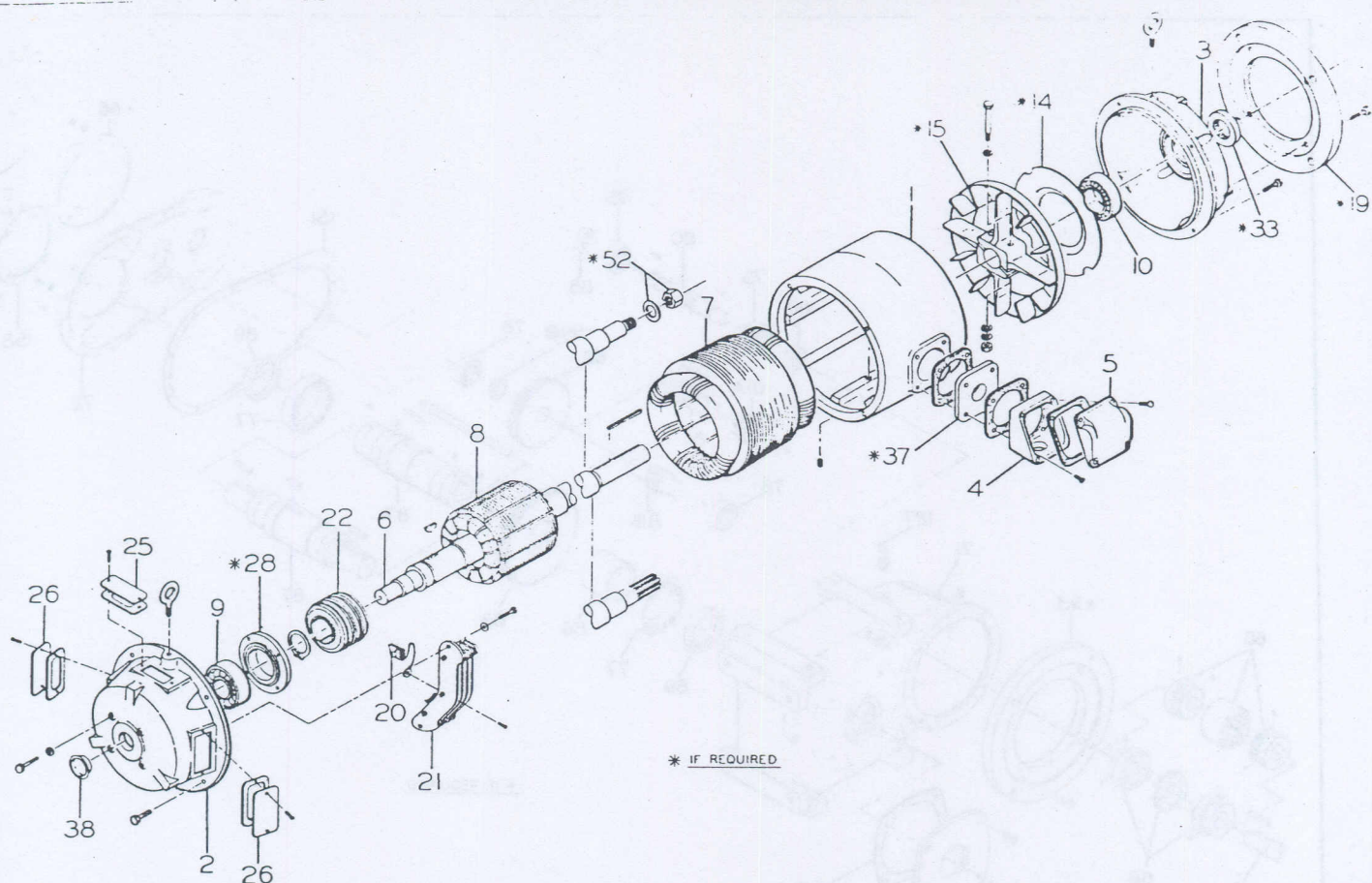
● ADDED

Revision E

3/9/79

PL-9001

(41)



* IF REQUIRED

PARTS ILLUSTRATION

WOUND ROTOR MOTOR

TYPE C000, Z000

WHEN ORDERING REPLACEMENT PARTS YOU MUST GIVE PART NAME,
ALSO TYPE, FRAME, MODEL AND SERIAL NUMBER FROM MOTOR NAMEPLATE.

RENEWAL PARTS LIST

Item	Part Name	Item	Part Name
1	FRAME	25	PLATE, INSPECTION
2	END BELL, FRONT	26	PLATE, INSPECTION
3	END BELL, REAR	28	CLOSURE, BEARING
4	TERMINAL BOX	33	SEAL
5	COVER, TERMINAL BOX	37	ADAPTOR, TERMINAL BOX
6	SHAFT, MOTOR	38	PLUG, END BELL
7	STATOR	52	LOCKNUT & WASHER
8	ROTOR		
9	BEARING		
10	BEARING		
14	PLATE, BAFFLE		
15	FAN INTERNAL		
19	ADAPTOR, REAR		
20	BRUSH		
21	ASSEMBLY, BRUSH HOLDER		
22	ASSEMBLY, SLIP RING		

REULAND ELECTRIC CO.

Industry, Calif.

Howell, Mich.

STYLE
WVO, WEO

5/26/65

PC-2101

140

APEX



A C H I N E
W O R K S L I M I T E D

250 PACIFIC AVENUE


TELEPHONE (506) 388-4088 • MONCTON, N.B. • EIC 8M6 • TELEX 014-2

DIVISION OF
APEX INDUSTRIES LIMITED

Bill of Materials
9.1 Tonne Trolley Panel

<u>Part Loc</u>	<u>Description</u>	<u>Make</u>	<u>Part No.</u>
Left & Right	Size 0 Rev Contactors	Sylvania	T31 U030 - 76
1A	Size 0 Contactors	Sylvania	T77 U020 - 76
2A	Size 0 Contactors	Sylvania	T77 U020 - 76
TR O/L	Size 1 Overload	Sylvania	KTM 31 - 12
TR CB	15A Circuit Breaker 3 Pole	Westing House	FB 3015
Terminals	Power 9	Allan Bradley	1492 - CD2
	Control 30	Allan Bradley	1492 - CD8
	Track 2'	Allan Bradley	1492 - N1
	End Plate 4	Allan Bradley	1492 - N16
	End Clamps 4	Allan Bradley	1492 - N2
	Plug In Jumpers 12	Allan Bradley	1492 - N14

APEX


 MACHINE
WORKS LIMITED

250 PACIFIC AVENUE

TELEPHONE (506) 388-4088 • MONCTON, N.B. • EIC 8M6 • TELEX 014-26

DIVISION OF
APEX INDUSTRIES LIMITED

Bill of Materials
9.1 Tonne Bridge Panel

<u>Part Loca</u>	<u>Description</u>	<u>Make</u>	<u>Part No.</u>
L.C.	Size 3 Contactor	Sylvania	T77 U033 - 76
	Size 0 Contactor	Sylvania	T77 U030 - 76
FWD & REV	Size 2 Rev Contactor	Sylvania	T31 U032 - 76 w/o Overload
A	Size 2 4 Pole Contactor	Sylvania	T77 U042 - 76
2A	Size 2 4 Pole Contactor	Sylvania	T77 U042 - 76
/L1	Size 2 Overload	Sylvania	KTM 32 - 12
U/L2	Size 2 Overload	Sylvania	KTM 32 - 12
B	30A Circuit Breaker 3 Pole	Westing House	FB 3030
C.T.R.	500VA Transformer	Frost	TC 500120-9
F-1	30A Fuse Holder	Seimens	3 NW 4110
F-2	30A Fuse Holder	Seimens	3 NW 4110
Fu3	30A Fuse Holder	Seimens	3 NW 4110
F-4	30A Fuse Holder	Seimens	3 NW 4110
R.C.T.	12A Rectifier	IR	250 MB2
V.R.	Under Voltage Relay	Furnace	47VA32G
Terminals	Power 10	Allan Bradley	1492 - CD2
	Control 60	Allan Bradley	1492 - ED8
	Track 3'	Allan Bradley	1492 - N1
	End Plate 10	Allan Bradley	1492 - N16
	End Clamps 10	Allan Bradley	1492 - N2
	Plug In Jumpers 25	Allan Bradley	1492 - N14
B	15A Circuit Breaker 3 Pole	Westing House	FB 3015

APEX

MACHINE WORKS LIMITED

250 PACIFIC AVENUE

TELEPHONE (506) 388-4088 • MONCTON, N.B. • EIC 8M6 • TELEX 014-2604

DIVISION OF
APEX INDUSTRIES LIMITED

Bill of Materials

13.6 Tonne Bridge Panel

<u>Part Loc</u>	<u>Description</u>	<u>Make</u>	<u>Part No.</u>
	Size 3 Contactor	Sylvania	T77 U033 - 76
	Size 0 Contactor	Sylvania	T77 U030 - 76
& REV	Size 3 Rev Contactor	Sylvania	T31 U033 - 76 w/o Overload
	Size 2 4 Pole Contactor	Sylvania	T77 U042 - 76
	Size 2 4 Pole Contactor	Sylvania	T77 U042 - 76
/L1	Size 2 Overload	Sylvania	KTM 32 - 12
2	Size 2 Overload	Sylvania	KTM 32 -12
R CB	30A Circuit Breaker 3 Pole	Westing House	FB 3030
R.	5001A Transformer	Frost	TC 500120-9
	30A Fuse Holder	Siemens	3 NW 4110
	30A Fuse Holder	Siemens	3 NW 4110
	30A Fuse Holder	Siemens	3 NW 4110
	30A Fuse Holder	Siemens	3 NW 4110
T.	Rectifier	IR	250 MB2
V.R.	Under Voltage Relay	Furnace	47VA32G
inals	Power 10	Allan Bradley	1492 - CD2
	Control 60	Allan Bradley	1492 - CD8
	Track 3'	Allan Bradley	1492 - N1
	End Plates 10	Allan Bradley	1492 - N16
	End Clamps 10	Allan Bradley	1492 - N2
	Plug In Jumper 25	Allan Bradley	1492 - N14
	15A Circuit Breaker 3 Pole	Westing House	FB 3015

APEX

A C H I N E
W O R K S L I M I T E D

250 PACIFIC AVENUE

TELEPHONE (506) 388-4088 • MONCTON, N.B. • EIC 8M6 • TELEX 014-1000


DIVISION OF
APEX INDUSTRIES LIMITED

Bill of Materials

13.6 Tonne Trolley Panel

<u>Part Loc</u>	<u>Description</u>	<u>Make</u>	<u>Part No.</u>
Left & Right	Size I Rev Contactor	Sylvania	T31 U031 - 76 w/o Overload
1A	Size I Contactor	Sylvania	T77 U021 - 76
2A	Size I Contactor	Sylvania	T77 U021 - 76
TR O/L	Size I Overload	Sylvania	KTM 31 - 12
TR CB	15A Circuit Breaker 3 Pole	Westing House	FB 3015
Terminals	Power 9	Allan Bradley	1492 - CD2
	Control 30	Allan Bradley	1492 - CD8
	Track 2'	Allan Bradley	1491 - N1
	End Plate 4	Allan Bradley	1492 - N16
	End Clamps 4	Allan Bradley	1492 - N2
	Plug In Jumpers 15	Allan Bradley	1492 - N14

APEX


 MACHINE
WORKS LIMITED

250 PACIFIC AVENUE

TELEPHONE (506) 388-4088 • MONCTON, N.B. • EIC 8M6 • TELEX 014-260

DIVISION OF
APEX INDUSTRIES LIMITED

Bill of Materials

13.6/2.7 Tonne Bridge Panel

<u>Part Loc</u>	<u>Description</u>	<u>Make</u>	<u>Part No.</u>
L.C.	Size 3 Contactor	Sylvania	T77 U033 - 76
	Size 0 Contactor	Sylvania	T77 U030 - 76
1 D & REV	Size 3 Rev Contactor	Sylvania	T31 U033 - 76 w/o Overload
1 A	Size 2 4 Pole Contactor	Sylvania	T77 U042 - 76
	Size 2 4 Pole Contactor	Sylvania	T77 U042 - 76
BR O/L1	Size 2 Overload	Sylvania	KTM 32 - 12
O/L2	Size 2 Overload	Sylvania	KTM 32 - 12
BR CB	30A Circuit Breaker 3 Pole	Westing House	FB 3030
	500VA Transformer	Frost	TC 500120-9
Ful	30A Fuse Holder	Siemens	3 NW 4110
	30A Fuse Holder	Siemens	3 NW 4110
FU	30A Fuse Holder	Siemens	3 NW 4110
	30A Fuse Holder	Siemens	3 NW 4110
W.T.	Rectifier	IR	250 MB2
V.R.	Under Voltage Relay	Furnace	47VA32G
Minerals	Power 12	Allan Bradley	1492 - CD2
	Control 83	Allan Bradley	1492 - CD8
	Track 4	Allan Bradley	1492 - N1
	End Plate 12	Allan Bradley	1492 - N16
	End Clamp 12	Allan Bradley	1492 - N2
	Plug In Jumpers 40	Allan Bradley	1492 - N14
	15A Circuit Breaker 3 Pole	Westing House	FB 3015

APEX



A C H I N E
W O R K S L I M I T E D

250 PACIFIC AVENUE

TELEPHONE (506) 388-4088 • MONCTON, N.B. • EIC 8M6 • TELEX 014-

DIVISION OF
APEX INDUSTRIES LIMITED

Bill of Materials

13.6/2.7 Tonne Trolley Panel

<u>Part Loc</u>	<u>Description</u>	<u>Make</u>	<u>Part No.</u>
Left & Right	Size I Rev Contactor	Sylvania	T31 U031 - 76 w/o Overload
	Size I Contactor	Sylvania	T77 U021 - 76
	Size I Contactor	Sylvania	T77 U021 - 76
O/L	Size I Overload	Sylvania	KTM 31 - 12
CB	15A Circuit Breaker	Westing House	FB 3015
Terminals	Power 12	Allan Bradley	1492 - CD2
	Control 50	Allan Bradley	1492 - CD8
	Track 3'	Allan Bradley	1492 - N1
	End Plates 6	Allan Bradley	1492 - N16
	End Clamps 6	Allan Bradley	1492 - N2
	Plug In Jumpers 30	Allan Bradley	1492 - N14

APEX

A C H I N E
W O R K S L I M I T E D

250 PACIFIC AVENUE

TELEPHONE (506) 388-4088 • MONCTON, N.B. • EIC 8M6 • TELEX 014-2604

DIVISION OF
APEX INDUSTRIES LIMITED

Bill of Materials

Misc. Electrical

LIGHT SWITCH	SYLVANIA	100M - CA1A
SELECTION FOR AUX & MAIN	SYLVANIA	100M - CA1B FOR 15 TON c/w 3 AUX
BRIDGE OVERRIDE	SYLVANIA	100M - A21A
STOP BUTTON	SYLVANIA	100M - B12A
START BUTTON	SYLVANIA	100M - A23A
HORN BUTTON	SYLVANIA	100M - A14A
PHOTO CELL	OPCON	1420A - 6501
RELAY	OPCON	8530A
REFLECTORS	OPCON	6200A3
SWIVEL MOUNT	OPCON	6168A
TROLLEY LIMIT	ALLAN BRADLEY	802TNPTP
BRIDGE LIMIT	ALLAN BRADLEY	802T-AP
DISCONNECT	WESTINGHOUSE	100A JHF 363

APEX

W A C H I N E W O R K S L I M I T E D

250 PACIFIC AVENUE

TELEPHONE (506) 388-4088 • MONCTON, N.B. • EIC 846 • TELEX 014214

DIVISION OF
APEX INDUSTRIES LTD.

BRIDGE CONDUCTOR SYSTEM - BILL OF MATERIALS

<u>DESCRIPTION</u>	<u>MAKE</u>	<u>PART NUMBER</u>
(1) FLAT CABLE	DUCT-O-WIRE CANADA	FC-46
(2) FLAT CABLE	DUCT-O-WIRE CANADA	FC-1214
(3) FLAT CABLE	DUCT-O-WIRE CANADA	FC-814
(4) FLAT CABLE CONNECTORS	DUCT-O-WIRE CANADA	FC-46C
(5) FLAT CABLE CONNECTORS	DUCT-O-WIRE CANADA	FC-1216C
(6) FLAT CABLE CONNECTORS	DUCT-O-WIRE CANADA	FC-816C
(7) MONORAIL TRACK	DUCT-O-WIRE CANADA	FC-CH1A
(8) TRACK JOINT CLAMP	DUCT-O-WIRE CANADA	FC-CH1D
(9) TRACK HANGER CLAMP	DUCT-O-WIRE CANADA	FC-CH1F
(10) END STOP	DUCT-O-WIRE CANADA	FC-CH1G
(11) END CLAMP	DUCT-O-WIRE CANADA	FC-CS1
(12) TOWING TROLLEY	DUCT-O-WIRE CANADA	FC-TRT1
(13) TROLLEY ASSEMBLIES	DUCT-O-WIRE CANADA	FC-TR1

A P E X

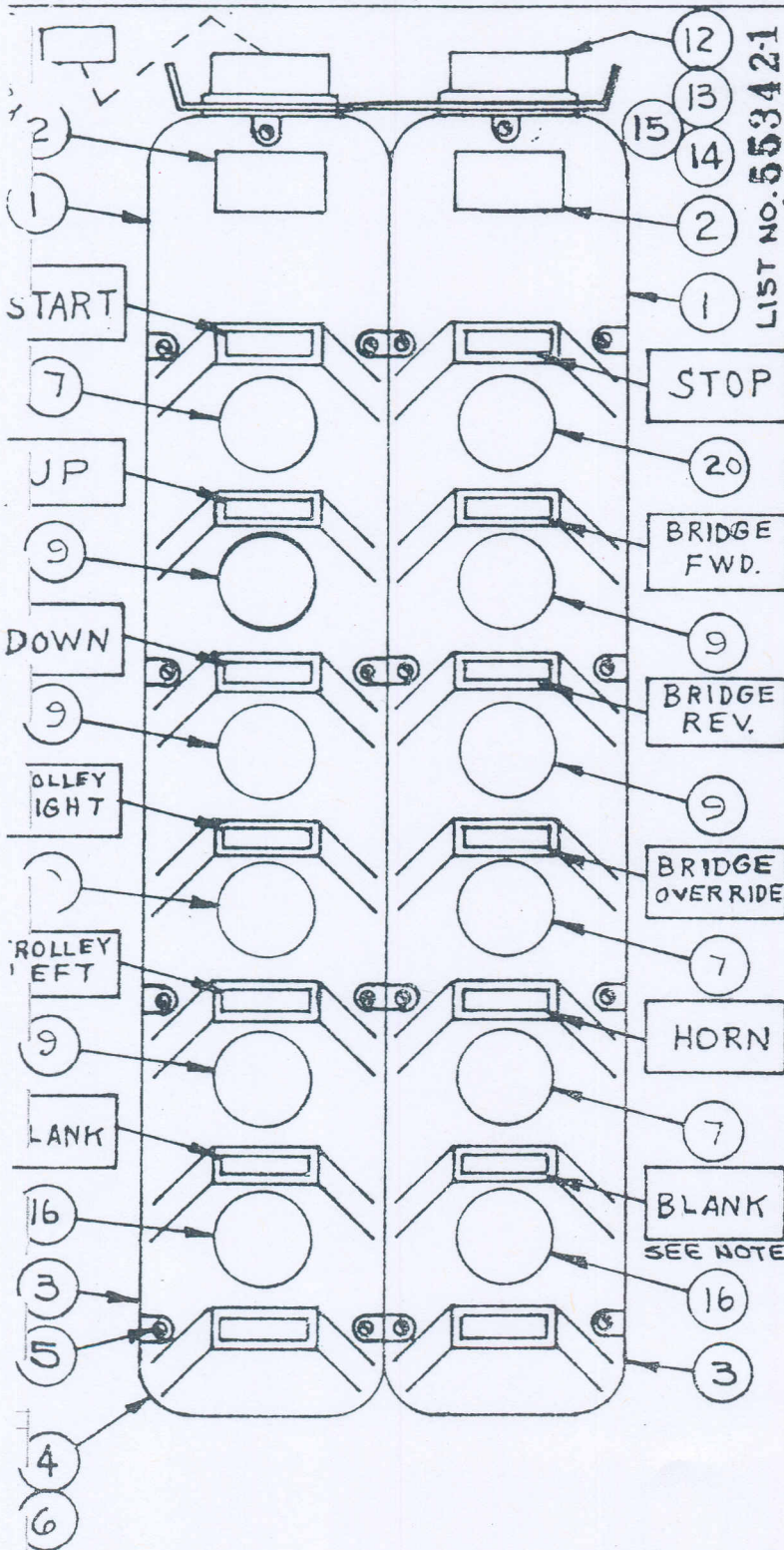
A C H I N E
W O R K S L I M I T E D

250 PACIFIC AVENUE

TELEPHONE (506) 388-4088 • MONCTON, N.B. • EIC 8M6 • TELEX 014 0004

DIVISION OF
APEX INDUSTRIES LTD.RUNWAY CONDUCTOR SYSTEM - BILL OF MATERIALS

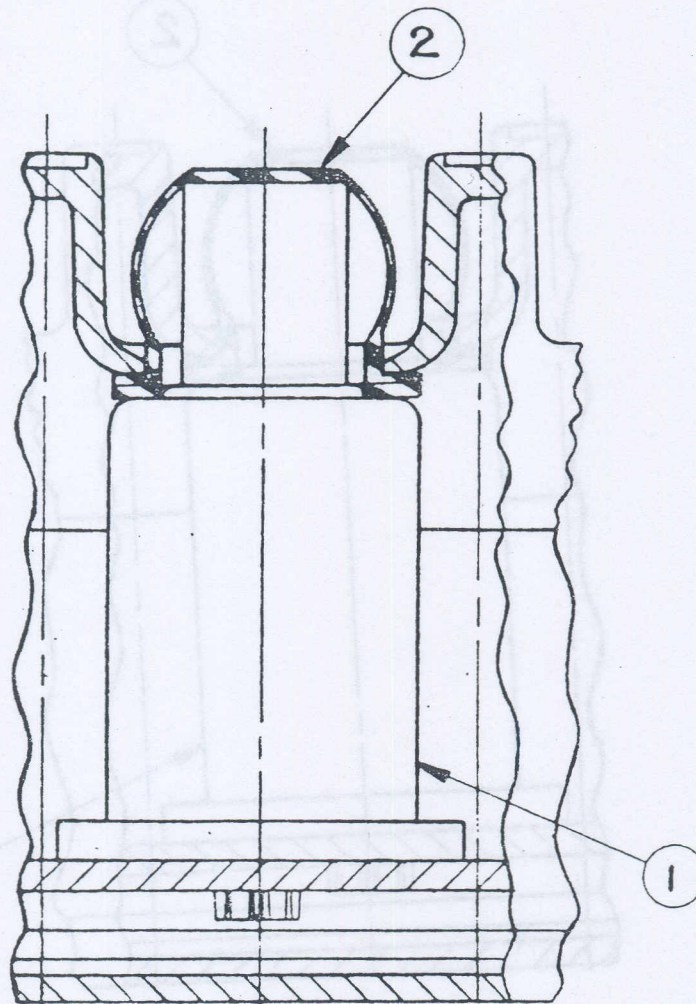
<u>DESCRIPTION</u>	<u>MAKE</u>	<u>PART NUMBER</u>
(1) DUCT-O-BAR	DUCT-O-WIRE CANADA	FE-2008-2
(2) HANGER CLAMPS	DUCT-O-WIRE CANADA	FE-908-2SF
(3) CENTER POWER FEED	DUCT-O-WIRE CANADA	FE-2008-2CP
(4) EXPANSION ASSEMBLY	DUCT-O-WIRE CANADA	FE-2008-2H10
(5) CONNECTOR TOOL	DUCT-O-WIRE CANADA	FE-908-1M
(6) COLLECTORS	DUCT-O-WIRE CANADA	C-100-V5



QTY	DESCRIPTION	PART NO.	
2	HOUSING, SUB-ASSEMBLY	914F87-1	1
2	P&H NAMEPLATE	SEE NOTE 1	2
2	TOP COVER, SUB-ASSY	914F85-3	3
1	BOTTOM COVER SUB-ASSY	914F89-1	4
18	#8-32X3/8" PLATED PAN HD. MACH. SCREW (PS560)	0862V075	5
10	#8-32X5/8" PLATED FLAT HD. MACH. SCREW (PS560)	0844V041	6
3	SING. SPD. PUSH BUTTON	979H169-1	7
-	2 SPEED PUSH BUTTON	979H169-___	8
6	5 SPEED PUSH BUTTON	979H169-13	9
-	IND. MASTER-TRAVERSE	979H170-___	10
-	IND. MASTER-HOIST	979H170-___	11
4	CORD GRIP	85Z24-D34	12
8	TY-RAP TIES	32Z890-D3	13
1	MACHINE CHAIN (50S)	2 2 FEET	14
2	#16-16 CABLE 22 FT. LG.	P&H 754	15
2	CLOSING BUTTON (BLANK)	79Z1843-D35	16
1	JUNCTION BOX	14F4910F1	17
1	TOGGLE SW	79Z 608	18
1	N.P. (BRIDGE LIGHTS) ON OFF	NAME PLATE FOR ITEM 18	19
1	MOMENTARY P. B	979H169-3	20
			21
			22
			23
			24

SEE NOTE * SEE PARTS SHEETS FOLLOWING

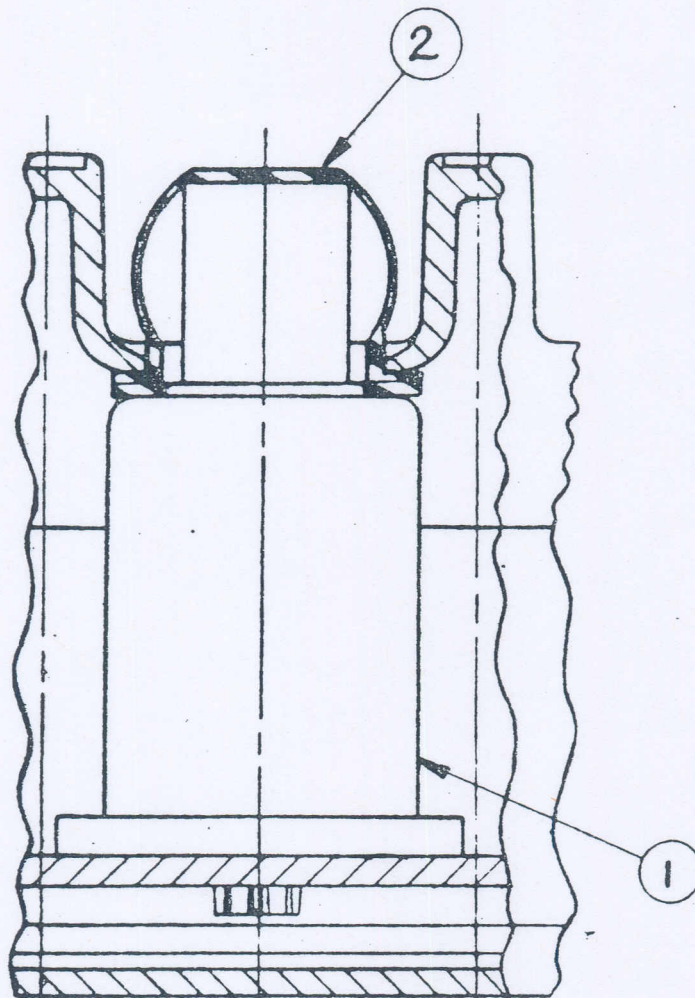
PUSH BUTTON ELEMENT
979H169-F1



ITEM 1 - (1) - SINGLE SPEED PUSH BUTTON - 100E2397-2

ITEM 2 - (1) - HOOD ASSEMBLY (BLACK) - 79H2088-D1

PUSH BUTTON ELEMENT
979H169-F13



ITEM 1 – (1) FIVE SPEED PUSH BUTTON – 100E4537-2

ITEM 2 – (1) HOOD ASSEMBLY (BLACK) – 79H2088-D1

CONTROL RELAY-3 POLE
2-N.O., 1-N.C. CONTACTS

ITEM -----	DESCRIPTION -----	PART NO. -----	QTY ---
1	CONTROL RELAY ASSEMBLY	479Q5-D1	15
	EACH CONSISTS OF THE FOLLOWING ITEMS		
2 *	COIL	4075Z1	1
3	CONTACT BASE	479Q31-D1	1
4	CONTACT BLOCK	479Q33-D2	1
5	NOT USED		

* - RECOMMENDED SPARE

CONTROL RELAY-6 POLE
5-N.O., 1-N.C. CONTACTS

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>PART NO.</u>	<u>QTY</u>
1	CONTROL RELAY ASSEMBLY CONSISTS OF THE FOLLOWING ITEMS	479Q20-D1	1
2 *	COIL	4075Z1	1
3	CONTACT BASE	479Q31-D1	1
4	CONTACT BLOCK	479Q33-D1	1
5	CONTACT BLOCK	479Q33-D2	1

* - RECOMMENDED SPARE

CONTROL RELAY-6 POLE
4-N.O., 2-N.C. CONTACTS

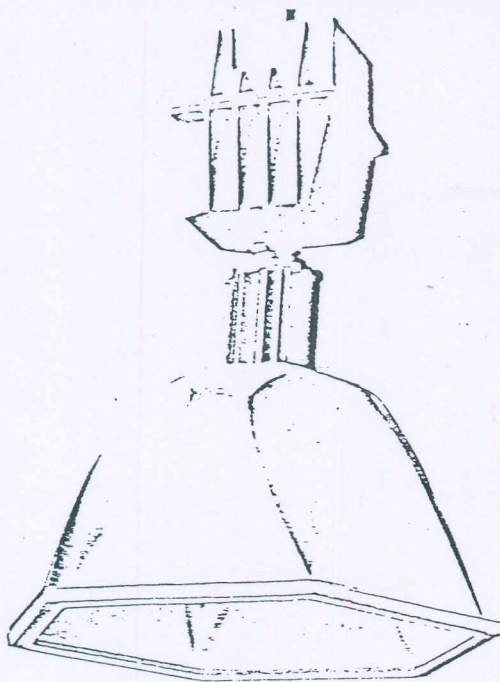
ITEM ----	DESCRIPTION -----	PART NO. -----	QTY ---
1	CONTROL RELAY ASSEMBLY	479Q21-D1	1
	CONSISTS OF THE FOLLOWING ITEMS		
2 *	COIL	4075Z1	1
3	CONTACT BASE	479Q31-D1	1
4	CONTACT BLOCK	479Q33-D1	1
5	CONTACT BLOCK	479Q33-D3	

* - RECOMMENDED SPARE

CONTROL RELAY-3 POLE
1-N.O., 2-N.C. CONTACTS

ITEM ----	DESCRIPTION -----	PART NO. -----	QTY ----
1	CONTROL RELAY ASSEMBLY CONSISTS OF THE FOLLOWING ITEMS	479Q6-D1	1
2 *	COIL	4075Z1	1
3	CONTACT BASE	479Q31-D1	1
4	CONTACT BLOCK	479Q33-D3	1
5	NOT USED		

* - RECOMMENDED SPARE



Widelite

IL Series Industrial Luminaires

Specification Features

A broad choice of distribution patterns and maintenance-free, dust-tight construction makes IL Luminaires desirable for a wide variety of applications: industrial plants, forges, foundries, food processing areas, warehouses, and indoor sports facilities such as tennis courts, swimming pools and gymnasiums. Consult factory regarding lamp location options.

These luminaires are available as standard for 250 to 1000 watt HID lamps with spacing-to-mounting height ratios of from .8 to 2.2 for high or low bay application. Lower wattage equipment is available on special order.

A special reflector with a combination white silicone and hammertone finish allows a S/MH ratio of 1.8 with 1000 watt high pressure sodium lamps, an economical alternative to 400 watt equipment for mounting heights of 20 to 50 feet (6 to 15 m) where lower footcandle levels are required.

Special coatings are available for extremely harsh environments. Consult the factory for information.

High Efficiency Dust-Tight Design

One piece housing and reflector system is of heavy gauge aluminum, sealed to provide a dust-tight enclosure.

Patented Primary Path Reflector

Hexagonal reflector is computer designed to eliminate secondary reflections; light is never trapped or redirected back to the lamp. Reflector surfaces are of high grade specular or diffusing aluminum with reflectance up to 85%. (1).

5% More Light

Lens retainer is of one-piece cast aluminum with a high temperature gasket, hinged for relamp from below. Patented 5 mil clear FEP Teflon® lens transmits 5% more light than clear glass.

Automatic Ballast Contact

Lamp socket housing is of extruded aluminum, finned for heat dissipation, and has keyed, slip-in contact to ballast (2).

65°C Ballast

Cast aluminium ballast housing is finned for heat dissipation (3). Ballast is high power factor, rated for ambients up to 65°C. Coil windings are copper. Core and coil are encapsulated in solid polyester resin compound with capacitor separate and isolated by a heat shield. Limiting temperature of the insulation is Class H (180°C) with temperature rise in the windings one full class below. Lamp current crest factor is not more than (___).

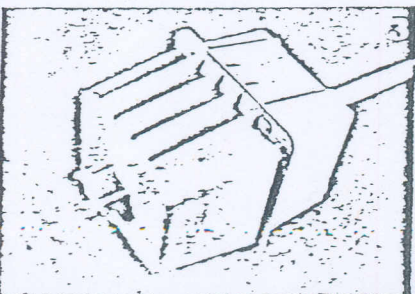
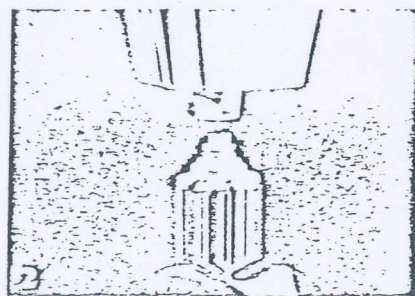
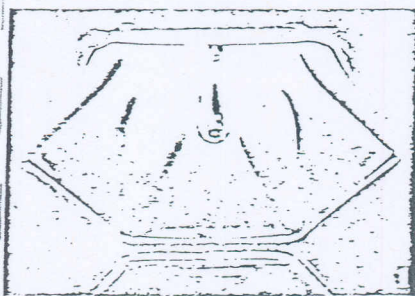
Slide-On Mounting Plate

Ballast is prewired and provided with a slide-on mounting plate and 3/4" (19mm) NPT hub for quick installation (4).

3-Year Warranty

Fixture and ballast are CSA listed. Both are by the same manufacturer and covered by a 3-year limited warranty.

- * Reg. Can. Pat. Off. for Dupont's Fluorocarbon Film
- * Dependent on ballast type, see Ballast section.



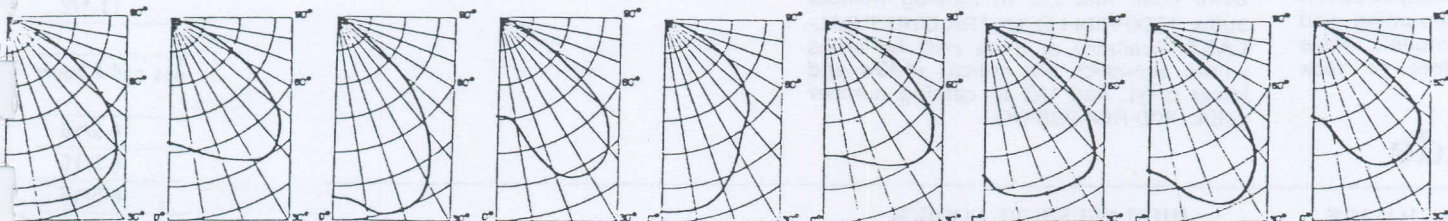
Distribution Guide - IL Series

Catalog No. 1000w	S/MH Ratio	Catalog No. 400w	S/MH Ratio	Catalog No. 250w	S/MH Ratio
Mercury Vapor (coated lamp/specular reflector) - Metal Halide (phosphor coated)					
ILM-1000-1ST-Voltage	1.2	ILM-400-1ST-Voltage	1.2	ILM-250-4ST-Voltage	8
ILM-1000-5ST-Voltage	1.5	ILM-400-4ST-Voltage	1.5	ILM-250-7ST-Voltage	1.2
ILM-1000-9ST-Voltage	1.8	ILM-400-7ST-Voltage	1.7	ILM-250-9ST-Voltage	1.6
Metal Halide (clear lamp/diffusing reflector)⁽¹⁾					
ILM-1000-1DT-Voltage	1.4	ILM-400-1DT-Voltage	1.5	ILM-250-9DT-Voltage	1.5
ILM-1000-5DT-Voltage	1.8	ILM-400-4DT-Voltage	2.0	ILM-250-12DT-Voltage	2.0
ILM-1000-9DT-Voltage	2.2				
High Pressure Sodium (clear lamp/diffusing reflector)					
ILS-1000-5DT-Voltage	1.0	ILS-400-4DT-Voltage	1.0	ILS-250-4DT-Voltage	1.1
ILS-1000-9DT-Voltage	1.2	ILS-400-7DT-Voltage	1.5	ILS-250-7DT-Voltage	1.6
ILS-1000-9WHT** -Voltage	1.8	ILS-400-9DT-Voltage	1.9	ILS-250-9DT-Voltage	1.9

** Hexagona reflector with white silicone and hammertone finish

(1) Coated metal halide lamps have approximately the same distribution pattern shown for mercury vapor. To order luminaires for coated metal halide, specify specular "ST" type reflector. Example: ILM-1000-1ST.

Typical Candlepower Distribution Curves

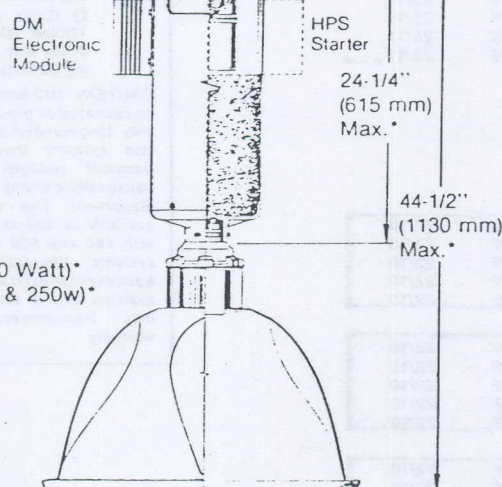
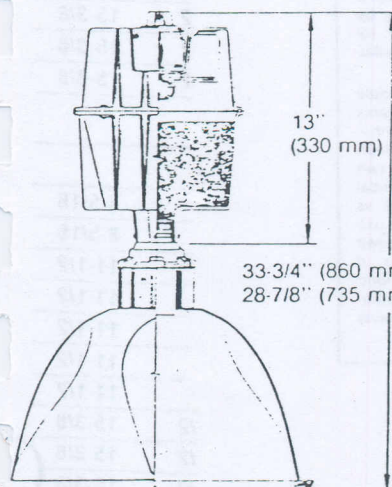


ILM-1000-5ST Phosphor Coated Lamp S/MH Ratio 1.5	ILM-1000-9ST Phosphor Coated Lamp S/MH Ratio 1.8	ILM-1000-1DT Clear Lamp (Metal Halide) S/MH Ratio 1.4	ILM-1000-5DT Clear Lamp (Metal Halide) S/MH Ratio 1.8	ILS-1000-9DT HPS Lamp S/MH Ratio 1.2	ILS-1000-9WHT HPS Lamp S/MH Ratio 1.8	ILM-400-4ST Phosphor Coated Lamp S/MH Ratio 1.5	ILM-400-1DT Clear Lamp (Metal Halide) S/MH Ratio 1.5	ILS-400-9DT HPS Lamp S/MH Ratio 1.9
---	---	--	--	--	---	--	---	---

Dimensions

Standard Ballast and 400-250 watt
Dimming Ballast

1000w Dimming Ballast



Enclosure Heights for
LB (less ballast) Models
1000 watt - 21" (535 mm) Max.
400 watt - 16-3/4" (425 mm) Max.

Fixture Weights
Luminaires with
Dimming Ballasts

Shpg. Wt. (lbs/kg)	1000w	400w	250w
Mercury Vapor	94/42.7	55/25.4	45/21.8
Metal Halide	92/41.8	62/28.2	53/24.1
High Pressure Sodium	87/39.5	60/27.3	48/21.8

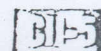
Add 7 lbs (3.2 kg) for glass lens

2-3/8" (570 mm) (1000 Watt)
7-3/8" (440 mm) (400 & 250w)

*May be as much as 2" (50 mm) shorter according to socket position

For more specifications
See page 10 Change Without Notice

MADE IN CANADA 6607K

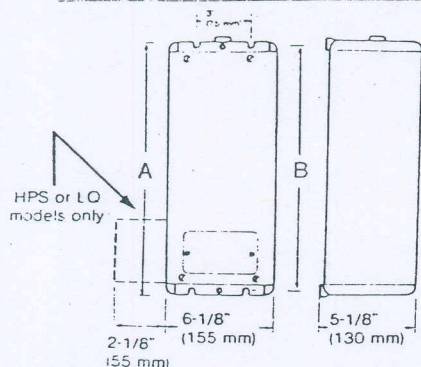


Insulated Remote Indoor Ballasts

for metal halide and high pressure sodium lamps

WMA

Dimensions



Optional Equipment

Wiring compartment located in each end of 1/4" (19 mm) threaded independent mounting and hanging. All models have independent or rack

LiteMatic auxiliary/emergency protection. Available for regulating ballasts at extra cost. Add LQ to catalog number suffix. 1000-RIM-LQ ULTRA QUIET BALLAST. Available at extra cost for areas where acoustics are critical. (400w and lower only). Add UQ to catalog number suffix: 400-RIM-208-UQ.

Wattage Lamp	H	W
1000w Mercury/ Metal Halide	18-1/4"	17-1/2"
	465 mm	445 mm
1000w High Pressure Sodium	21-3/4"	21"
	550 mm	535 mm
400w Mercury/ Metal Halide	18-1/4"	17-1/2"
	465 mm	445 mm
400w High Pressure Sodium	18-1/4"	17-1/2"
	465 mm	445 mm
250w Mercury/ Metal Halide	18-1/4"	17-1/2"
	465 mm	445 mm
250w High Pressure Sodium	18-1/4"	17-1/2"
	465 mm	445 mm
175w Mercury/ Metal Halide	18-1/4"	17-1/2"
	465 mm	445 mm
150/100/70w High Pressure Sodium	12-3/4"	12"
	325 mm	305 mm

M.O.L.

15 3/8

15 3/8

15 3/8

15 3/8

15 3/8

15 3/8

15 3/8

s of the lamp is
the operation of

8-5/16

8-5/16

11-1/2

nps and 4 hours

8-5/16

8-5/16

8-5/16

8-5/16

8-5/16

8-5/16

8-5/16

8-5/16

11-1/2

11-1/2

11-1/2

11-1/2

2 15 3/8

2 15 3/8

2 15 3/8

2 15 3/8

2 15 3/8

2 15 3/8

IMPORTANT NOTES:

NOTE: Maximum remote mounting distance for high pressure sodium is as follows: Building wire in conduit: 40' (12.2m) for 1000w; 40' (12.2m) for 400w and 250w regulating ballast. No. 16 600v S O Cable: 25' (7.6m) for 1000w; 20' (6.1m) for 400w and 250w regulating ballasts

CAUTION: HID luminaires should be operated on grounded systems only. Ungrounded power distribution systems may carry high transient voltages which can cause failure of any type electrical equipment. This equipment is available on special order for use with 480 and 600 volt grounded systems. Warranty is void if equipment is used in ungrounded systems. Use of Delta-Wye Isolating Transformers maintains warranty.

8-5/16

8-5/16

11-1/2

11-1/2

11-1/2

11-1/2

11-1/2

1/2 15 3/8

1/2 15 3/8

1/2 15 3/8

1/2 15 3/8

Guide

METAL HALIDE

HIGH PRESSURE SODIUM

Ballast Type	Est. S.Fps. Wt. Lbs./kg.	Catalog Number (includes voltage)	Ballast Type	Est. S.Fps. Wt. Lbs./kg.
1000w				
Reg. HPF	44/20	1000-RIS-120	Reg. HPF	45/21
Reg. HPF	44/20	1000-RIS-208	Reg. HPF	46/21
Reg. HPF	44/20	1000-RIS-240	Reg. HPF	46/21
Reg. HPF	44/20	1000-RIS-277	Reg. HPF	46/21
Reg. HPF	44/20	1000-RIS-347	Reg. HPF	46/21
400w				
Reg. HPF	30/14	400-RIS-120	Reg. HPF	33/15
Reg. HPF	30/14	400-RIS-208	Reg. HPF	33/15
Reg. HPF	30/14	400-RIS-240	Reg. HPF	33/15
Reg. HPF	30/14	400-RIS-277	Reg. HPF	33/15
Reg. HPF	30/14	400-RIS-347	Reg. HPF	33/15
250w				
Reg. HPF	22/10	250-RIS-120	Reg. HPF	25/11
Reg. HPF	22/10	250-RIS-208	Reg. HPF	25/11
Reg. HPF	22/10	250-RIS-240	Reg. HPF	25/11
Reg. HPF	22/10	250-RIS-277	Reg. HPF	25/11
Reg. HPF	22/10	250-RIS-347	Reg. HPF	25/11
150w (For 55v Lamp)				
Reg. HPF	22/10	150-RIS-120	Reg. HPF	22/10
Reg. HPF	22/10	150-RIS-208	Reg. HPF	22/10
Reg. HPF	22/10	150-RIS-240	Reg. HPF	22/10
Reg. HPF	22/10	150-RIS-277	Reg. HPF	22/10
Reg. HPF	22/10	150-RIS-347	Reg. HPF	22/10
100w				
Reg. HPF	22/10	100-RIS-120	Reg. HPF	22/10
Reg. HPF	22/10	100-RIS-208	Reg. HPF	22/10
Reg. HPF	22/10	100-RIS-240	Reg. HPF	22/10
Reg. HPF	22/10	100-RIS-277	Reg. HPF	22/10
Reg. HPF	22/10	100-RIS-347	Reg. HPF	22/10
70w				
Reg. HPF	22/10	70-RIS-120	Reg. HPF	22/10
Reg. HPF	22/10	70-RIS-208	Reg. HPF	22/10
Reg. HPF	22/10	70-RIS-240	Reg. HPF	22/10
Reg. HPF	22/10	70-RIS-277	Reg. HPF	22/10
Reg. HPF	22/10	70-RIS-347	Reg. HPF	22/10