MK3 OUT OF PARLOUR REVIVER INSTALLATION

Version - July 2009

Part Number - 39-0305

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GOOD PRACTICE: Mains Supply.

A clean 230volt 50Hz AC mains supply together with a sound earth is essential for trouble-free feeding management. Although ATL power supplies incorporate several advanced mains protection features, time spent installing a good mains source with be very beneficial.

- A separate mains supply and earth running directly from the customers distribution board is essential.
- Avoid routing the mains cable to the power supply close to other supplies especially those providing intermittent current- motors that are starting and stopping continually or high power heaters with thermostatic control.
- The supply must be capable of providing at least 10A peak and 5A continuous and the cable should be rated at 13A minimum.
- Terminate in a sealed, fused, double pole switched outlet fitted with a 5A anti-surge fuse or contactor. A 13A 3-pin ring mains socket is not suitable for Out Of Parlour conditions. All mains cabling must be contained within a firmly secured, durable conduit.
- All mains work should be referred to a Qualified Electrician.

Power Supply: Siting.

ATL power supplies are designed to cope with arduous conditions and are protected with fuses and a thermal cutout, but like any other power supply they can become warm when under load. Good ventilation is very important - with means careful siting.

- Fix the power supply to a wall or suitable brackets in a well ventilated area sufficiently high to avoid physical contact or damage, leaving a gap of at least 250mm (10") between the top of the power supply casing and the ceiling.
- Position the power supply so that the output (low DC voltage) cables are as short as possible even if this means extending the mains supply.

ATL Power Supply: Output Voltages.

ATL power supply outputs are factory set and should not be adjusted. For a 230volt mains supply the DC outputs should be:

- *Feeder Supply with 4 Feeders Running: Nominal 13.6volts. This is often referred to as the 12volt Regulated line.*
- *Control Supply: Nominal 15volts under load but maybe as high as 21volts without load. This supply is often referred to as 18vDC.*

The feeder supply is fused at 20A and the Control Supply 2A (max). Additionally, there is a thermal cutout associated with the feeder supply which will remove power from the feeders in the event of an overload. It may take several minutes for the supply to be restored if the cutout does operate.

There are two indicators fitted to the base of the power supply casing; red indicates that the mains is present and green that the supply is available.

Control, Cables and Conduit.

- Entries must be made into the bottom of power supply or control casings but never into the top. This will invalidate the warranty.
- Keep multicore cables away from other cables especially those carrying mains or heavy currents. Cross only at 90° where necessary and do not enclose in conduit with other cables.

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Data Cables

The data cable supplied is 'twisted pair' configuration especially designed for communications. No other cables should be used as replacements. Ensure it is connected exactly as shown in the diagrams and keep the cable run as short as possible.

- Do not run near or parallel to, or cross over AC mains supplies or wires carrying switched current (i.e. milk pumps).
- Generally avoid fluorescent lighting or radio wave sources.
- Ideally, data cable should be run through a suitable conduit by itself, esoecially if it is exposed to the weather. Sharing conduit with power wires invariably corrupts data.

Out-Of-Parlour Interface and Feeder Cables:

Sufficient co-axial cable is provided to wire the stall antennas to the Out-Of-Parlour Interface.

- Cable entries into control box MUST be made through the glands provided. Never cut new entries into the top or sides of the casing. This will automatically invalidate any warranties.
- ALWAYS use the correct csa (cross sectional area) cable specified in the diagrams.

Environmental Considerations

ATL Out Of Parlour Control equipment is built to the highest specifications to give faithful and reliable service for years and years. However, it could deteriorate prematurely if a few simple steps are not taken to safeguard it.

- Good ventilation is essential. Fresh air is not only good for animals but also dissipates the highly corrosive gases produced by silage, slurry, and some feedstuffs
- Position Out Of Parlour stalls where there is plenty of air movement. Stale air will collect in enclosed corners of even large buildings. Exposed concentrates will deteriorate rapidly where ventilation is inadequate. Air circulation can be improved by replacing some of the sheeted cladding with Yorkshire Boarding.

About the ATL Out-Of-Parlour System

The high-speed scanning system addresses each stall in turn seeking a valid ear tag read and so makes any other form of animal detection unnecessary. Each system contains one (1) Interface for every 4 feeders, a Console Display Unit, a power supply and a varying number of stalls depending on system size. Only 1 reader is required per system and this is normally located in the Interface for feeders 1-4.

The Interface contains all of the electronics to detect the presence of an ear tag in a stall, relay that information back to the Console unit, receive the ration allocation from the Console and drive the appropriate stall feeder. It can provide the tag reading facility for almost any number of stalls providing they are not too widely spaced (100 metres absolute maximum) and drive the first 4 feeder motors. For additional stalls extra Interfaces are required each capable of driving up to 4 feeders.

Systems which have second feeders (B) are fitted with an additional, smaller circuit board sited on top of the main board. This carries the drive circuits for the second feeders.

The portable Console unit contains the computing circuitry, stores the herd data and controls the tag reading and feeding process. It must be connected for the system to operate. Generally, the Console should be kept and used in a dry environment such as the farm office and may be connected to the feeder stalls by up to 100meters of special data cable. Power is derived from a small power supply that is plugged into a standard 13amp mains socket (230v AC) in the office environment.

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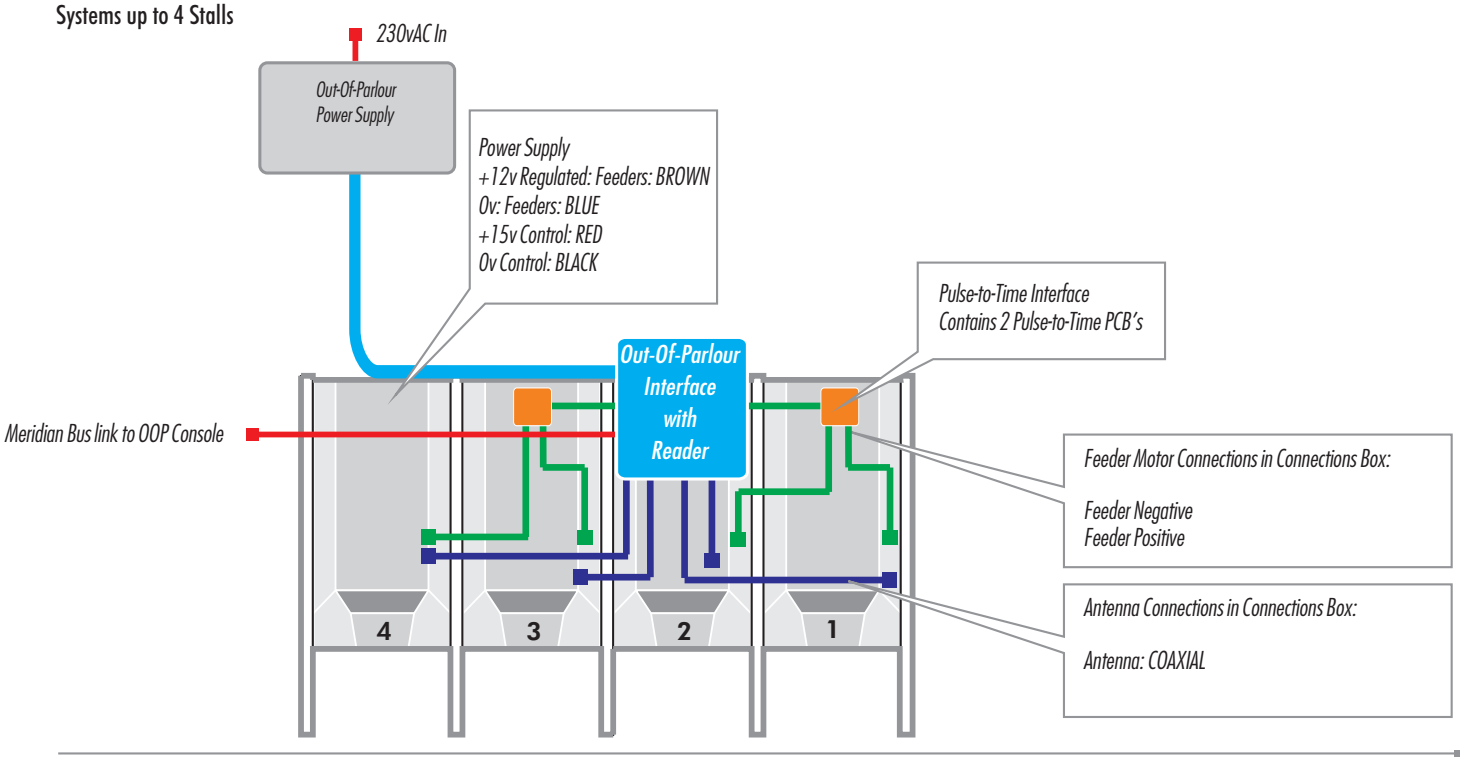
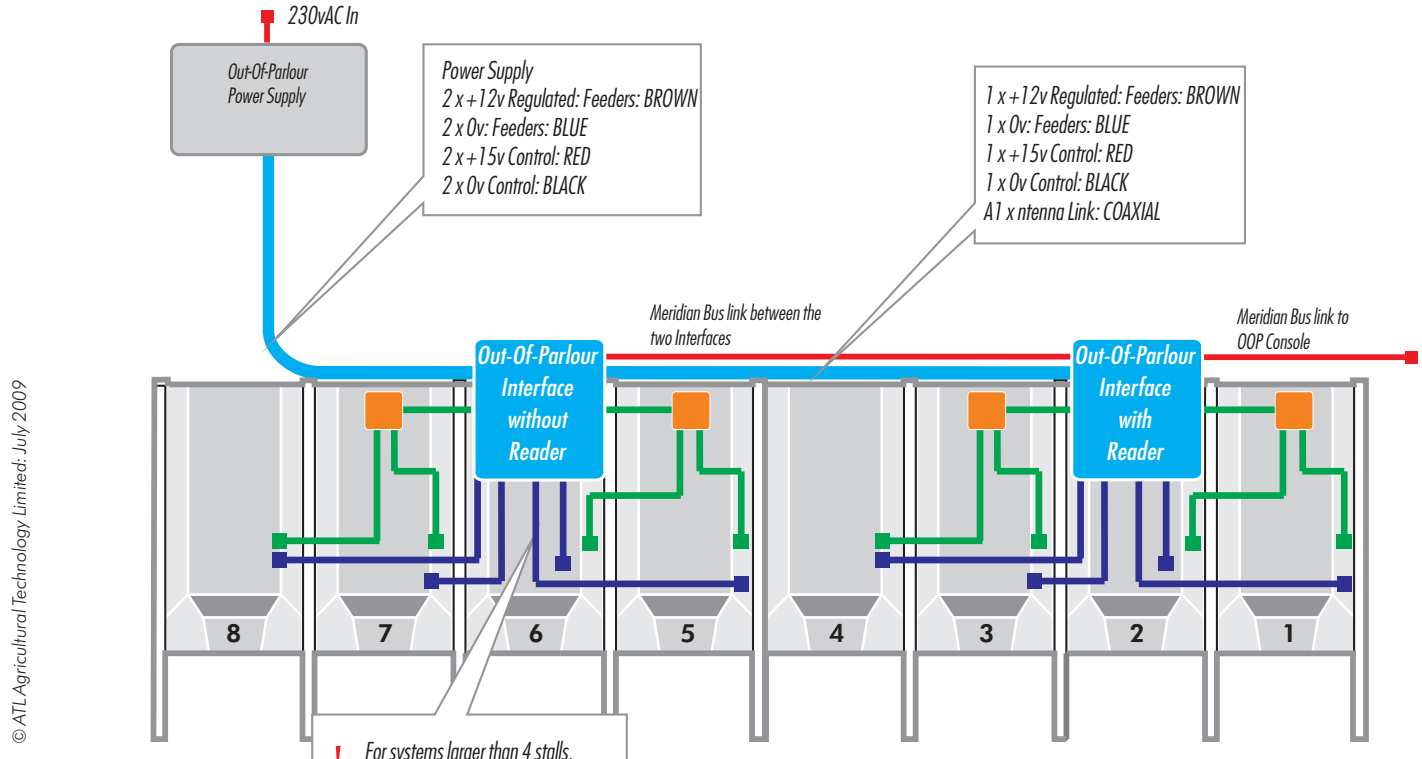
Scanning Out Of Parlour Feeding System: Interface Siting: Systems up to 4 Stalls



Systems with 5 or more Stalls



! *For systems larger than 4 stalls, an extra Interface Unit WITHOUT a reader is required for each complete or partial block of 4 stalls.*

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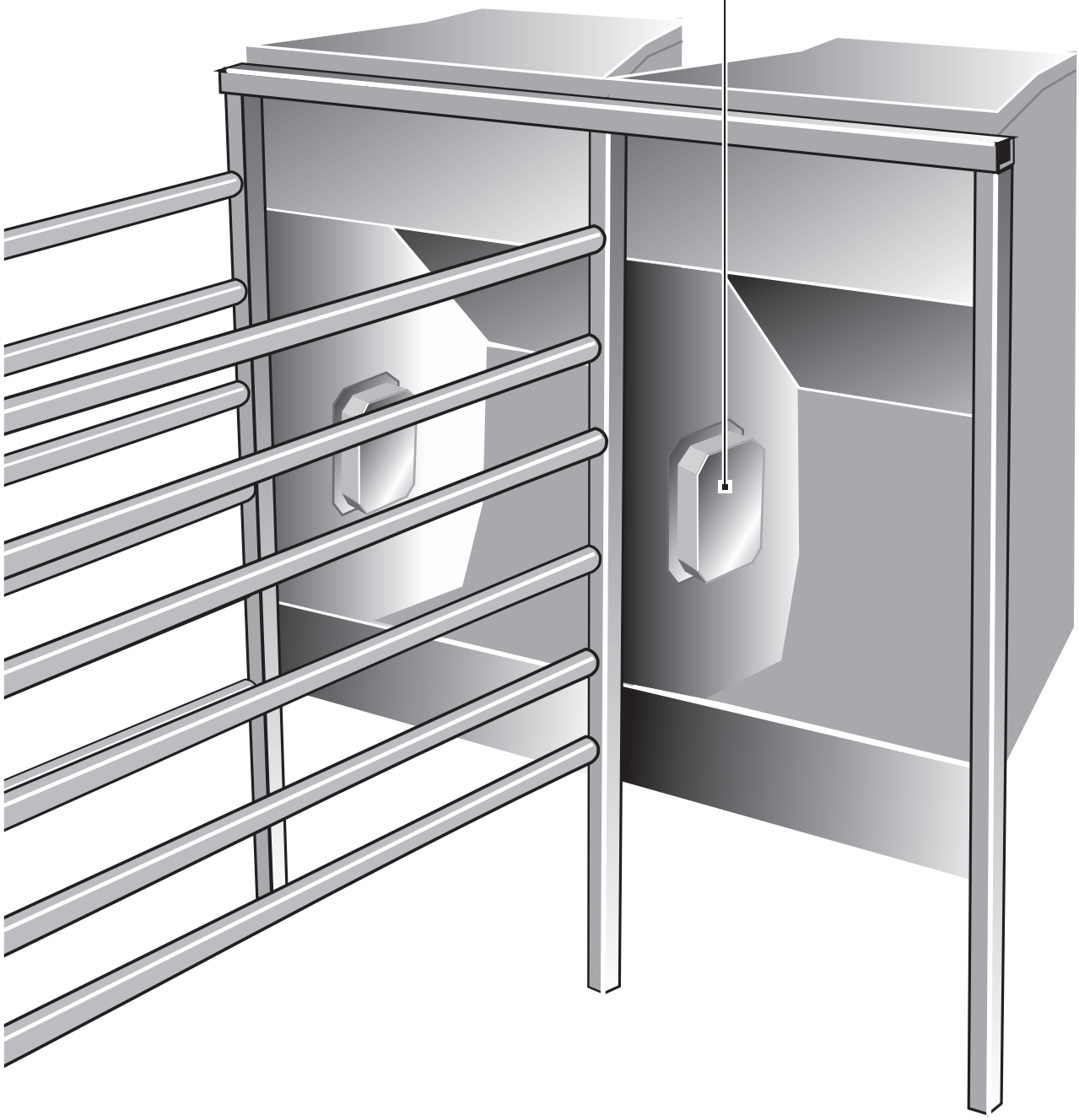
Fitting the Antennas

Drill four holes 6.5mm diameter corresponding to the antenna mounting holes, though the inside 'cheek' of the manger- on the left hand side (standing in front of the installation). All of the antennas must be on the same side.

Drill a 10mm hole through the manger wall directly behind the antenna and fit a grommet supplied. Pass the antenna cable through the grommet and mount each antenna using 4 x M6 locknuts, bolts and spacers through the holes in the antenna flanges. Use the washers against the flange.



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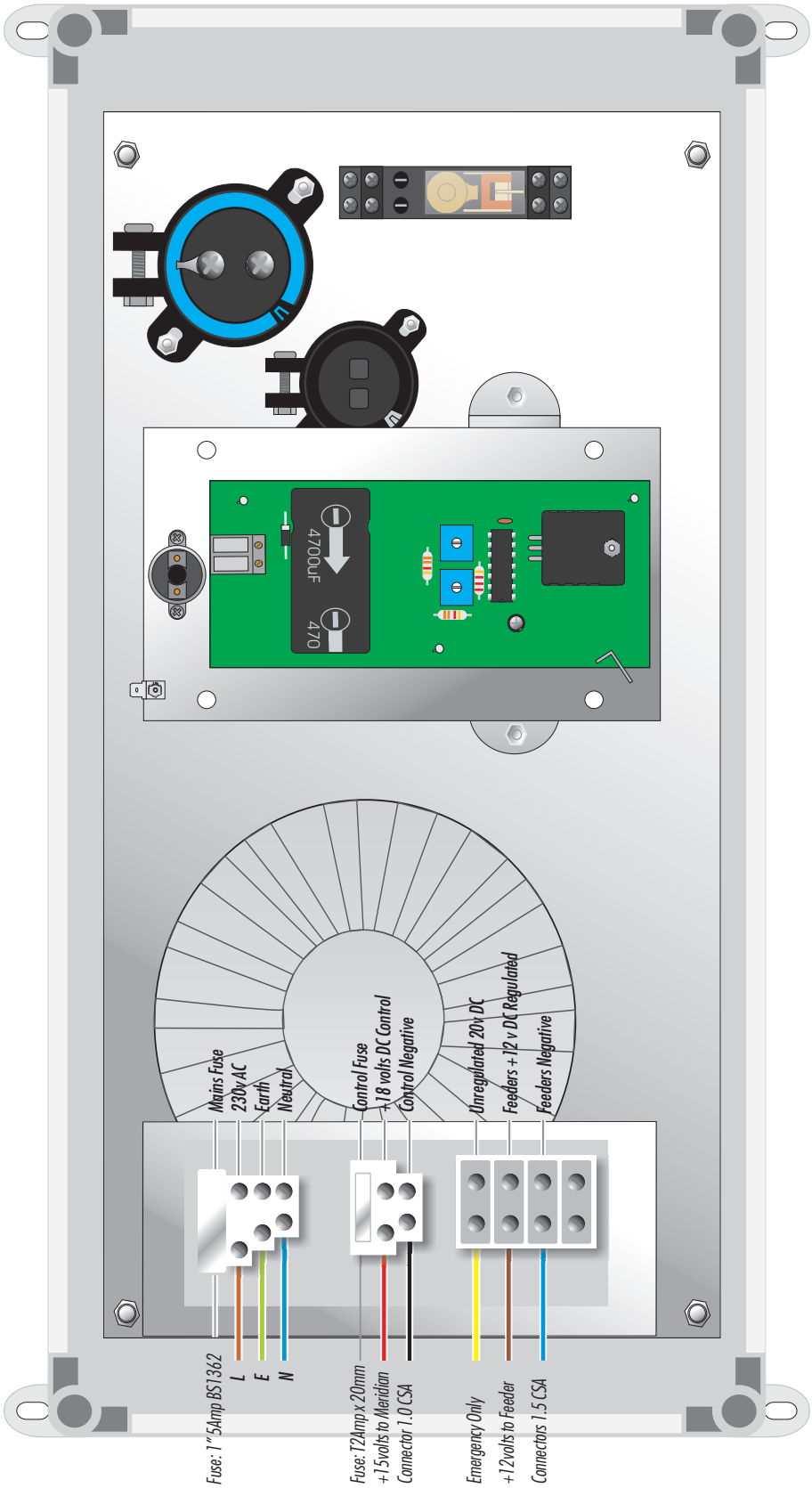
Out of Parlour Power Supply

- Mains Voltage: 230volt AC
- Feeder Output Voltage: Nominal 12volt DC
- Control Output Voltage: Nominal 15volt DC
- Mains Fuse: 5 Amp - Use 1 Inch type conforming to BS1362 only
- Control Fuse: T2 Amp - Use 20mm type

DISCONNECT MAINS SUPPLY BEFORE REMOVING POWER SUPPLY COVER



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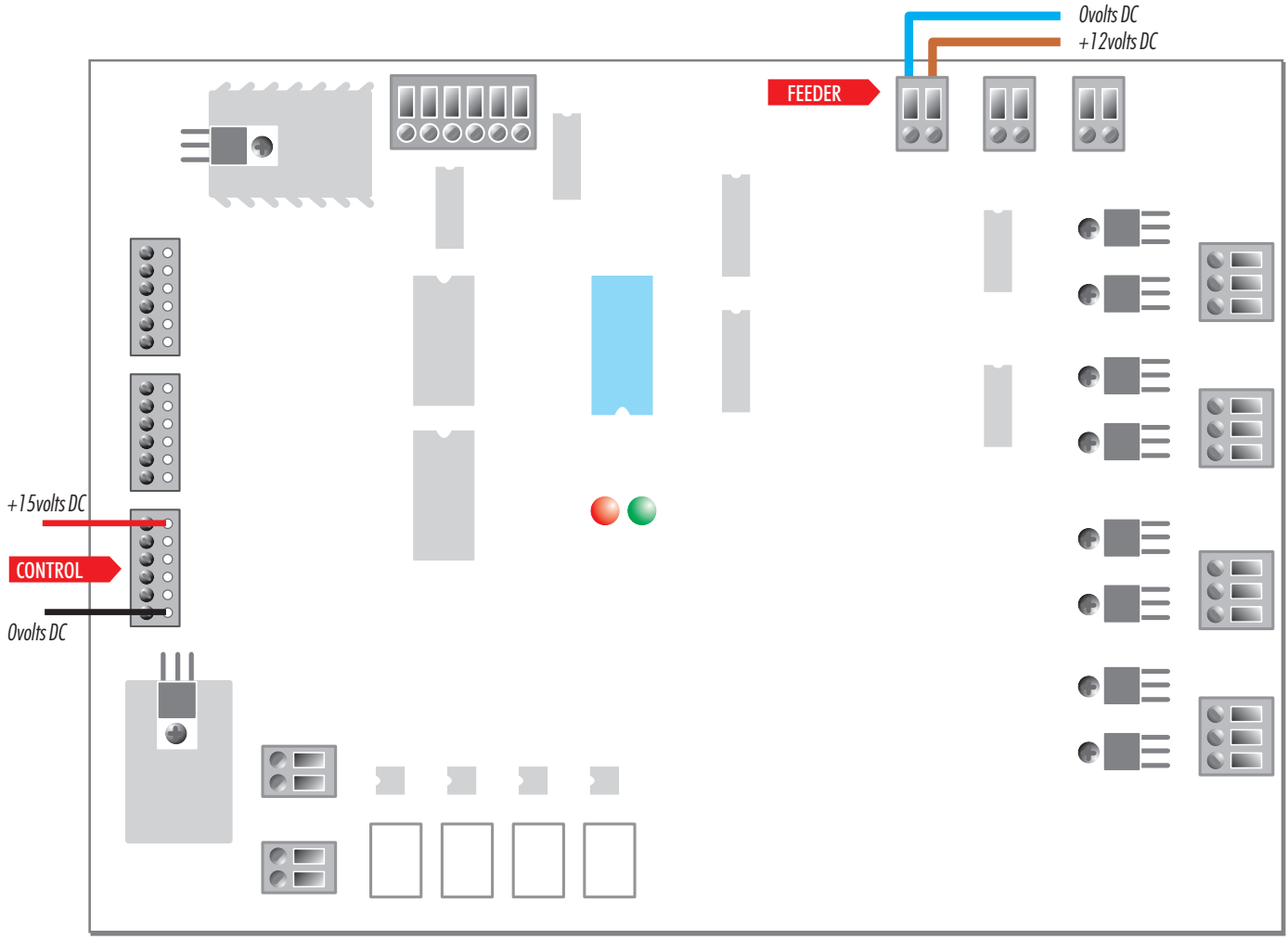
Out of Parlour Interface Power Supply Connections



Connecting the Power to the Out-Of-Parlour Interface:

With the mains supply switched OFF, for ***each*** Interface:

- *Run RED 1.0csa from the Power Supply +15volt connector.*
- *Run BLACK 1.0csa from the Power Supply 0v (Control) connector.*
- *Run BROWN 1.5csa from the Power Supply Feeders +12volt connector.*
- *Run BLUE 1.5csa from the Power Supply Feeders 0volts connector.*

The +15v supply is fitted to the Meridian Connector CONTROL on the left hand of the Interface (viewed from the front) and the +12v feeder supply to a two-way connector at top right. FEEDER

IMPORTANT - ENSURE FEEDER MOTOR POWER IS THE CORRECT WAY ROUND.

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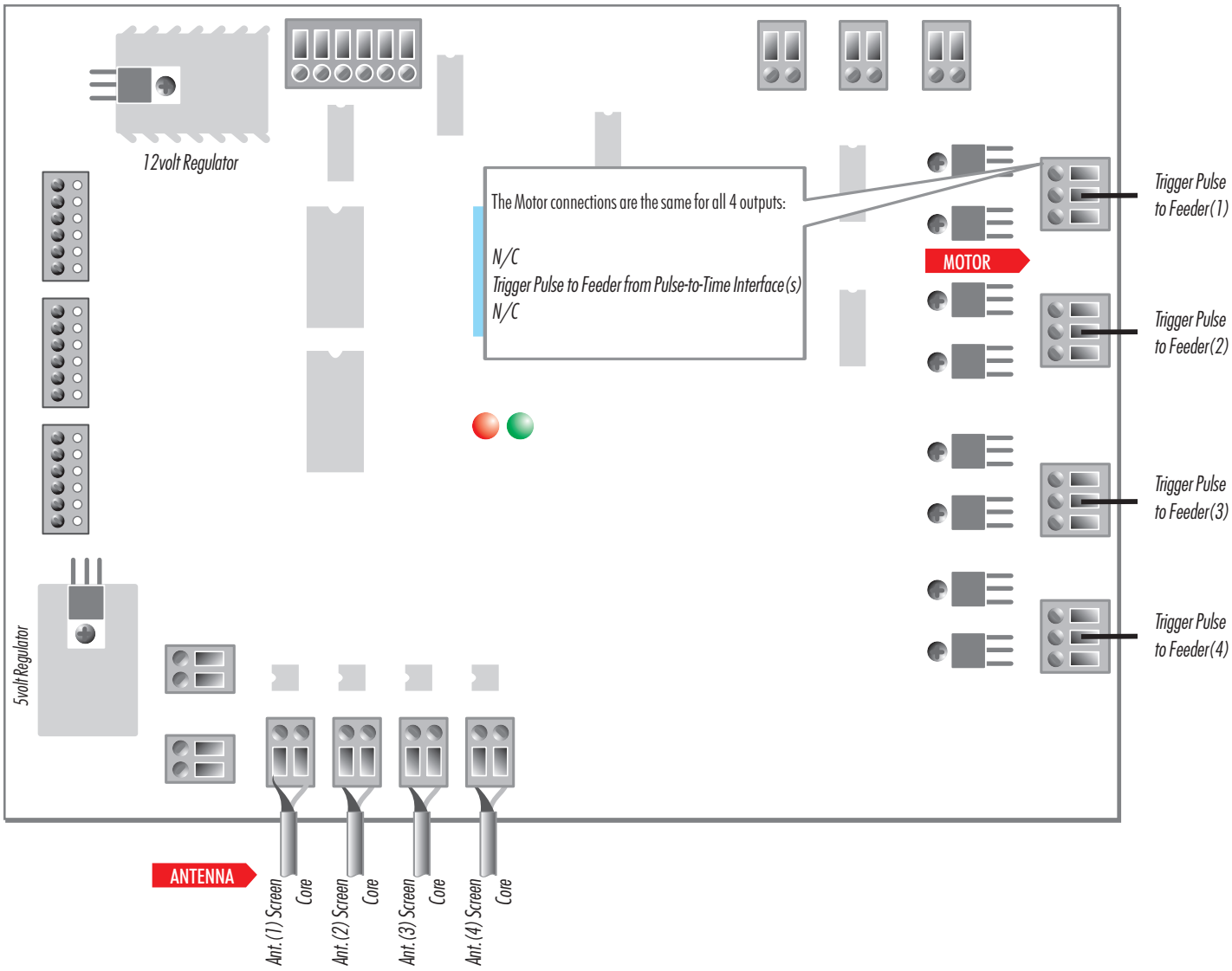
Antenna and Motor Interface PCB Connections:



Connecting the Feed Stations to the Pulse-to-Time and OOP Interfaces:

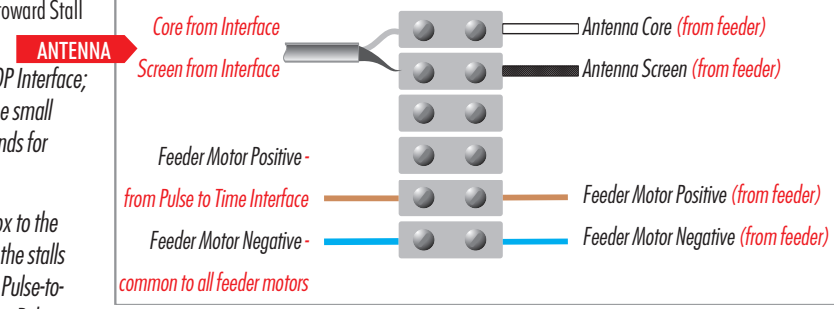
Connect the antennas (black co-axial) and the feeder motor cables into each stall's Connector Box. Start with Stall (1) on the extreme right when viewed from the rear and work toward Stall (4).

- *Measure and cut lengths of co-axial to fit from the Connector box to the OOP Interface; running the cable up the side and along the top of the stalls and through the small glands in the left hand side of the Interface Unit. Use the lowest pair of glands for Stall(1) and work upward.*
- *Measure and cut lengths of feeder motor cable to fit from the Connector box to the Pulse-to-Time Interface; running the cable up the side and along the top of the stalls and through the glands on the bottom of the Pulse-to-Time Interface. Each Pulse-to-Time Interface connects to 2 OOP stations. See pages 7 and 8 for wiring the Pulse-to-Time Interface and connection to the OOP Interface.*

Inside the OOP Interface:

- *Trim the Antenna Coaxial and bare the ends. It is important that the screen wires are twisted securely together and there are no 'stray' strands that might cause short circuits.*
- *Fit the core and screen to the appropriate Antenna connector (bottom left on the circuit board)* ANTENNA *making sure they are correctly orientated. Screens and cores cannot be inter-changed.*
- *Tidy the cables and secure them with the cable ties.*

Individual Feed Station Connections Box Wiring



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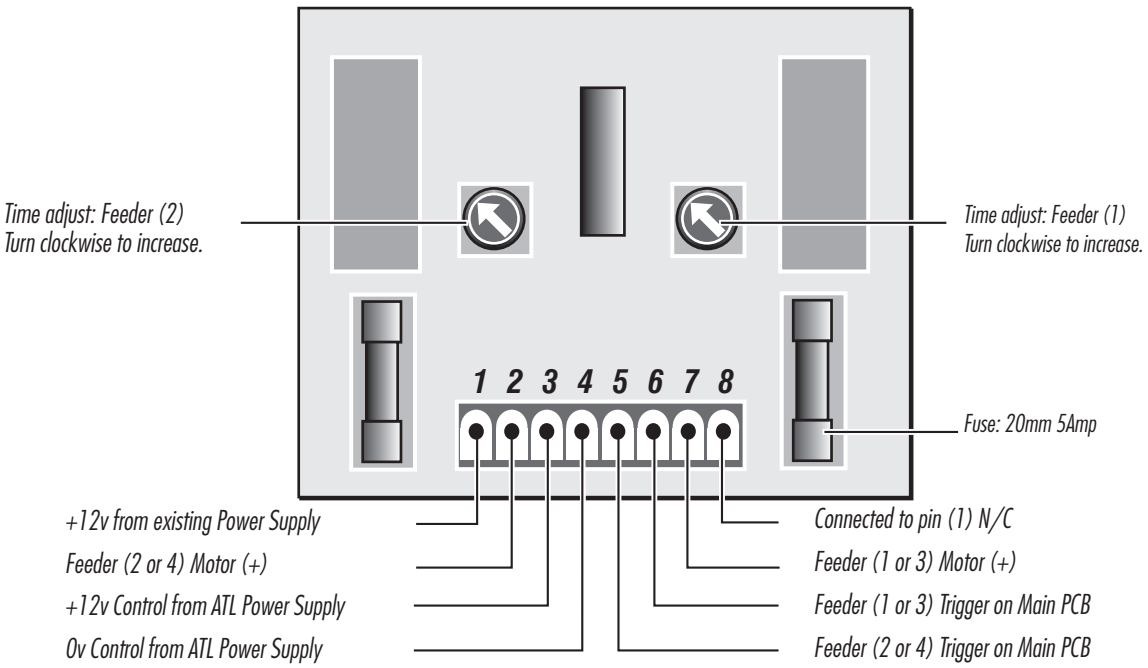
OOP Reviver Feeder Motor Wiring into Pulse-to-Time Interface and OOP Interface
Controlling Competitors Feeders without feedback using Pulse-To-Time PCB.



Connecting the Pulse-to-Time Interface to the Feeder Motors and OOP Interface

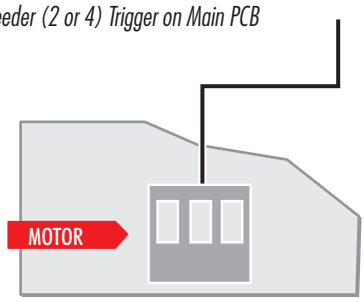
Pulse to Time interface units for 12volt motors running from an existing 12volt power supply, are able to control two feeder motors from each board.

The +12volt feeder supply is derived from the existing power supply and taken to terminals (1) or (8) of each board. The wire which should be 1.5csa minimum, may be looped from board to board. The negative (0v) for the motors is taken directly from the existing power supply and NOT to the Pulse to Time boards.

Take a +12 volt and 0v from the new ATL Out of Parlour Power Supply- use the 'Control' outputs- to connectors (3) and (4) respectively of each board. Again they may be looped and should be 1.0csa minimum.

Run the negative pulse wire- 1.0csa- from the trigger input on the Pulse to Time boards to the appropriate connector on the main Out of Parlour Interface board. Use only the centre connection. Each main board will control up to 4 feeders so (3) and (4) will require a second Pulse to Time board.

The running time for each motor is controlled by a small control on the pulse to Time board. These will have to be adjusted to deliver a cake ration that is as close as possible to that stored on the Out of Parlour Console. Run subroutine 120 described in the Operators Manual but alter the Pulse to Time control to vary the amount of feed dropped. When the required value is achieved- for example 200 grams- press the change key and enter the value. Repeat the procedure for each feeder.

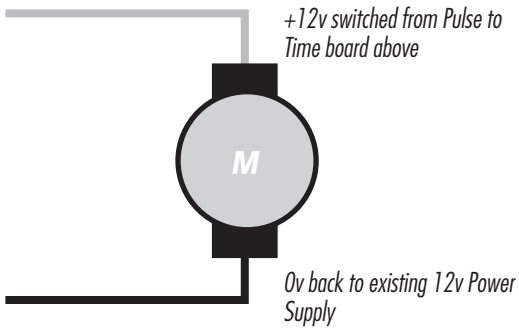


OOP Interface board connector (see page 6) to negative pulse inputs on Pulse-to-Time boards (above). Use only centre connection black 1.0csa wire

The Diodes supplied must be fitted across all Feeder Motor or Solenoid Terminals. The banded end to the (+) terminal.

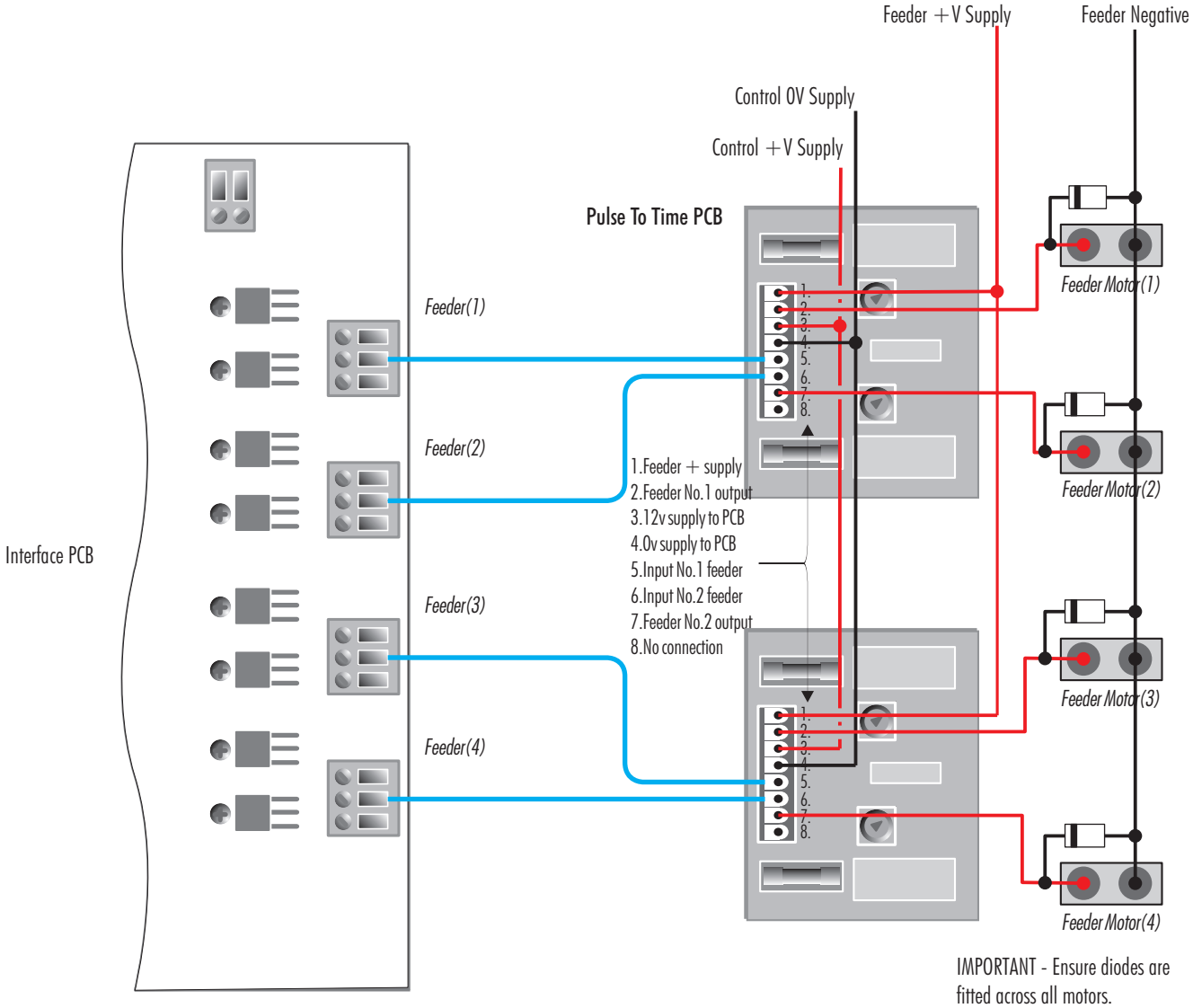
ATL Feeders are pre-fitted with diodes.

Timed 12v Feeder Motor Connections



MK3 OUT OF PARLOUR REVIVER INSTALLATION: **8**

OOP Reviver Feeder Motor Wiring into Pulse-to-Time Interface and OOP Interface Continued
Controlling Competitors Feeders without feedback using Pulse-To-Time PCB.



IMPORTANT - Ensure diodes are fitted across all motors.

Connect feeder negative supply to all feeders, only the positive supply is switched.
NOTE: Wired in this configuration, motor fail detection does not work.

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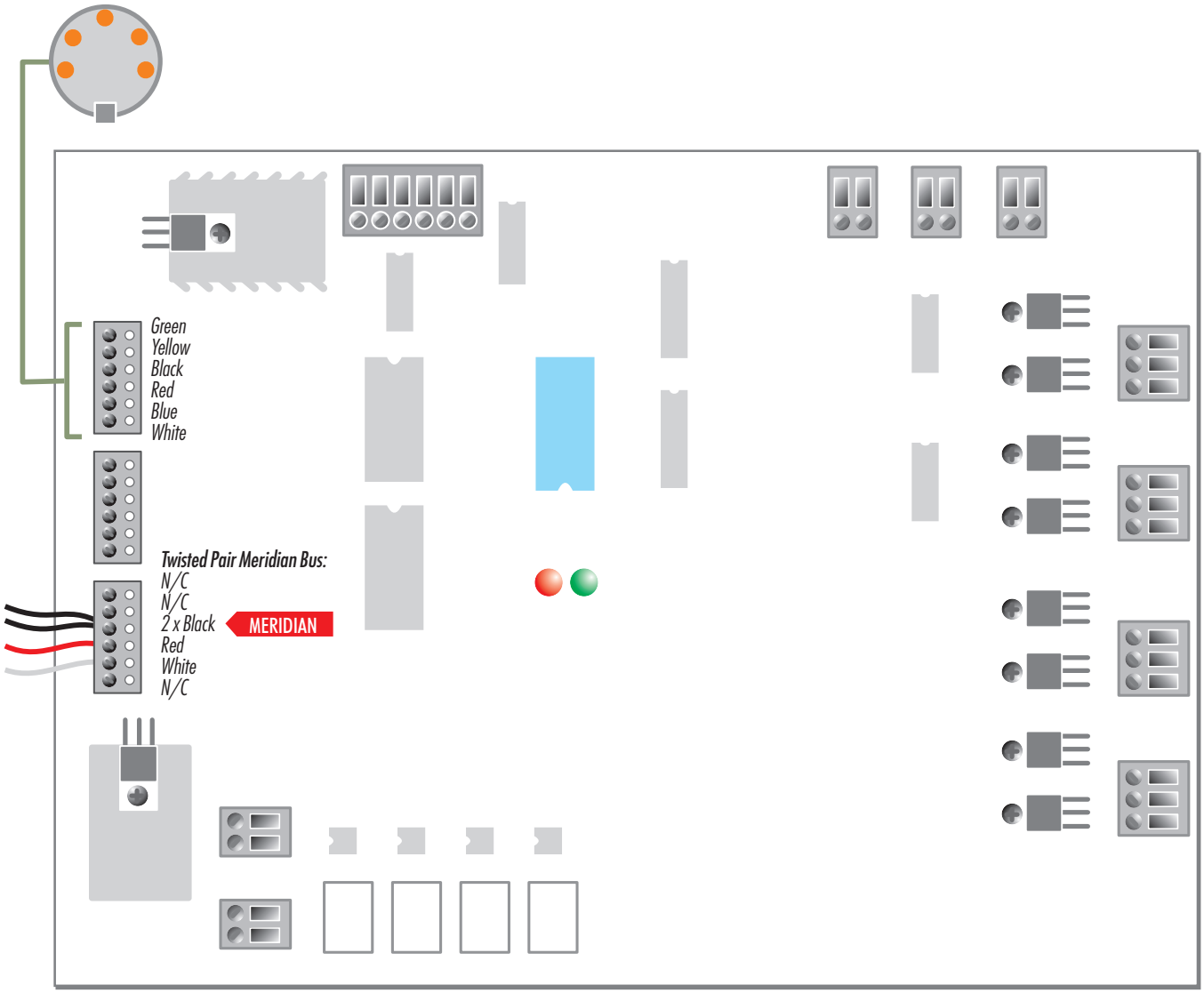
Out of Parlour Interface Meridian Bus Connections

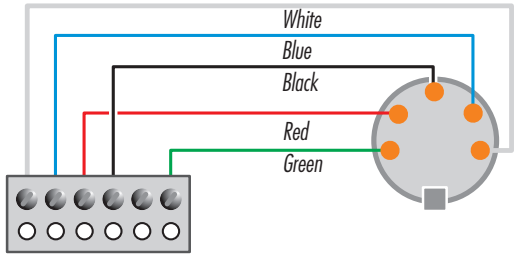


Connecting the Out-Of-Parlour Interface with Reader:

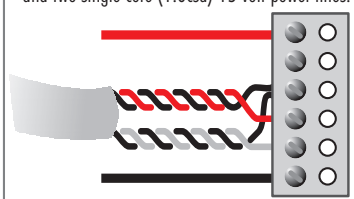
The Meridian Bus is the cable along which data is routed. Externally, it is a dual twisted pair cable with a grey sheath. It runs from the Out-Of-Parlour Console which must be stored and used in a dry, cool office area, to the Interface.

- *There are two spare 6-way connectors on the left hand side of the Interface circuit board; use either connector.* MERIDIAN
- *If the stall count is greater than 4 then there will be an additional Interface fitted. This also has to be connected to the Meridian Bus using twisted pair and the unused 6-way connector. The individual connections are the same for both incoming- and outgoing.*

Console Local Socket Connections: from Rear (Refer to Page 7)



Meridian Bus Connections : 6-way lift off connector, 2 x Twisted pair RS232 cable and two single core (1.0csa) 15 volt power lines.



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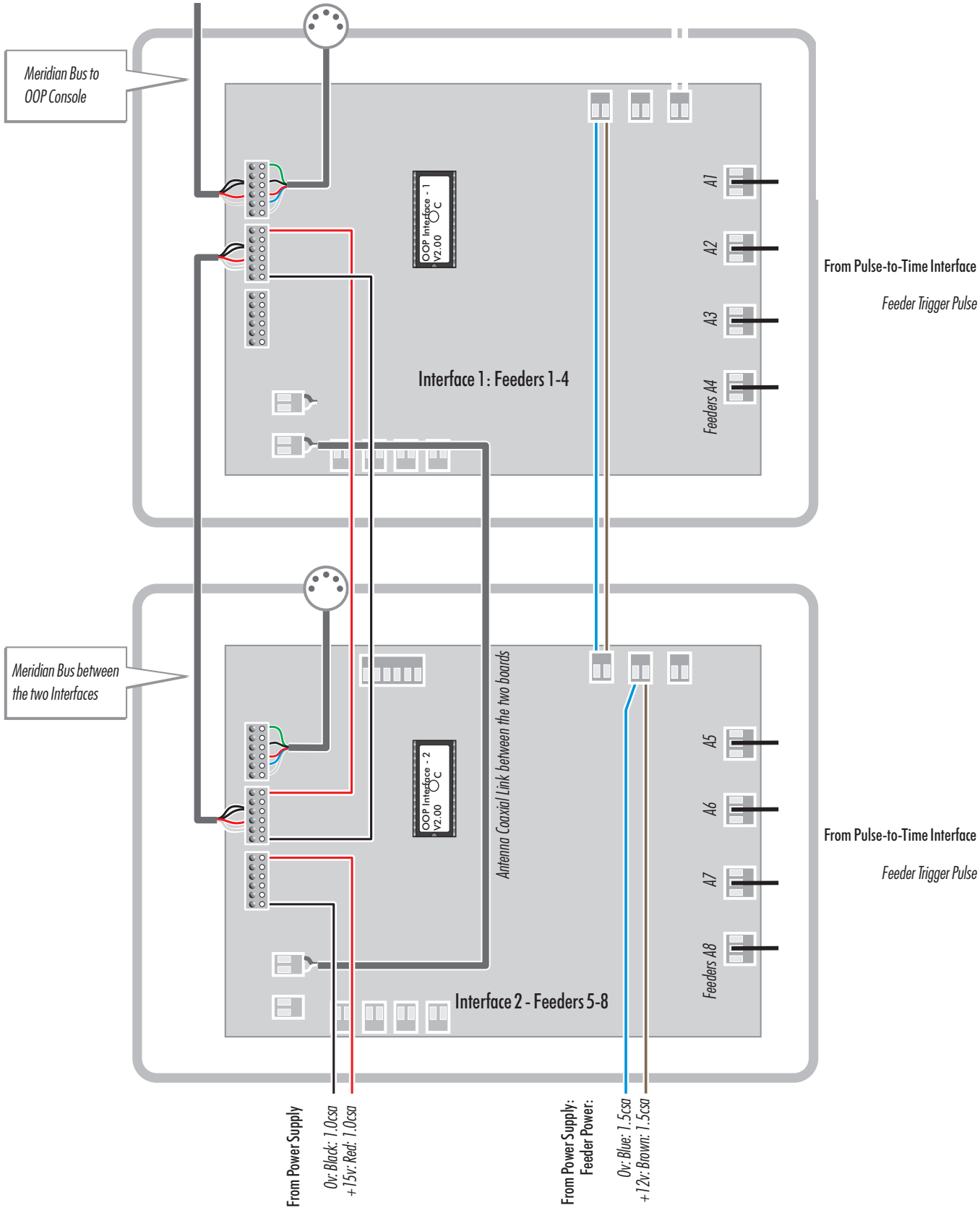
Interface Unit PCB Connections: For 8 Stalls:



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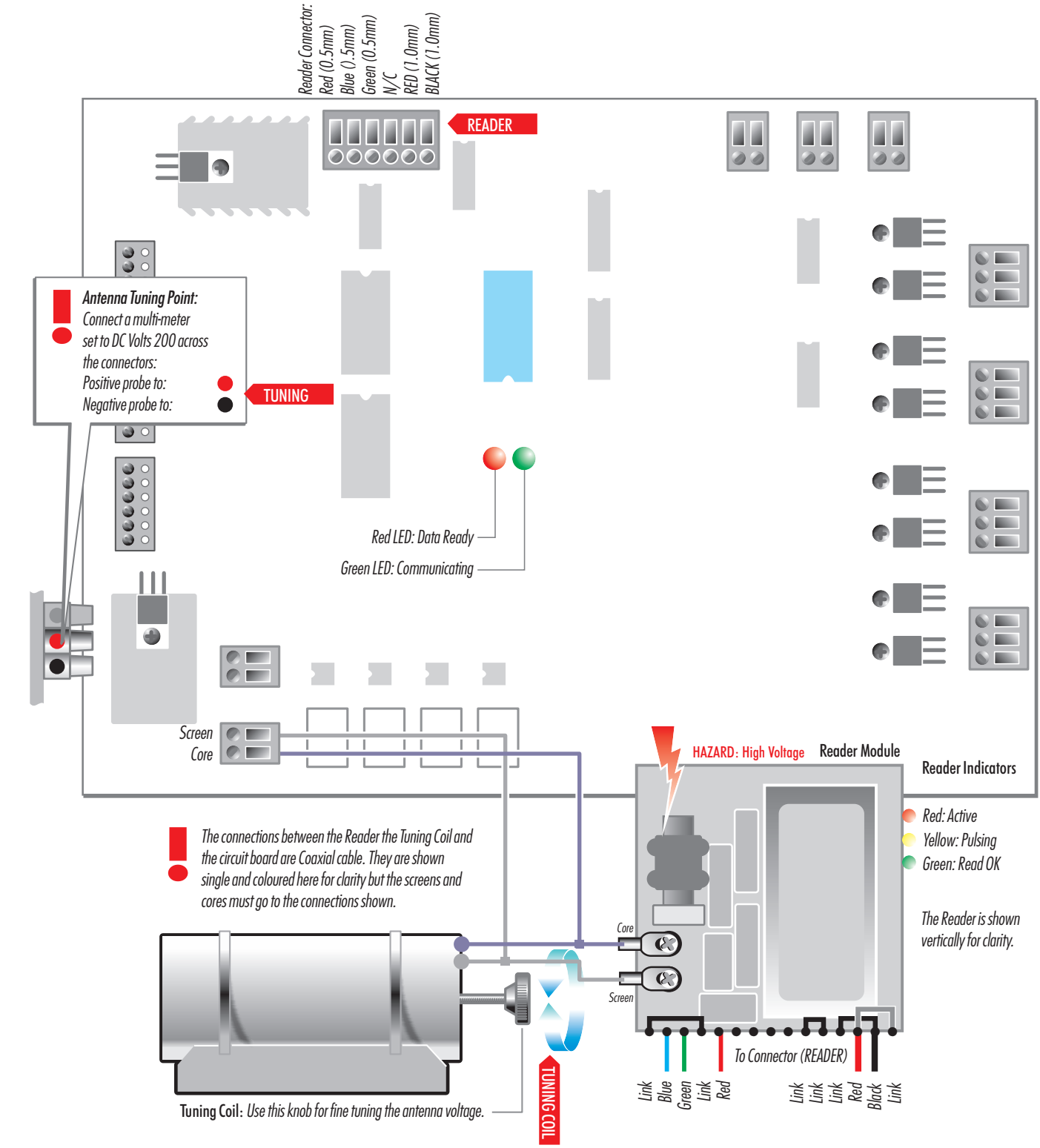
Interface PCB Reader Connections - TIRIS S2000 Reader:

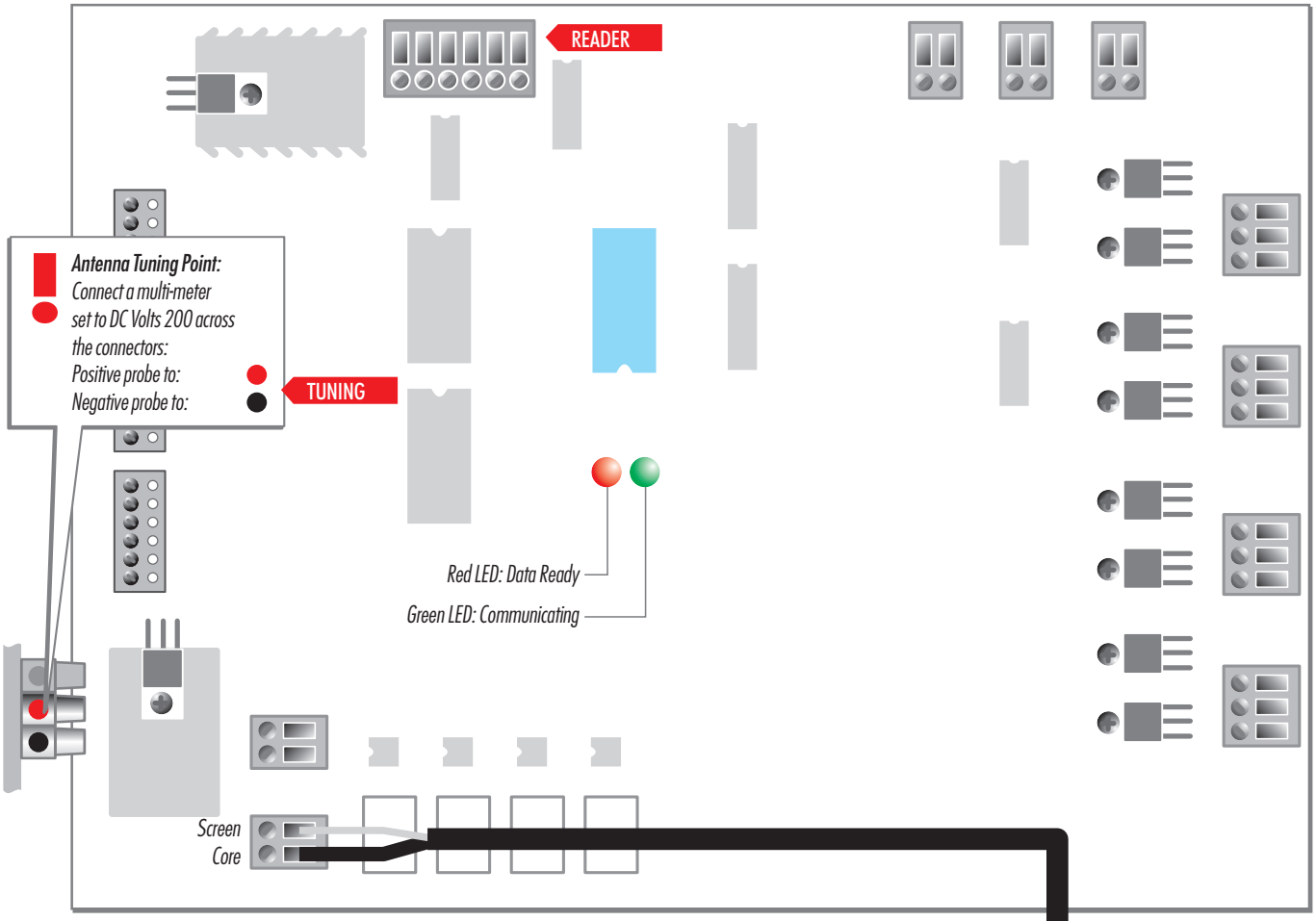


Connections to the Reader Module and Tuning Coil:

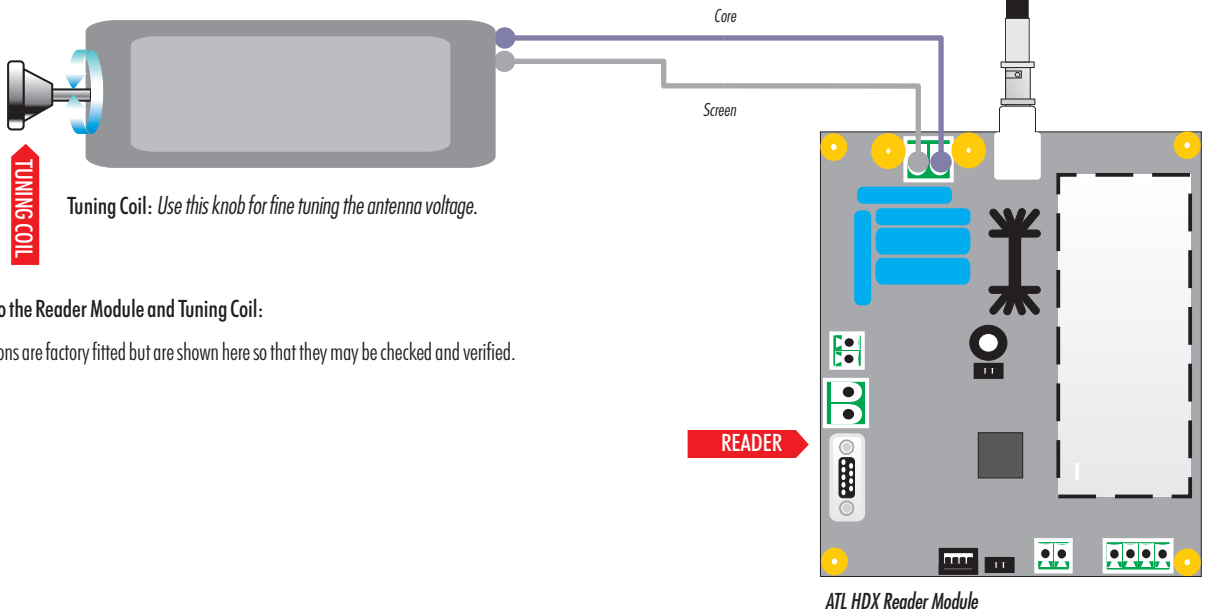
These connections are factory fitted but are shown here so that they may be checked and verified.

MK3 OUT OF PARLOUR REVIVER INSTALLATION: **11B**

Interface PCB Reader and Power Supply Connections - ATL HDX Reader:



The connections between the Reader the Tuning Coil and the circuit board are Coaxial cable. They are shown single and coloured here for clarity but the screens and cores must go to the connections shown.



Tuning Coil: *Use this knob for fine tuning the antenna voltage.*

ATL HDX Reader Module

Connections to the Reader Module and Tuning Coil:

These connections are factory fitted but are shown here so that they may be checked and verified.

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Tuning the Antennas: Subroutine 305 (Pages 10A or 10B)

The antennas must be tuned for effective performance. The antenna tuning voltages will vary slightly according to the distance from the reader. The object of tuning is to obtain the highest overall voltages for all the antennas.

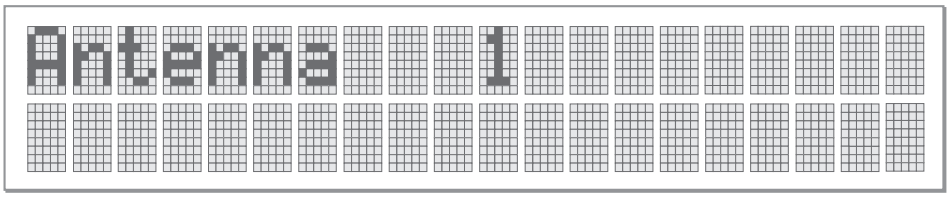
First, connect a multi-meter across the + and - terminals TUNING and set the voltage range to 200DC or more.

Run subroutine 305 to select each antenna in turn.

Subroutine 305 allows the antennae at each feed station to be tested.

Press SHIFT + ENTER (Subroutines).

Key 305, the subroutine number for testing the antennae and press ENTER. The 'Antenna 1' message appears on the display.



Press (▲) or (▼) to step through each feed station.

Press RESET to exit the subroutine.

Select the stall number which is mid-way between the nearest and furthest from the reader (measured by antenna cable length). DO NOT SELECT THE ANTENNA FOR MORE THAN ABOUT 10 SECONDS AS THE ELECTRONIC SWITCH WILL HEAT UP AND THE VOLTAGE WILL DROP.

Measure the voltage across the + and - terminals. TUNING

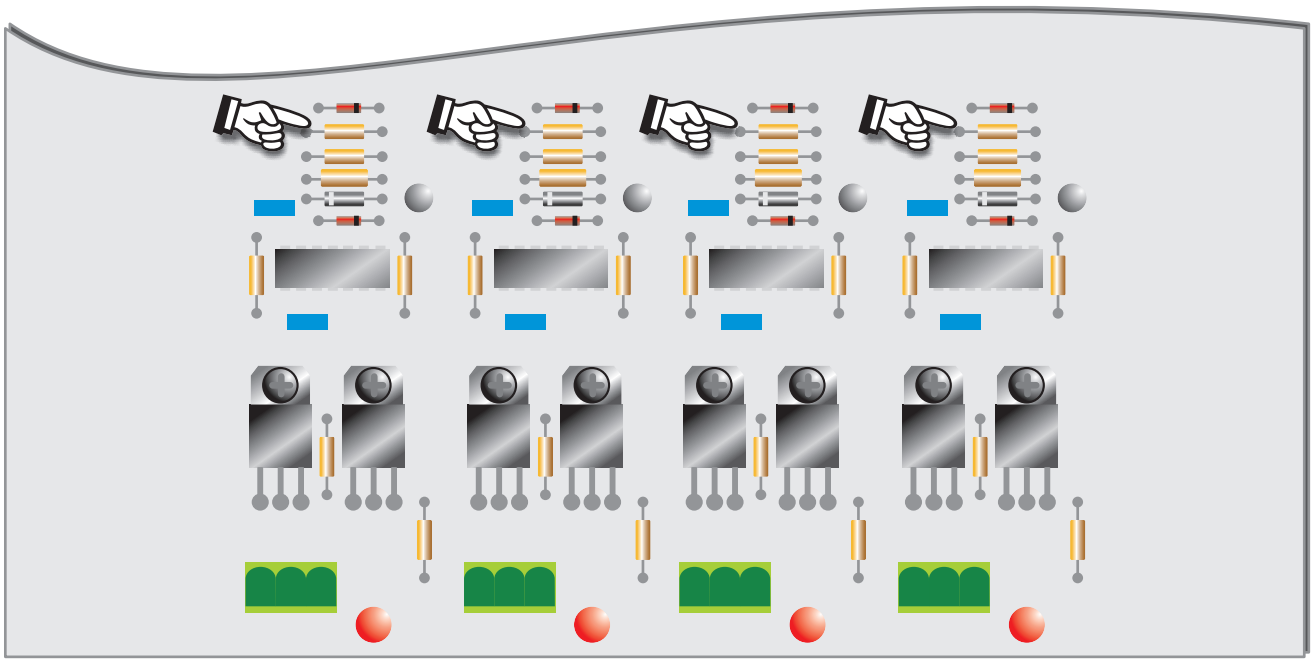
Adjust the voltage by turning the knob on the tuning coil. TUNING COIL The knob can be turned both clockwise and anti-clockwise; turn the knob in one direction and watch the voltage. If the voltage is reduced, turn it in the opposite direction till maximum voltage achieved.

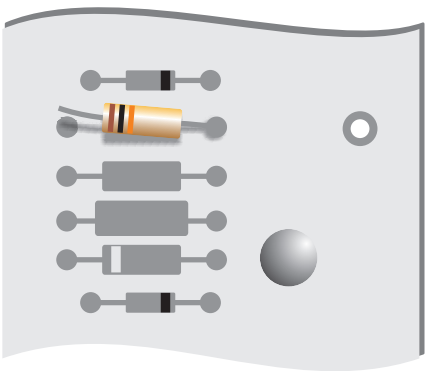
Check and make a note of the voltages of the antennas on other stalls with the up/down cursor keys. If any of the stalls has a very low or a very high voltage compared to the first, use the tuning knob to obtain the best balance of voltage across all the antennas.

DATA SHEET: **58**
REVIVER MAIN BOARD MODIFICATION

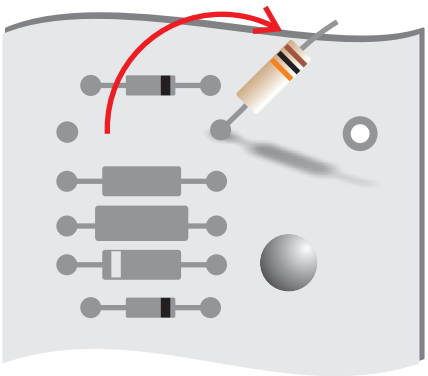
Details of the changes to Out-Of-Parlour main circuit board to accommodate Reviver installations:

All 4 resistors (Value 10k Ohms) will have to be moved as shown below:

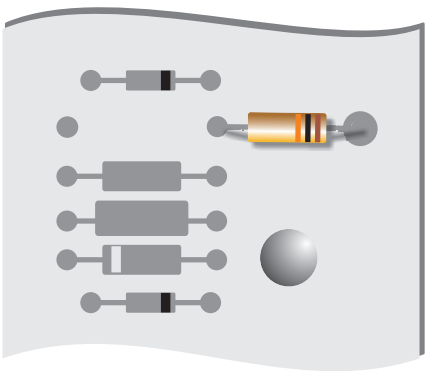




1: *Snip the resistor lead at the left hand end close to the circuit board.*



2: *Carefully rotate the resistor to the right until it reaches the spare solder pad.*



3: *Press the resistor to the pad using a small screwdriver and solder it in position.*