EXPANSION CONNECTION

REVERSE
FORWARDS
HI 0V
HI +VE

POWER SUPPLY

ISOLATED 15V DC SUPPLY
IC3 7812
SAFETY INTERLOCK
RED (REV)
GREEN (FOR)
DUALCOLOUR LED
EXT. I. MONITOR
OVER CURRENT PROTECTION

+12V
REVERSE
FORWARD
OVERLOAD
0V

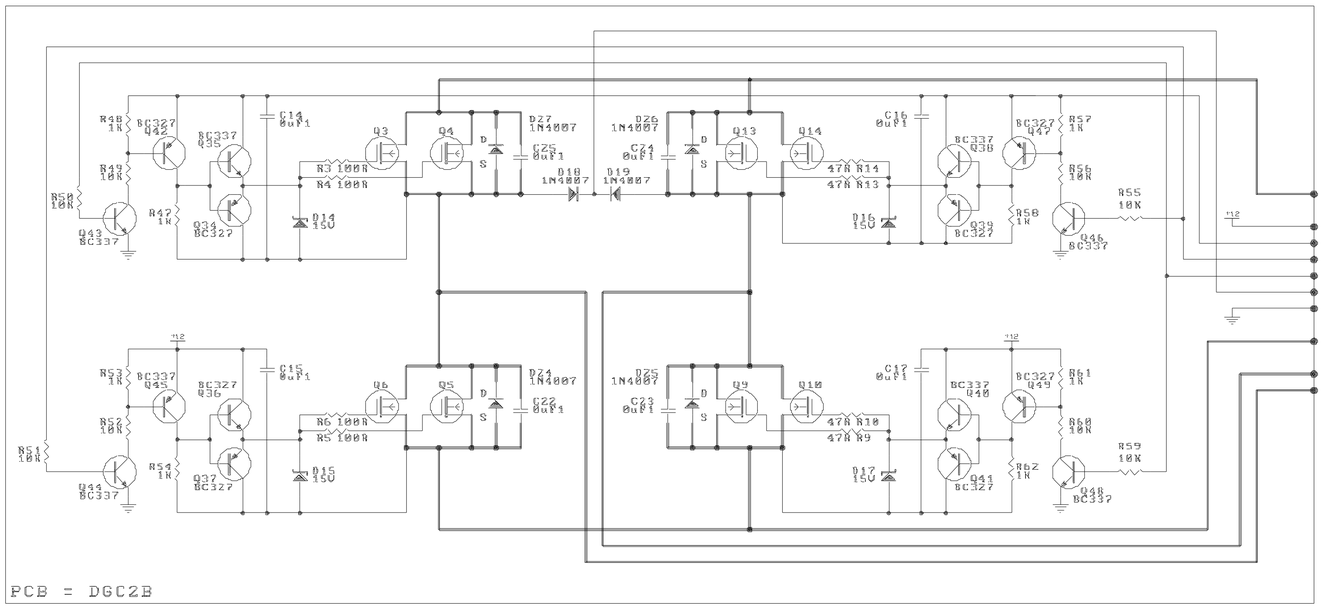
F1 32A M
12V 40AH SEALED LEAD ACID BATTERISS
CHARGER 27.6V REG

DRIVERS & POWER SWITCHING

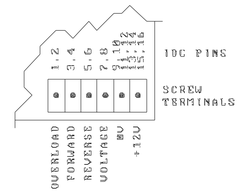
LOAD +VE
LOAD -VE
MOTOR 24V 3/4 HP

CONTROL LOGIC

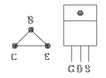
PCB = DGC2A



PCB = DGC2B



CONTROL TERMINATIONS



24V MOSFET MOTOR CONTROL MODULE

NOTE: CAUTION:
THIS CIRCUIT IS INTENDED FOR SWITCHING HIGH CURRENT DC MOTORS. OTHER HIGHLY INDUCTIVE LOADS MAY PRODUCE A DAMAGING BACK EMF.

FEATURES:
1. OVERCURRENT PROTECTION.
When the voltage across R21 exceeds approx 0.6V, D17 switches on and removes all drive from the mosfets. C7 is selected to prevent very short current pulses shutting down the drive.
2. FORWARD / REVERSE INTERLOCK.
This prevents the drive being applied in both directions at the same time. (aborting the main supply).
3. POWER ON DELAY.
When power is first applied, this prevents the motor from pulsing etc. while the system stabalises.
4. CPU BOARD 12V SUPPLY.
0.75 Amps available to power the cpu/controller pcb.
5. OVERLOAD INDICATION OUTPUT.
Whenever an overcurrent condition exists, this output can be used to allert the cpu/controller.
6. POWER RATING.
Power rating and and current carrying capacity depend upon the number and type of mosfets installed.
7. For extra capacity the second pcb (DGC2B) can be connected. This will effectively double the current rating.

DESCRIPTION:

The system consists of the following parts:
POWER SUPPLY
24 volts is regulated to 12 volts by IC3. this supplies most of the circuitry. An isolated 12 - 15 volt dc-dc converter supplies the drive power for the MOSFETs on the top of the bridge.
LOGIC CONTROL

DRIVERS
The small signal driver transistors ensure that the MOSFETs switch at maximum speed to minimise losses. The first 2 devices in each drive do a level translation for the top half of the bridge
POWER SWITCHES
These are TMOS power field effect transistors from Motorola. The diode and capacitor accross each pair forms a simple snubber circuit.

paul@pmb.co.nz

PMB ELECTRONICS

Title: POWER MOTOR CONTROLLER		
Size: A1	Number	Revision: 1
Date: 16-MAY 2004		Sheet 1 of 1
File: DGC-DL02		Drawn By: PMB