In this TECHO-SHEET, we'll look at making up 3 items of interest to many of our members around Australia.

The first being your very own, hand made LIGHT PEN;

The second being WIRING UP YOUR ACOUSTIC COUPLER LEAD;

And the third, converting the ATARI JOYSTICKS for the 99/4 & 4A

So let's start with the LIGHT PEN...first you'll need the following parts:-

(1) 9-PIN "D" CONNECTOR
(2) RG 174/U COAXIAL CABLE
(3) DA 20961 SHIELD
(4) FELT-TIP or BALL POINT PEN CASE
(5) 470 K-OHM RESISTOR
(6) 47 K-OHM RESISTOR
(7) .047uf CAPACITOR
(8) TIL404 TRANSISTOR
(9) 2N2907 TRANSISTOR

The photo-transistor(TIL404)is connected to one end of the wire and inserted into the pen case. It can be held in place by silicone glue about 5 to 10mm from the end of the pen. The rest of the components can be connected together just before the joystick connector.It is added by using pins 8 & 7.
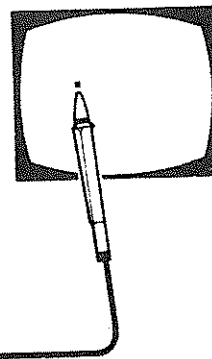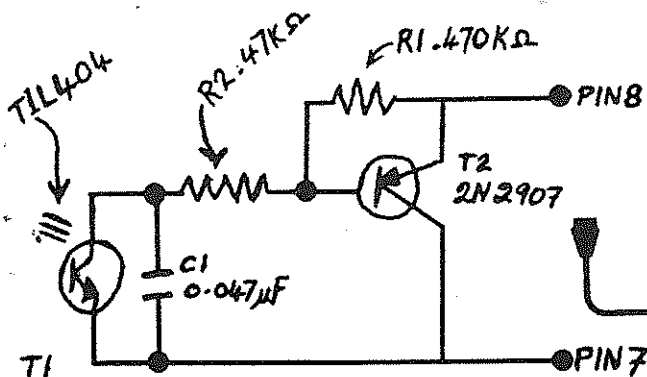
Before you attempt to connect your computer to OTC's SATELLITE,
for communication with THE SOURCE, & TEXNET etc...there are a
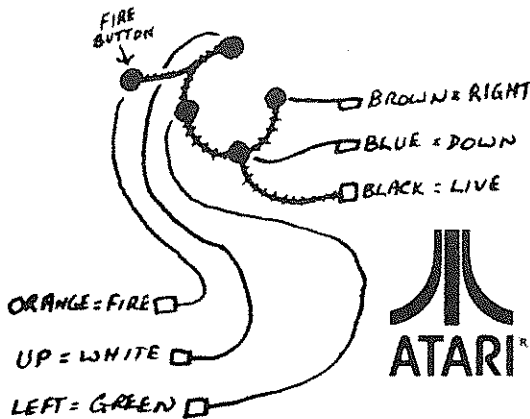few things you will need.

(1)RS 232 INTERFACE,   (2)ACOUSTIC COUPLER or Telecom Modem,

(3)MIDAS A/c(Application form from OTC in your State),

(4)SOURCE A/c(Contact us for more information on this.)

(5)CHARGE A/c(i.e. Overseas Bankcard= Visa/MasterCharge/Amer.Express)

(6)TERMINAL EMULATOR MODULE(preferably the TE2

Although the RS 232 Interface & Acoustic Coupler(DSE Cat. X-3270 or
Electro.Med of Victoria "SENDATA MODEL 700") are RS 232c standard,
they are not immediately companable. This problem can be overcome
by using an adapter cable wired as shown below, or you may obtain
one ready made from the Brisbane User Group.

RS232
end
(MALE
PLUG)

PINS 2 3 4 5 6 20

PINS 2 3 4 5 6 20

N.C.
N.C.

ACOUSTIC
COUPLER
END
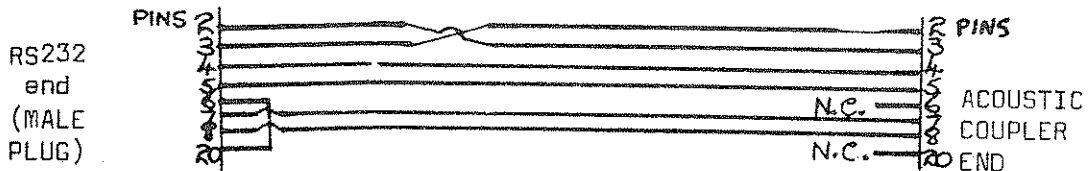
Joystick Conversion

the TI-99/4

For those who have the TI Joysticks &
wish to wire up to ATARI Joyst Cases.

ATARI PCB...

FIRE = BLACK   BLUE = RIGHT
UP = ORANGE   GREEN = DOWN
LEFT = BROWN   WHITE = LIVE

FIRE BUTTON

BROWN = RIGHT
BLUE = DOWN
BLACK = LIVE

ORANGE = FIRE
UP = WHITE
LEFT = GREEN

ATARI

So now you can use the 'Y' lead from
the TI Joyst's. You will now notice
that all motion on screen will be
smooth & the Joysticks fun to use...
HOWEVER::::when you try to move dia-
gangle(both at the same time)all
motion will slow to stop. You then
have to remove the Diodes from the
PCB tracks of the TI,and place them
on the same tracks of the ATARI ones.
This can be done simply by drilling
two small holes in each track,and
cutting the track between the two ho
before soldering the Diodes in.
MAKE SURE YOU PUT THE DIODES IN THE
RIGHT DIRECTION.

If you have not already bought TI Joyst,
there is no need for you to do so. You
can make the ATARI joysticks work on
the TI with the following modification.

All you need is two ATARI Joysts,avail-
able from most Atari distributors,ten
1n4001 diodes,available from any elect-
ronic component shops,one 9 pin plug &
case,you can use on of the plugs on the
Atari Joyst as an example,you can also
get this plug from Martin DeLauney.

Your first step is to solder in the
diodes,which can be done in one or two
ways,either solder them in the p.c.b.
track of the Atari joysts,you need to
drill two small holes in every track
EXCEPT the track off the black lead
where no diode is required here,cut the
solder between the two holes in each
track so as to make a bridge,then insert
thediodes in each track,making sure to
point the cathode toward the joystick,
this is important,otherwise the joysts
will not work.
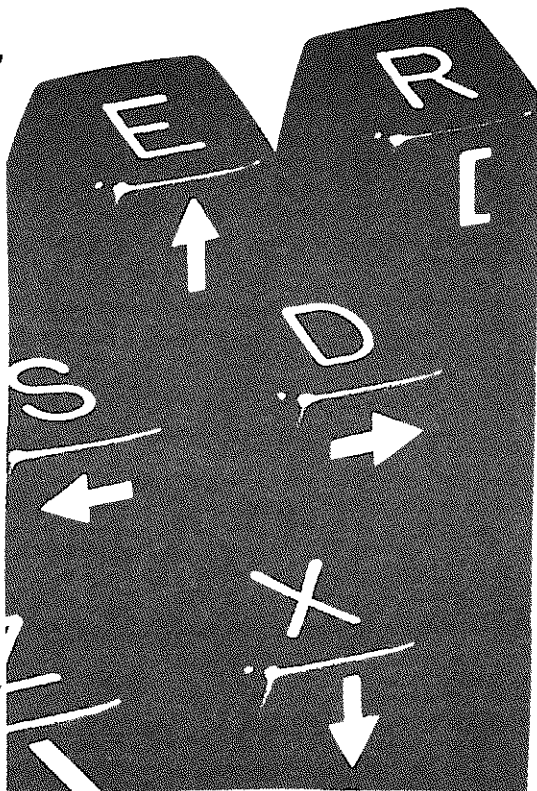
Then solder the diodes in,(you must do
this on BOTH joysts). THE SECOND WAY:-
is to cut each wire off the joystick,
(except the black wire),cut the wire
about $\frac{3}{4}$" away from the clip off the PCB
then cut the wires of the diodes about
3/16"from each side off the body of the
diodes,and solder the diodes in line
straight-to the wires,remembering to
point the cathode toward the clips,
then put a strip of insulation tape
around each diode,making sure to cover
the naked wires. Screw back the joysts
neatly.

Both methods were tried and tested,
succesefully. The NEXT STEP IS:-
to solder your plug together,firstly
cut off the Atari plugs and discard
them,if you wish. You must now sold-
er the wires on both joysts together,
that is:white lead to white lead,
orange lead to orange lead etc.

es
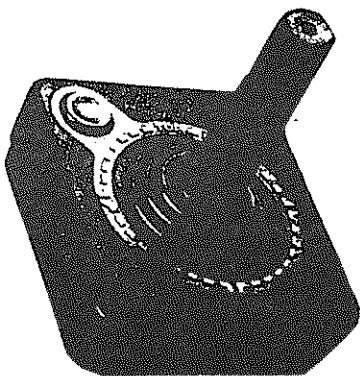
Do this to all colours except BLACK,these
must stay seperate.You can please yourself
how you connect the plug together,but you
must put the right colour wire to the right
pinhole as shown on this diagram...

Looking at Plug *Computer output*
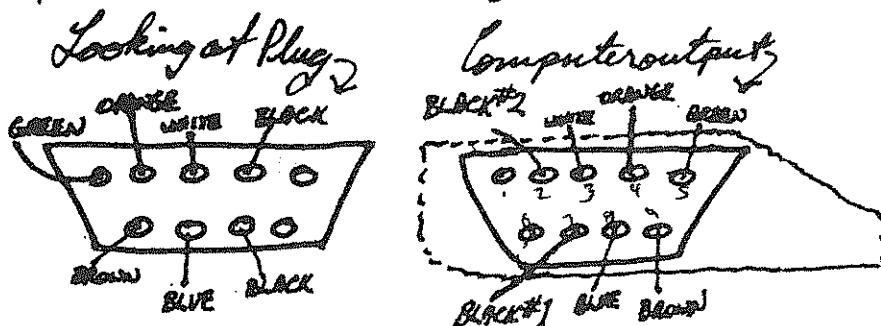
I suggest that before you solder your joined
wires to the pins,that you solder one inch
of wire to each join , making a Y shaped
union,this will make it easier for you to
solder on the pins.

Before you put your plug together,remember
to put some insulation·tape around all naked
wires. Now put the plug together,and you're
in business,get out your soccer module
with a friend,and I guarentee you won't be
able to tear yourself away from them.

If it doesn't work...check all your sold-
ering for good connections,and check that
no wires are touching,and that you have
all the diodes facing the right way plus
the correct wire combinations are as expl-
ained in this report.