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TECHNICAL MANUAL FOR THE ILE\SAMI (ABB) VARIABLE FREQUENCY REGULATOR CLOSED LOOP (ENCODER FITTED)

DATE : 9/6/1999

ISSUE NO. 2

WE RESERVE THE RIGHT TO ALTER WITHOUT GIVING PRIOR NOTICE TECHNICAL
DATA, DIMENSIONS AND WEIGHTS DESCRIBED IN THIS MANUAL.

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Section A

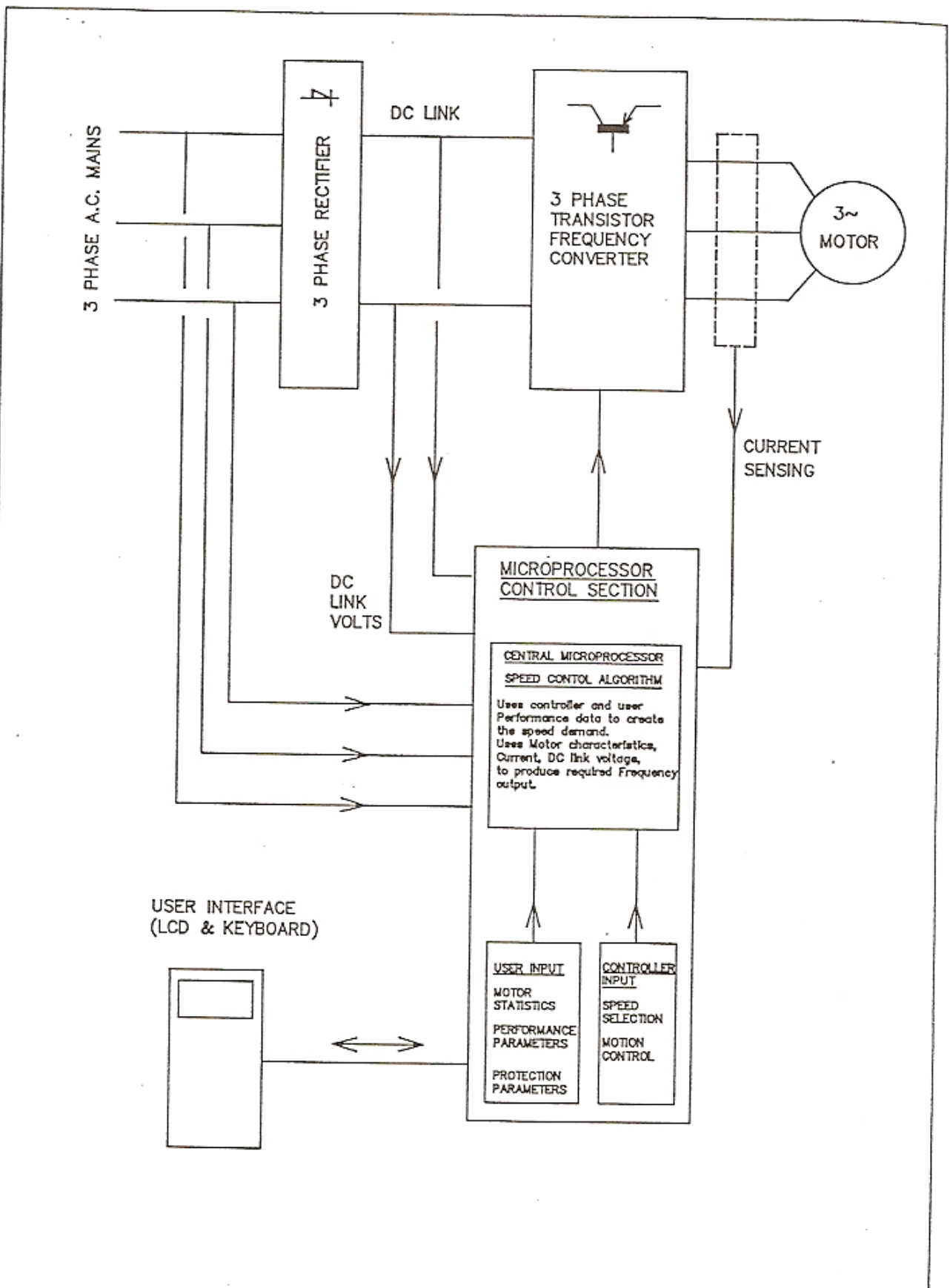
Introduction

The ILE SAMI Variable frequency regulator is a four quadrant IGBT drive with dynamic braking, utilizing state of the art electronics to produce a variable frequency and voltage to control an A.C. Induction Motor in a lift application without the need of a speed feedback element up to 1.0 m/s and utilising encoder feedback from 1.2 m/s and above.

The system enhances single speed lifts with variable speed performance for new and existing lifts, whilst decreasing wasteful heat loss and low frequency audible noise within the motor typical of Variable Voltage Thyristor Controlled regulator systems.

The regulator accepts 24VDC digital input signals from the control panel to produce a speed demand. The speed demand is then used to control the speed of the motor by utilizing a microprocessor based algorithm of the machine characteristic to compensate for varying loads.

The power section converts 3 phase AC to DC which is then smoothed. Pulse Width Modulation techniques are then used to produce a 3 phase variable voltage and frequency supply to the motor.



DRAWN	G.W.M.	CUSTOMERS ORDER No.	DATE	PROJECT
CHECKED			25-2-94	VVF REGULATOR
APPROVED	<i>Procin</i>			
TITLE : VVF SAMI SYSTEM BLOCK DIAGRAM				REVISION
				A
				B
				C
INTERNATIONAL LIFT EQUIPMENT		ILEM JOB No.	CAD DRAWING No.	DATE
		13	0198	REV

Section B

Sequence Of Events.

Starting.

Starting is initiated by the receipt of a direction signal (UP or DN). Off board relays then select the appropriate speeds and initialise the regulator via a 24V signal into DI1 and DI6 to prepare for starting. The regulator then operates its RUN relay to signal confirmation of starting. Operation of the RUN output signals the operation of the main contactors to connect the regulator to the motor.

The Speeds are enabled to the drive 1/2 sec after the MC contactor is energised via the MCT timer. This function is to aid a softer start by allowing the regulator to stabilise after initialisation of a journey. The motor then accelerates to the required speed.

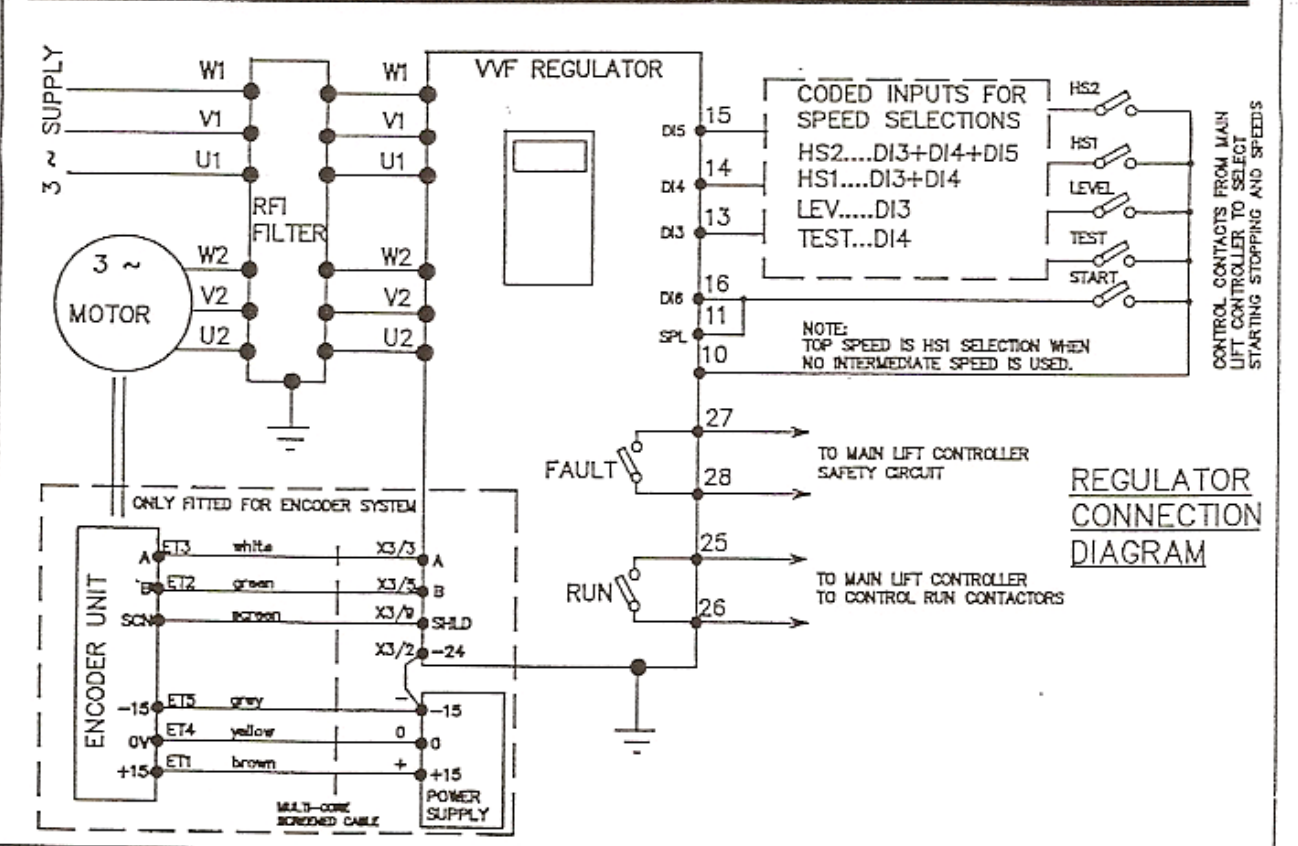
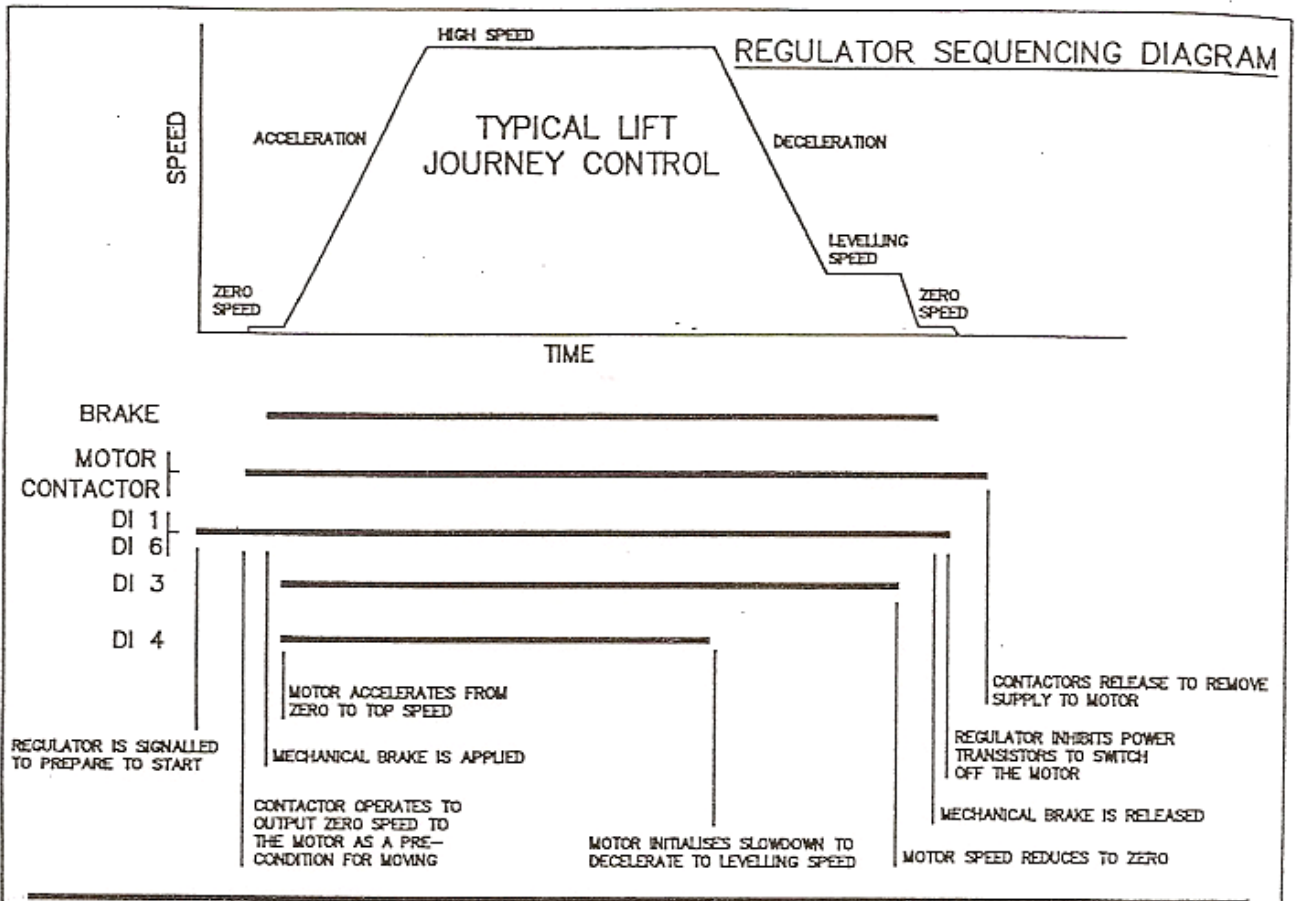
Stopping.

On receipt of a slowing signal the High speed signal(s) are removed via off board relays and the regulator targets for levelling speed under the influence of the deceleration parameter until levelling speed is obtained.

When a stop is called for via off board relays (MSD and MSD present) the following sequence occurs.

- a) The regulator decelerates the lift towards zero speed.
- b) The mechanical brake is applied indirectly by timer BKR/T on the control panel.
- c) 1/2 Sec later the drive is electrically inhibited via MCT relay removing 24V Signal from DI1 and DI6.
- d) 1 Sec later STR/T releases the direction and MC Contactor removing 3 phase from the motor.

This sequence of events allows a smooth stop and also prelongs main contactor life.



DRAWN	G.W.M.	CUSTOMERS ORDER No.	DATE	PROJECT	
CHECKED			13-8-94	VVF REGULATOR	
APPROVED					
TITLE : CONNECTION DIAGRAM AND SEQUENCING DIAGRAM			REVISION	A ENCODER ADDED	DATE 8/94
				B	DATE
				C	DATE
INTERNATIONAL LIFT EQUIPMENT		ILEM JOB No.		CAD DRAWING No.	
		13	0199 A		REV

Section C

Recomendations For Minimising EMI Emmisions.

1. Ensure the controller is securely bonded to an earth with a loop impeadeance less than 1 ohm.
2. Ensure all trunking is metal, preferably galvanised steel and is securely bonded to the main panel earth via external earth bonding straps which are connected to the trunking via a ring crimp of suitable size and a self tapping screw.
3. Ensure mains cables in to the controller are in individual self contained trunking.
4. Ensure the motor mains cables are in individual self contained trunking. (NB Do not run the Brake, thermistor or encoder (if fitted) cables in the same trunking).
5. Aviod long parallel runs of cables or trunking seperated by less than 0.1 metres.
6. Incoming mains supply cables run in "steel wired armour" may create some problems dependant on the installation. Imperforate trunking is prefered in order to minimise RFI emmissions. However in some circumstances suitable operation may be achieved with "steel wired armour" cable but success can not be guaranteed.

Section D.

Parameters and adjustment of parameters

Adjustable Parameters.

The following parameters are the main parameters required to commission the regulator. Other parameters also listed in appendix A with their default values are set in the factory and should not be adjusted unless instructed by personell of ILEM.

Parameter Location	Parameter	Description
Start Up Data		
A	Language	Used to change the language parameters are displayed in
D	Supply Voltage	Sets the regulator for the incoming mains.
E	Pole Number	Sets the regulator for the No of poles in the motor.
F	Motor Nom Current	Sets the regulator for the motor FLC.
G	Motor Nom Power	Sets the regulator for the motor rated power in KW.
H	Cos phi of motor	Sets the regulator for the power factor* of the motor.

* N.B. Where power factor (cos phi) of the motor is not shown on the motor nameplate assume motor cos phi to be 0.78.

Main 20

Group 21-6	Acceler Time Ref2	Adjusts the acceleration rate in seconds.
Group 21-7	Deceler Time Ref2	Adjusts the Deceleration rate in seconds.
Group 21-8	Ref 2 Softening	Adjusts the round off of the Digital Pattern.

Section D cont'd.

Parameter Location	Parameter	Description
Group 24-1	Const Frequency 1	Adjusts levelling speed in rps.
Group 24-2	Const Frequency 2	Adjusts test speed in rps.
Group 24-3	Const Frequency 3	Adjusts High speed 1 in rps
Group 24-7	Const Frequency 7	Adjusts High speed 2 in rps.
Group 27-2	Sami Max Output Volt	Adjust for MAX motor voltage
Group 27-7	IR Comp Voltage	Adjusts motor load response at low and zero speed. Provisionally set to 10V for general machines (40V for large acvv machines).
Group 29-1	PI-Cont Gain	Adjusts gain of the system increase for more gain. Decrease to dampen oscillations.
Group 29-2	PI-Cont I Time	Adusts the intergral time, To little will cause oscilations and to much will cause the lift to have poor response. Should be approx 0.3 sec.
Group 29-12	Slip Max Value	Adjusts the maximum positive limit in Hz of the error amplifer. Usually set at +25Hz.
Group 29-13	Slip Min Value	Adjusts the minimum negative limit in Hz of the error amplifer. Usually set at -25Hz.
Group 29-17	Tacho Pulse NBR	Set's the number of Pulses Per Revolution (PPR) of the encoder, Check this value is the as stamped on the encoder.

Section D cont'd.

Parameter Location	Parameter	Description
Group 29-18	Tacho Delay	This parameter set the response of the tracking error fault detect in seconds, usually set at 1s. Note 0s disables the fault detect.
Group 29-19	Drive Speed Max	This parameter scales the speed of the pulses to the speed of the motor to in RPM.

Section D cont'd

Adjustment Of The Parameters.

The SAMI parameters are catagorised into 3 main groups as follows:-

MAIN 10 - Control Connections
MAIN 20 - Drive
MAIN 30 - Protection

To access any of these three main groups press the -> key continually until the display shows:

1. Sami Output Frequency

When the display shows as above press the -> key once and the drive displays:-

CONT CONNECECTIONS
10 MAIN

Which is the main group 10. To access the next main group press key once and the next main group will be displayed. To access the main group 30 press the key again, to return to main group 20 or main group 10 press the key once or twice respectively.

After the main group has been selected the next catogories are the groups where the parameters reside. To enter a group, select the main group in which the group resides.

i.e Main group 10 (10 MAIN) for group 11 Dig/Analog Input Sel.

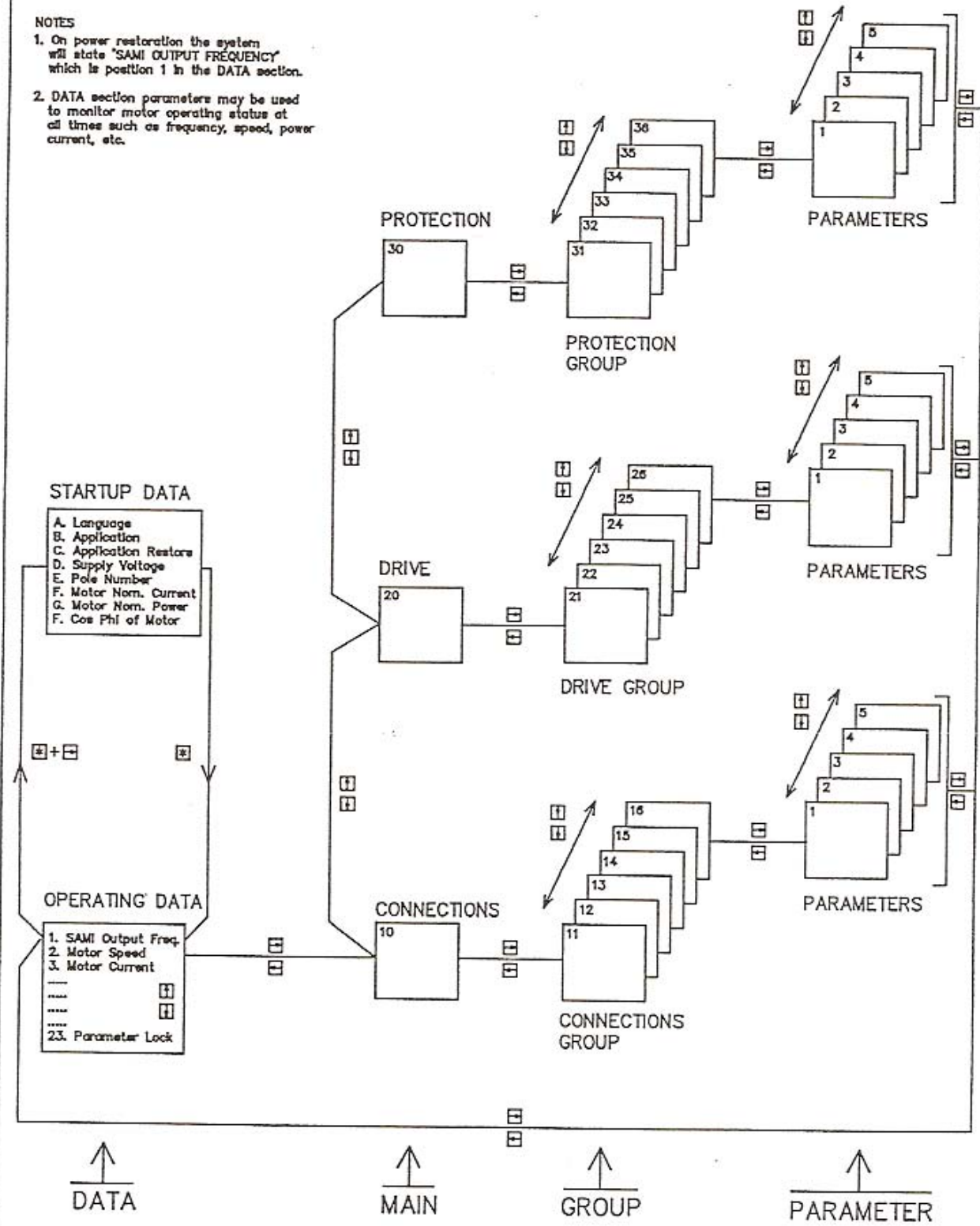
Press the -> key once and the group catogory has now been entered. Using the keys the other groups within the main groups may be accessed.

To set a parameter within a group press the -> to enter the parameter section. Once the parameter section has been entered the keys can be used to locate the parameter within a group. When the desired parameter is located it can be altered by pressing the * key once and brackets [] will appear around the parameter. Using the keys the parameter value can be changed. Once the parameter has been changed confirm the parameter by pressing the * key once and the brackets should disappear from around the parameter.

Two examples are shown overleaf.

NOTES

1. On power restoration the system will state "SAME OUTPUT FREQUENCY" which is position 1 in the DATA section.
2. DATA section parameters may be used to monitor motor operating status at all times such as frequency, speed, power current, etc.



DRAWN	G.W.M.	CUSTOMERS ORDER No.	DATE	PROJECT
CHECKED			25-2-94	VVF REGULATOR
APPROVED	<i>[Signature]</i>			
TITLE : VVF SAMI PARAMETER MAP				REVISION
				A
				B
				C
INTERNATIONAL LIFT EQUIPMENT		ILEM JOB No.	CAD DRAWING No.	DATE
		13	0194	REV

START HERE



1 SAMI OUTPUT FREQ
0.05Hz R1[->]



CONT CONNECTIONS
10 MAIN R1[->]

[1] OR [2]

DRIVE
20 MAIN R1[->]



ACCELER/DECELER
21 GROUP R1[->]



FREQ/CUR LIMITS
22 GROUP R1[->]



CRIT FREQUENCIES
23 GROUP R1[->]



CONST FREQUENCIES
24 GROUP R1[->]



1 CONST FREQUENCY 1
5.00Hz R1[->]



1 CONST FREQUENCY 1
[5.00Hz] R1[->]



1 CONST FREQUENCY 1
[3.00Hz] R1[->]



1 CONST FREQUENCY 1
3.00Hz R1[->]



1 SAMI OUTPUT FREQ
0.05Hz R1[->]

Let us suppose that we wish to change parameter
24.1 CONSTANT FREQUENCY 1 from 5 Hz to 3 Hz
Proceed as follows :-

Indent to MAIN level

Select DRIVE section of MAIN level

Select required GROUP

Select required GROUP by [1] or [2]

Select required GROUP by [1] or [2]

Select required GROUP by [1] or [2]

Indent to required PARAMETER

Change to setting mode.
Brackets around value indicates value modify mode

Select the parameter value

To cancel the change and return to display mode press []

Save the selected value to permanent memory

Brackets disappear to indicate new parameter value

Return to DATA level

DRAWN	G.W.M.	CUSTOMERS ORDER No.	DATE 25-2-94	PROJECT VVF REGULATOR		
CHECKED				REVISION	A	DATE
APPROVED	<i>[Signature]</i>			B	DATE	
TITLE : VVF SAMI PARAMETER MODIFICATION				C	DATE	
				ILEM JOB No.		CAD DRAWING No.
INTERNATIONAL LIFT EQUIPMENT		13	0197		REV	

Section E.

Site Setting Procedure.

A. Equipment Required

1. A tachometer.
2. An AC Clamp Current Meter.

B. Pre Switch On Checks.

1. Check the site wiring and mains cable rating are correct.
2. Check safety circuits and safety limits are correct and operational.
3. Ensure the lift is counter-balanced correctly.
4. Ensure the encoder if fitted correctly and is connected to the panel.
5. Remove OL and isolate to ensure the doors are not operational
6. If thermistors are NOT present in the motor ensure the thermistor protection circuit is linked out on the panel.

C. Power Up.

1. Switch lift to car top control.
2. Switch lift on.
3. The regulator should now have the following displayed.
 1. SAMI Output Frequency
4. Press the * and -> together and the regulator has now entered the Start Up Data mode and the display should now be showing
 - A. Language
5. Using Section D ensure parameters A,D to H are set correctly
N.B. In Start Up Data mode to change a parameter use the keys and to store the parameter and move to the next press the * key.
6. To return to the operating mode from the Start Up Data continually press the * key until the display shows
 1. SAMI Output Frequency

Section E cont'd

E. Speed Settings.

NOTE: ALL SPEED SETTINGS ARE IN REVS PER SECOND (RPS) NOT IN Hz.

1. Simulate the Test Up button, Check the lift runs in the UP Direction at test speed and the UP contactor is energised. If the lift runs DN reverse two of the motor phases and retest.
2. Simulate a Test Dn button and check the lift moves DN at test speed.
3. Monitor parameter 16 Actual Value 1 (Monitor Mode) and simulate a test Up button and the value should show the motor speed as a % of the top speed, i.e if the lift speed is 300fpm and the lift is running at 50fpm the display will show approx 17%.

NOTE: If the display shows 0% or does not increase with lift speed then the feedback has been lost or a parameter has been wrongly set (Refer to appendix A).

4. Set the high speeds to 10 rps for a 1000 rpm motor and to 15 rps for a 1500 rpm motor, deceleration to 2 seconds and ensure the levelling speed is set to the default value in appendix A.
5. Place the lift empty car at the bottom floor, Switch the lift to NORMAL and run the lift UP in high speed, when the lift slows ensure levelling speed is correct.
6. If levelling speed is incorrect readjust the Levelling speed parameter after the lift has stopped and repeat the step 4.
7. Place the lift empty car at the top floor and run the lift DN when the lift slows ensure the levelling speed is the same as the UP direction.
8. If the lift is slower in the DN increase the IR Voltage parameter and repeat until the speed is equal in the UP and DN direction. Note: Increasing IR to much may cause oscillations at low speed and heating in the motor.
9. If the lift is faster in the DN decrease the IR Voltage parameter and repeat until the speed is equal in the UP and DN direction.
10. Do not switch the lift off, switch to TEST. Run lift in test and ensure test speed is correct (50fpm to 100fpm).

Section E cont.

11. If the test speed is incorrect readjust the Test Speed parameter until the test speed is correct.
12. Return lift to NORMAL and enter a call to the bottom floor and reset the selector.
13. Increase the high speed to 14 rps for a 1000rpm motor and to 20rps for a 1500 rpm motor, run the lift UP and ensure the lift slows and levels ok.
14. Slowly increase high speed in the UP direction until contract speed is obtained ensuring the lift slows and levels ok.
15. If the lift overshoots floor level or has a long levelling time into floor then then adjust slowing distance or deceleration to aquire a reasonable comfort level with a minimum levelling time.
16. Place the lift empty car at the top floor and run the lift DN in high speed and ensure the lift speed is equal in the UP and DN direction.
17. Repeat the above tests using full load, If the floor levels are inconsistant, increase the IR Comp voltage to increase the torque response at low speeds.
18. To improve the stopping action if nessacary adjust the brake timer (Ussually BKR/T) to apply the brake when the motor approaches(2 - 5fpm) zero speed.

F. Setting Acceleration.

1. Run the lift and note acceleration rate.
2. Adjust the Acceler Time 1 parameter for the desired acceleration that is required.

Stall Test.

1. Disconnect the brake (+) and isolate. Switch the lift to test and switch on the controller.
2. Set the thermal overload to the flc of the motor and place the clamp meter on a phase of the incoming mains.

Section E cont'd.

3. Simulate the test up push and the meter should be showing more than $1.75 * flc$. If the meter is showing $1.75 * flc$ or more, the regulator trips in the time specified in parameter 32/9. To reset switch the controller off then on.
4. Repeat in the DN direction.
5. Reconnect the brake (+).

N.B. To reset the regulator after a fault press the key or switch the panel off for at least 30sec then on again.

After commissioning run the lift for at least 1hr and ensure floor levels are consistent and the lift performs correctly.

Section F.

Trouble Shooting.

The table below shows the fault code and reason for the fault code.

Fault Message	Possible Reason	Remedy
1 Star/Stop	The start/stop reference (DI1) is different from the start\stop state of the motor control card.	Contact ILE
2 SAMI Temp	SAMI GS heatsink temp is above 70 C	Check panel and motor room ventilation is sufficient.
3 Mot Stall	SAMI GS has determined that the motor is stalled	Ensure parameter 32/8 is set at 2 * flc. Ensure that the motor is the correct size and that the motor is not overloaded and is rotating correctly.
4 Mot Temp	The SAMI GS has determined that there is a high probability that the motor is overheated.	Check that the motor temperature is within its specification. If it is within check parameter 32/4 (Motor Thermal Time). If the motor is too hot check motor cooling and if the motor is correctly sized.
8 Overcurr	The output current has exceeded 265% of the SAMI GS nominal current	Check no short circuits exist between the motor and motor cables to earth or between phases. Too high an acceleration may also cause this fault.
9 Overvolt	DC Link volts has exceeded 130% of nominal DC Link volts.	Deceleration rate may be too high. Check Supply Volt Parameter is set correctly. Ensure three phase supply is correct. Check dynamic braking resistor connections & value.

Section F Cont'd.

10 Underv1	DC Link has fallen below 65% of Un	Check three phase mains into the controller and to the regulator. This fault may also be caused by loss of a phase or a supply "Brown Out".
23 Underv2	DC Link does not rise to 85% of Un during 5sec after switch on.	As above. If none of the above faults exist contact ILE.

Note 1: If any other fault message is recorded contact ILE.

Note 2: If the motor does not run in test or normal or runs faster DN than UP empty car, reduce parameter 27/7 IR COMP VOLTAGE.

For fault finding see overleaf.

Appendix A.

MAIN	GROUP	PARAMETER	DEFAULT		
Operating Data	Operating Data	1 SAMI Output Freq	Monitor Only		
		2 Motor Speed	Monitor Only		
		3 Motor Current	Monitor Only		
		4 Calcd Torque	Monitor Only		
		5 Calcd Power	Monitor Only		
		6 DC Voltage	Monitor Only		
		7 SAMI Output Volt	Monitor Only		
		8 SAMI Temperture	Monitor Only		
		9 Control Place	External		
		12 Ext Ref1 or 2	Ref2		
		16 Actual Value 1	Monitor Only		
		23 Parameter Lock	Open xxxx		
		Start Up Data	Start Up Data	A Language	English
				B Application	Speed Ctrl
				C Applic Restore	No
				D Supply Voltage	See Contract Sheet
				E Pole Number	See Contract Sheet
				F Motor Nom Current	See Contract Sheet
				G Motor Nom Power	See Contract Sheet
H Cos Phi Of Motor	See Contract Sheet				
10 Main Cont Connections	11 Dig/Analog Input Sel	1 Run Enable	DI6		
		2 Ext Cont Place Sel	Keypad		
		3 Ext 1 I/O Cont Sel	Not Sel		
		4 Ext 2 I/O Cont Sel	DI1,2		
		5 External Ref1 Sel	AI1		
		6 External Ref2 Sel	AI2		
		7 Const Speed Sel	DI 3,4,5		
		8 Direction	Forward		
		9 Fault Reset Sel	Not Sel		
		10 Acc/Dec 1 or 2 Sel	Not Sel		
		11 Parameter Lock Sel	Keypad		
12 Analogue Inputs	12 Analogue Inputs	1 Filter AI1	0.1S		
		2 Minimum AI1	0V/0mA		
		3 Invert AI1	No		
		4 Filter AI2	0.1S		
		5 Minimum AI2	0V/0mA		
		6 Invert AI2	No		
13 Ref Value Scaling	13 Ref Value Scaling	NOT APPLICABLE			
14 Output Signals	14 Output Signals	1 Analogue Out1	Actual 1		
		2 Analogue Out2	PICCN Ref		
		3 Relay RO1 Out	Ready		
		4 Relay RO2 Out	Run		
		5 Relay RO3 Out	Fault		

Appendix A Cont'd.

MAIN	GROUP	PARAMETER	DEFAULT
	15 Analogue Outputs	1 Filter AO1 2 Minimum AO1 3 Invert AO1 4 Filter AO2 5 Minimum AO2 6 Invert AO2	0.1S 0V/0mA No 0.1S 0V/0mA No
	16 Output Sig Scaling	NOT APPLICABLE	
20 Drive	21 Acceler/Deceler	1 Acc/Dec Ramp Shape 2 Acceler Time 1 3 Deceler Time 1 4 Acceler Time 2 5 Deceler Time 2 6 Acceler Time Ref2 7 Deceler Time Ref2 8 Ref2 Softening	Linear 0S 0S 0S 0S See Contract See Contract 1.5S
	22 Freq/Cur Limits	1 Minimum Frequency 2 Maximum Frequency 3 Output Current	0Hz 50Hz Max
	23 Crit Frequencies	NOT APPLICABLE	
	24 Const Frequency	1 Const Frequency 1 2 Const Frequency 2 3 Const Frequency 3 4 Const Frequency 4 5 Const Frequency 5 6 Const Frequency 6 7 Const Frequency 7	See Contract Sheet See Contract Sheet See Contract Sheet 0Hz 0Hz 0Hz See Contract Sheet
	25 PI Controller	NOT APPLICABLE	
	26 Start/Stop	1 Start Function 2 Stop Function 3 Brake Chopper 4 DC Holding 5 DC Hold Voltage 6 DC Brake Voltage 7 DC Brake Time	Ramp Ramp Yes Off 4.15V 4.15V 0s

Appendix A Cont'd.

MAIN	GROUP	PARAMETER	DEFAULT
	27		
	Motor Control	1 Switching Freq	8KHz
		2 Sasi Max Output Volt	See Contract Sheet
		3 Motor Power	Rated
		4 U/f Ratio	Linear
		5 Field Weak Point	50Hz
		6 IR Compensation	Man
		7 IR Comp Voltage	See Contract Sheet
		8 IR Comp Range	15Hz
		9 Slip Compensation	Off
		10 Lev Fine Tune	4%
		11 Nominal Slip	4%
		12 G/U Control	On
	29		
	Acceler/Deceler	1 PI Cont Gain	650%
		2 PI Cont I Time	0.3S
		3 P-gain Min	75%
		4 P-gain Weakpoint	0Hz
		5 Error Val Filt	0S
		6 Bypass Control	No
		7 Speed Ref Step	0%
		8 Speed Ref Gain	+100%
		9 Speed ref Offset	0%
		10 Speed Ref Max	+100%
		11 Speed Ref Min	-100%
		12 Slip Max Value	+25Hz
		13 Slip Min Value	-25Hz
		14 Acc Comp Time	0S
		15 Speed Drooping	0%
		16 Tacho Mode	1
		17 Tacho Pulse NBR	1024
		18 Tacho Delay	1S
		19 Drive Speed Max	See Contract Sheet

Appendix A Cont'd.

MAIN	GROUP	PARAMETER	DEFAULT
30 Protection	31 Supervision	NOT APPLICABLE	
	32 Fault Function	1 Serial Fault Func 2 AI <2V/4mA Func 3 Motor Temp Fit Func 4 Motor Thermal Time 5 Motor Load Curve 6 External Fan 7 Stall Function 8 Stall Current 9 Stall Time/Freq 10 Under Load Func 11 Under Load Time 12 Under Load Curve	Stop No Fault See Table 1 150% No Fault 1.5 * FLC 15s No 600s 1
	33 Automatic Reset	NOT APPLICABLE	

Table 1

Pn (KW)	NUMBER OF POLES		
	2	4	6
2.2	560s	1020s	1440s
3.0	720s	1060s	1560s
4.0	780s	1140s	1740s
5.5	900s	1260s	1760s
7.5	970s	1320s	1860s
11.0	1140s	1560s	2040s
15.0	1200s	1740s	2340s
18.8	1260s	1860s	2340s
22.0	1360s	2040s	2760s
30.0	1560s	2220s	2940s
37.0	1660s	2460s	3120s
45.0	2040s	2640s	3420s

Section F Cont'd

PROBLEM	CHECKS	SOLUTION
Regulator does not power up and shows initial display.	Loss of 3 phase to the RFI filter input.	Check incoming mains and the supply fuses are intact.
	3 phase present at RFI filter input but not present at the Reg.	Temporarily short out the RFI filter and check the regulator powers up. If the powers up replace the RFI filter.
	3 phase present at regulator	Check DC Link voltage across the capacitors is above 500V.
	DC Link volts is below 500v	Replace regulator.
Main Contactors do not energise.	Check 24vdc present at SPL (10) wrt 0v (6).	If not present replace the regulator.
	Check the required starting signals are present and are 24vdc wrt 0v and the display shows R11-> I1.	If not present check the circuitry to terminals i1 & i6 are correct and the contacts are making correctly.
	Check the RUN contact is closed.	If the contact is closed test is ok. If the contact is open check parameter 14/4 is RUN. If parameter is set for RUN contact I1E.
NB At this stage the control passes to the main controller to operate the contactors.		
Motor does not turn.	Check main contactors are energised.	
	Check output phase voltages to the RFI filter from the regulator. (Note: This voltage maybe lower than 415V depending upon frequency).	If not present check above conditions. If above conditions are correct replace regulator.
	Check phase voltages from the RFI filter.	If phases not present replace RFI filter.
	Check Phase voltages to the Motor.	If phase not present at the motor check wiring to the motor.

Section F Cont'd

PROBLEM	CHECKS	SOLUTION
Motor whines but does not turn.	Check required speed signals (13 to 15) are present and are 24vdc wrt 0V (8).	If not present check speed selection circuitry.
	Ensure the brake is energised.	If not energised check brake circuitry.
	Ensure current limit parameter is set to 2 * flc.	
	Monitor Motor Current parameter in Operating Data and ensure current limit is not in operation.	If current limit is in operation try reducing parameter IR Comp Voltage (27/7). Check motor has all 3 phase present. Check motor has not got a partial short cct.