

# JON MONOC-RANE

**Kilpatrick Green**  
99 Stuart Street  
BULIMBA QLD 4171

10680  
15 Tonne OHET Crane  
March 1997



**OPERATING AND MAINTENANCE INSTRUCTIONS**

**Customer** KILPATRICK GREEN  
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**Job Number** 10680  
**Description** 15 TONNE OHET CRANE - 13815 SPAN  
**Date of Installation** MARCH 1997  
  
**Hoist Model** CE AH7080-07-4/2 L20 F4Z-DB  
**Hoist Serial No** 00323  
**Hoist Gearbox/Motor** FAZ127 R82 DV160M 8/2 BMG TF 485:1  
  
**Trolley Drive** FA37 DT80N 8/2 BMGZ 86.53:1  
**Bridge Type** DOUBLE GIRDER - TOP RUNNING TYPE T3  
**Travel Drive** RF43 DT100LS 8/2 BMZ 38/161 RPM 1:16.62  
**Long Travel Wheel** DW305  
  
**Site Address** EAGLE FARM PUMP STATION  
 KINGSFORD SMITH DAIVE & BUNYA STREET  
 EAGLE FARM QLD 4009

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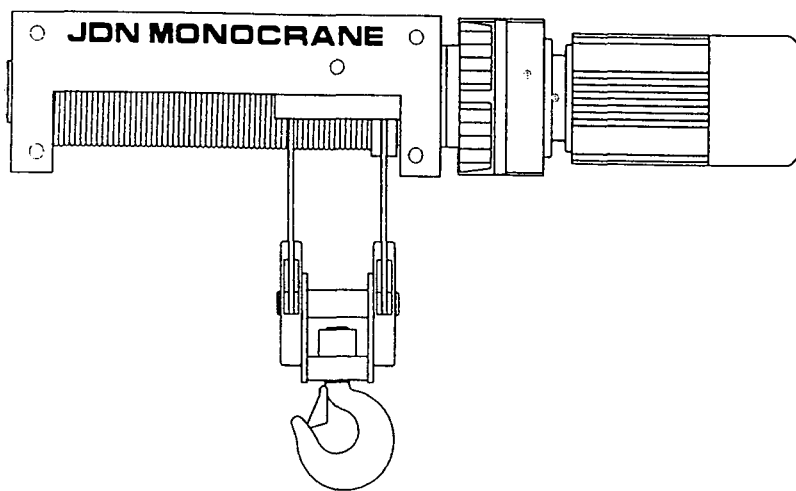
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3. Manual Crane Bridge	TDS 1002	<input checked="" type="checkbox"/>
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5. Electrical Parts List	1 Page	<input checked="" type="checkbox"/>
6. Hoist Assembly Drawings	C-AH70-6Z	<input checked="" type="checkbox"/>
7. Trolley Assembly Drawings	A2-10680-21	<input checked="" type="checkbox"/>
8. Long Travel Wheel Assembly	A3-DW305	<input checked="" type="checkbox"/>
9. Hoist Drum Brake Assembly	D-10680-14A	<input checked="" type="checkbox"/>
10. Hazard Document	QAF207A.DOC	<input checked="" type="checkbox"/>
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**OPERATING MANUAL  
INSPECTION AND MAINTENANCE INSTRUCTIONS  
SPECIAL FEATURES ADDENDUM - DRUM BRAKES**

# **JDN MONOCRANE**

## **ELECTRIC WIRE ROPE HOISTS**



**AH 10  
AH 20  
AH 30  
AH 40  
AH 50  
AH 60  
AH 70  
AH 80**

**Design Concept**

1. Brake has been designed and tested to safely bring to rest the full rated load of hoist.
2. Brake will operate automatically in the event of the following.
  - a. Hoist Overspeed
  - b. Interruption to power supply.

**Operation -** Refer to Drawing D-10680-14A.

Speed of hoist is measured by sensor and PLC count of teeth on rotating drum brake.

While hoist is operating normally, solenoid (item 12.) is energised, keeping pawl (item 9) clear of teeth on plate (item 17).

In the event of overspeed or power failure solenoid is de energised and pawl will engage with teeth on plate (item 17). This will bring drum to rest. Note :- Brake is designed to have some minor slippage to eliminate shock loading.

**Start up after operation of brake -**

To recommence operation of hoist after operation of brake either of the following is acceptable.

- a. Raise hoist, this will allow pawl (item 9) to disengage and hoist will again operate normally.
- b. When at top limit. Use key in safety switch and turn reset switch to on.  
This will release pawl.  
Return safety switch to off to allow hoist to be lowered.

**INSPECTION SCHEDULE**

This schedule applied to hoists M5 and above for M4 and below 3 months and 6 months 6 months and 12 months respectively.

1. On commissioning
2. Daily
3. 3 months
4. 6 months

1	2	3	4	
				<b>SAFETY EQUIPMENT</b>
				<b>Item</b>
*		*		Drum Brake

**LUBRICATION SCHEDULE**

This Schedule applies to hoist M5 and above. For M4 and below servicing intervals maybe doubled.

1. 3 months
2. 6 months
3. 36 months.

1	2	3		
			<b>SAFETY EQUIPMENT</b>	<b>SAFETY EQUIPMENT</b>
			<b>Item</b>	<b>Service Required</b>
*			Drum Brake	Grease Pawl Pivot

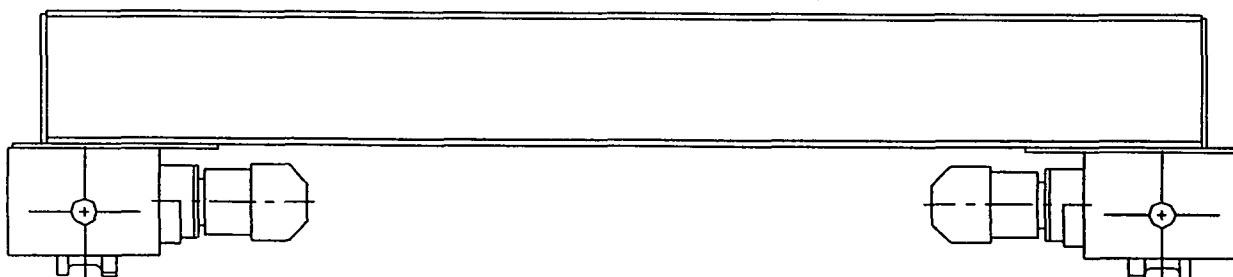
## OPERATING MANUAL

## INSPECTION AND MAINTENANCE INSTRUCTIONS

# JDN MONOCRANE

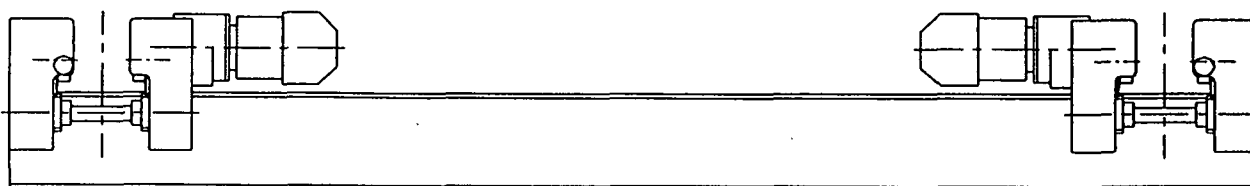
### TOP RUNNING CRANE BRIDGES

### TYPE T



### UNDERSLUNG CRANE BRIDGES

### TYPE U



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## TYPES OF CRANE BRIDGES

### Top Running Type T

1. Top running single girder with hoist running on bottom flange.
2. Top running single girder with torsion box hoist arrangement.
3. Top running twin girder with top running crab unit.
4. Top running twin girder with crab unit running on bottom flanges.

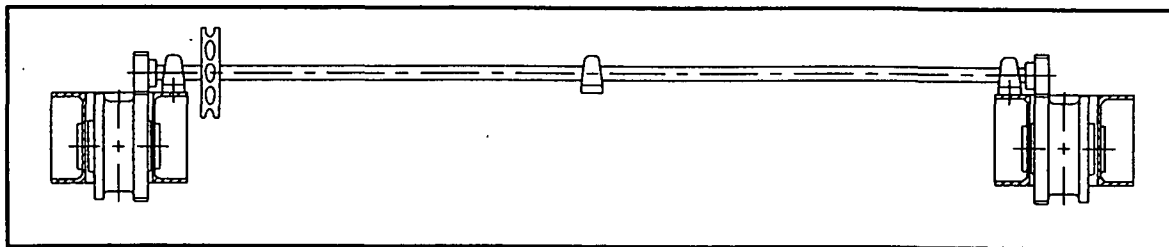
### Underslung Type U

1. Underslung crane running on lower flanges of runway with underslung hoist running on lower flange of single girder.
2. Underslung crane running on lower flanges of runway with underslung hoist running on lower flanges of twin crane beams.

## **TYPE OF DRIVES**

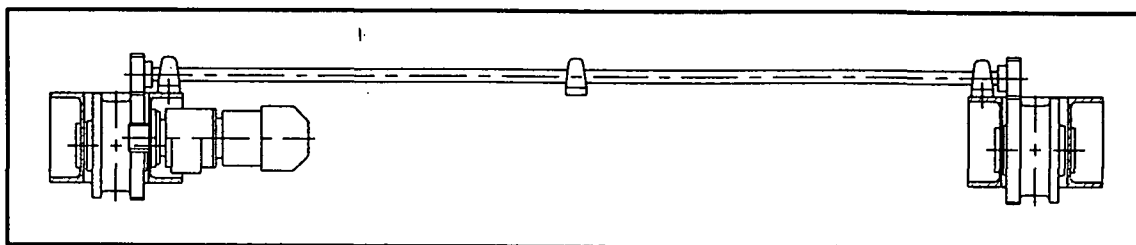
### **TOP RUNNING**

#### **Hand Driven**



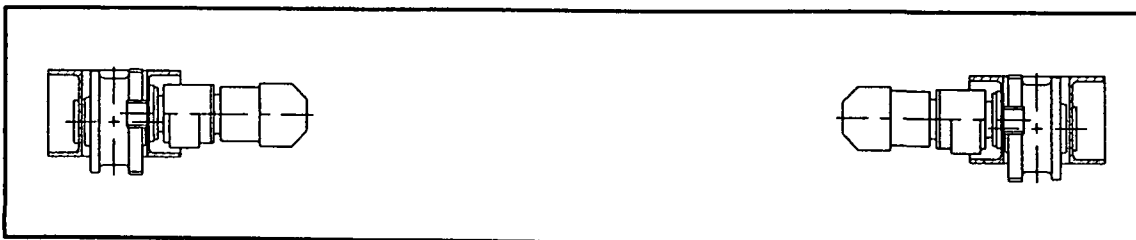
### **TOP RUNNING**

#### **One Motor and Cross Shaft**



### **TOP RUNNING**

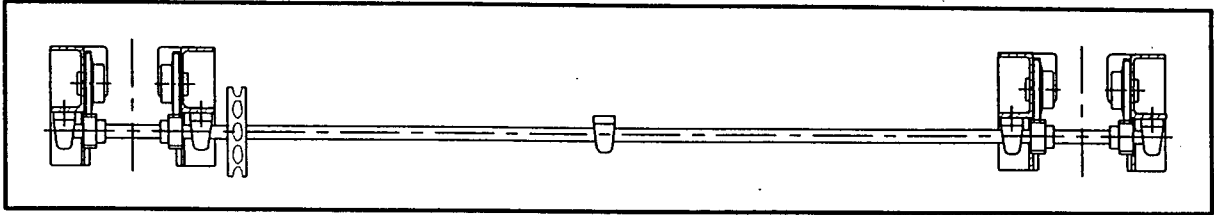
#### **Two Drives**



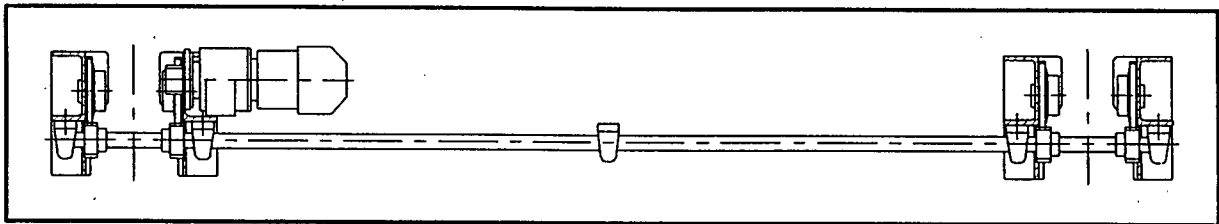


## **TYPE OF DRIVES**

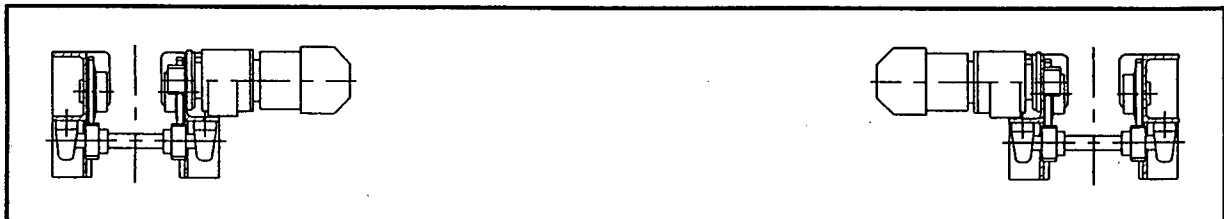
### **UNDERSLUNG      Hand Driven**



### **UNDERSLUNG      One Motor and Cross Shaft**



### **UNDERSLUNG      Two Drives**



## CRANE INSTALLATION

### Type T

Crane to be installed on suitable rails which are installed straight and true.  
Refer to AS 1418 for tolerances on rail alignment.

### Type U

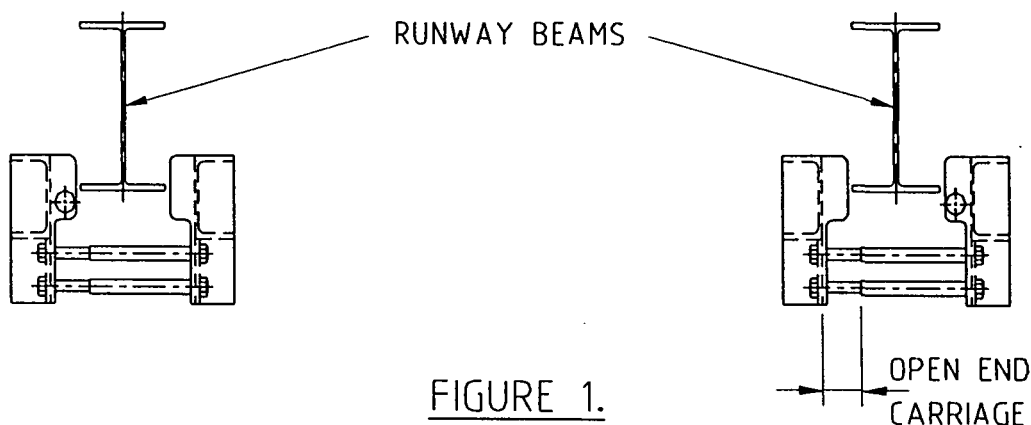
Crane to be installed on suitable runway beams which are installed straight and true.  
Refer to AS 1418 for tolerances on rail alignment.

Underslung cranes can be installed by feeding complete crane onto end of crane runway if possible,

OR

by unbolting same half or each end carriage and spreading of carriage to allow erection from directly underneath runway.

Refer to Fig 1.



After installation onto runway ensure all bolts are replaced and tightened.

**NOTE:** All installation work to be carried out by suitable qualified personnel.

## **COMMISSIONING**

A crane purchased from JDN Monocrane is fully tested for correct operation in our works. If crane is disassembled for transport, all electrical reconnections are to be carried out in accordance with wiring diagram and by qualified personnel.

Upon connection to power supply check direction of travel of all drives coincides with control direction.

Refer to TDS 1001 for hoist commissioning and read this document and carry out commissioning in conjunction. If crane is fitted with chain hoist, refer to operating and maintenance instructions of selected hoist.

The following testing and inspection is the responsibility of the installer and must be carried out by competent personnel.

- \* Ensure all fixing bolts are tight and secure.
- \* Ensure upper and lower limit switches are set before operating hoist.
- \* Check direction of hook movement is in accordance with control station.
- \* Installation and operation of all safety and protective devices.
- \* Any testing as required by local authorities.

## **DUTIES OF OPERATOR:**

1. Ensure correct operation of limit switches and brakes daily before commencing operation of crane.
2. Inspect hoist or crane for visible defects.
3. Cranes exposed to wind are to be firmly secured during storms and when finishing work.
4. Do not lift or move loads above people.
5. Do not stand under suspended load.
6. Do not leave suspended loads unattended.
7. Do not exceed load capacity of crane.
8. Do not pull loads at angles, do not haul or pull loads.

**INSPECTION AND SERVICING OF CRANE BRIDGES:**

To ensure best performance the JDN Monocrane Crane Bridge requires regular inspection and servicing.

Inspections must be performed by competent personnel.

**General notes on Inspection and Servicing**

1. Ensure hoist is unloaded.
2. Make use of isolation switches.
3. Carry out inspection and servicing in accordance with schedules.
4. Design life of a crane is 10 years. After expiration of this time a complete inspection of all components is needed.

**INSPECTION SCHEDULE**

This schedule applies to cranes M5 and above. For M4 and below 3 months and 6 months become 6 months and 12 months respectively.

1	2	3	4	
				<b>MECHANICAL COMPONENTS</b>
		*		Wheels
		*		Gearing
		*		Drive Units
		*		Drive components & Alignment
		*		All bolts
			*	End stops and buffers
			*	Travel Limits
		*		Oil levels
		*		Accessories - eg. Anti-Collision
				<b>ELECTRICAL</b>
*		*		Electrical supply flexible cables
*		*		Electrical supply conductor bar
		*		Control box
		*		Pendant

**Inspection intervals:**

- 1: On Commissioning
- 2: Daily
- 3: 3 months
- 4: 6 months

**NOTE:** Read in conjunction with Hoist Instructions.

**SERVICING SCHEDULE**

This schedule applies to cranes M5 and above. For M4 and below the servicing intervals maybe doubled.

1	2	3		
			<b>MECHANICAL EQUIPMENT Item</b>	<b>MECHANICAL EQUIPMENT Service Required</b>
	*		Travel Brake	Measure air gap adjust if necessary
	*		Gearing	Grease if necessary
	*		Limit mechanism	Grease slide area
		*	Motor bearings	Grease change
		*	Wheels Bearings	Grease change
		*	Other Bearings	Grease change
		*	Travel drive gear box	Change oil
			<b>ELECTRICAL COMPONENTS Item</b>	<b>ELECTRICAL COMPONENTS Service Required</b>
	*		Terminals	Retighten

**Inspection intervals:**

- 1: 3 months
- 2: 6 months
- 3: 30 months

Note: For lubricants see pages 18 and 19.

## **TRAVEL DRIVE:**

**Check the following:**

1. Open gearing for wear
2. Wheel tread and flange wear.
3. Alignment of drive mechanism and tightness of all bolts and screws.

## **SERVICING OPERATIONS:**

### **Drive Unit**

#### **Maintenance**

#### **Lubrication of gear units and motor bearings Lubrication table/Gear unit oil levels**

For gear units it is important to check the oil level regularly. The lubricant should be changed at the following intervals:

Mineral oils and greases: Every 10,000 operating hours or every two years (for housing temperature  $\leq 70^{\circ}\text{C}$ , measured close to the oil drain plug).

Under particularly severe operating conditions (e.g. high humidity, aggressive environment, large temperature fluctuations or high ambient temperature) shorter oil change intervals are necessary.

The grease packings of bearings of motors and gear units should also be changed after approx. 10,000 operation hours. The bearing should be cleaned before being packed with new grease. The amount of grease should occupy on motors and input bearings of gear units, 1/3 of the free bearing space, however, on the bearings of the output shafts as well as pinion shafts (cont no. 5) with Nilos rings, 2/3 of the bearing space between the bearing elements. Repeated grease changes over the working life of the bearings should be carried out only after carefully checking that the dismantled and cleaned bearings are in a satisfactory state.

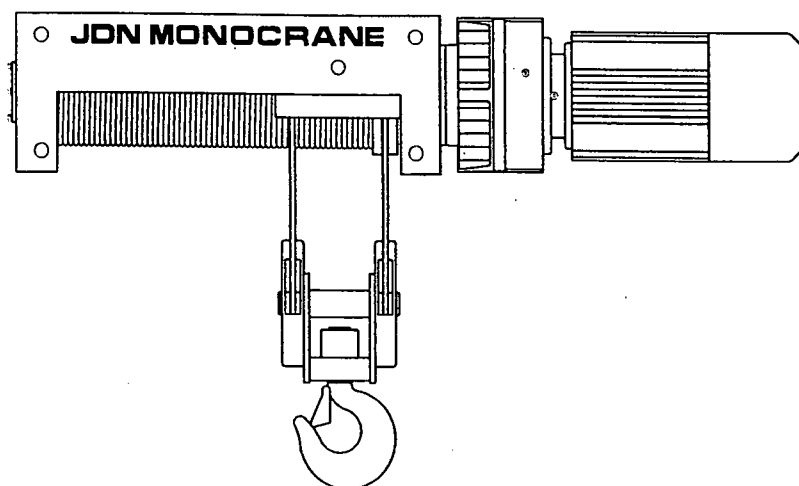
**Warning:** The synthetic lubricants listed in the lubrication table must not be mixed with one another or with mineral lubricants.

## OPERATING MANUAL

## INSPECTION AND MAINTENANCE INSTRUCTIONS

# JDN MONOCRANE

### ELECTRIC WIRE ROPE HOISTS



AH 10  
AH 20  
AH 30  
AH 40  
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AH 60  
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AH 80

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**HOIST INSTALLATION:****Stationary Hoist Model AH**

Hoist frame is designed to be mounted in various positions, however there are loading restrictions for certain mountings. Refer to our TDS 001 or contact our local sales office. Ensure bolting does not stress hoist frame.

**Hoist & Trolley Model UE AH**

Hoist and trolley are integral unit and set up in our factory to suit beam width as specified. Trolley can be fed onto beam if access is available to end of beam or alternatively, trolley is designed to be spread to allow installation from underside of beam. Ensure all fastenings are tight and lock nuts in position. Total clearance between wheels and beam flanges to be 2 to 5 mm.

**Hoist & Trolley Model KE AH**

Hoist and trolley are integral unit and set up in our factory to suit beam width as specified. Trolley can be fed onto beam if access is available to end of beam or alternatively, trolley is designed to be spread to allow installation from underside of beam. Ensure all fastenings are tight and lock nuts in position. Total clearance between wheels and flanges to be 2 to 5 mm.

**Hoist and Torsion Box Crab Model TE AH**

Hoist and trolley are integral unit and custom built in our factory to suit beam size as specified.

Remove anti lift brackets from crab and place crab onto beam by direct placement from above. Anti lift brackets must be reinstated. Ensure correct fit of crab on beam.

**Hoist and Double Rail Crab Model CE AH**

Hoist and crab are integral unit and custom built in our factory to suit rail size and spacing as specified. Rails to be level straight and correct spacing. Place crab onto rails by direct placement from above; minimum clearance from flange to edge of rail to be 2mm.

Refer to AS 1418 for tolerances on rail alignment.

**NOTE:** Buffers of suitable design to be provided to prevent impact between moving parts and end stops.

## **ELECTRICAL:**

Your hoist can be supplied with or without control electrics. If hoist is ordered with control electrics, full details of circuit and panel layout are provided for your reference. All electrical work to be carried out by qualified tradesmen. All electrical work to be carried out in accordance with local codes and regulations.

**IMPORTANT:** Ensure direction of rope movement coincides with control direction selected. If not change two phases of supply to hoist.

**HINT:** When initially checking direction of hoist press 'up' button. If direction is correct hoist will stop at the upper working unit allowing hook to be lowered. If direction is incorrect hook will go down indicating correction is required before tripping of emergency limit takes place.

## **REEVING:**

JDN Monocrane hoists are normally fully reeved, ready for use. If hoist is not reeved please refer to hoist assembly sheet showing method of reeving and anchoring of loose end of rope.

## **COMMISSIONING:**

All hoists are type tested with 25% overload.

The following testing and inspection is the responsibility of the installer and must be carried out by competent personnel.

- \* Ensure all fixing bolts are tight and secure.
- \* Ensure upper and lower limit switches are set before operating hoist.
- \* Check direction of hook movement is in accordance with control station.
- \* Installation and operation of all safety and protective devices.
- \* Any testing as required by local authorities.

## **SETTING OF UPPER AND LOWER WORKING LIMITS AND UPPER AND LOWER EMERGENCY LIMIT**

Hoist is fitted with working limit in up and down direction as well as second stage to protect against phase reversal.

Working limits will stop selected hoisting motion whilst allowing opposite direction to be engaged. Should second stage be tripped hoist will become inoperable. This is designed to alert operator to a problem and call for competent service.

Adjustment of upper and lower limits is carried out by loosening bolt (item 50) and sliding to selected position. Ensure bolt and nut are securely tightened upon completion of adjustment.

**Setting Upper Limit -** When Emergency switch is tripped the following conditions must be met.

- a. Minimum of 100mm clearance between hook block and nearest obstruction. Refer Figure 1.
- b. Included angle of ropes not to exceed 60°. Refer to Figure 2

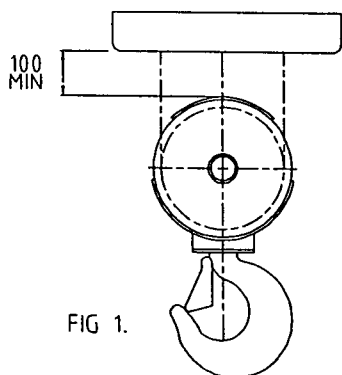


FIG 1.

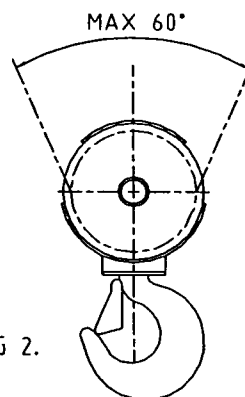


FIG 2.

**Setting Lower Limit -** Lowest position possible is when rope guides (item 18) is a minimum of 15mm from rope clamp (item 6). However, if hook reaches floor it is advisable to adjust to cut out just before hook touches floor.

### **DUTIES OF OPERATOR:**

1. Ensure correct operation of limit switches and brakes daily before commencing operation of crane.
2. Inspect hoist or crane for visible defects.
3. Cranes exposed to wind are to be firmly secured during storms and when finishing work.
4. Do not lift or move loads above people.
5. Do not stand under suspended load.
6. Do not leave suspended loads unattended.
7. Do not exceed load capacity of crane.
8. Do not pull loads at angles, do not haul or pull loads.

### **INSPECTING AND SERVICING WIRE ROPE HOIST:**

The AH Electric Hoist is mostly maintenance free. However, wearing parts (wire rope, rope guide, brake) must under go regular inspections.

Inspections must be performed by competent personnel.

### **General Notes on Inspection and Servicing**

1. Ensure hoist in unloaded.
2. Make use of isolation switches and lock off if necessary.
3. Carry out inspection and servicing in accordance with schedules.
4. The design life of a hoist is 10 years. After expiration of this time a complete inspection of all components is required.

## **INSPECTION SCHEDULE**

This schedule applies to hoists M5 and above. For M4 and below 3 months and 6 months become 6 months and 12 months respectively.

1	2	3	4	
				<b>SAFETY EQUIPMENT</b>
*	*			Hoist and brake
*	*			Working limit switches
*		*		Emergency or phase reversal protection limit switches
*	*			Pendant emergency stop
*		*		Overload device (if fitted)
*			*	Isolation switches
*			*	Earth terminals
				<b>MECHANICAL COMPONENTS</b>
*		*	*	Bottom hook block
		*		Wire rope and fixings
		*		Limit mechanism
		*		Drive components
		*		Drive unit
		*		All bolts
			*	End stops and buffers
			*	Travel Limits
		*		Oil levels
		*		Accessories - eg. Encodes etc
				<b>ELECTRICAL</b>
*		*		Electrical supply flexible cables
*		*		Electrical supply conductor bar
		*		Control box
		*		Pendant

### **Inspection intervals:**

- 1: On Commissioning
- 2: Daily
- 3: 3 months
- 4: 6 months

## SERVICING SCHEDULE

This schedule applies to hoists M5 and above. For M4 and below the servicing intervals maybe doubled.

1	2	3		
			<b>SAFETY EQUIPMENT Item</b>	<b>SAFETY EQUIPMENT Service Required</b>
*	*		Hoist Brake Overload device - Mechanical	Measure air gap adjust if necessary Grease disc springs
			<b>MECHANICAL EQUIPMENT Item</b>	<b>MECHANICAL EQUIPMENT Service Required</b>
	*		Wire rope	Grease if necessary
	*		Drive components	Grease gear teeth
		*	Motor bearings	Grease change
		*	Drum bearings	Grease change
		*	Spline Drive	Grease change
		*	Hoist gearbox	Change oil
		*	Travel drive gearbox	Change oil
			<b>ELECTRICAL COMPONENTS Item</b>	<b>ELECTRICAL COMPONENTS Service Required</b>
	*		Terminals	Retighten

### Inspection intervals:

- 1: 3 months
- 2: 6 months
- 3: 36 months

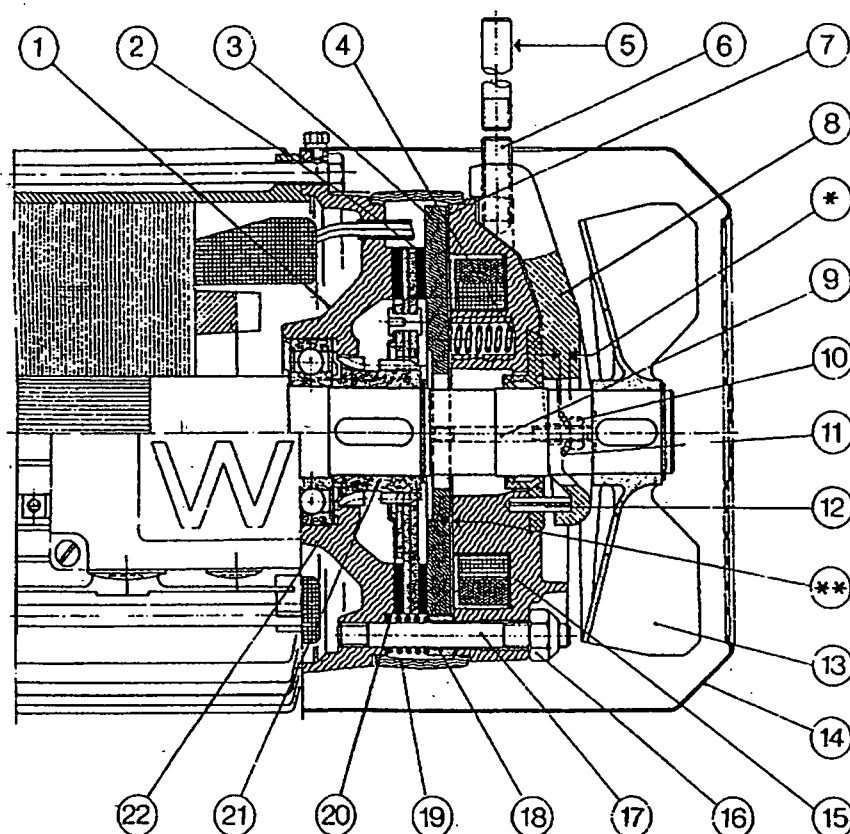
For more detailed explanation of grease and oil change intervals see pages 10 and 12.

For lubricants refer to pages 20 and 21.

## SERVICING OPERATIONS:

### HOIST BRAKE:

The BM(G) is a DC-excited electromagnetic disc brake which is held off electrically and braked by spring force. The system fulfils a basic safety principle: if the power fails the brake is applied automatically. The main parts of the brake system consist of the actual brake coil body (accelerating coil + partial coil = holding coil), an assembly of the coil body with an encapsulated tapped winding (15), the moveable pressure plate (3), the brake spring (4), the brake disc assembly (2) on the carrier which can move along the shaft, and the brake end shield (1).



### THE BM BRAKE

- |  |                              |
|--|------------------------------|
| 1. Brake end shield  | 12. Dowel pin                |
| 2. Brake disc assembly   | 13. Fan                      |
| 3. Pressure plate  | 14. Fan guard                |
| 4. Brake springs   | 15. Brake coil assembly      |
| 5. Hand lever for manual disengagement,<br>will re-engage itself when released | 16. Hexagonal adjustment nut |
| 6. Manual brake release screw to fix<br>brake in the disengaged position       | 17. Retaining screw          |
| 7. Damper pad with nap (BMG brake only)  | 18. Pressure ring            |
| 8. Release lever   | 19. Sealing collar           |
| 9. Stud  | 20. Counter spring           |
| 10. Setting nut  | 21. Carrier                  |
| 11. Conical coil spring  | 22. Equalising ring          |
|  | * End play 1.5 - 2.0 mm      |
|  | ** Working air gap           |

**MAINTENANCE OF BRAKE BMG05-8 AND BM15-62, SETTING THE WORKING AIR GAP.**

1. Isolate power from the motor and brake, prevent unintentional power up.
2. Remove the fan guard (14) or forced cooling fan guard, move the rubber sealing collar (19) and loosen the clamp, if necessary.
3. Measure the brake disc:  
If the brake disc measures  
-  $\leq 9\text{mm}$  in brake motors up to frame size 100  
-  $\leq 10\text{mm}$  in brake motors above frame size 112  
Change the brake disc.
4. In the BM30-62  
Loosen the setting sleeve by turning it in the direction of the bearing end shield.
5. Insert the feeler gauge into the working air gap  
- in the BM between the pressure plate (3) and the coil body (15).  
- in the BMG between the pressure plate and the damping disc.
6. Tighten the hexagonal nuts (16)  
- until the working air gap is set correctly (see following table)  
- in the BM30-62 until the (provisional) working air gap =  $0.25\text{mm}$ .
7. In the BM30-62:  
Tighten the setting sleeves:  
- against the coil body;  
- until the working air gap is set correctly (see following table)
8. Fit the rubber sealing collar and mount the fan guard.

**WORKING AIR GAP FOR DISC BRAKES:**

Motor frame size	Brake type	Working air gap (mm)	
		newly adjusted	re-adjust at
63 71/80 80 90/100 100	B 03 BM05 BM 1 BM 2 BM 4	min. 0.25	min. 0.6
112/132S 132M/160M 160L/180 200/225	BM 8 BM15 BM30 BM31	min. 0.3	min. 1.2
180 200/225	BM32* BM62*	min. 0.4	min. 1.2

\* Double disk brake

## **HOIST MOTOR AND GEARBOX:**

Standard motor protection is by thermostats. Thermostats are connected in series and open when permissible temperature of the winding is exceeded. Other protection may be supplied to meet customer requirements.

### **Replacing the screw plug:**

Before the unit is started, the screw plug is to be removed and replaced by the supplied breather plug or vent valve! The screw plug is identified by a plastic cap and might be painted over.

(see tables page 11)

On this occasion also check whether the oil filling is in accordance with the specified mounting position.  
(see tables page 11)

### **Lubrication of gear units and motor bearings**

#### **Lubrication table/gear unit oil levels**

For gear units it is important to check the oil level regularly the lubricants should be changed at the following intervals:

Mineral oils and greases: Every 10,000 operating hours or every two years  
(for housing temperature  $\leq 70^{\circ}\text{C}$ , measured close to the oil drain plug)

Under particularly severe operating conditions (e.g. high humidity, aggressive environment, large temperature fluctuations or high ambient temperature) shorter oil change intervals are necessary.

The grease packing's of bearings of motors should also be changed after approx. 10,000 operation hours. The bearing should be cleaned before being packed with new grease. The amount of grease should occupy on motors and input bearings of gear units, 1/3 of the free bearing space, however, on the bearings of the output shafts as well as pinion shafts with Nilos rings, 2/3 of the bearing space between the bearing elements. Repeated grease changes over the working life of the bearings should be carried out only after carefully checking that the dismantled and cleaned bearings are in a satisfactory state.

**Warning:** The synthetic lubricants listed in the lubrication table must not be mixed with one another or with mineral lubricants.

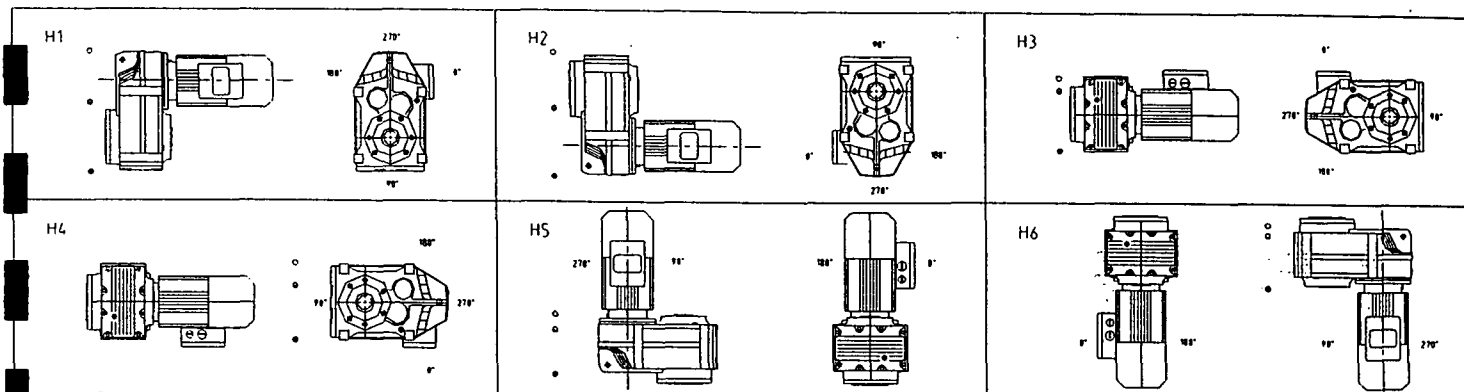
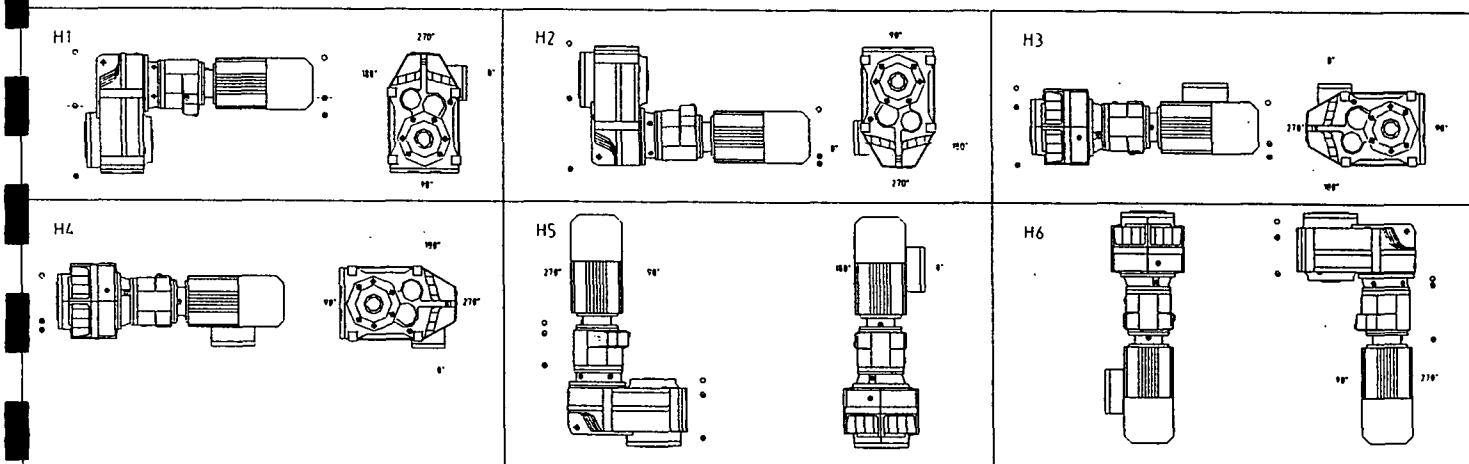


**OIL LEVELS - HOIST GEARBOX**

○ = breather plug

● = oil level plug

● = oil drain plug

**FAZ37 - FAZ127****FAZ67R.. - FAZ127R..****LUBRICANT FILLING QUANTITY  
APPROXIMATE VALUES****FOR OIL CAPACITIES OF R. BOXES - SEE PAGE 13****Mounting Positions**

Size/Type	H1	H2	H3	H4	H5	H6
FAZ37	1	0.7	1.1	1	1.3	1.2
FAZ47	1.4	1.1	1.7	1.5	1.9	1.8
FAZ67	2.7	2	3.2	2.9	3.8	3.8
FAZ77	5.1	4.3	6.3	6	8.1	7.3
FAZ87	10	7.8	11.2	11	13.8	13.2
FAZ97	18.5	12.6	20.5	18.5	25.5	22.5
FAZ107	24.5	19.5	28	27	37.5	32
FAZ127	39	34	49	46.5	61	56

## **TRAVEL DRIVE:**

Check the following:

1. Open gearing for wear
2. Wheel tread and flange wear.
3. Alignment of drive mechanism and tightness of all bolts and screws.

## **SERVICING OPERATIONS:**

Replacing the screw plug:

Before the unit is started, the screw plug is to be removed and replaced by the supplied breather plug or vent valve! The screw plug is identified by a plastic cap and might be painted over.

(see tables on pages 13, 14 and 15)

On this occasion also check whether the oil filling is in accordance with the specified mounting position.  
(see tables on pages 13, 14 and 15)

For gear units it is important to check the oil level regularly. The lubricants should be changed at the following intervals:

Mineral oils and greases: Every 10,000 operating hours or every two years  
(for housing temperature  $\leq 70^{\circ}\text{C}$ , measured close to the oil drain plug)

Under particularly severe operating conditions (e.g. high humidity, aggressive environment, large temperature fluctuations or high ambient temperature) shorter oil change intervals are necessary.

The grease packing's of bearings of motors should also be changed after approx. 10,000 operation hours. The bearing should be cleaned before being packed with new grease. The amount of grease should occupy on motors and input bearings of gear units, 1/3 of the free bearing space, however, on the bearings of the output shafts as well as pinion shafts with Nilos rings, 2/3 of the bearing space between the bearing elements. Repeated grease changes over the working life of the bearings should be carried out only after carefully checking that the dismantled and cleaned bearings are in a satisfactory state.

**Warning:** The synthetic lubricants listed in the lubrication table must not be mixed with one another or with mineral lubricants.

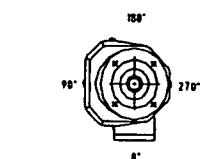
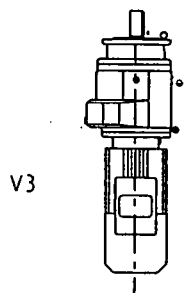
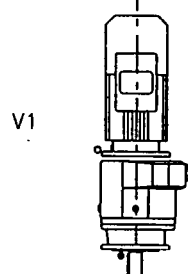
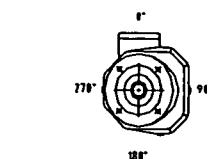
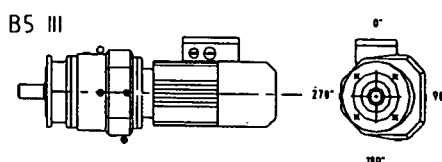
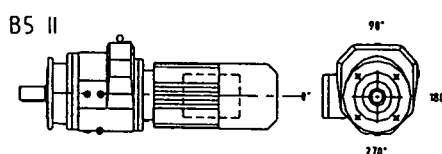
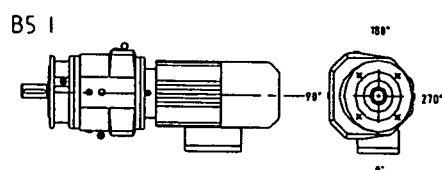
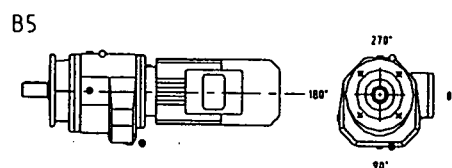
## OIL LEVELS - TRAVEL GEARBOX

### RF32-RF163

○ = breather plug

● = oil level plug

● = oil drain plug



## MAINTENANCE

Gear unit oil capacities (values in litres)

approx. quantity (l) per mounting position

Mounting Positions IM..

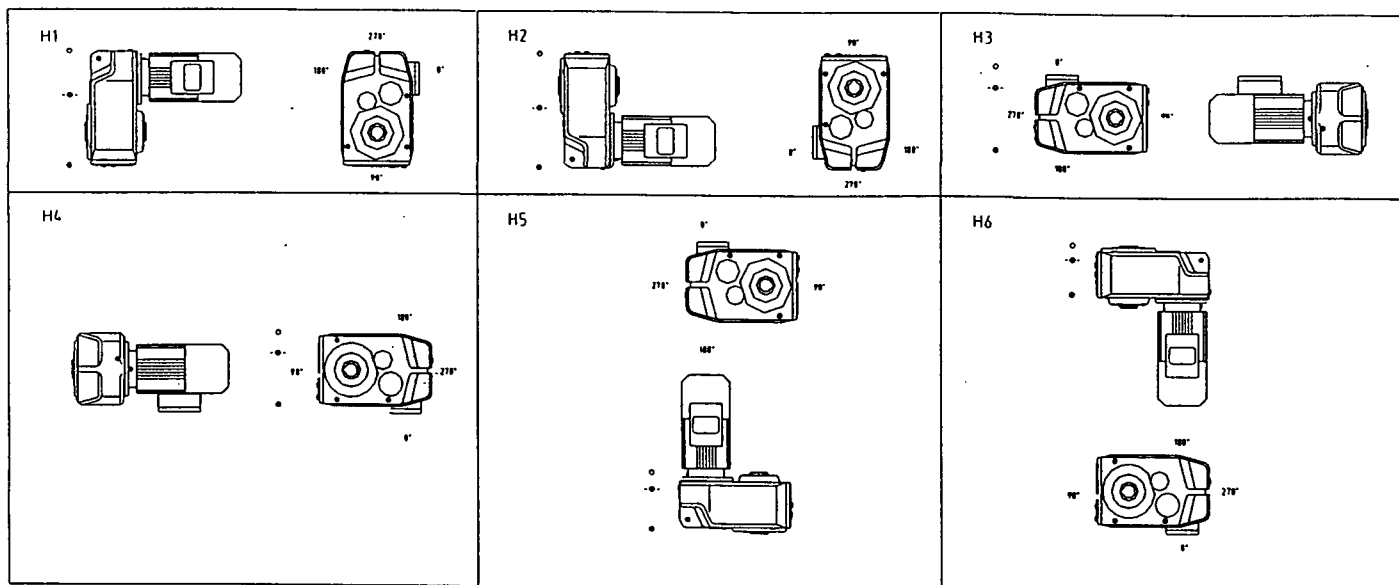
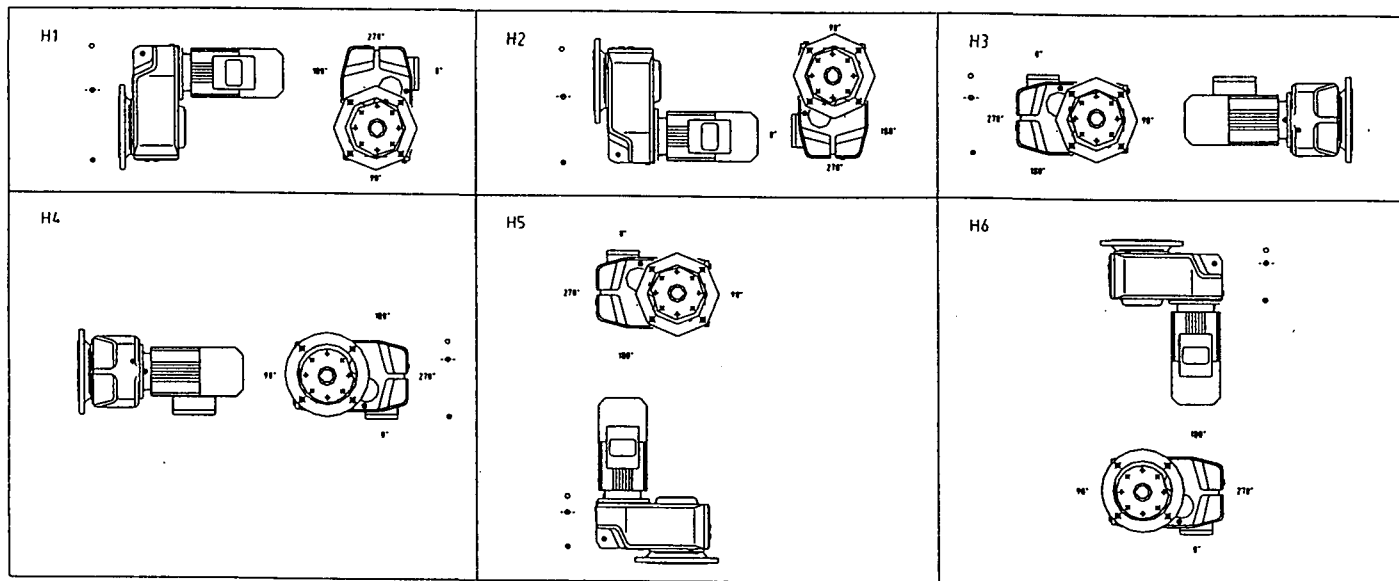
Size/Type	B5	B5 I	B5 II	B5 III	V1	V3
RF32	Grease 0.3kg					
RF42/43	0.3	0.6	0.6	0.6	1	0.9
RF62/63	0.5	1.2	1.1	1.3	2	1.9
RF72/73	1.2	2.1	2.1	2.3	3.7	3.5
RF82/83	2.6	4	4.1	4.8	8	7.5
RF92/93	4.3	7.1	7.5	7.8	13	12.3
RF102/103	6	10.8	11.2	11.8	20.5	18.7
RF132/133	9.5	18.4	19	19.9	31.5	32
RF142/143	12.5	27	28.5	30	48	49.5
RF152	19	43	44	50	72	76
RF163	18	43.5	49	42.5	79	81

**OIL LEVELS - TRAVEL GEARBOX****FA40 - FA100**

○ = breather plug

● = oil level plug

● = oil drain plug

**FAF40 - FAF100****MAINTENANCE**

Gear unit oil capacities (values in litres)

**Mounting Positions**

Size/Type	H1	H2	H3	H4	H5	H6
FA, FAF40	1.5	1	1.7	1.4	1.9	2.1
FA, FAF60	3.1	2.2	3.6	3.1	4.4	3.9
FA, FAF70	7	4.4	6.9	6	8.3	7.7
FA, FAF80	11.3	7.2	12	10.1	14	13.6
FA, FAF90	19.1	13	22	17.5	24	26
FA, FAF100	35	21	33.5	29.5	46	44.5

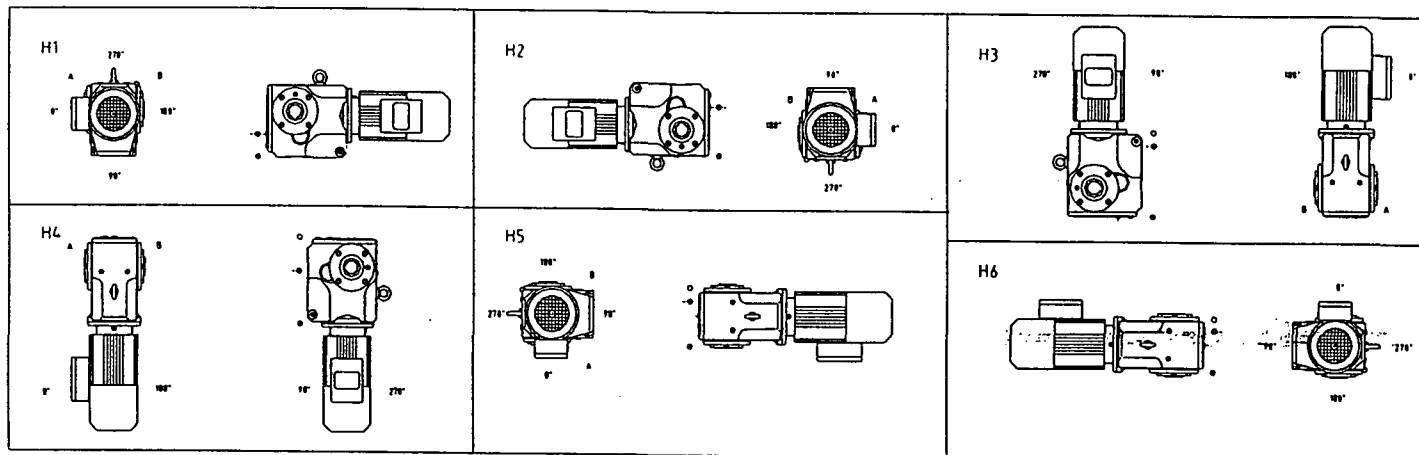
## OIL LEVELS - TRAVEL GEARBOX

KA46-KA106, KAF46-KAF106

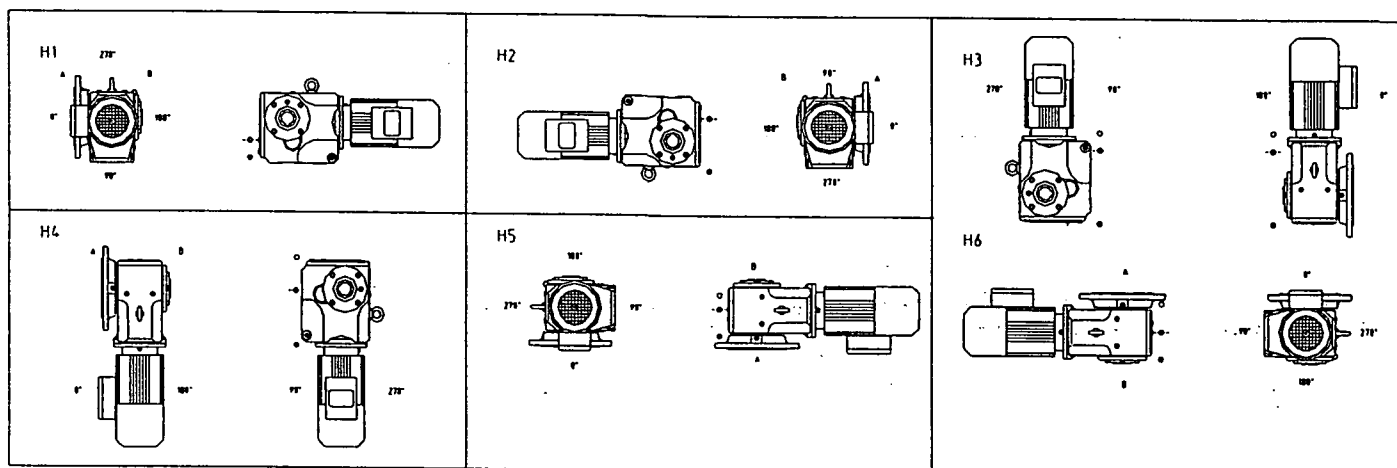
○ = breather plug

● = oil level plug

● = oil drain plug



KA126-KA156, KAF126-KAF156



## MAINTENANCE

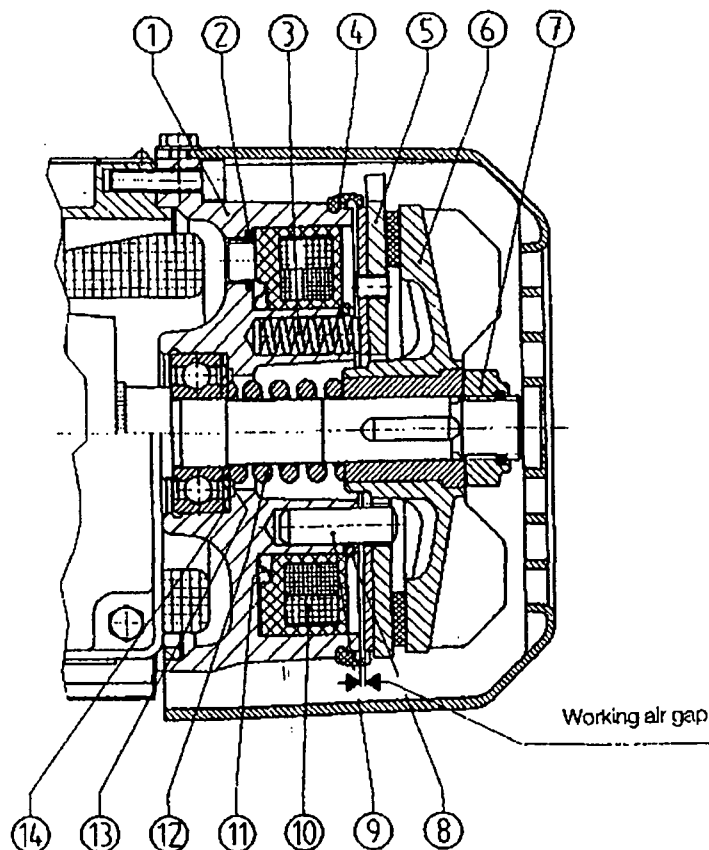
Gear unit oil capacities (values in litres)

Mounting Positions

Size/Type	H1	H2	H3	H4	H5, H6
KA, KAF46	0.6	1.4	1.8	1.2	1.3
KA, KAF66	0.9	2.5	3	2.2	3
KA, KAF76	1.9	4.5	5.7	4.1	6
KA, KAF86	2.6	7.9	9	7.1	9.3
KA, KAF96	5.4	15.4	18.5	14	19.5
KA, KAF106	8.9	26	31.5	23	32
KA, KAF126	13.7	48	52	42	57
KA, KAF156	26.5	79	92	67	100

## TRAVEL BRAKES

For motors frame sizes 71 to 225 refer to pages 8 and 9 for brake inspection and adjustment. (BM(G) Brake).  
For frame 63 motors only refer below (B03 Brake).



### THE B03 BRAKE

- |                             |                           |
|-----------------------------|---------------------------|
| 1. Brake bearing end shield | 10. Brake coil assembly   |
| 2. O-ring                   | 11. Equalising ring       |
| 3. Brake springs            | 12. Counter spring        |
| 4. Sealing collar           | 13. Spacer                |
| 5. Pressure plate assembly  | 14. Equalising ring       |
| 6. Brake fan assembly       | 15. Hand lever            |
| 7. Hexagonal nut            | 16. Releasing lever       |
| 8. Circlip                  | 17. Dowel pin             |
| 9. Dowel pin                | 18. Re-positioning spring |

### Inspecting the B03 Brake and adjusting the working air gap.

1. Isolate power from the motor and brake, prevent unintentional power up.
2. Remove the fan guard.
3. Measure the brake lining between the pressure plate (5) and the brake fan (6).  
If brake lining  $\leq 1.5\text{mm}$  - change the brake disc.  
Then:
4. Remove the rubber sealing collar (19) measure the working air gap with the feeler gauge and vacuum away the brake dust.
5. Tighten the hexagonal nut until the working air gap is set correctly (see following table).
6. Fit the rubber sealing collar and mount the fan guard.

**WORKING AIR GAP FOR DISC BRAKES:**

Motor frame size	Brake type	Working air gap (mm)	
		newly adjusted	re-adjust at
63 71/80 80 90/100 100	B 03 BM05 BM 1 BM 2 BM 4	min. 0.25	min. 0.6
112/132S 132M/160M 160L/180 200/225	BM 8 BM15 BM30 BM31	min. 0.3	min. 1.2
180 200/225	BM32* BM62*	min. 0.4	min. 1.2

\* Double disk brake

**CHANGING OF BRAKING TORQUE:**

The braking torque can be changed stepwise by using various brake springs and varying their number.

**The spring sets are changed as follows - For brake BM(G)**

1. Remove the fan guard, fan and rubber sealing ring.
2. Loosen the brake adjustment nuts and move the coil body backwards approx. 50mm.
3. Change the spring sets and ensure that the springs are symmetrically arranged.
4. Replace the brake and adjust to the smallest possible working air gap; see "Brake re-adjustment".
5. Replace the rubber sealing ring, fan and fan guard.

### **REMOVAL OF ROPE GUIDE: (if fitted)**

1. Remove rope guide stop (item 19)
2. Remove Lanyard (item 65)
3. Remove bolts and springs (item 21 and 22)
4. Remove both halves of rope guide (item 18)
5. Remove pressure spring (item 20)

### **INSTALLING ROPE GUIDE:**

1. Thoroughly grease screw thread and rope guide groove.
2. Install top half of rope guide (item 18) (with tapped holes) onto drum using 1st available empty groove in drum.
3. Block or wedge in position.
4. Insert pressure spring (item 20) into groove in rope guide. Stretch spring and hook ends together.
5. Install lower half of rope guide (item 18) and insert bolts and springs (items 21 and 22).
6. Fit lanyard (item 65).
7. Fit rope guide stop.

**NOTE:** Limit assembly may need to be removed for easy access.



## **INSPECTION OF WIRE ROPE AND FIXINGS:**

Inspect wire rope for any of the following:

1. Excess visible wire fractures.
2. Nest of wire fractures or a broken strand.
3. 10% reduction in diameter.
4. Reduction in rope diameter due to structural changes over lengthy sections.
5. Formation of baskets, loops, knots, necking, twisting or other mechanical damage.
6. Corkscrew type reformation.

Pay special attention to sections of rope adjacent to rope fixings and sheaves.

If rope has any of the above defects (1 to 6), rope must be replaced immediately.

For further information on Wire Rope please contact this office.

## **REMOVING WIRE ROPE:**

1. Lower bottom block and support to remove weight from rope.
2. Release end of wire rope in rope wedge socket.
3. Remove rope guide.
4. Unwind rope from drum.
5. Loosen bolts (item 12) of rope clamp (item 6) and remove rope.

## **FITTING WIRE ROPE:**

1. Unwind new wire rope from coil supplied ensuring no twists or other damage.
2. Secure wire rope onto drum using clamps and bolts (item 6, 12 and 14).
3. Wind rope onto drum for about 10 turns. Rope to be tight on drum and lubricated.
4. Install rope guide - see page 18.
5. Reeve rope as per rope removed or to instructions.
6. Fix loose end of rope to wedge rope socket. Refer to hoist assembly drawing.
7. **Important - Check adjustment of upper limit before putting hoist into service.**





**REMOVAL OF ROPE DRUM:**

1. Remove limit assembly.
2. Remove bolt, retaining washer and circlip from hollow shaft of gearbox.
3. Remove end cover (item 7) and circlip (item 11).
4. Support drum, then withdraw drive shaft (item 4), drum end shaft and bearing (item 5 and 9) by using thread provided in end of each shaft. After withdrawing these shafts drum can then be removed.





**INSTALLATION OF ROPE DRUM:**

1. Place rope drum in hoist frame making sure to lubricate internal splines.
2. Insert drum end shaft (item 5) and drive or press into drum until home.
3. Insert drive shaft and key (items 4 and 8) into hollow shaft of gear box and splined end of drum until home. Ensure shaft is coated with suitable lubricant or rust preventative.
4. Install bearing and circlip and end cover (items 9, 11 and 7)
5. Install circlip, retaining washer and bolt to hollow shaft of gearbox.
6. Install limit assembly.

**LUBRICANTS REQUIRED FOR ASSEMBLY OF DRUM.**

Application	Ambient Temperature				
Spline to drum	-20°C +120°C	L21 M	Grease M	Special Grease	Retimax AM
Shaft to gearbox	-20°C +80°C	HT-EP00	Transmission Grease	1 200W	Grease H

**OTHER LUBRICANTS REQUIRED.**

Application	Ambient Temperature				
Wire Ropes	-18°C +100°C	RD 105	Enagrease WRP	Arma 798	Malleus GL25
Open Gearing	-20°C +80°C	Open gear spray	Enagrease GR3000/2 Synogear	Open-Gear Lube L	Malleus GL205

## LUBRICANTS

Application	At ambient temperature			Lubricant type DIN (ISO)	ISO viscosity resp. NLGI class	BP	Esso	Mobil	SHELL
	-50	0°C	+50 +100						
Helical gear units	-25		+80	Oil	VG 220	BP Energol SG-SP 220		Mobil Glygoyle 30	Shell Tellus Oil WB
		0	+40		VG 220	BP Energol GR-XP 220	SPARTAN EP 220	Mobilgear 630	Shell Omala Oil 220
	-15	+25			VG 150	BP Energol GR-XP 100	SPARTAN EP 150	Mobilgear 629	Shell Omala Oil 100
Parallel shaft helical gear units	-30	+10			VG 68-46	BP Energol GR-XP 68	ESSO ATF D-21611	Mobil D.T.E. 15M	Shell Tellus Oil T 32
	-45	-20			VG 22	BP Energol HLP-HM 10	UNIVIS J 13	Mobil D.T.E. 11M	Shell Tellus Oil T 15
Helical-worm gear units		0	+60	Oil	VG 680	BP Energol GR-XP 680	SPARTAN EP 680	Mobil Glygoyle HE 680	
		0	+40		VG 680	BP Energol GR-XP 680	SPARTAN EP 680	Mobilgear 636	Shell Omala Oil 680
	-15	+25			VG 220	BP Energol GR-XP 220	SPARTAN EP 220	Mobilgear 630	Shell Omala Oil 220
	-20	+10			VG 150	BP Energol GR-XP 100	SPARTAN EP 150	Mobil D.T.E. 18M	Shell Omala Oil 100
	-25	+10			VG 220			Mobil Glygoyle 30	
Special lubricant for gear units	-45	-20			VG 22	BP Energol HLP-HM 10	UNIVIS J 13	Mobil D.T.E. 11M	Shell Tellus Oil T 15
	-40		+80		VG 220			Mobil SHC 630	
	-40	+10			VG 32			Mobil SHC 324	
	-25		+60		00	BP Energol LS-EP 00	Grease S420	Grease 00	Shell Tellus Compound A
	-15	+40			000	BP Energol LS-EP 00	FIBRAX EP 370	Mobilux EP 023	Shell Special Gear Grease H
Anti-friction bearings	-40		+80		2-3	BP Energol LS 3	Exxon BEACON 2	Mobilux EP 2	Shell Alvania Grease R 3
			+100		2		Unirex S2	Mobiltemp SHC 100	
	-25		+80		2				
	-25		+60		3		Unirex N3		Shell Alvania Fett R 3
	-45	-25			2				Aero Shell Grease 16

= Synthetic lubricants



= Mineral lubricants



## **NOTES**

## NOTES

# JDN MONOCRANE

## OPTIONS TO AH HOIST

Listed below are some of the options available to AH Hoisting Range.

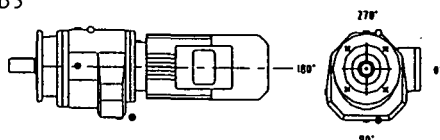
Encoder Fitting  
Additional Brakes  
Electronic Load Limiting  
Mechanical Load Limiting  
Additional Limit Switching  
Variable Speed Control  
Special Hoisting Speeds  
Special Mountings  
Special Reeving System  
Special Controls  
Condition Monitoring

## JDN MONOCRANE PRODUCT LIST

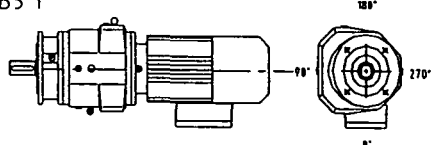
Electric Wire Rope Hoists	Track wheels Double Flange
Electric Chain Hoists	Track wheels Single Flange
Explosion Proof Hoists	Sheaves
Dust Ignition Proof Hoists	Hook Blocks - 1 fall
Special Hoists	Hook Blocks - 2 fall
Standard range of Overhead Cranes	Hook Blocks - 4 fall
Special Cranes	Hook Blocks - 8 fall
Fully Automatic Crane Systems	Special Hook Blocks and Lifting Gear
Jib Cranes	PLC Control
Special Lifting Devices	Computer Control
Warehousing Systems - Racking	Radio Control
Wedge Rope Sockets	Infra-red Control

**OIL LEVELS - TRAVEL GEARBOX****RF32-RF163**

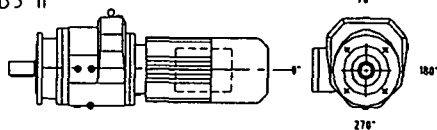
B5



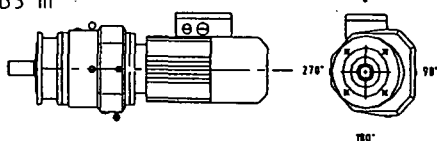
B5 I



B5 II



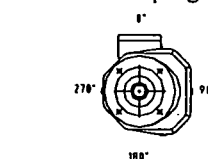
B5 III



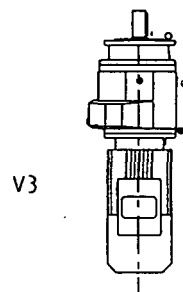
O = breather plug

● = oil level plug

● = oil drain plug



V1



V3

**MAINTENANCE**

Gear unit oil capacities (values in litres)

approx. quantity (l) per mounting position  
Mounting Positions IM..

Size/Type	B5	B5 I	B5 II	B5 III	V1	V3
RF32	Grease 0.3kg					
RF42/43	0.3	0.6	0.6	0.6	1	0.9
RF62/63	0.5	1.2	1.1	1.3	2	1.9
RF72/73	1.2	2.1	2.1	2.3	3.7	3.5
RF82/83	2.6	4	4.1	4.8	8	7.5
RF92/93	4.3	7.1	7.5	7.8	13	12.3
RF102/103	6	10.8	11.2	11.8	20.5	18.7
RF132/133	9.5	18.4	19	19.9	31.5	32
RF142/143	12.5	27	28.5	30	48	49.5
RF152	19	43	44	50	72	76
RF163	18	43.5	49	42.5	79	81

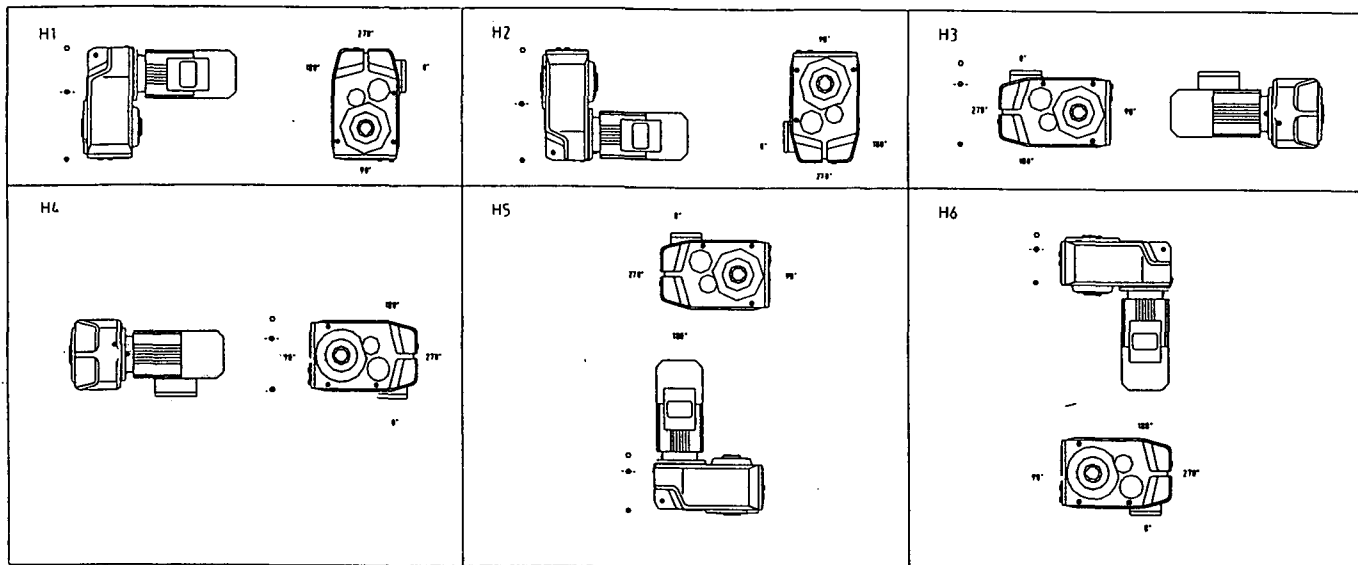
## OIL LEVELS - TRAVEL GEARBOX

### FA40 - FA100

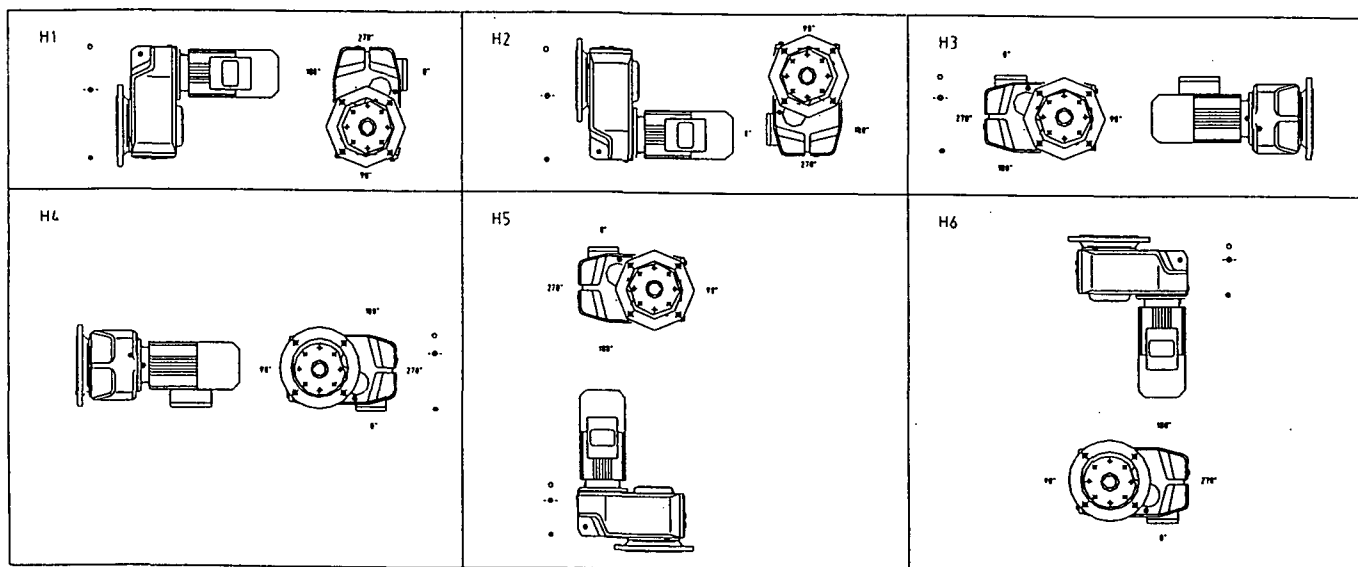
○ = breather plug

● = oil level plug

● = oil drain plug



### FAF40 - FAF100



## MAINTENANCE

Gear unit oil capacities (values in litres)

### Mounting Positions

Size/Type	H1	H2	H3	H4	H5	H6
FA, FAF40	1.5	1	1.7	1.4	1.9	2.1
FA, FAF60	3.1	2.2	3.6	3.1	4.4	3.9
FA, FAF70	7	4.4	6.9	6	8.3	7.7
FA, FAF80	11.3	7.2	12	10.1	14	13.6
FA, FAF90	19.1	13	22	17.5	24	26
FA, FAF100	35	21	33.5	29.5	46	44.5



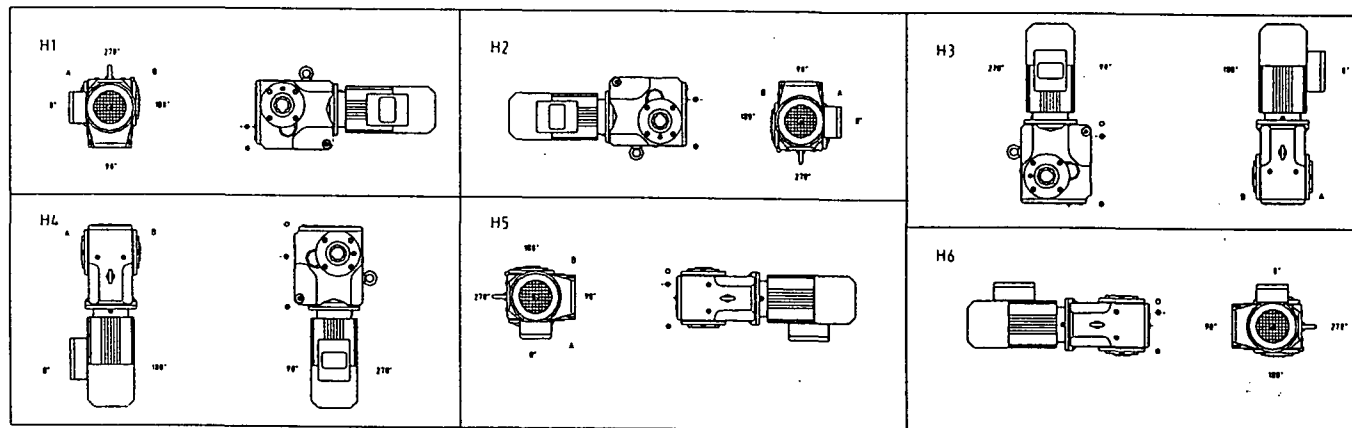
## OIL LEVELS - TRAVEL GEARBOX

KA46-KA106, KAF46-KAF106

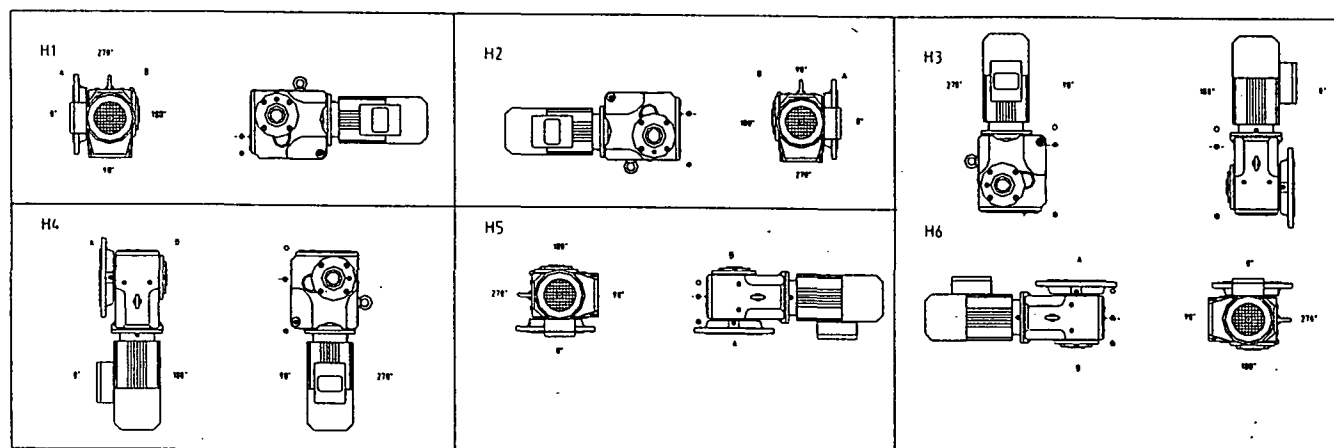
○ = breather plug

● = oil level plug

● = oil drain plug



KA126-KA156, KAF126-KAF156



## MAINTENANCE

Gear unit oil capacities (values in litres)

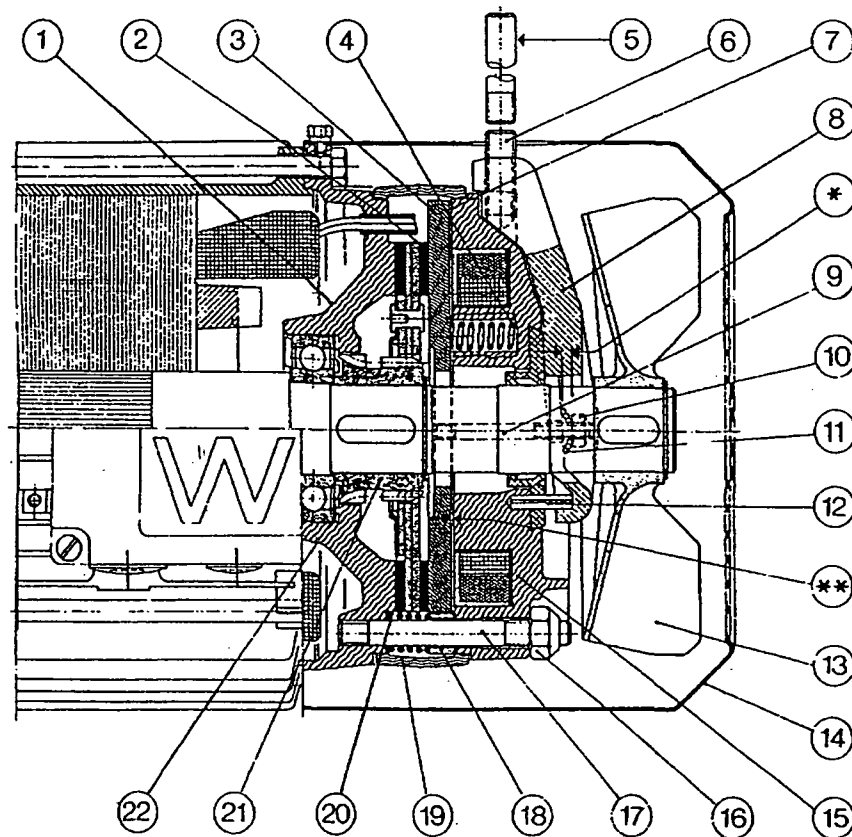
Mounting Positions

Size/Type	H1	H2	H3	H4	H5, H6
KA, KAF46	0.6	1.4	1.8	1.2	1.3
KA, KAF66	0.9	2.5	3	2.2	3
KA, KAF76	1.9	4.5	5.7	4.1	6
KA, KAF86	2.6	7.9	9	7.1	9.3
KA, KAF96	5.4	15.4	18.5	14	19.5
KA, KAF106	8.9	26	31.5	23	32
KA, KAF126	13.7	48	52	42	57
KA, KAF156	26.5	79	92	67	100

## SERVICING OPERATIONS:

### TRAVEL BRAKES:

The BM(G) is a DC-excited electromagnetic disc brake which is held off electrically and braked by spring force. The system fulfils a basic safety principle: if the power fails the brake is applied automatically. The main parts of the brake system consist of the actual brake coil body (accelerating coil + partial coil = holding coil), an assembly of the coil body with an encapsulated tapped winding (15), the moveable pressure plate (3), the brake spring (4), the brake disc assembly (2) on the carrier which can move along the shaft, and the brake end shield (1).



### THE BM BRAKE

- |   |                              |
|---|------------------------------|
| 1. Brake end shield   | 12. Dowel pin                |
| 2. Brake disc assembly  | 13. Fan                      |
| 3. Pressure plate   | 14. Fan guard                |
| 4. Brake springs  | 15. Brake coil assembly      |
| 5. Hand lever for manual disengagement, will re-engage itself when released | 16. Hexagonal adjustment nut |
| 6. Manual brake release screw to fix brake in the disengaged position       | 17. Retaining screw          |
| 7. Damper pad with nap (BMG brake only)                                     | 18. Pressure ring            |
| 8. Release lever  | 19. Sealing collar           |
| 9. Stud   | 20. Counter spring           |
| 10. Setting nut   | 21. Carrier                  |
| 11. Conical coil spring   | 22. Equalising ring          |
|   | * End play 1.5 - 2.0 mm      |
|   | ** Working air gap           |

**MAINTENANCE OF BRAKE BMG05-8 AND BM15-62, SETTING THE WORKING AIR GAP.**

1. Isolate power from the motor and brake, prevent unintentional power up.
2. Remove the fan guard (14) or forced cooling fan guard, move the rubber sealing collar (19) and loosen the clamp, if necessary.
3. Measure the brake disc:  
If the brake disc measures  
-  $\leq 9\text{mm}$  in brake motors up to frame size 100  
-  $\leq 10\text{mm}$  in brake motors above frame size 112  
Change the brake disc.
4. In the BM30-62  
Loosen the setting sleeve by turning it in the direction of the bearing end shield.
5. Insert the feeler gauge into the working air gap  
- in the BM between the pressure plate (3) and the coil body (15).  
- in the BMG between the pressure plate and the damping disc.
6. Tighten the hexagonal nuts (16)  
- until the working air gap is set correctly (see following table)  
- in the BM30-62 until the (provisional) working air gap = 0.25mm.
7. In the BM30-62:  
Tighten the setting sleeves:  
- against the coil body;  
- until the working air gap is set correctly (see following table)
8. Fit the rubber sealing collar and mount the fan guard.

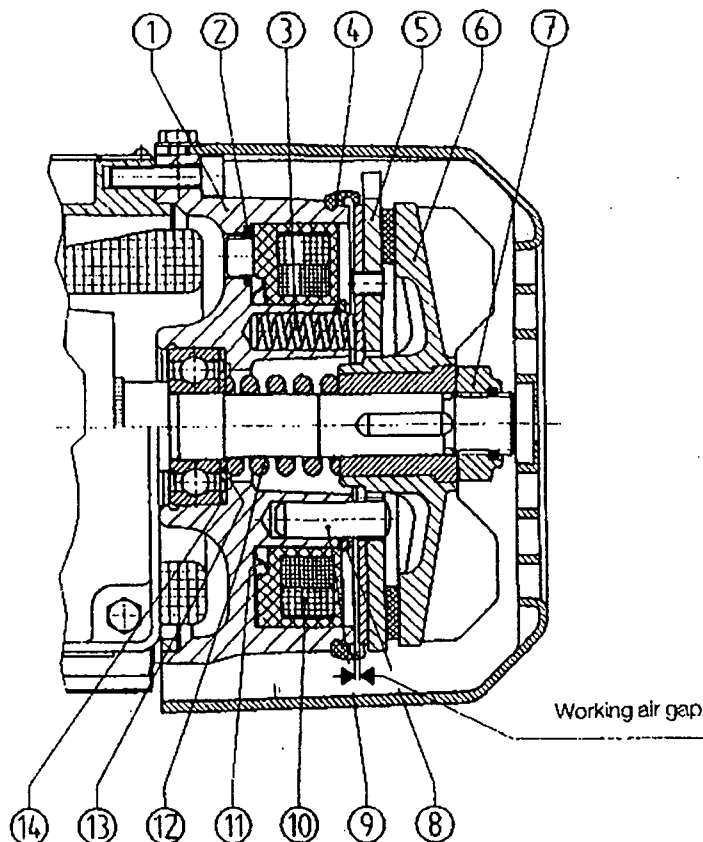
**WORKING AIR GAP FOR DISC BRAKES:**

Motor frame size	Brake type	Working air gap (mm)	
		newly adjusted	re-adjust at
63 71/80 80 90/100 100	B 03 BM05 BM 1 BM 2 BM 4	min. 0.25	min. 0.6
112/132S 132M/160M 160L/180 200/225	BM 8 BM15 BM30 BM31	min. 0.3	min. 1.2
180 200/225	BM32* BM62*	min. 0.4	min. 1.2

\* Double disk brake

## TRAVEL BRAKES

For motors frame sizes 71 to 225 refer to pages 14 and 15 for brake inspection and adjustment. (BM(G) Brake).  
For frame 63 motors only refer below (B03 Brake).



### THE B03 BRAKE

- |                             |                           |
|-----------------------------|---------------------------|
| 1. Brake bearing end shield | 10. Brake coil assembly   |
| 2. O-ring                   | 11. Equalising ring       |
| 3. Brake springs            | 12. Counter spring        |
| 4. Sealing collar           | 13. Spacer                |
| 5. Pressure plate assembly  | 14. Equalising ring       |
| 6. Brake fan assembly       | 15. Hand lever            |
| 7. Hexagonal nut            | 16. Releasing lever       |
| 8. Circlip                  | 17. Dowel pin             |
| 9. Dowel pin                | 18. Re-positioning spring |

### Inspecting the B03 Brake and adjusting the working air gap.

1. Isolate power from the motor and brake, prevent unintentional power up.
2. Remove the fan guard.
3. Measure the brake lining between the pressure plate (5) and the brake fan (6).  
If brake lining  $\leq 1.5\text{mm}$  - change the brake disc.  
Then:
4. Remove the rubber sealing collar (19) measure the working air gap with the feeler gauge and vacuum away the brake dust.
5. Tighten the hexagonal nut until the working air gap is set correctly (see following table).
6. Fit the rubber sealing collar and mount the fan guard.

**WORKING AIR GAP FOR DISC BRAKES:**

Motor frame size	Brake type	Working air gap (mm)	
		newly adjusted	re-adjust at
63 71/80 80 90/100 100	B 03 BM05 BM 1 BM 2 BM 4	min. 0.25	min. 0.6
112/132S 132M/160M 160L/180 200/225	BM 8 BM15 BM30 BM31	min. 0.3	min. 1.2
180 200/225	BM32* BM62*	min. 0.4	min. 1.2

\* Double disk brake





**CHANGING OF BRAKING TORQUE:**

The braking torque can be changed stepwise by using various brake springs and varying their number.

**The spring sets are changed as follows - For brake BM(G)**

1. Remove the fan guard, fan and rubber sealing ring.
2. Loosen the brake adjustment nuts and move the coil body backwards approx. 50mm.
3. Change the spring sets and ensure that the springs are symmetrically arranged.
4. Replace the brake and adjust to the smallest possible working air gap; see "Brake re-adjustment".
5. Replace the rubber sealing ring, fan and fan guard.



## LUBRICANTS

Application	At ambient temperature -50 0°C +50 +100	Lubricant type DIN (ISO)	ISO viscosity resp. NLGI class				
Helical gear units	-25 0 +40 +80	Oil CLP (PG)	VG 220	BP Energol SG-SP 220	SPARTAN EP 220	Mobil Glycoyle 30	Shell Tellus Oil 220
Helical-bevel gear units	-15 +25	CLP (CC)	VG 150 VG 100 VG 68-46 VG 32	BP Energol GR-XP 220 BP Energol GR-XP 100 BP Energol GR-XP 68	SPARTAN EP 150 ESSO ATF D-21611	Mobilgear 629 Mobil D.T.E. 15M	Shell Omala Oil 100 Shell Tellus Oil T 32
Parallel shaft helical gear units	-30 +10 -45 -20	HLP (HM)	VG 22 VG 15	BP Energol HLP-HM 10	UNIVIS J 13	Mobil D.T.E. 11M	Shell Tellus Oil T 15
	0 +40 +60	CLP (PG)	VG 680	BP Energol GR-XP 680	SPARTAN EP 680	Mobilgear 636	Shell Omala Oil 680
	0 +25	CLP (CC)	VG 220 VG 150 VG 100	BP Energol GR-XP 220 BP Energol GR-XP 100	SPARTAN EP 220 SPARTAN EP 150	Mobilgear 630 Mobil D.T.E. 18M	Shell Omala Oil 220 Shell Omala Oil 100
Helical-worn gear units	-25 +10	CLP PG	VG 220	BP Energol HLP-HM 10	UNIVIS J 13	Mobil D.T.E. 11M	Shell Tellus Oil T 15
	-45 -20	HLP (HM)	VG 22 VG 15	BP Energol HLP-HM 10	UNIVIS J 13	Mobil D.T.E. 11M	Shell Tellus Oil T 15
	-40 +10 +80	CLP-HG	VG 220 VG 32	BP Energol HLP-HM 10	UNIVIS J 13	Mobil D.T.E. 11M	Shell Tellus Oil T 15
Special lubricant for gear units	-40 -25 +40 +60		00	BP Energol LS-EP 00	FIBRAX EP 370	Mobilux EP 023	Shell Special Compound A
	-15 +40		000	BP Energol LS 3	BEACON 2	Mobilux EP 2	Shell Alvania Grease R 3
	-30 +60 +80		2-3	BP Energol LS 3	BEACON 2	Mobilux EP 2	Shell Alvania Grease R 3
Anti-friction bearings	-40 -25 +80 +100	Gear Units Grease	DIN 51818	BP Energol LS 3	BEACON 2	Mobilux EP 2	Shell Alvania Grease R 3
	-25 +60 +80		3	BP Energol LS 3	BEACON 2	Mobilux EP 2	Shell Alvania Grease R 3
	-25 +60 +80		3	BP Energol LS 3	BEACON 2	Mobilux EP 2	Shell Alvania Grease R 3
	-45 -25	Motor	2	BP Energol LS 3	BEACON 2	Mobilux EP 2	Shell Alvania Grease R 3

= Synthetic lubricants

= Mineral lubricants

**LUBRICANTS REQUIRED FOR TRAVEL DRIVE.**

Application	Ambient Temperature	ROCOL		Mobil	
Direct Drive Spline	-20°C +120°C	RD 105	Enagrease WRP	Arma 798	Malleus GL25
Hollow Shaft to gearbox	-20°C +80°C	Transmission Grease	HT-EP00	1 200W	Grease H
Open Gearing	-20°C +80°C	Open gear spray	Enagrease GR3000/2 Synogear	Open-Gear Lube L	Malleus GL205

**NOTES**

# JDN MONOCRANE

## OPTIONS TO AH HOIST

Listed below are some of the options available to AH Hoisting Range.

Encoder Fitting  
Additional Brakes  
Electronic Load Limiting  
Mechanical Load Limiting  
Additional Limit Switching  
Variable Speed Control  
Special Hoisting Speeds  
Special Mountings  
Special Reeving System  
Special Controls  
Condition Monitoring

## JDN MONOCRANE PRODUCT LIST

Electric Wire Rope Hoists	Track wheels Double Flange
Electric Chain Hoists	Track wheels Single Flange
Explosion Proof Hoists	Sheaves
Dust Ignition Proof Hoists	Hook Blocks - 1 fall
Special Hoists	Hook Blocks - 2 fall
Standard range of Overhead Cranes	Hook Blocks - 4 fall
Special Cranes	Hook Blocks - 8 fall
Fully Automatic Crane Systems	Special Hook Blocks and Lifting Gear
Jib Cranes	PLC Control
Special Lifting Devices	Computer Control
Warehousing Systems - Racking	Radio Control
Wedge Rope Sockets	Infra-red Control



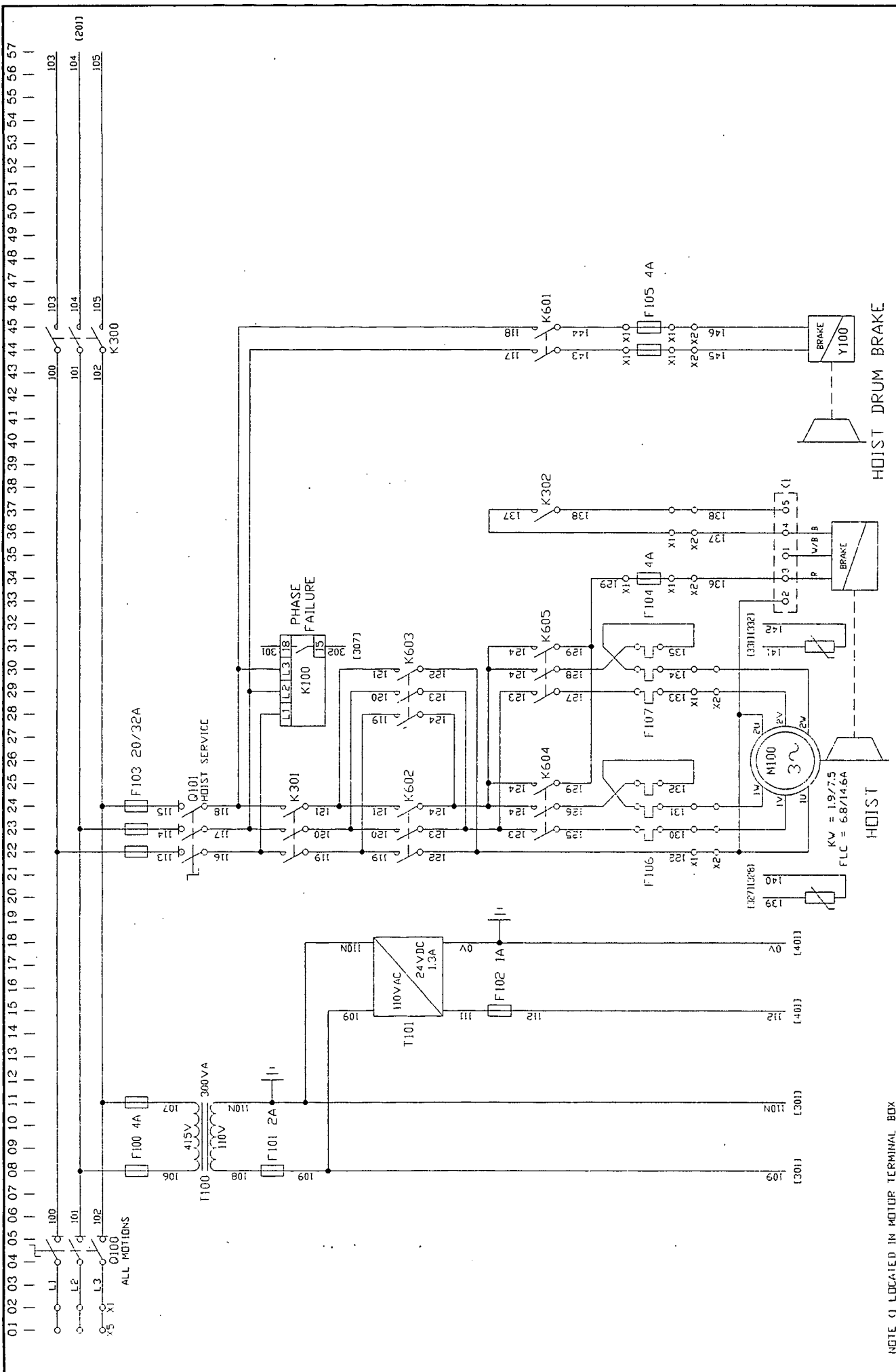
**PROCEDURE FOR LOWERING OF PERSONNEL BASKET IN CASE OF POWER FAILURE OR MECHANICAL OR ELECTRICAL BREAKDOWN.**

Hoist is fitted with two brakes, both of which will be engaged in the event of power failure.

**Drum Brake** - Drawing D-10680-14A.

Release pawl (item 9.) manually and ensure load is being held by normal hoist working brake. It is advisable to have a person operating pawl and not to chock in released position.

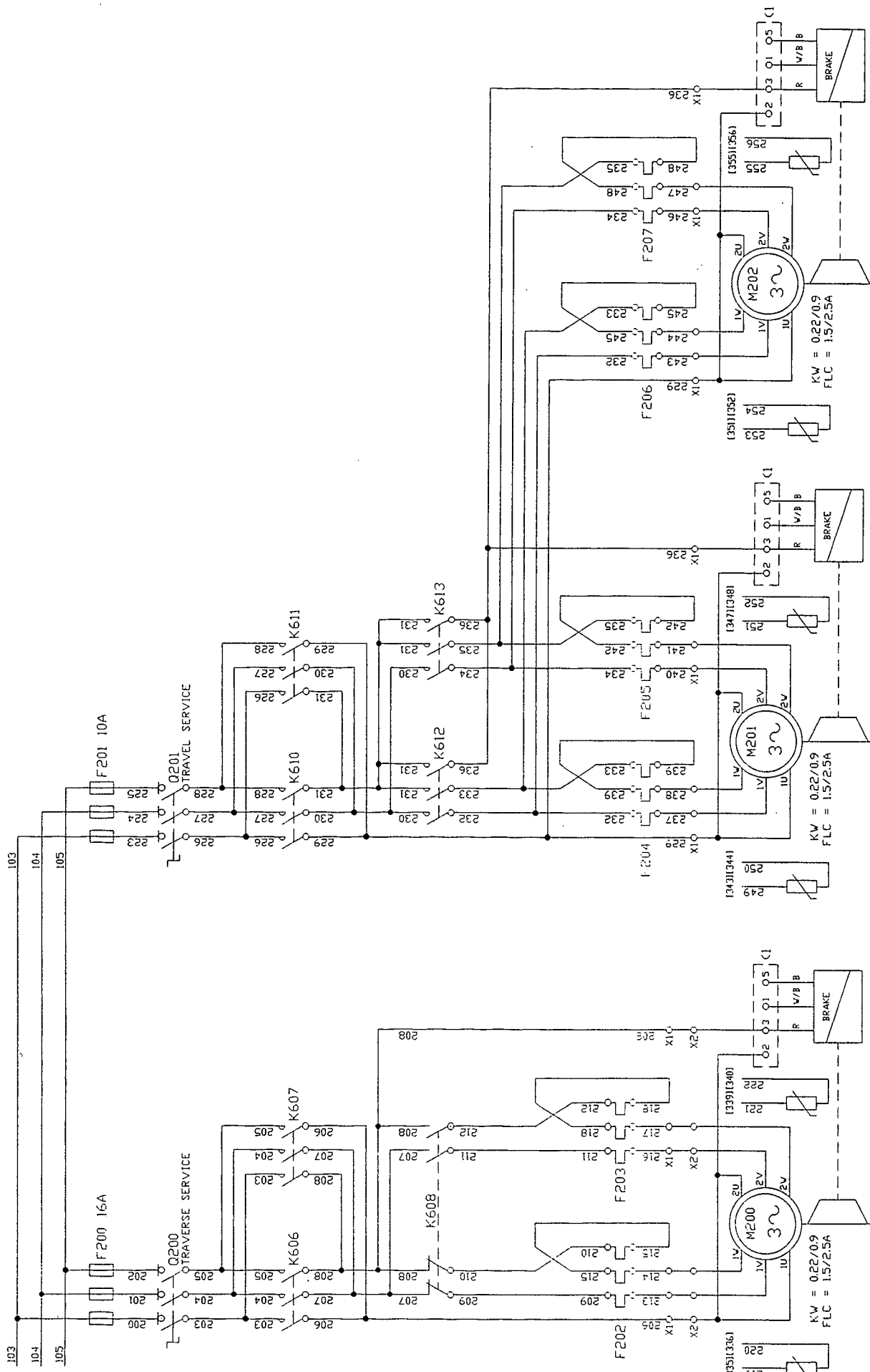
**Hoist Brake** - This has been fitted with spring loaded hand release. This release mechanism allows operator to control lowering speed and brake will apply when hand lever is released.



NOTE (1) LOCATED IN MOTOR TERMINAL BOX

<b>JDN MONOCRANE</b>		<b>ELECTRICAL SCHEMATIC</b>		<b>KILPATRIC GREEN</b>		DATE FEB 97	DRAWN IS	SHEET NO 1
		<b>415VAC POWER</b>		<b>EAGLE FARM PUMP STATION UPGRADE</b>		CHECKED IS		CONT ON SHEET NO 2
				<b>15 TONNE OHTC</b>		DWG NO 10680		REVISION NO

01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57

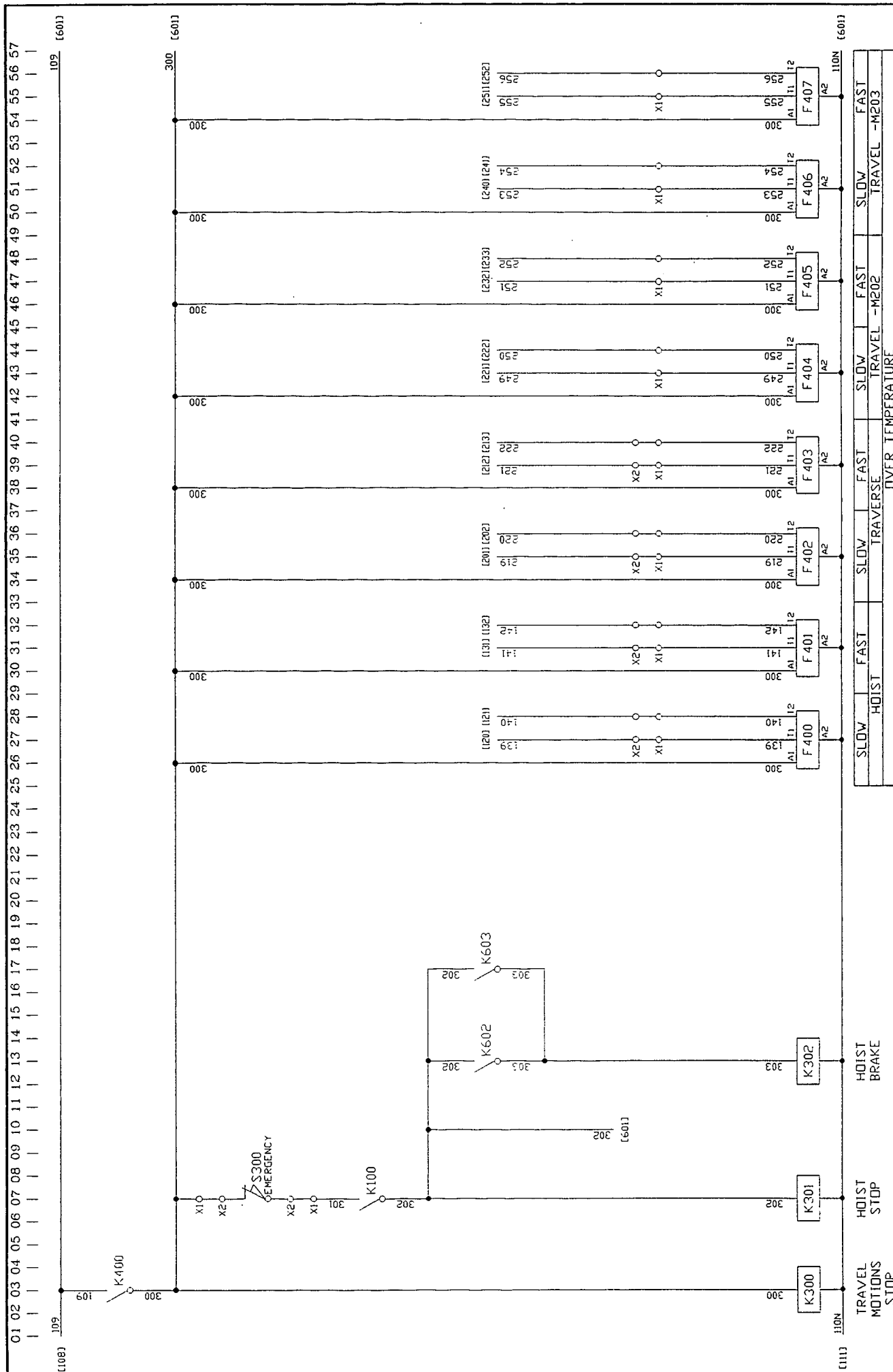


NOTE (1) LOCATED IN MOTOR TERMINAL BOX

TRAVEL

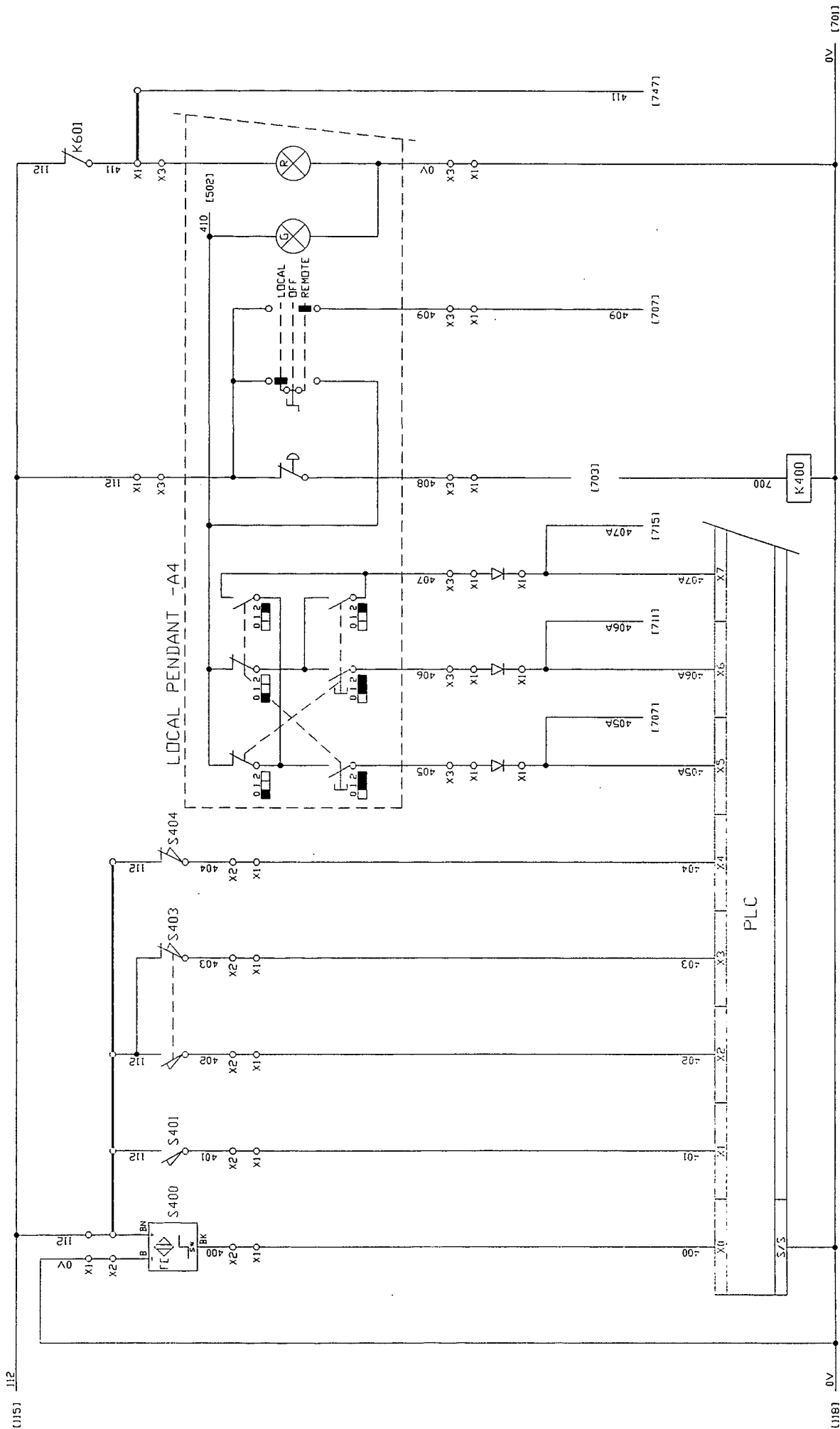
TRAVERSE

<b>JDN MONOCRANE</b>		<b>ELECTRICAL SCHEMATIC</b>		<b>KILPATRIC GREEN</b>		DATE FEB 97	DRAWN IS	SHEET NO 2
		415VAC POWER		EAGLE FARM PUMP STATION UPGRADE			CHECKED IS	CONT ON SHEET NO 3
				15 TONNE OHTC		DWG NO	10680	REVISION NO



<b>JDN MONOCRANE</b>		<b>ELECTRICAL SCHEMATIC</b>		<b>KILPATRIC GREEN</b>		<b>SHEET NO 3</b>	
110VAC CONTROL		EAGLE FARM PUMP STATION UPGRADE		DATE FEB 97		DRAWN IS	
		15 TONNE OHTC		CHECKED IS		CONT ON SHEET NO 4	
				DWG NO 10680		REVISION NO	

01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57



COUNT	LIFTED	RESET	UP	DOWN	UP	DOWN	U/D FAST	SELECT	E STOP	LOCAL	REMOTE	LOCAL	E BRAKE
													ACTIVATED

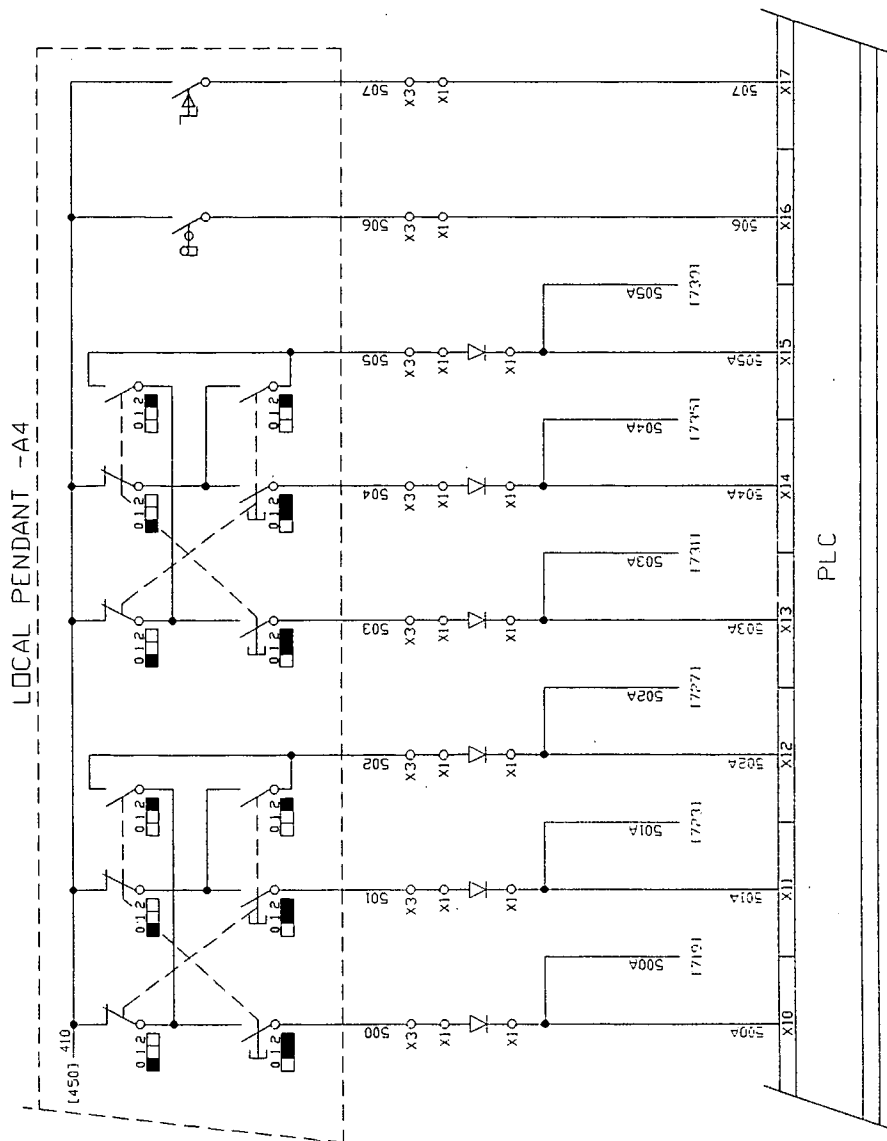
**JDN MONOCRANE**

ELECTRICAL SCHEMATIC  
24VDC CONTROL  
PLC INPUTS

KILPATRIC GREEN  
EAGLE FARM PUMP STATION UPGRADE  
15 TONNE OHTC

DATE  
FEB 97  
DRAWN  
JS  
CHECKED  
JS  
DWG NO  
10680  
SHEET NO 4  
CONT DN SHEET NO 5  
REVISION NO

01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57



NORTH	SOUTH	N/S FAST	EAST	WEST	E/W FAST	SAFETY	BRAKE RESET
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**JDN MONOCRANE**

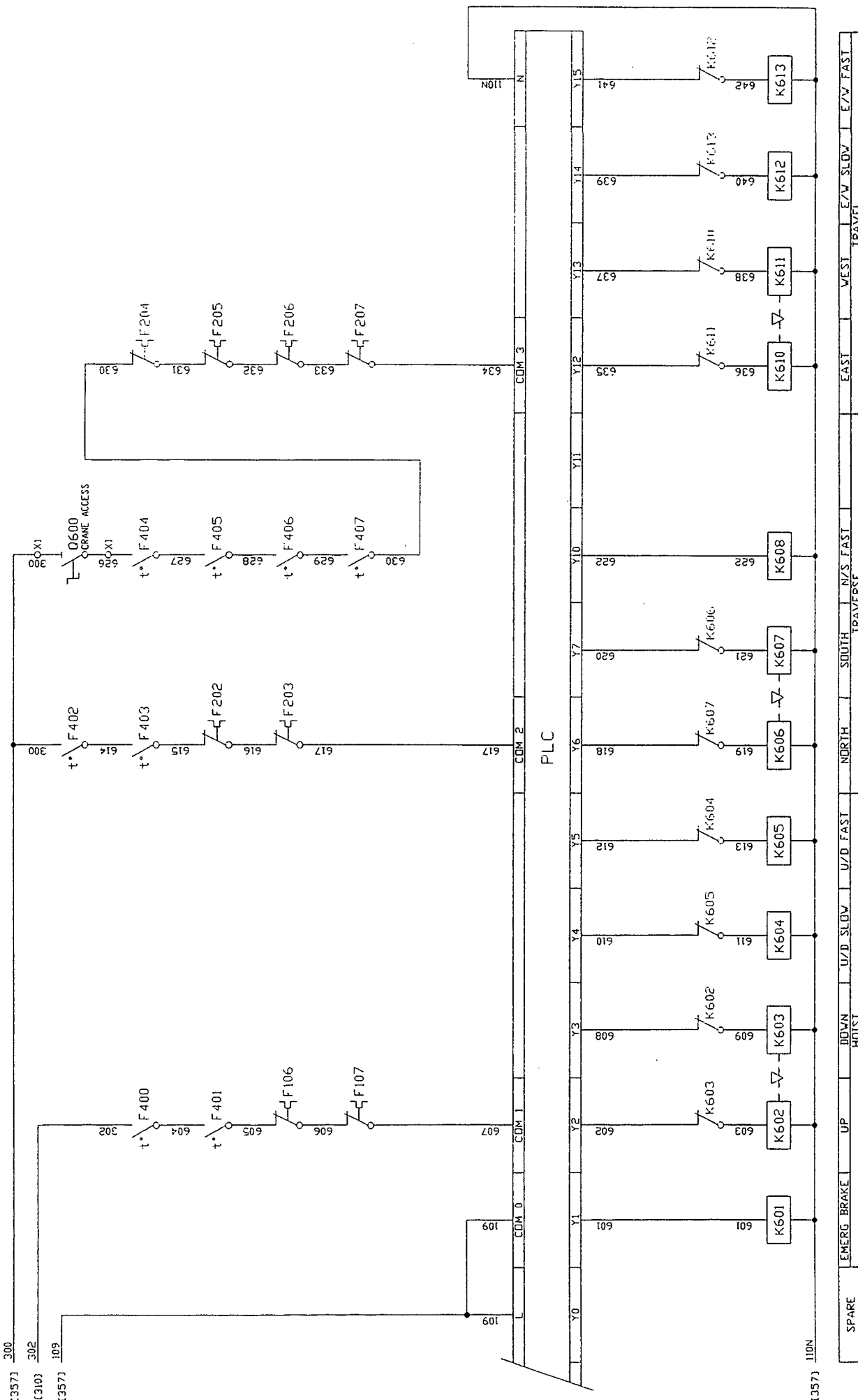
ELECTRICAL SCHEMATIC  
24VDC CONTROL  
PLC INPUTS

KILPATRIC GREEN  
EAGLE FARM PUMP STATION UPGRADE  
15 TONNE OHTC

DATE  
FEB 97  
DRAWN  
IS  
CHECKED  
IS  
DWG NO  
10680  
REVISION NO

SHEET NO 5  
CONT ON SHEET NO 6

01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57



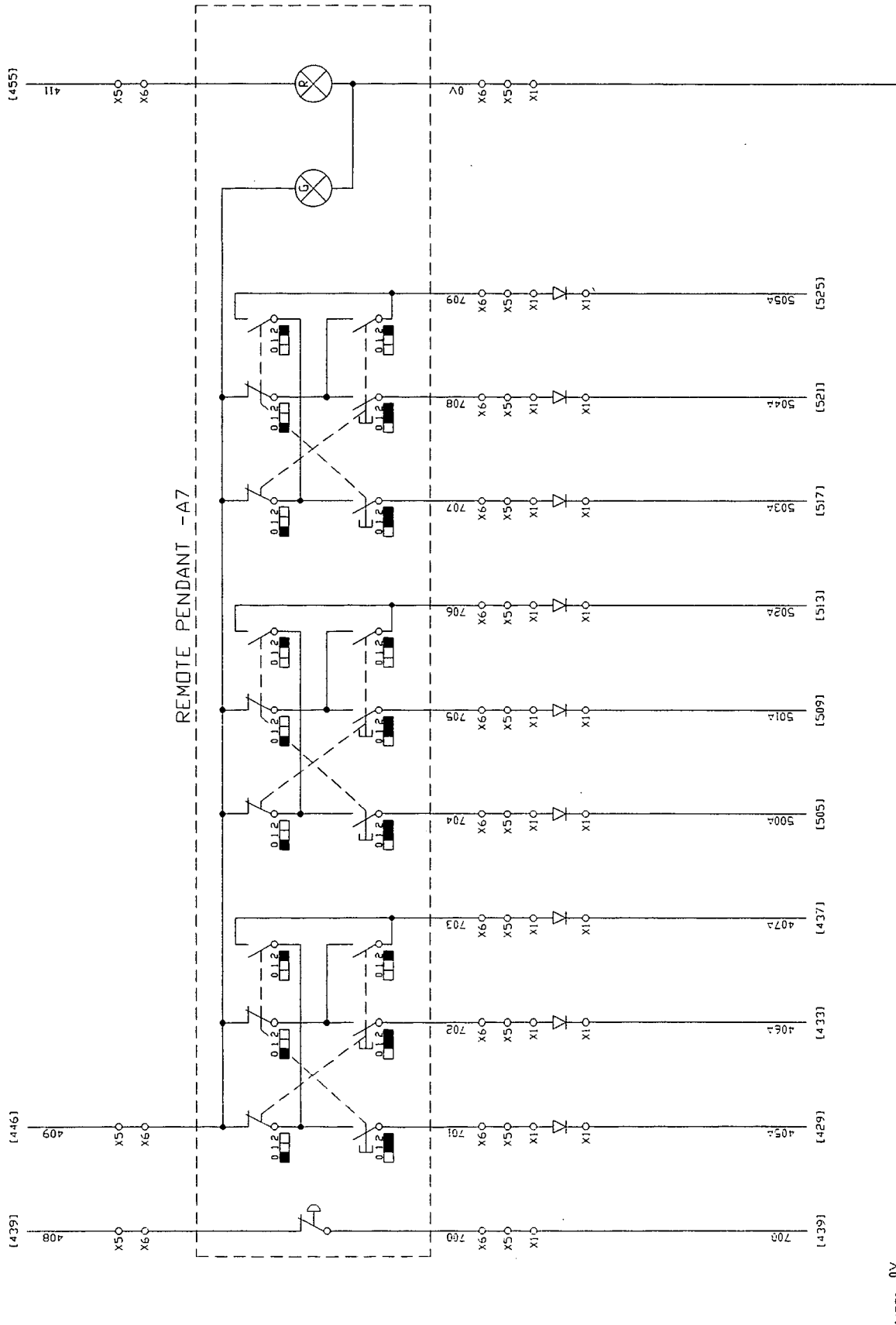
# JDN MONOCRANE

ELECTRICAL SCHEMATIC  
110VDC CONTROL  
PLC OUTPUTS

KILPATRIC GREEN  
EAGLE FARM PUMP STATION UPGRADE

DATE FEB 97	DRAWN JS	SHEET NO 6
DWG NO 10680	CHECKED JS	CONT ON SHEET NO 7
15 TONNE OHTC	REVISION NO	

01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57



E STOP	UP	DOWN	U/D FAST	NORTH	SOUTH	N/S FAST	EAST	WEST	E/W FAST	REMOTE ACTIVATED	E BRAKE
--------	----	------	----------	-------	-------	----------	------	------	----------	---------------------	---------

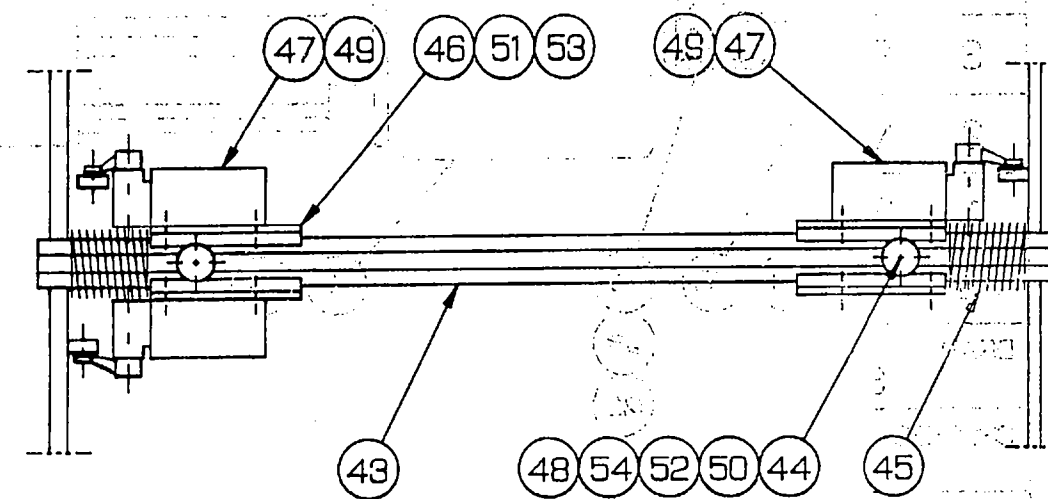
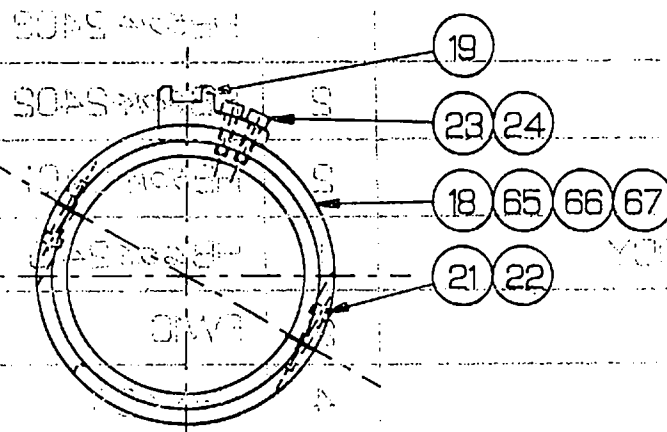
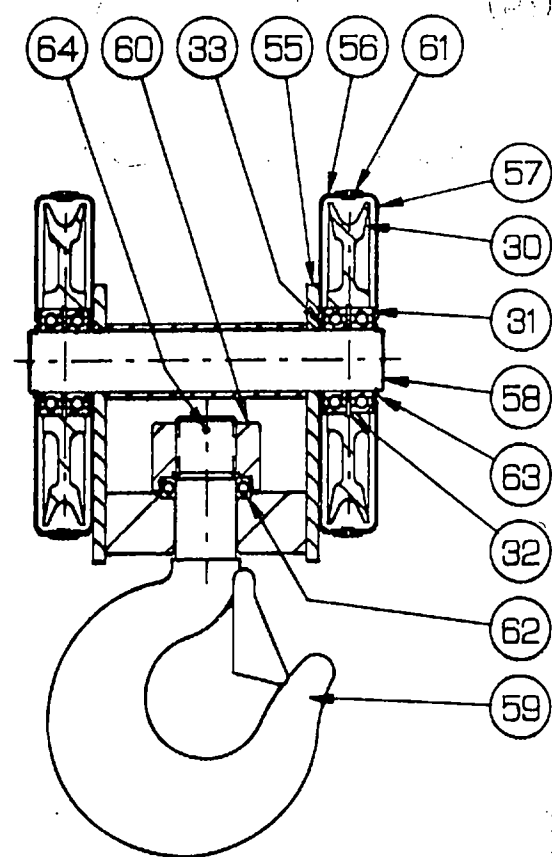
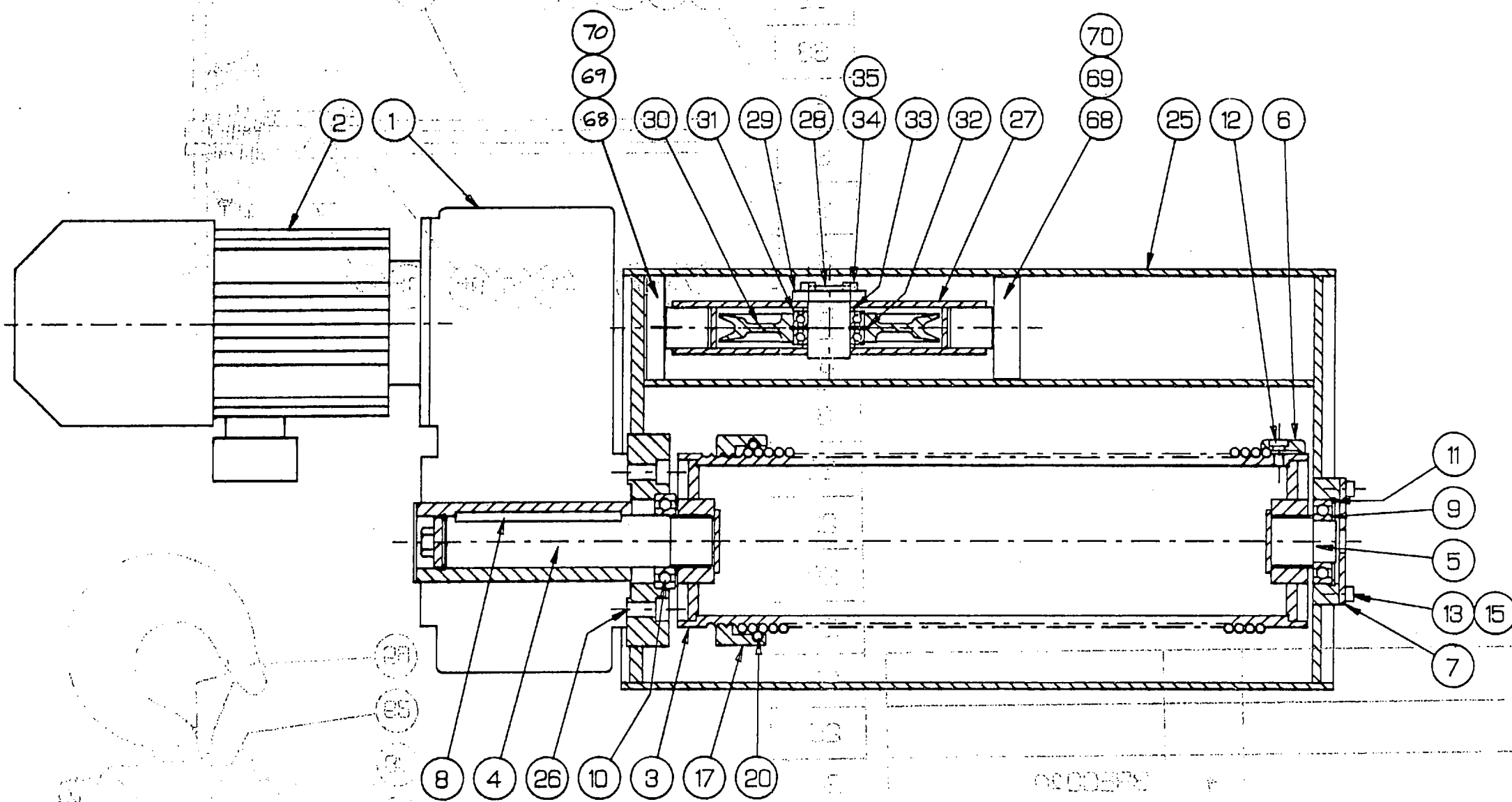
<b>JDN MONOCRANE</b>				ELECTRICAL SCHEMATIC 24VDC CONTROL REM PEND INTERFACE				KILPATRIC GREEN EAGLE FARM PUMP STATION UPGRADE				SHEET NO 7			
												DRAWN IS			
												DATE FEB 97			
												CHECKED IS			
												DWG NO 10680			
												REVISION NO			



OWG NO 10680

## ELECTRICAL PARTS LIST

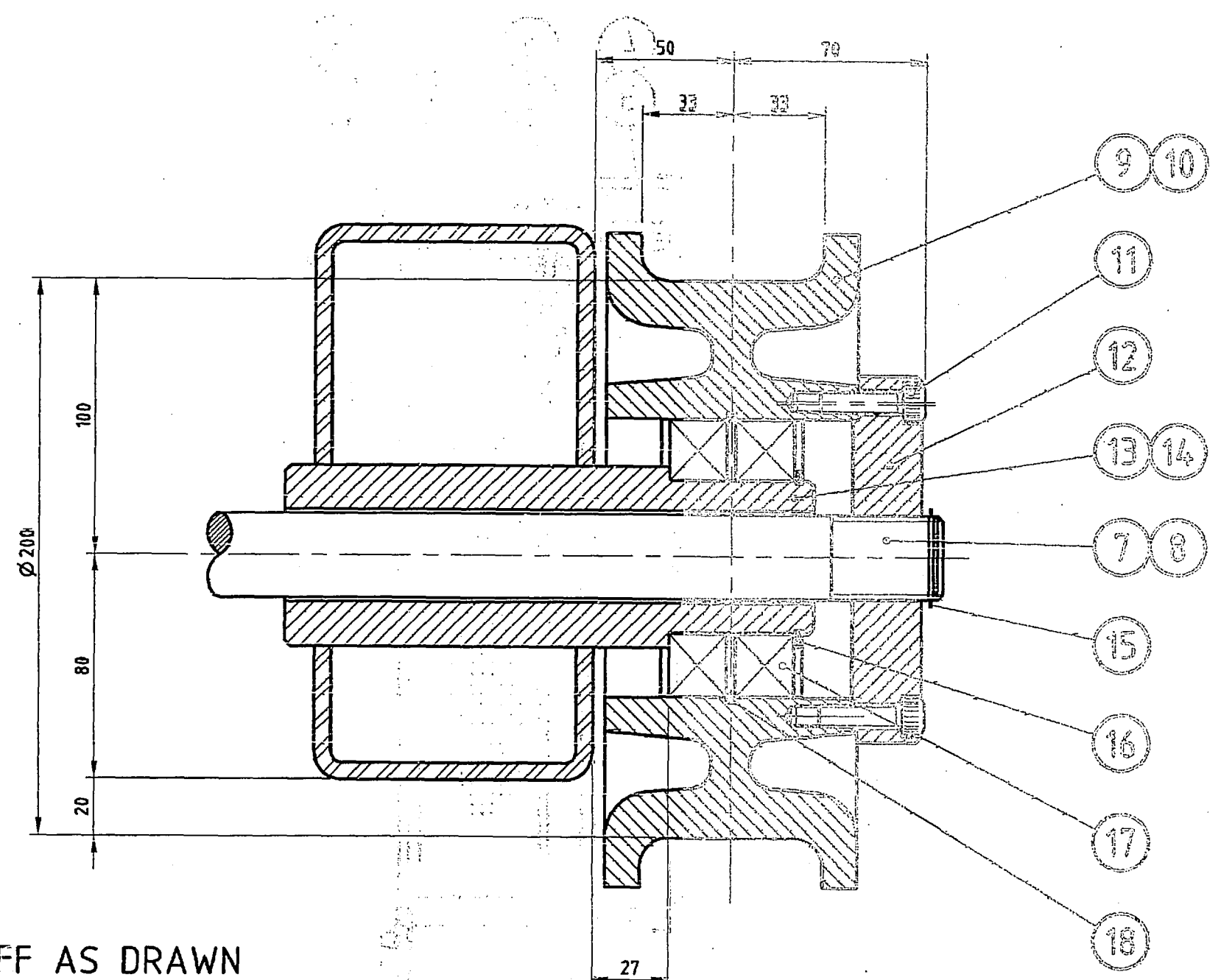
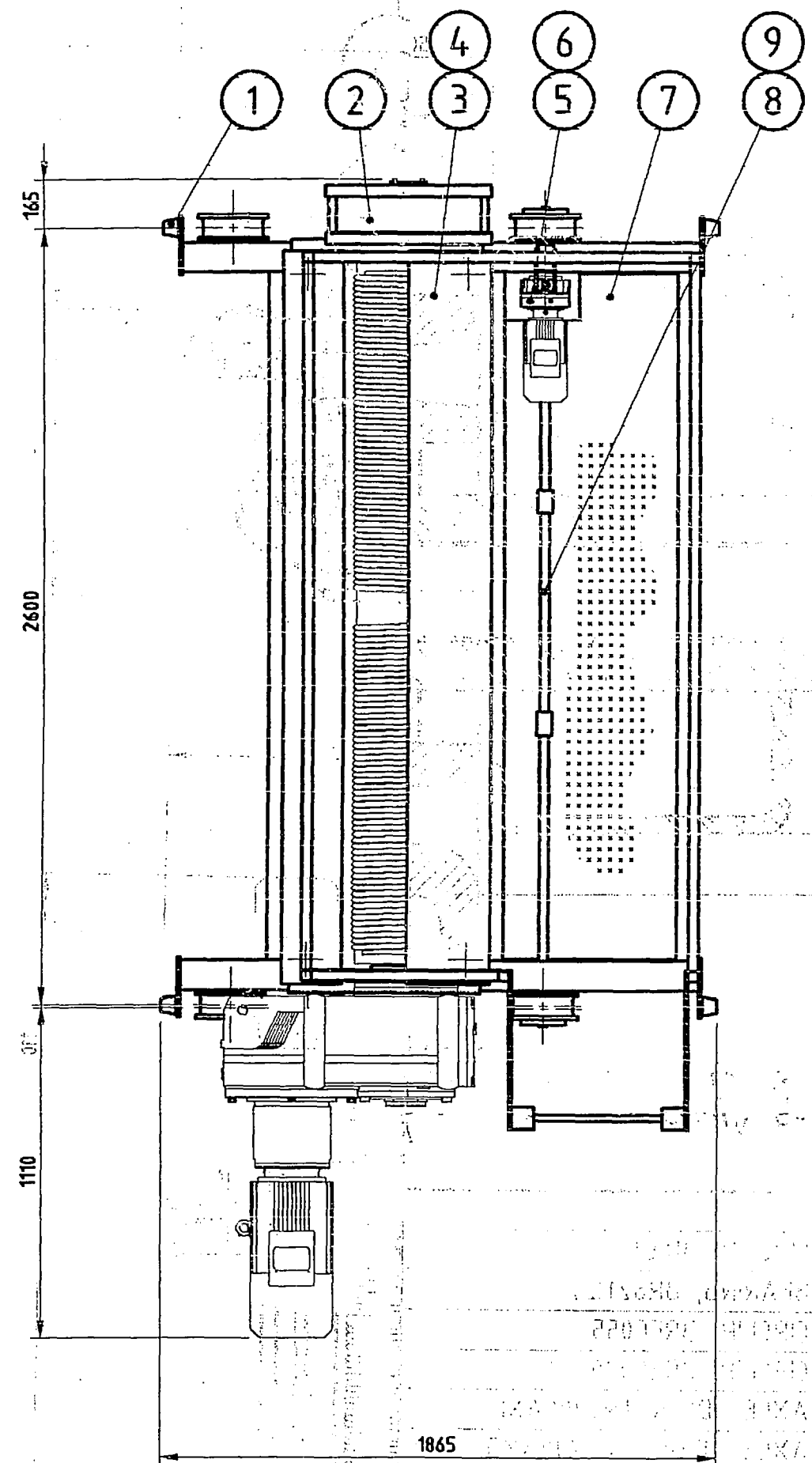
CLIENT NAME -KILPATRIC GREEN			JOB NO. -10680	PAGE -1 OF 1	
ITEM	MANUFACTURER	PART NO	ITEM	MANUFACTURER	PART NO
A1	RITTAL	AE 1110			
A2	SAREL	53012			
A3	INSUL 8	97036			
A4	TER	NKPA12			
A5	SAREL	53002			
A6	SAREL	53002			
A7	TER	NKPA10			
F100	GEC	SC20H			
F101	GEC	SC20H			
F102	GEC	SC20H			
F103	GEC	SC20H			
F104	SPRECHER & SCHUH	VUSI4-4M			
F105	SPRECHER & SCHUH	VUSI4-4M			
F106	SPRECHER & SCHUH	CTA3-12 (6.0-9.5)			
F107	SPRECHER & SCHUH	CTA3-17			
F200	GEC	SC20H			
F201	GEC	SC20H			
F202	SPRECHER & SCHUH	CTA3-12 (10-16)			
F203	SPRECHER & SCHUH	CTA3-12 (2.5-4.0)			
F204	SPRECHER & SCHUH	CTA3-12 (10-16)			
F205	SPRECHER & SCHUH	CTA3-12 (2.5-4.0)			
F206	SPRECHER & SCHUH	CTA3-12 (10-16)			
F207	SPRECHER & SCHUH	CTA3-12 (2.5-4.0)			
F400	SPRECHER & SCHUH	RT3-M-110VAC			
F401	SPRECHER & SCHUH	RT3-M-110VAC			
F402	SPRECHER & SCHUH	RT3-M-110VAC			
F403	SPRECHER & SCHUH	RT3-M-110VAC			
F404	SPRECHER & SCHUH	RT3-M-110VAC			
F405	SPRECHER & SCHUH	RT3-M-110VAC			
F406	SPRECHER & SCHUH	RT3-M-110VAC			
F407	SPRECHER & SCHUH	RT3-M-110VAC			
K100	TELEMECANIQUE	RM3-TA213V5			
K300	SPRECHER & SCHUH	CA3-9-10 110VAC			
K301	SPRECHER & SCHUH	CA3-16-10 110VAC			
K302	SPRECHER & SCHUH	CA3-9-10 110VAC			
K400	FINDER	5532 24VDC + 94.72 -BASE			
K601	SPRECHER & SCHUH	CA3-9-01 110VAC			
K602	SPRECHER & SCHUH	CA3-30-01 110VAC + CS3-P-20 -AUX			
K603	SPRECHER & SCHUH	CA3-30-01 110VAC + CS3-P-20 -AUX			
K604	SPRECHER & SCHUH	CA3-12-01 110VAC			
K605	SPRECHER & SCHUH	CA3-30-01 110VAC			
K606	SPRECHER & SCHUH	CA3-9-01 110VAC			
K607	SPRECHER & SCHUH	CA3-9-01 110VAC			
K608	SPRECHER & SCHUH	CS3-22E 110VAC			
K610	SPRECHER & SCHUH	CA3-12-01 110VAC			
K611	SPRECHER & SCHUH	CA3-12-01 110VAC			
K612	SPRECHER & SCHUH	CA3-9-01 110VAC			
K613	SPRECHER & SCHUH	CA3-12-01 110VAC			
PLC	MITSUBISHI	FXos-30MR-ES/UL			
Q100	TELEMECANIQUE	V2/KCD1Y			
Q101	TELEMECANIQUE	V0/KCD1Y			
Q200	TELEMECANIQUE	V0/KCD1Y			
Q201	TELEMECANIQUE	V0/KCD1Y			
Q600	CLIPSAL	56SW110			
S300	SCHMERSAL	Z4VH 335-11Z			
S400	SCHMERSAL	IFL4-12-10P			
S401	SCHMERSAL	MS 330-11Y			
S403	SCHMERSAL	Z4VH 335-11Z			
S404	SCHMERSAL	Z4VH 335-11Z			
T100	DELTA	DT300 415/110			
T101	COSEL	LDA30F-24			
Y100	ITC	TT10			



72	SW		
71	IN		
70	CIRCLIP	4	BREC020
69	PIN - SHEAVE BLOCK	4	HF72162447
68	HOIST FRAME SHEAVE BLOCK	2	HF50142446
67	SPRING WASHER	2	SW08
66	BOLT	2	SHCS06010
65	LANYARD	1	RD20002445
64	SPLIT PIN	1	SLSP08090
63	CIRCLIP	2	BREC060
62	BEARING	1	BR51213
61	H-SECTION	1	HB20002406
60	NUT	1	HB60162405
59	HOOK	1	HB60162404
58	AXLE	1	HB50142403
57	OUTER GUARD	2	HB50142402
56	INNER GUARD	2	HB50142401
55	HOOK BLOCK BODY	1	HB60162410
54	FLAT WASHER	2	FW10
53	NUT	4	HHN406
52	NUT	2	HHN410
51	BOLT	4	HHB406012
50	BOLT	1	CHB410025
49	BOLT	6	MTS05035
48	BOLT	1	CHB410030
47	SWITCH	3	Z4VH33511Z
46	LIMIT MOUNT	2	LS20002420
45	COMPRESSION SPRING	2	LS20002403
44	SPACER	2	LS20002402
43	C-TRACK	1	L24 LS70182401 L80 LS70186001 L40 LS70184001 L80 LS70186001
42	SA		
41	SA		

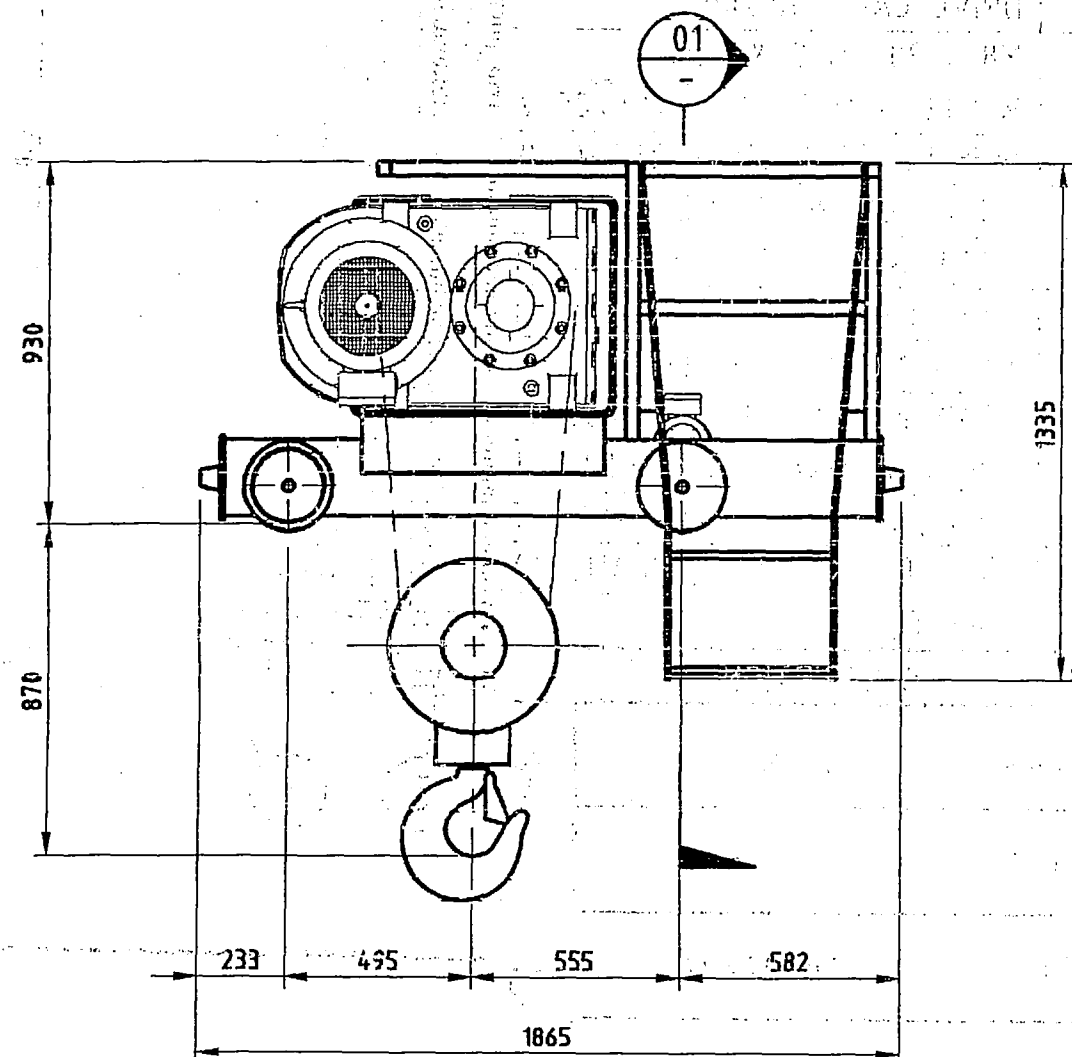
40			
39			
38			
37			
36			
35	SPRING WASHER	2	SW10
34	BOLT	2	SHCS10025
33	CIRCLIP	4	BREC065
32	CIRCLIP	3	BRIC110
31	BEARING	6	BR6212ZZ
30	SHEAVE	3	MCS330
29	KEEPER PLATE	1	AXLPDW200
28	AXLE	1	HF50142445
27	UPPER SHEAVE BODY	1	HF50142440
26	BOLT	11	SHCS20085
25	HOIST FRAME	1	L24 HF72162400 L80 HF72166000 L40 HF72164000 L80 HF72168000
24	SPRING WASHER	4	SW10
23	BOLT	4	HHB410030
22	BOLT	4	SHCS10080
21	COMPRESSION SPRING	4	RD70182444
20	TENSION SPRING	2	RD70182443
19	ROPE GUIDE STOP	2	RD70182442
18	ROPE GUIDE RING	1 LH 1 RH	RD70162441
17	ROPE GUIDE	1 LH 1 RH	RD70162440
16	WIRE ROPE 16 mm	1	L24 RD72162456 L80 RD72166056 L40 RD72164056 L80 RD72168056
15	SPRING WASHER	4	SW08
14			
13	BOLT	4	HHB408020
12	BOLT	3	SHCS16040
11	CIRCLIP	1	BRIC160
10	BEARING	1	BR6220ZZ
9	BEARING	1	BR6218ZZ
8	KEY STEEL	1	KS28160340
7	COVER PLATE	1	RD70182405
6	ROPE CLAMP	3	RD70182404
5	DRUM END SHAFT	1	RD70182403
4	DRIVE SHAFT	1	RD70182402
3	ROPE DRUM	1	L24 RD72162400 L80 RD72166000 L40 RD72164000 L80 RD72168000
2	MOTOR	1	
1	GEARBOX	1	FAZ127
ITEM	DESCRIPTION	REQ'D	PART No.
DRAWN	S.F.	AH70__ HOIST ASSEMBLY	
CHECKED		4/2 REEVING	
DATE	8-11-94		
SCALE	N.T.S.	JDN MONOCRANE	
		DRAWING No.	C-AH70-67

REV A. ITEM 14 NOT REQUIRED FOR ASSY 27/11/96 J.B.G.



DRIVE WHEEL: 2 OFF AS DRAWN  
IDLER WHEEL: 2 OFF OMIT ITEMS 7, 8, 11, 12 & 15  
REPLACE ITEMS 9 & 13 WITH 10 & 14

SECTION 01  
1:2



ITEM	DESCRIPTION	REQ'D	REFERENCE
20			
19	CIRCLIP, BRIC100	4	
18	BEARING, BR6211ZZ	8	
17	CIRCLIP, BREC055	4	
16	CIRCLIP, BREC030	2	
15	AXLE, IDLER TRC200AXI	2	DRG: D-DD2006-3
14	AXLE, DRIVE TRC200AXD	2	DRG: D-DD2006-3
13	DRIVE CAP, TRC200DC	2	DRG: D-DD2006-3
12	M8 x 30 SHCS & S.W.	8	
11	WHEEL, Ø 200 IDLER TRC200IW	2	DRG: D-DD2006-3
10	WHEEL, Ø 200 DRIVE TRC200DW	2	DRG: D-DD2006-3
9	SHAFT COUPLING, SC30	2	
8	DRIVE SHAFT, Ø 30 3-PIECE TRC200DSD & TRC200DSI	1	DRG: D-DD2006-3
7	CRAB FRAME, KILPATRICK GREEN	1	DRG: 10680-21
6	M12 x 110 BOLT & NYLOC	1	
5	DRIVE MOTOR, SEW FA37DT80N BMZ	1	86.53:1 H1 TB270°
4	M30 x 65 GRADE 8.8 BOLT NUT & S.W.	4	
3	HOIST, AH 7080-13-4/2-L120-F4	1	DRG: C-AH70-1
2	DRUM BRAKE ASSY, KEAH 7000	1	DRG: D-10680-11
1	BUFFER, CTB63	4	

ITEM	DESCRIPTION	REQ'D	REFERENCE
DRAWN	B.D.B		
CHECKED			
DATE	28/02/97		
REV No.			
JDN MONOCRANE		31 FOWLER RD DANDENONG VIC 3175 Ph. 03 9793 3600	
CRAB ASSY, 15 TONNE		KILPATRICK GREEN	
DEPT.		DRAWING No. 10680-21	
SCALE 1:20		A2	

ORIGINAL

GEARED WHEEL

86 TEETH  
24 MODULE

2

4

9 10

3

8

PLAIN WHEEL

7

1

5

6

PACK THIS SPACE  
WITH GREASE ON ASSY

DW305 WHEEL

10	SPRING WASHER	4	SW012
9	BOLT	4	SHCS012035
8	SEAL RING	2	AXSRDW305
7	BEARING	2	BR32213
6	ENDCAP	1	AXECDW305
5	SPACER	1	AXSPDW305
4	LOCKPLATE	1	AXLPDW305
3	AXLE	1	AXDW305
2	305Ø GEARED WHEEL	1	GCDW305G6 (G7)
1	305Ø PLAIN WHEEL	1	MCDW305P6 (P7)
DESCRIPTION		REQ'D	
DRAWN S.R.		DW305 D.F. WHEEL ASS'Y	
CHECKED			
DATE 22-1-94			
SCALE 1:2			
JDN MONOCRANE		DRAWING No A3-DW305	

OVERHEAD TRAVELLING CRANES  
ELECTRIC WIRE ROPE HOISTS  
JIB CRANES & MONORAIL SYSTEMS  
SPECIAL PURPOSE CRANES  
AUTOMATIC & INTEGRATED SYSTEMS  
WAREHOUSE STORAGE & RETRIEVAL

# JDN MONOCRANE

31 FOWLER ROAD, DANDENONG,  
VICTORIA, AUSTRALIA, 3175.  
TELEPHONE (03) 9793 3600  
INTERNATIONAL 61 3 9793 3600  
FACSIMILE (03) 9793 3022  
INTERNATIONAL 61 3 9793 3022

## **HAZARD IDENTIFICATION RISK ASSESSMENT AND RISK CONTROL STATEMENT FOR JDN MONOCRANE OHET CRANE FITTED WITH DRUM BRAKE**

The crane has been designed in accordance with Australian Standard AS1418 and Plant Regulations 1995.

The crane must be manufactured, installed and commissioned to relevant Australian Standards by suitable qualified and experienced personnel.

The crane must only be operated by authorised and trained personnel and must only be operated in accordance with operating and maintenance instructions provided.

The crane must be serviced and maintained by suitably qualified and trained personnel strictly in accordance with operating and maintenance manual.

## **HAZARD IDENTIFICATION**

### **SPECIFIC HAZARDS WHICH RELATE TO STANDARD OVERHEAD CRANES:**

#### **WHILST USING CRANE:**

- |                        |   |
|------------------------|---|
| <b>Limit operation</b> | <ul style="list-style-type: none"><li>- Be aware of whether or not travel limits or crane anti-collision are installed and approach end stops and other cranes with caution.</li><li>- Check upper hoisting limit for correct operation at start of each working shift.</li></ul>   |
| <b>Lifting Loads</b>   | <ul style="list-style-type: none"><li>- Do not lift at angles or drag load. This can overload unit and cause damage to ropes and rope guide.</li><li>- Do not stand under load or lift loads over people.</li><li>- Ensure loads are slung correctly and are within lifting capacity as set down by sling manufacturer.</li><li>- Do not lift loads in excess of maximum load or operate crane outside of nominated duty cycle.</li></ul> |

QAF0207a.DOC



**WHILST SERVICING CRANE:**

As stated previously suitably qualified and trained personnel are required to carry out inspection and maintenance as per instructions.

Normally cranes are supplied with suitable access.

**Hazards to be aware of are:**

1. Trapping points for hands and fingers.
2. Trapping or striking points for upper body and head.
3. Electrical conductors. Normally these are shrouded with plastic and touch proof. However extreme care must be taken when working around live conductors, whether exposed or shrouded.
4. Bare electrical components. These are found in electrical cabinets and must be treated with extreme care.

**To effectively eliminate hazards, items 1-4, isolation switches are provided and should be used where possible.**

5. As cranes are normally serviced by personnel working at heights, care must be taken to identify correct access and use accordingly. Beware of permanent openings to handrails and other openings which may eventuate due to movement of crane.  
If access is required to parts outside of safe access area, use alternative approved access (eg. scissor lift) or safety harness.
6. Danger of falling objects whilst servicing or working on crane. Area below crane to be kept clear.

**Additional Hazards which relate to Cranes lifting personnel.**

- Use only approved lifting basket and attachments.
- Ensure hook safety catch is in good working order and will safely retain lifting attachments.
- Ensure adequate communication between personnel in basket and other personnel on site. Do not operate crane from basket unless other personnel are present and are able to be contacted in case of emergency. eg; Power failure, mechanical or electrical breakdown.
- Ensure when cage is being lifted, hands and arms are clear of trapping points and basket can not catch on any obstructions whilst hoisting.
- Use safety harnesses in accordance with local requirements.
- Ensure personnel in basket and other personnel are properly trained for normal operation and emergency procedure.

### **Risk Assessment.**

Cranes if not operated and serviced correctly can be considered dangerous. When used for lifting loads and not personnel, the risk associated with operating and/or structure crane is considered normal and no risks specific to this site have been identified.

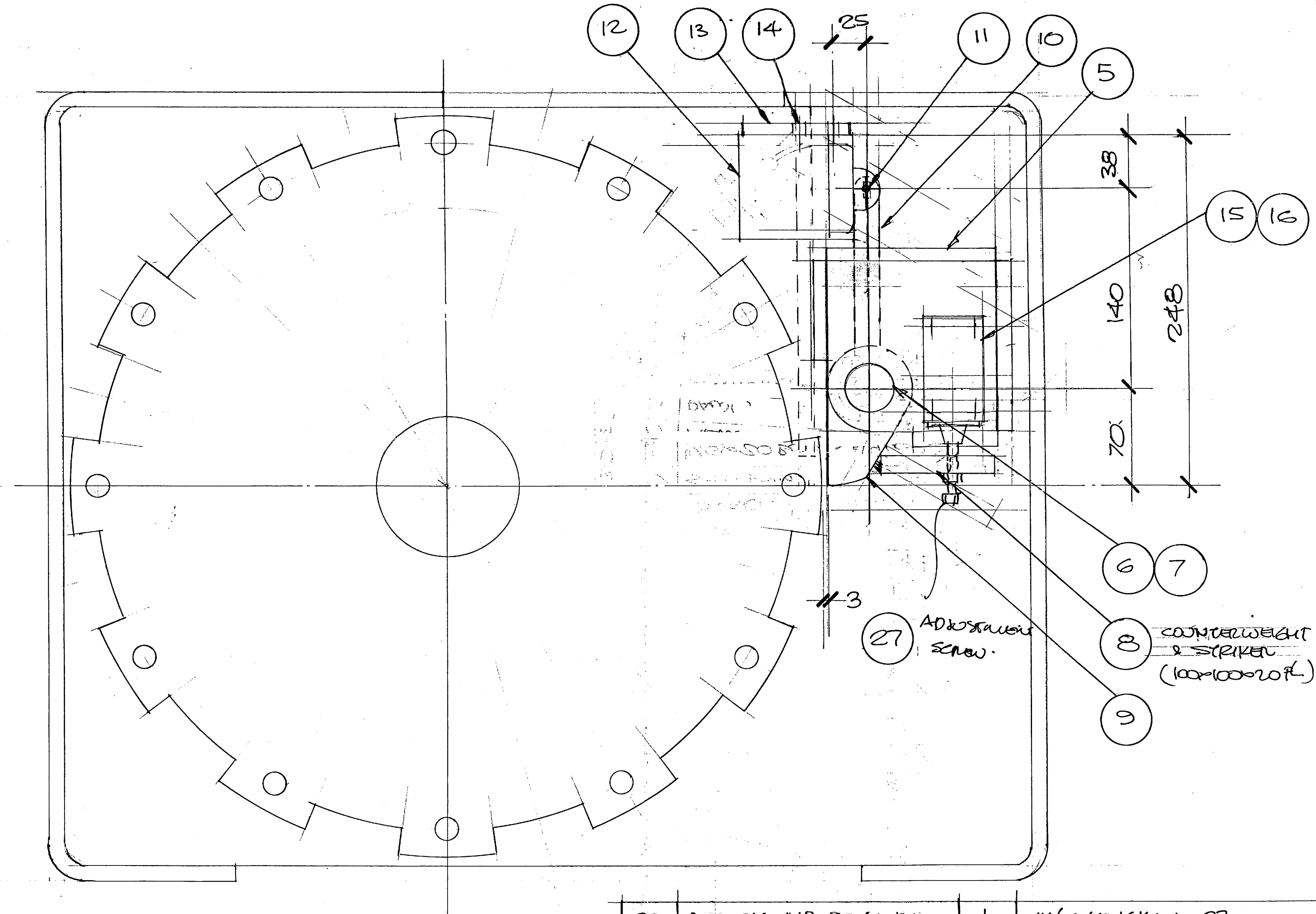
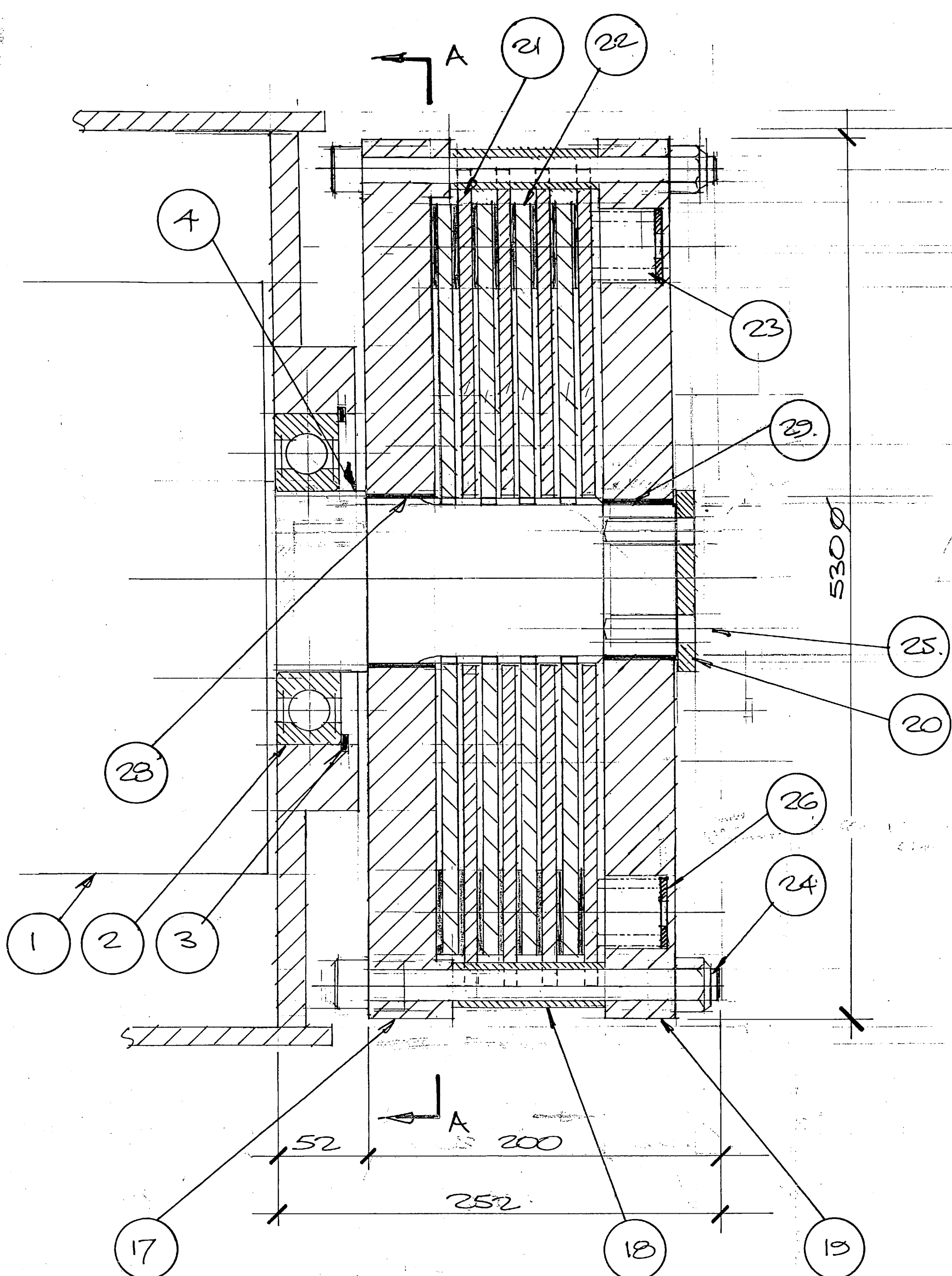
When lifting personnel care has been taken with design and manufacture to ensure crane is safe. The main risk is personnel being stranded in cage during a power failure or breakdown.

### **Risk Control.**

Crane installation is designed and manufactured in accordance with crane code AS 1418 and is considered to have complied with control of risk.

**JDN MONOCRANE**





SECTION AA.

29	ROBOSH MB 2040 DU	1	W/C LENGTH TO 37mm
28	" MB 10040 DU	1	" " " 27mm
27	M6x40 BOLT-NUT	1	
26	WASHER 3THICK	24	
25	M16x35 SHCS	2	DRUM WIRE ON ASSY
24	M16x700 SHCS	12	& W/LOC NUT
23	SPRING 156" OD x 4" x 6 TURNS	24	ENDS GROOVED 23/6" FREE LENGTH
22	FRICION DISC	4	D-10680-12
21	PRESSURE PLATE	4	" " "
20	END DISC	1	" " "
19	SPRING HOUSING PLATE	1	" " "
18	HOUSING	1	" " "
17	PLATE	1	" " "
16	M5x40 SCREW	4	
15	SWITCHER SW	1	23335-112 MS 330 11Y
14	M6x10 BOLT - SW	4	
13	SOLENOID MOUNT.	1	C-10680-13
12	SOLENOID	1	WARNER TT10 415V
11	M5x20 BOLT-W/LOC	1	
10	ARM	1	C-10680-13
9	PAWL	1	D-10680-12
8	COUNTERWEIGHT & STRIKER	1	W/ACE TO SWIT
7	PIN & GREASE NIPPLE	1	D-10680-12
6	CIRCLIP 35 EXP	2	
5	HOUSING PAWL	1	C-10680-13
4	SHAFT	1	D-10680-12
3	CIRCLIP 200T	1	
2	BEARING 6202 Z	1	
1	DRUM	1	A3-70-63A

ITEM	DESCRIPTION	REQ'D
DRAWN	JN	DRUM BRAKE ASSY - KUMARIC G.
CHECKED		
DATE	3-10-86	AK7000
SCALE	1:2	JDN MONOCRANE
		DRAWING No. D-10680-14

Rev A: ITEM 26 ADDED, ITEM 17 ADDED, ITEMS 28 & 29 ADDED ITEM 4 ADDED JN 24-3-87