1.02.2002
ver. 2
PVCW

MUREX Autolynx 4i Inverter MIG Composite

SERVICE MANUAL

IMPORTANT

PLEASE DESTROY ANY PREVIOUS VERSION (14/05/01) OF THIS DOCUMENT AS IT CONTAINS AN ERROR IN THE SCHEMATIC DIAGRAM. THE CONNECTIONS BETWEEN THE (OCV) OUTPUT OF THE MAIN INV PCB AND THE CONTROL PCB (A102, A103/A201, A202) ARE SHOWN REVERSED, LIKE THIS THE MIG CONTROL PCB WILL FAIL – IC U2 ON IT (40106) WILL BE DAMAGED RESULTING IN NO RESPONSE TO THE TORCH SWITCH

Attachments:

1.	CIRCUIT DIAGRAM	per the instruction manual page 10
2.	Schematic Diagram	ver.2!!!
3.	Main Inv. PCB	component layout and connections
4.	MIG Control PCB	component layout and connections

General Remarks:

The Autolynx 4i essentially consists of 2 PCB assemblies:

Main Inverter PCB, mounted horizontally, is a 60kHz PWM Mosfet inverter module capable of delivering up to 170Adc at 40% duty. Its OCV is nominally 47Vdc. It is powered by 220-250Vac single- phase input via the main's filter to push-on connections at A1 and A2 at the rear LH corner of the PCB. This is rectified by bridge BR1 (located immediately between A1 and A2) and creates a 320Vdc (nominal) line smoothed by 3 large electrolytic capacitors.

The Main Inv. PCB generates a 24Vdc unregulated supply (whose 0v is common with the main negative output) together with a 5Vdc reference rail. These are available at ribbon connector CN1 together with Ov, a "contactor" control line (the output in "ON" when there is no connection to this point), and the 0-5Vdc reference input which sets the inverter output current level.

A thermal sensor mounted on the output rectifier heatsink prevents overload and turns off the inverter in the event of overtemperature. An output to drive a yellow LED (mounted on the front panel via the MIG Control PCB) is connected to DL1.

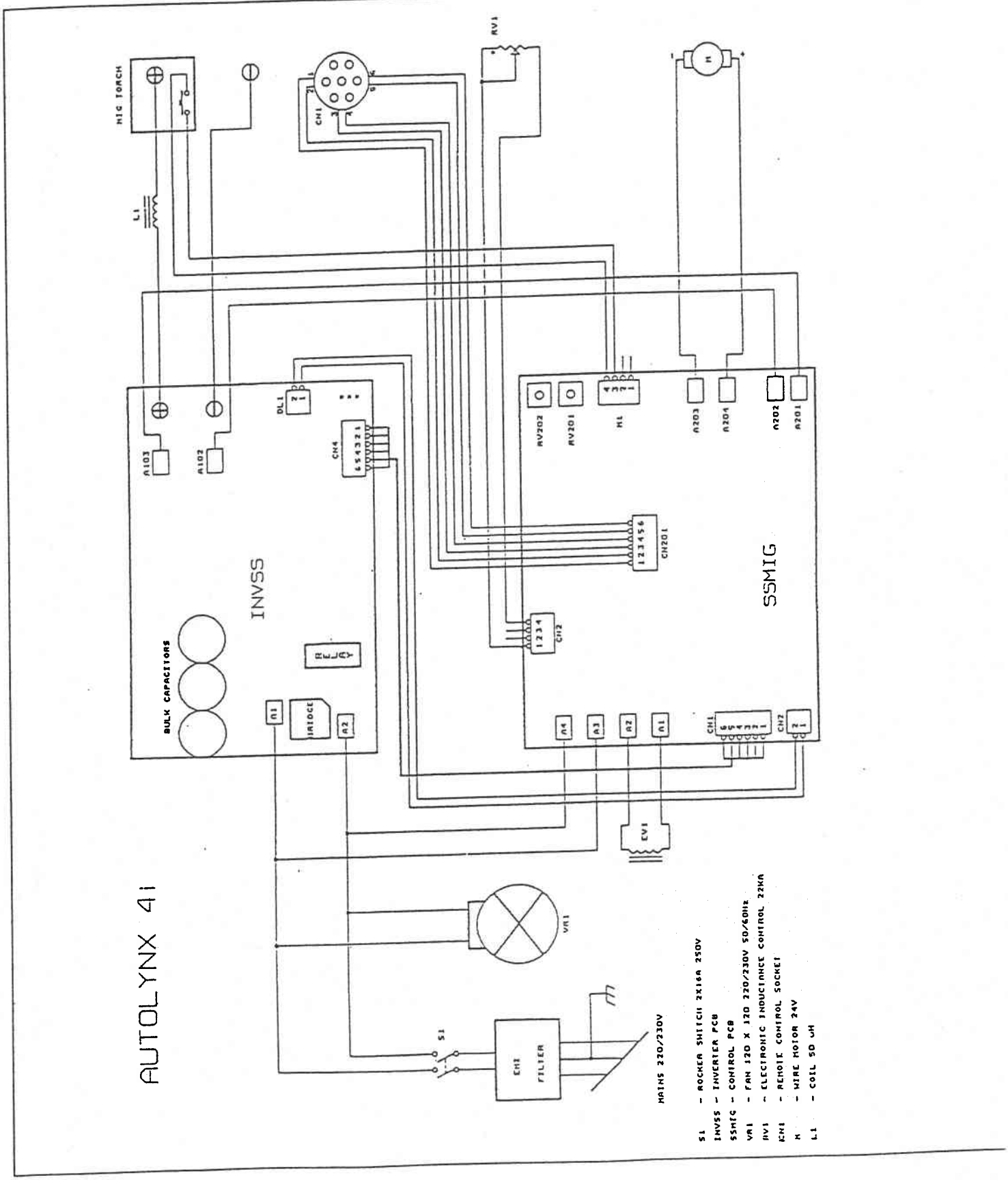
MIG Control PCB, mounted on the back of the front panel, receives the torch switch signal and controls the gas valve (240Vac via an on PCB relay), "contactor" function, burnback timer and motor speed control and brake. It is powered by the 24Vdc unregulated supply (from the Main Inv. PCB) and also uses the 5Vdc rail for voltage and wire speed reference purposes. Power for the switching mode motor speed control actually comes from the main inverter output voltage (OCV/arc voltage). An inductance function, created by dynamic feedback control, is also provisioned which can be adjusted via a potentiometer on the front panel. Remote control of both voltage and wfs are via a ribbon connector from the remote control socket on the front panel.

Simple Diagnostics:

The Main Inverter PCB can be readily checked by disconnecting the 6 way ribbon cable from it at CN4. Like this there should be 47Vdc nominally (i.e. OCV) at its main high current dc output terminals. If not check for 240Vac between push-on connectors A1 and A2. Note unless the Main Inv. PCB is OK, generating the required 24Vdc auxiliary and the OCV, the wire feed motor will not run etc.

Since one side of the torch switch is connected to Ov and hence to the main negative output of the inverter via R9 on the MIG control PCB (100ohm), see schematic diagram, Should the switch leads come into contact with the torch power cable, which is at +ve OCV/arc voltage level, R9 will overheat and go open circuit. Like this there will be no response to the torch switch. R9 is located immediately behind the green torch switch connector block on the MIG control PCB, see MIG Control PCB component layout.

CIRCUIT DIAGRAM



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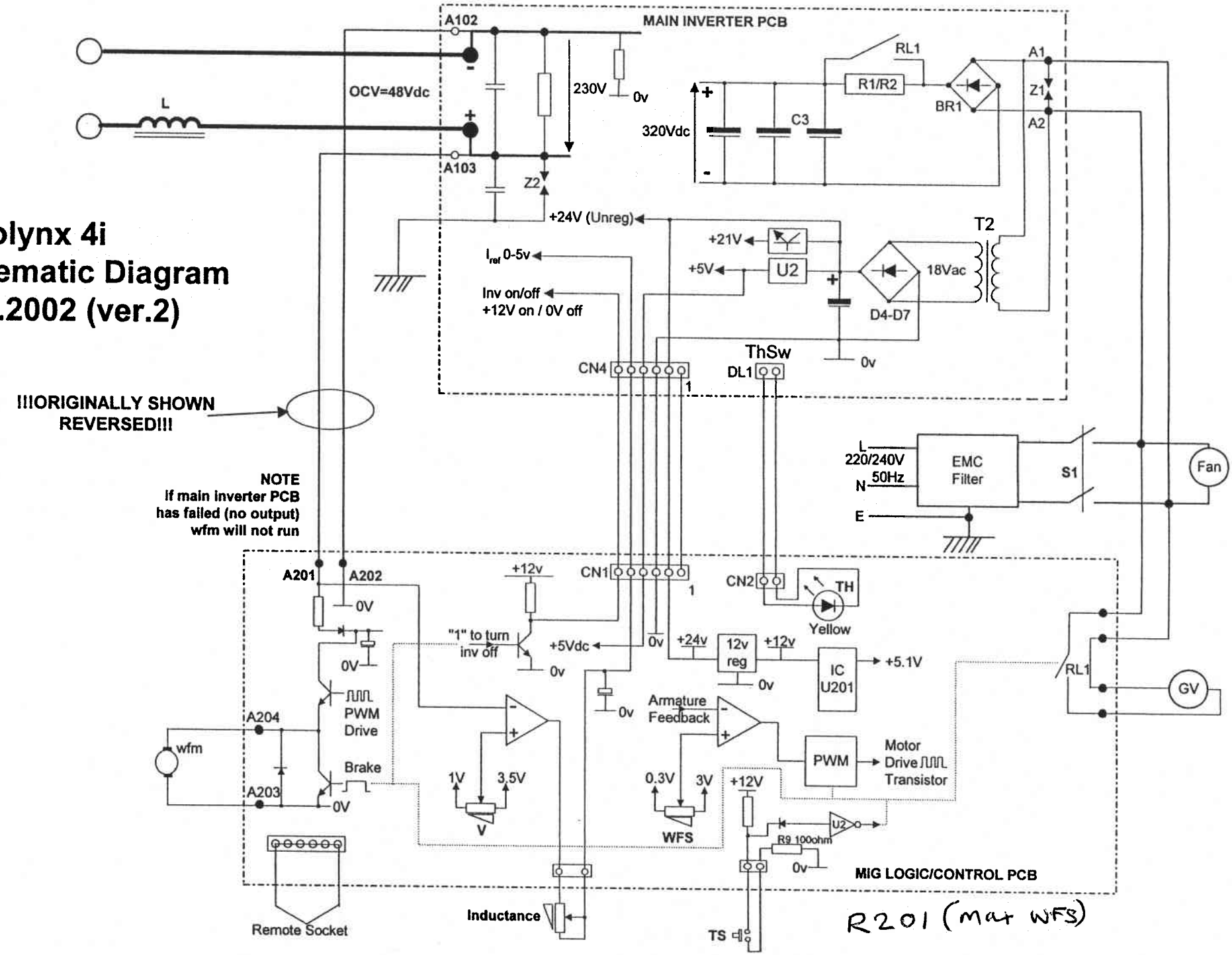
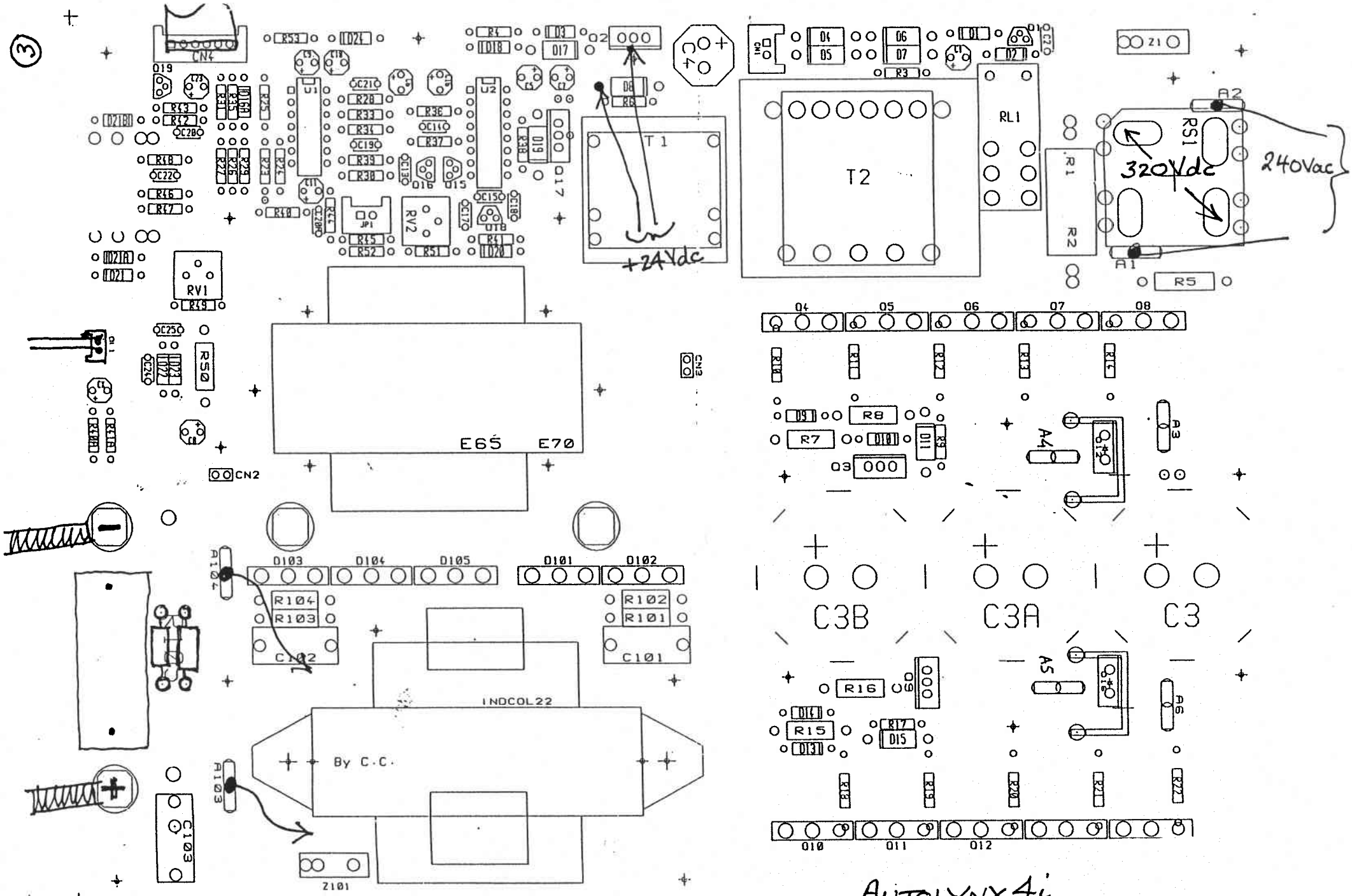
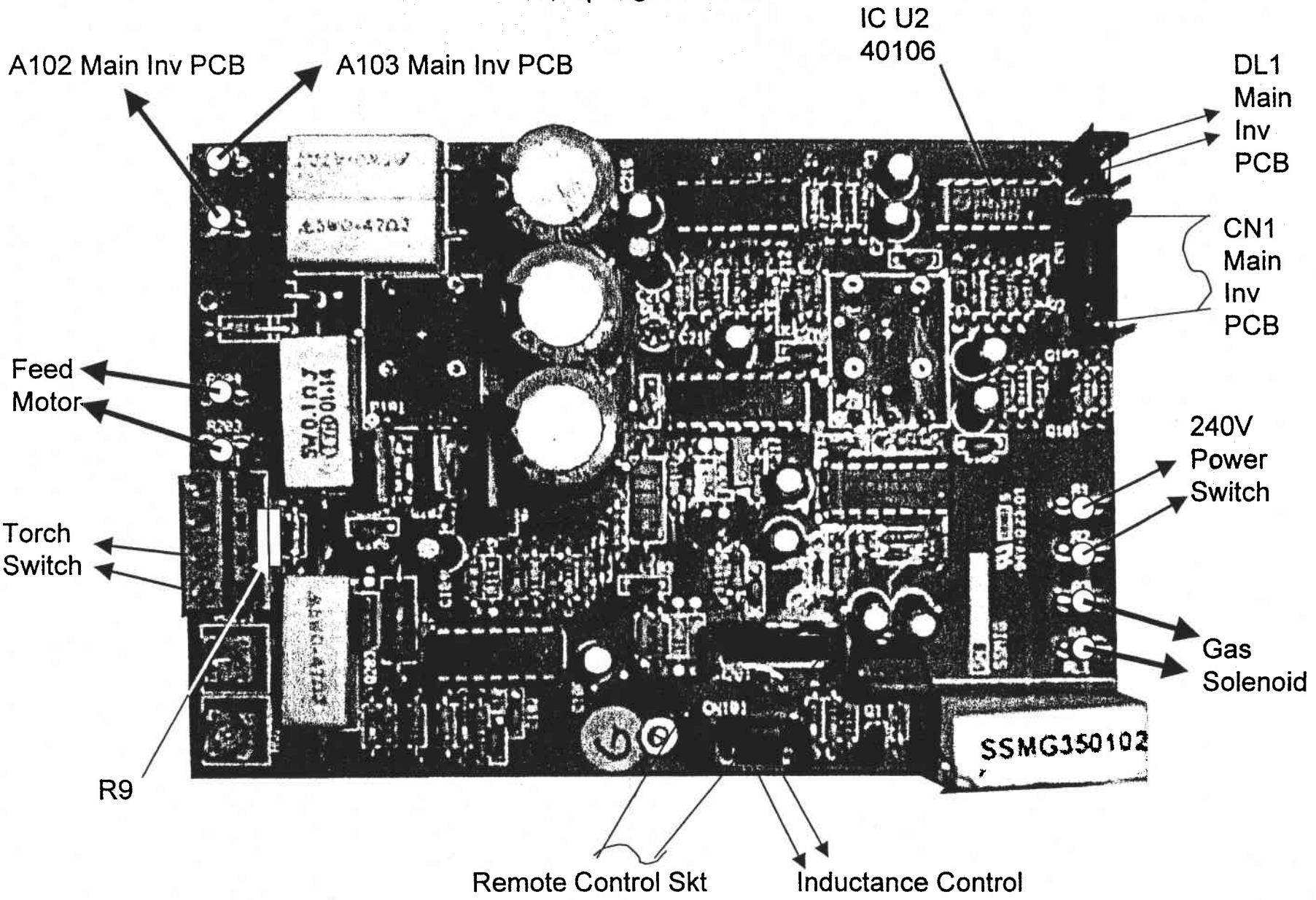
Autolynx 4i
Schematic Diagram
1.02.2002 (ver.2)




(3)
CN4
T1
T2
RL1
RS1
320Vdc
240Vac
+24Vdc
RV1
RV2
E65
E70
CN2
CN3
INDCOL22
By C.C.
C101
C102
C103
Z101
C3B
C3A
C3
AUTOLYNX 4i
MAIN INVERTER PCB

(4)

AUTOLYNX 4i
MIG CONTROL PCB