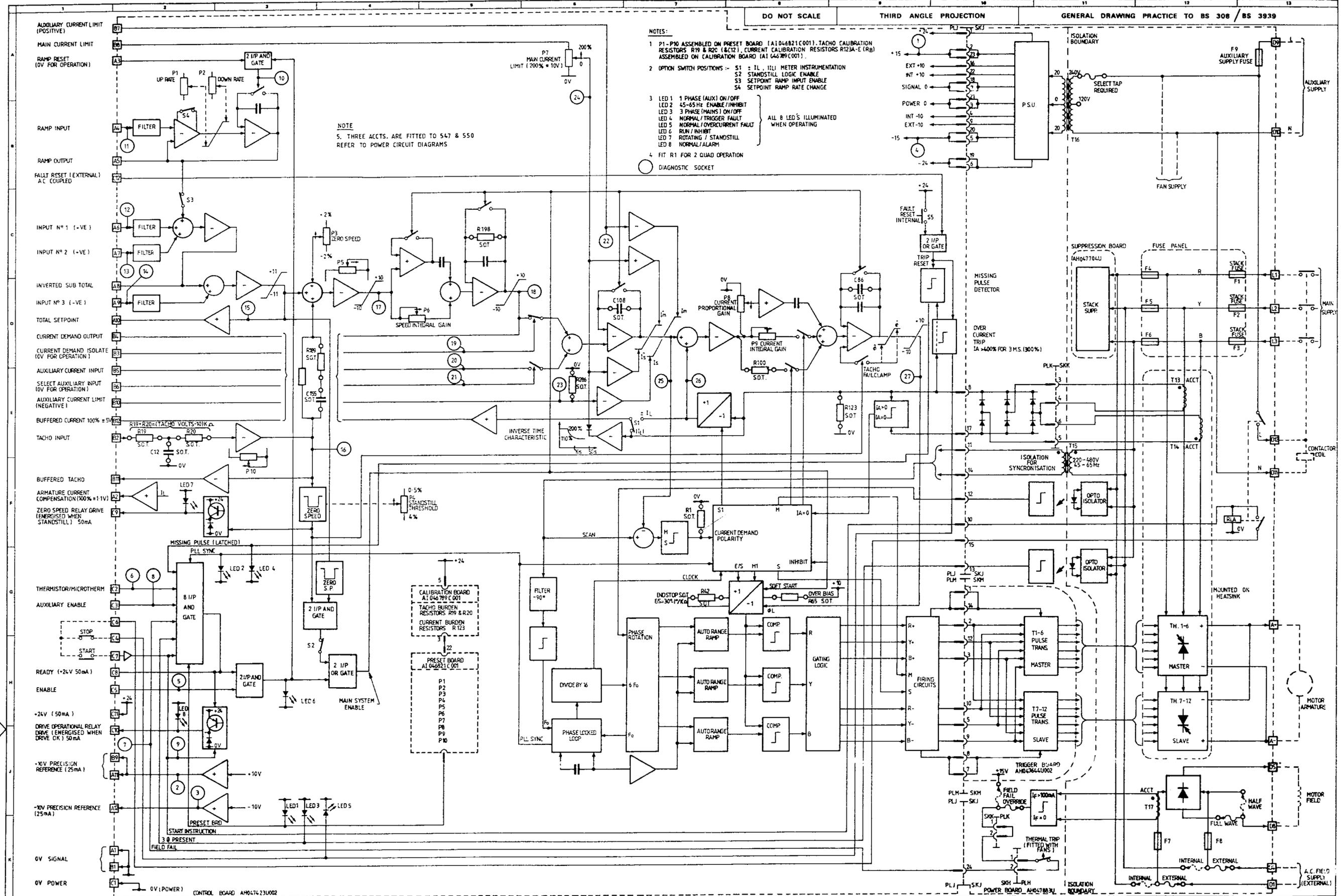


- NOTES:
- P1-P10 ASSEMBLED ON PRESET BOARD (A1046821C001). TACHO CALIBRATION RESISTORS R19 & R20 (R12Z), CURRENT CALIBRATION RESISTORS R123A-E (R1B) ASSEMBLED ON CALIBRATION BOARD (A1046821C001)
 - OPTION SWITCH POSITIONS - S1 STANDSTILL LOCK ENABLE
S2 SETPOINT RAMP INPUT ENABLE
S4 SETPOINT RAMP RATE CHANGE
 - LED 1 PHASE (AUX) ON/OFF
LED 2 45-65 Hz ENABLE /INHIBIT
LED 3 PHASE (MAINS) ON/OFF
LED 4 NORMAL / TRIGGER FAULT
LED 5 NORMAL / OVERCURRENT FAULT
LED 6 RUN /INHIBIT
LED 7 ROTATING / STANDSTILL
LED 8 NORMAL /ALARM
 - R1 FITTED
- DIAGNOSTIC SOCKET

NOTES
5. THREE ACCTS. ARE FITTED TO 548 & 551 REFER TO POWER CIRCUIT DIAGRAMS

DO NOT SCALE THIRD ANGLE PROJECTION GENERAL DRAWING PRACTICE TO BS 308 / BS 3939

DATE 16-7-82	DRAWN D.J.H./M.R.E.	MATERIAL	DIMS. IN M.M. APPLY OVER FINISH (EXCEPT FOR PUNCH AND LAGERS)	SCALE	TITLE 3 PHASE 2 QUADRANT BLOCK DIAGRAM 546
2-20-82	CHECKED		GENERAL TOLERANCES H: ±0.1 K: ±0.1	ASSEMBLED ON	DRAWING NUMBER HH 048956 F
1-1-83	DESIGN APPROVAL L.A.T.A.C.E.Y.	FINISH	HOLE - Ø7mm Ø8 - Ø9	SHACKLETON system drives	REV. 1
19-10-84	MANUFACTURE APPROVAL			SHACKLETON system drives	REV. 1



- DO NOT SCALE THIRD ANGLE PROJECTION GENERAL DRAWING PRACTICE TO BS 308 / BS 3939
- NOTES:
- P1 - P10 ASSEMBLED ON PRESET BOARD (A1046821C001). TACHO CALIBRATION RESISTORS R19 & R20 (R121). CURRENT CALIBRATION RESISTORS R123A-E (R12) ASSEMBLED ON CALIBRATION BOARD (A104679C001).
 - OPTION SWITCH POSITIONS - S1 = IL, ILLI METER INSTRUMENTATION
S2 STANDSTILL LOGIC ENABLE
S3 SETPOINT RAMP INPUT ENABLE
S4 SETPOINT RAMP RATE CHANGE
 - LED 1 1 PHASE (AUX) ON/OFF
LED 2 45-65 Hz ENABLE/INHIBIT
LED 3 3 PHASE (MANS) ON/OFF
LED 4 NORMAL / TRIGGER FAULT
LED 5 NORMAL / OVERCURRENT FAULT
LED 6 RUN / INHIBIT
LED 7 ROTATING / STANDSTILL
LED 8 NORMAL / ALARM
 - FIT R1 FOR 2 QUAD OPERATION
- ALL 8 LED'S ILLUMINATED WHEN OPERATING
- DIAGNOSTIC SOCKET

NOTE
5. THREE ACCTS. ARE FITTED TO 547 & 550 REFER TO POWER CIRCUIT DIAGRAMS

DATE	DESCRIPTION
11-1-81	1
8-2-82	2
17-3-82	3
16-7-82	4
19-8-82	5
21-10-83	6
19-10-84	7

DRAWN D.J.H./M.R.E.	MATERIAL
CHECKED	
DESIGN APPROVAL	FINISH
MANF. APPROVAL	

DIMS. IN M.M. APPLY OVER FINISH (EXCEPT FOR PAINT AND LACQUER)	
GENERAL TOLERANCES	HOLES ϕ 7mm
X.X = ± 0.4	0.2
X.XX = ± 0.1	0.02 - 0.07

ASSEMBLED ON	SCALE	TITLE
CONTROL BOARD AH047423U002		3 PHASE 4 QUADRANT BLOCK DIAGRAM 545
SHACKLETON SYSTEM DRIVES		DRAWING NUMBER HH 047422 F
		SHT. 1 OF 1 SHTS

DIAGNOSTIC CHART 1

DRIVE CONDITION INDICATORS - DESCRIPTION

LED 1: 1 PHASE (AUXILIARY SUPPLY) ON/OFF

- ON: Single phase auxiliary supply on.
- OFF: a) Single phase supply or fuse FS9 failed.
- b) Presets PCB or Calibration PCB not fitted or plugged in correctly.

LED 2: 45-65 HZ ENABLE/INHIBIT

- ON: Phase locked loop synchronized.
- OFF: Phase locked loop not synchronized to main 3-phase power supply.

LED 3: 3-PHASE POWER SUPPLY

- ON: 3-Phase power supply connected
- OFF: a) 1 Phase or more not connected.
- b) Main contactor not closed.
- c) Main fuse failure check FS1, FS2, FS3.
- d) Coding fuse failure check FS4, FS5, FS6.

LED 4: NORMAL/TRIGGER FAULT

- ON: Armature Current waveform normal
- OFF: Abnormal current waveform detected indicating failure of an SCR to trigger or turn on. The drive can only be restarted after such a fault occurs by either pressing the "FAULT RESET" pushbutton or externally by applying +24V (from terminal C11) to reset terminal C12.

LED 5: NORMAL/OVER CURRENT FAULT

- ON: Armature Current Normal
- OFF: Armature Current has exceeded 300% full load. In this condition the main contactor will be automatically tripped. The entire system must be checked thoroughly to ascertain the cause of the failure. The drive can be restarted after such a fault by either pressing the "FAULT RESET" pushbutton or externally by applying +24V (from terminal C11) to terminal C12.

LED 6: RUN/INHIBIT

- ON: Indicates that both "READY" signal (on terminal C8) and "ENABLE" signal (on terminal C5 and diagnostic 5) are present. The drive will now start.
- OFF: Either "READY" or "ENABLE" signals have been removed.

NOTES:

- a) The "READY" signal depends upon each of the following signals being in its enabled condition:
- i) Single phase (auxiliary supply) On/Off (LED 1)
 - ii) 45-65HZ Enable/Inhibit (LED 2)
 - iii) 3-Phase (Main Supply) On/Off (LED 3)
 - iv) Normal/Trigger Fault (LED 4)
 - v) Motor Thermistor/Microtherm (DIAGNOSTIC 6)
 - vi) Field Fail (DIAGNOSTIC 7)
 - vii) Auxiliary Enable (DIAGNOSTIC 8)
 - viii) Start Instruction (DIAGNOSTIC 9)
- b) The "ENABLE" signal depends on the external connection of +24V (Nominal) to Enable terminal C5, normally from START SUPPLY terminal C4. START SUPPLY is only present when LED 5 is lit.

LED 7: ROTATING/STANDSTILL

- ON: Indicates the motor shaft is rotating. (Speed signal exceeds STANDSTILL THRESHOLD set by potentiometer P4. Adjustment range 0.5 to 4%).
- OFF: Motor shaft speed is less than standstill threshold.

LED 8: NORMAL/ALARM

- ON: Drive condition normal.
- OFF: Drive in fault condition.

NOTES:

- a) In the STOP condition the "NORMAL" signal only requires that the internal supply rails are present.
- b) In the START condition the "NORMAL" signal requires the READY signal (terminal C8) to be present.

DIAGNOSTIC CHART 2

DRIVE CONDITION INDICATORS - STATUS RECOGNITION

CONDITION REFERENCE								<u>STOP CONDITION</u>	
1 PHASE (AUX) ON/OFF								<div style="display: flex; flex-direction: column; align-items: center; gap: 10px;"> <div style="display: flex; align-items: center; gap: 5px;"> LED ON </div> <div style="display: flex; align-items: center; gap: 5px;"> LED OFF </div> <div style="display: flex; align-items: center; gap: 5px;"> X EITHER </div> </div>	
45-65 HZ ENABLE/INHIBIT									
3-PHASE (MAINS) ON/OFF									
NORMAL/TRIGGER FAULT									
NORMAL/OVERCURRENT FAULT									
RUN/INHIBIT									
ROTATING/STANDSTILL									
NORMAL/ALARM									
	1	2	3	4	5	6	7	8	CONDITIONS/CHECKS
A	●	○	○	●	●	○	○	●	NORMAL STOP CONDITION.
B	○	○	○	○	○	○	○	○	NO AUXILIARY SUPPLY. CHECK: (1) Auxiliary A.C. supply voltage on terminal D9 with respect to terminal D10 corresponds to auxiliary power supply transformer tapping selected on power board. (2) Auxiliary supply fuse F9.
C	○	○	○	●	●	○	○	●	CALIBRATION BOARD NOT FITTED. CHECK: (1) Calibration board inserted correctly.
D	○	○	○	●	●	○	●	●	PRESET BOARD NOT FITTED. CHECK: (1) Preset board inserted correctly.
E	●	○	○	●	●	○	●	●	DRIVE INCORRECTLY INDICATES SHAFT ROTATING. CHECK: (1) Speed feedback signal (diagnostic 16). (2) Voltage appearing on terminal B2 with respect to terminal B1. (3) Wiring to terminals B2 and B1. (4) Preset board potentiometer P10.

DRIVE CONDITION INDICATORS - STATUS RECOGNITION

CONDITION REFERENCE								START CONDITION	
1 PHASE (AUX) ON/OFF								<p>● LED ON</p> <p>○ LED OFF</p> <p>⊗ EITHER</p>	
45-65 HZ ENABLE/INHIBIT									
3-PHASE (MAINS) ON/OFF									
NORMAL/TRIGGER FAULT									
NORMAL/OVERCURRENT FAULT									
RUN/INHIBIT									
ROTATING/STANDSTILL									
NORMAL/ALARM									
1	2	3	4	5	6	7	8	CONDITIONS/CHECKS	
A	●	○	○	●	●	○	○	●	NORMAL STOP CONDITION.
F	●	●	●	●	●	●	⊗	●	NORMAL RUN CONDITION.
G	●	○	○	●	●	○	○	●	DRIVE REMAINS IN STOP CONDITION. STATUS LEDS DO NOT CHANGE WHEN START BUTTON PRESSED. CHECK: (1) Drive is receiving Start Instruction (Diagnostic 9) (2) Continuity of stop line terminals C4 to C6. (3) Continuity of start line terminals C6 to C7.
H	●	○	○	●	●	○	○	○	ALARM CONDITION - START INSTRUCTION PRESENT BUT DRIVE NOT RECEIVING 3-PHASE. CHECK*: (1) Main contactor is pulled in. (2) Contactor coil connections (terminals D11 and D12). (3) Coil voltage is correct. (4) Coil resistance ie. not open circuit. (5) All three phases present on drive input terminals L1, L2 and L3. WARNING! High voltages appear on these terminals. (6) Fuses F1, F2, F3 and F4, F5, F6. WARNING! Isolate Drive from supply before Checking.
I	●	●	○	●	●	○	○	○	ALARM CONDITION - SPECIAL CASE OF ABOVE ONE PHASE ONLY MISSING. CHECK*: Items (5) and (6) in H above.
J	●	●	●	●	●	●	●	●	NORMAL RUN CONDITION - SHAFT ROTATING.
K	●	●	●	●	●	○	○	●	DRIVE INHIBITED BY 'ENABLE' SIGNAL AT C5. CHECK: (1) Drive enable (diagnostic 5). (2) Continuity between terminal C5 and start supply C4 OR C5 and +24V (NOMINAL) supply C11, as appropriate.
L	●	●	●	●	●	●	○	●	NORMAL RUN CONDITION - SHAFT STATIONARY IF INCREASING SETPOINT HAS NO EFFECT THEN: FOR SPEED CONTROL MODE CHECK: (1) Total Setpoint (diagnostic 15) is responding to the setpoint input. (2) That the Total Setpoint is positive in 546 and 548 units. (3) Main current limit (diagnostic 24) is not at zero. (4) Auxiliary current limits (diagnostics 22 and 23) are not at zero. (5) That the current demand is <u>not</u> isolated (diagnostic 19). (6) Motor armature connections (with supplies isolated). (7) Tacho connections correct (diagnostics 15 and 16). (8) Motor not stalled. Diagnostic 26 indicates armature current. FOR TORQUE (CURRENT) CONTROL <u>ONLY</u> CHECK: Items 2, 3, 5, 7 and (8) Auxiliary current input (diagnostic 20) is not at zero. (9) Auxiliary current input is selected (diagnostic 21).

DRIVE CONDITION INDICATORS - STATUS RECOGNITION

CONDITION REFERENCE								START CONDITION	
1 PHASE (AUX) ON/OFF								 LED ON  LED OFF  EITHER	
45-65 HZ ENABLE/INHIBIT									
3-PHASE (MAINS) ON/OFF									
NORMAL/TRIGGER FAULT									
NORMAL/OVERCURRENT FAULT									
RUN/INHIBIT									
ROTATING/STANDSTILL									
NORMAL/ALARM									
1	2	3	4	5	6	7	8	CONDITIONS/CHECKS	
F	●	●	●	●	●	●	⊗	●	NORMAL RUN CONDITION.
M	●	●	●	●	●	○	○	○	DRIVE INHIBITED BY AUXILIARY ENABLE, OVERTEMPERATURE ALARM, FIELD FAILURE ALARM OR INTERMITTENT SUPPLY LOSS. CHECK*: (1) Auxiliary enable (Diagnostic 8). (2) Thermistor/Microtherm (Diagnostic 6). (3) Field Fail (Diagnostic 7). (4) Field voltage on terminals D5 and D8. (5) Field circuit continuity (isolate supplies before checking). (6) Fuses F7 and F8 (isolate supplies before checking). (7) Observe LEDs 2 and 3 for intermittent, momentary loss of supply. WHERE AC SUPPLY TO THE FIELD RECTIFIER IS EXTERNAL (FIELD OPTIONS 4, 5 AND 6). CHECK: (8) AC Voltage on terminal D4 and D1. FOR FORCE VENTILATED CONTROLLERS ONLY. CHECK: (9) Rotation of fans as stack thermal trip is in series with field fail.
N	●	●	●	○	●	○	○	○	ALARM CONDITION - TRIGGER FAULT, IF SETTING UP DRIVE FOR FIRST TIME OR SETTINGS HAVE BEEN ADJUSTED INDICATES EXTREME INSTABILITY. CAREFULLY FOLLOW DRIVE SETTING UP PROCEDURE.** OTHERWISE, CHECK: (1) Diagnostic 26. Observe armature waveform on oscilloscope. If one or more Thyristors is not being turned on drive will trip.**
P	●	○	○	●	○	○	○	○	ALARM CONDITION - OVERCURRENT FAULT, IF SETTING UP DRIVE FOR FIRST TIME OR SETTINGS HAVE BEEN ADJUSTED, INDICATES EXTREME INSTABILITY. CAREFULLY FOLLOW DRIVE SETTING UP PROCEDURE.** OTHERWISE, CHECK: All external connections, in particular, motor supply and supply connections**
								* If terminal C3 is connected to C10 these alarm conditions will latch, they may be reset by operating the Stop/Start controls. ** To reset the drive, fault reset must be operated and the drive restarted.	

DIAGNOSTIC CHART 3

DIAGNOSTIC TEST UNIT - VOLTAGE MEASUREMENTS

TEST NO.	DIAGNOSTIC TEST POINT DESCRIPTION	CONDITION	VOLTAGE
1	Internal +15V Supply	Aux. Power ON	+15V \pm 0.25V Max. 100Hz ripple=25mV peak to peak
2	External +10V Supply Note: These supplies are buffered from internal reference supplies and have a maximum output current capability of 25mA.	Aux. Power ON	+10V \pm 0.1V Max. 100Hz ripple=5mV peak to peak
3	External -10V Supply	Aux. Power ON	-10V \pm 0.1V Max. 100Hz ripple=5mV peak to peak
4	Internal -15V Supply	Aux. Power ON	-15V \pm 0.25V Max. 100Hz ripple=25mV peak to peak
5	<u>Drive Enable</u> Enable = +24V(Nominal) on terminal C5 Inhibit = open circuit to terminal C5	Enable Inhibit	+7V \pm 4V \leq -5V
6	Motor Thermistor/Microtherm	Motor temperature correct Motor over temperature	+0.5V \pm 0.5V -14V \pm 1.25V
7	<u>Field Fail</u> Notes: 1. This signal is interlocked with the internal temperature sensor (force ventilated units only) and the internal ACCT connectors. 2. Internally supplied fields will normally excite when the 3-phase power is connected to the drive i.e. only in the run condition, with the main contactor energised. 3. Excitation of externally controlled fields will depend on the application. 4. Permanent magnet motor, field weakening and remote field supply applications will employ field failure override. This will provide a constant 'field normal' signal.	Field AND Interlocks Normal Field OR Interlocks Fail	+0.5V \pm 0.5V -14V \pm 1.25V
8	<u>Auxiliary Enable</u> Enable = +24V(Nominal) on terminal C3 Inhibit = Open circuit to terminal C3	Enable Inhibit	+0.5V \pm 0.5V -14V \pm 1.25V
9	<u>Start Instruction</u>	Run Stop	+0.5V \pm 0.5V -14V \pm 1.25V

DIAGNOSTIC TEST UNIT - VOLTAGE MEASUREMENTS

TEST NO.	DIAGNOSTIC TEST POINT DESCRIPTION	CONDITION	VOLTAGE
10	<p><u>Setpoint Ramp Reset</u> Enable = Open circuit to terminal A3 Reset to Zero = Connect terminal A3 to A1 (0V)</p> <p>Note: Setpoint ramp output is also reset to zero when run/inhibit LED 6 is out.</p>	Ramp Enable AND Run Ramp Reset OR Stop	-14V \pm 1.25V 0V \pm 0.1V
11	<p><u>Setpoint Ramp Input</u> Connects directly to terminal A4 and measures the incoming speed demand signal. If terminal A4 is not used the voltage measured should be zero.</p>	<p><u>Variable Input:</u> 100% forward speed demand. Zero speed or terminal A4 not used 100% reverse speed demand*.</p>	+10V 0V -10V
12	<p><u>Input No. 1</u> Connects directly to terminal A6 and measures the incoming speed demand signal. If terminal A6 is not used the voltage measured should be zero.</p>	<p><u>Variable Input:</u> 100% forward speed demand. Zero speed or terminal A6 not used 100% reverse speed demand*.</p>	+10V 0V -10V
13	<p><u>Input No. 2</u> Connects directly to terminal A7 and measures the incoming speed demand signal. If terminal A7 is not used the voltage measured should be zero.</p>	<p><u>Variable Input:</u> 100% forward speed demand. Zero speed or terminal A7 not used 100% reverse speed demand*.</p>	+10V 0V -10V
14	<p><u>Input No. 3</u> Connects directly to terminal A9 and measures the incoming inverted speed demand signal. If terminal A9 is not used the voltage measured should be zero.</p> <p>Note: That input No. 3 is of the opposite sense to all other speed inputs.</p>	<p><u>Variable Input:</u> 100% forward speed demand. Zero speed or terminal A9 not used 100% reverse speed demand*.</p>	-10V 0V +10V
15	<p><u>Total Setpoint</u> This is the sum of all the speed demand signals, i.e. Input No. 1, plus Input No. 2, plus Setpoint Ramp Input (if S3 is closed), minus Input No. 3. It is clamped to a maximum output of \pm11V.</p>	<p><u>Variable Signal:</u> 100% forward speed demand. Zero speed. 100% reverse speed demand*.</p>	+10V 0V -10V
16	<p><u>Speed Feedback</u> This is the scaled and buffered tachogenerator speed feedback signal (under steady state conditions it should be of opposite polarity but equal in magnitude to the Total Setpoint measured on diagnostic 15).</p>	<p><u>Variable Signal:</u> 100% forward speed. Zero speed. 100% reverse speed*.</p>	-10V 0V +10V
17	<p><u>Speed Error</u> This is of opposite polarity to the difference between the Total Setpoint and speed feedback voltages. The magnitude of this signal is dependant on the setting of the Speed Proportional Gain (P5) and includes any Zero Speed offset value.</p>	Run - Variable Signal - Normal Steady State value - Stop - Total Setpoint = 0V Total Setpoint \neq 0V	up to \pm 10V 0V Approx 0V \pm 0.2V up to \pm 10V

* 545 and 547 drives only.

DIAGNOSTIC TEST UNIT - VOLTAGE MEASUREMENTS

TEST NO.	DIAGNOSTIC TEST POINT DESCRIPTION	CONDITION	VOLTAGE
18	<p><u>Current Demand</u> This signal is held to zero except in the run condition when it is released by Main System Enable.</p> <p>Main System Enable depends on the "Run/Inhibit" signal (LED 6) and on the Standstill Logic (if switch S2 is closed).</p>	<p>Run - Variable Signal - 545 & 547 - 546 & 548</p> <p>Stop - (or Standstill)</p>	<p>+10V</p> <p>0 to +10V</p> <p>0V \pm0.1V</p>
19	<p><u>Current Demand Isolate</u> Connects directly to terminal B3.</p> <p>NOTE: 1. For speed control operation leave terminal B3 open circuit.</p> <p>2. For current control operation connect terminal B3 to B1 (0 Volts).</p>	<p>Speed control.</p> <p>Current control.</p>	<p>-14V \pm1.25</p> <p>0V \pm0.1V</p>
20	<p><u>Auxiliary Current Input</u> Connects directly to terminal B5.</p> <p>Only operational if selected (See Diagnostic 21).</p>	<p><u>Variable Input</u> (if used):</p> <p>Positive Bridge current = 200% FLC* Zero Current. Negative Bridge current = 200% FLC* (545 & 547 only)</p> <p>* FLC = Full Load Current.</p>	<p>+10V</p> <p>0V</p> <p>-10V</p>
21	<p><u>Select Auxiliary Input</u> Connects directly to terminal B6.</p> <p>NOTE: 1. To select input connect terminal B6 to 0 Volts (terminal B1).</p> <p>2. To disconnect input leave terminal B6 open circuit.</p>	<p>Select Input.</p> <p>Disconnect Input.</p>	<p>0V \pm0.1V</p> <p>-14V \pm1.25</p>
22	<p><u>Auxiliary Current Limit (Positive)</u> Connects directly to terminal B7.</p> <p>NOTE: 1. This positive current limit only operates up to the limit set by the Main Current Limit preset (P7) at Diagnostic 24.</p> <p>2. If no special limit is required leave terminal B7 open circuit.</p>	<p>Terminal B7 open circuit.</p> <p><u>Variable Input:</u></p> <p>Positive current limit = 200% FLC* Positive current limit zero.</p> <p>* FLC = Full Load Current.</p>	<p>+12V \pm2V</p> <p>+10V</p> <p>0V</p>
23	<p><u>Auxiliary Current Limit (Negative)</u> Connects directly to terminal B10.</p> <p>NOTE: 1. This negative current limit only operates up to the limit set by the Main Current Limit preset (P7) at Diagnostic 24.</p> <p>2. If no special limit is required leave terminal B10 open circuit.</p> <p>3. IN ALL 546 AND 548 APPLICATIONS TERMINAL B10 MUST BE OPEN CIRCUIT.</p>	<p>Terminal B10 open Circuit (see note 3).</p> <p><u>Variable Input:</u></p> <p>Negative current limit = 200% FLC* Negative current limit zero.</p> <p>* FLC = Full Load Current.</p>	<p>-12V \pm2V</p> <p>-10V</p> <p>0V</p>

DIAGNOSTIC TEST UNIT - VOLTAGE MEASUREMENTS

TEST NO.	DIAGNOSTIC TEST POINT DESCRIPTION	CONDITION	VOLTAGE
24	<p><u>Main Current Limit</u> Overrides Auxiliary Current Limits (see Diagnostic 22 and 23).</p> <p>Scaling: 0 to +10V equivalent to 0 to 200% Full Load Current (FLC).</p> <p>Characteristics: (i) When set between 0 and 5.5V (0 to 110% FLC*) the set current is available continuously. (ii) When set between 5.5 and 10V (110 to 200% FLC*) the current is controlled by an overload inverse time characteristic. The absolute limit is fixed at the set value and the current is allowed to exceed 110% FLC* for a short time before it is automatically cut back to 110%. The time allowed in this over current region depends on the magnitude of the overload e.g. 150% load is permitted for approximately 30 secs before cut back starts. 200% load is permitted for approximately 10 seconds before cut back starts.</p>	<p>Variable Voltage depending upon the input to terminal B8 (normally +10V) and the setting of the Main Current Limit Potentiometer P7.</p>	0 to +10V
25	<p><u>Total Current Demand (Inverted)</u> This is the net current demand signal (inverted). It is limited by the current limit settings and the overload inverse time characteristic. It is held to zero except in the run condition when it is released by the Main System Enable. The Main System Enable depends on the "Run/Inhibit" signal (LED 6) and on the Standstill logic (if switch S2 is closed).</p>	<p><u>Variable demand in run condition:</u> Positive Bridge Current = 200% FLC* Zero Current. Negative Bridge Current = 200% FLC* (545 & 547 only) In stop condition. * FLC = Full Load Current.</p>	<p>-10V 0V +10V 0V</p>
26	<p><u>Current Feedback</u> Measured armature current signal.</p> <p>This is an isolated signal which is directly proportional to the Armature Current. Under steady state conditions it should be of opposite polarity but equal in magnitude to the Total Current Demand signal at Diagnostic 25.</p>	<p><u>Variable signal in run condition:</u> Positive Bridge Current = 200% FLC* Zero current. Negative Bridge Current = 200% FLC* (545 & 547 only) * FLC = Full Load Current.</p>	<p>+2.2V 0V -2.2V</p>
27	<p><u>Phase Angle</u> This signal is held to zero except in the run condition when it is released by Main System Enable.</p> <p>Main System Enable depends on the "Run/Inhibit" signal (LED 6) and on the Standstill Logic (if switch S2 is closed). Signal value is limited if no tachogenerator feedback signal is present in order to help prevent over speeding of the motor.</p>	<p><u>Variable Signal in run condition:</u> Positive phase angle. (545 & 547 only) Zero phase angle. Negative phase angle. Tacho loss (i.e. No tacho signal).</p>	<p>up to +10V 0V up to -10V Limited to $\pm(4.7V \pm 0.2)$</p>