MUREX

Operating Manual & Technical Notes

Transmatic AVC

Please ensure that this Instruction Manual and Parts List is made available to the user of the equipment.

£1.50

SAFETY

It is important to note that this wire feed unit does not incorporate contactor control therefore the welding wire reel, wire feed and torch contact tip will be 'hot', i.e. the wire will be live with the open circuit voltage at all times when the power source is switched on.

Every effort should be made to bring this information to the operator of the equipment.

The Transmatic AVC wire feeder is a lightweight unit designed to be used with either drooping or flat characteristic welding power supplies, which allows for easy conversion from MMA to MIG/MAG processes.

The unit has the ability to compensate for drooping characteristic rectifier or engine-driven welder outputs allowing them to be used for self-shielded flux-cored wire welding applications for example.

Additionally, the unit can be used as a conventional MIG/MAG feeder with any flat characteristic MIG welding power source for solid wires.

Features

The wire feeder is fitted with a 5Kg wire reel holder but when fitted with a baseplate conversion kit it will handle a 15Kg wire reel.

When fitted to the base unit, the standard inlet wire guide must be replaced with a 300mm long spiral guide which extends through a grommet on the rear panel - See Optional Extras.

The Euroconnector torch socket will accept all Murex "MX" torches and carries power, control switching, gas and wire feed to the torch nozzle.

Feed roll pressure is adjustable by means of a knob on the pressure roll arm.

Wire is 'inched' using the button provided on the front panel.

Wire feed speed (WFS) voltage control is provided by a continuously variable control on the front panel. - See page 6.

Gas Control

The unit is not fitted with a gas valve as standard but a gas valve kit is available for fitting as an optional extra. - See Optional Extras on page 5 and also Parts List.

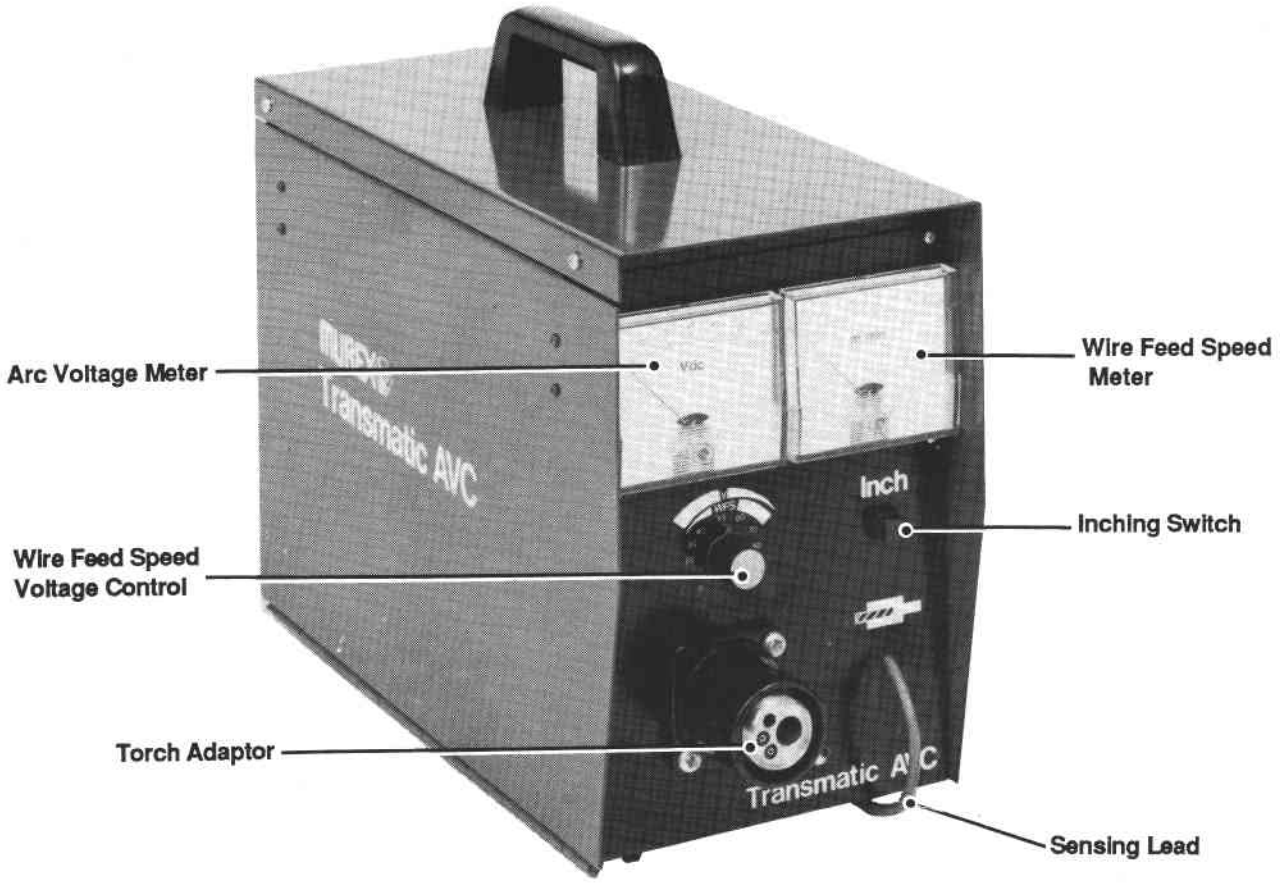

Fig. 1. Front Panel Controls

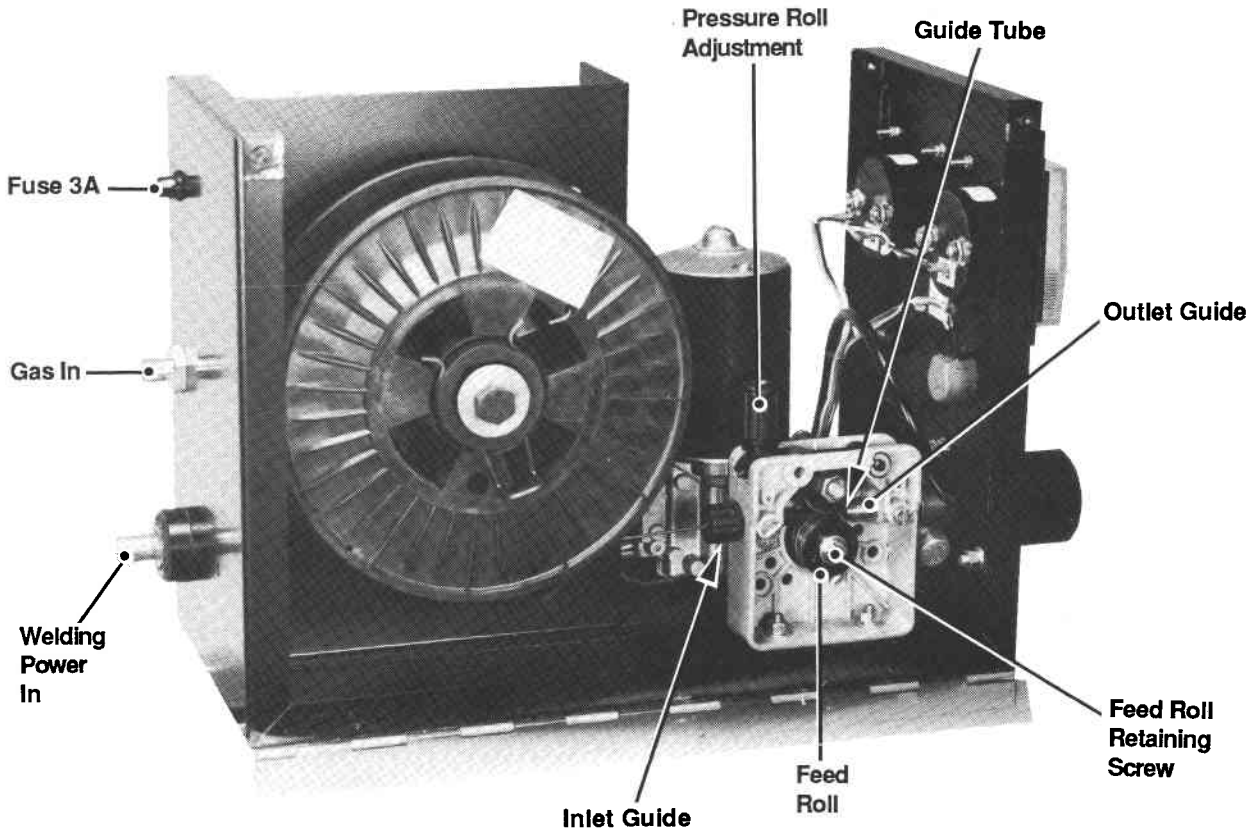

Fig. 2. Left Hand Side View -Component Identification

Technical Specification

Wire Diameter:	0.8 - 1.2 Hard 1.0 - 1.6 Soft 1.2 - 1.6 Cored
Speed Range:	2 - 20m/min
Input Open Circuit Voltage:	18 - 100V DC*
Arc Voltage:	15 - 35V DC*
Wire Spool:	5kg internal (Optional 15Kg external)
Drive Mechanism:	2 roll, permanent magnet 24VDC motor
Facilities:	Wirefeed speed / Arc voltage control Inch push button Optional volt and wire feed speed meters Optional gas solenoid kit
Width:	190mm
Height:	355mm
Weight:	11Kg (excluding wire)

*** Consult Murex Welding Products Ltd., for use with AC power supplies**

INSTALLATION

INITIAL SETTING UP

1. Feed Rolls

Before connecting the electrical and gas supplies, ensure that the equipment is set up for the type and size of wire to be used.

2. Interconnection- See Fig. 3.

Lay out the torch and power cables keeping the leads as straight as possible.
Check that the power source is switched off.

3. Shielding Gas

If shielding gas is to be used, connect a gas hose between the supply regulator and the rear panel on the AVC.
Note: *No gas solenoid is fitted as standard and the shielding gas will need to be manually turned on before welding. Remember to shut off the supply afterwards.*

4. Power Cables

Connect the torch side power cable between the dinse fitting on the AVC rear panel and the relevant polarity output socket on the power source.
Note: *The AVC will operate on either polarity but consult Murex for AC applications.*

5. Work Return Lead

Connect the work return lead to a clean area on the work piece.

6. Sensing Lead

Clip the sensing lead on to the work return lead clamp.

WELDING WIRE

Fit the reel of welding wire:

1. Remove the hand nut or retaining clip from the hub.
2. Place the reel of wire on the hub so that the wire will be drawn off from the bottom. Ensure that the pin on the hub locates in the hole in the side of the reel.
3. Release the end of the wire from the side of the reel but do not allow the coils to loosen. Cut off the kinked portion and remove any sharp edges from the end of the wire. This must be done every time the wire is threaded through the equipment.
4. **15Kg base plate assembly only** - Loosen the hub reel brake nut so that the reel revolves freely. Tighten the nut just enough to prevent over-run when wire feed stops. Too much pressure will cause excessive drag.
5. Lift the pressure roll arm.
6. Thread the wire through the inlet guide over the feed roll and into the outlet guide, for approximately 50mm (2in.).
Lower the pressure roll arm so that the welding wire is clamped into position in the groove.
7. Switch on the power source, ensure that the contactor is on.
8. Push the inching button and check that the wire is driven smoothly through the outlet guide.

CAUTION: *The wire is 'hot' - 'See Safety'.*

9. Check that wire feed is smooth and positive. If the wire slips in the feed rolls, tighten the pressure adjusting screw just enough to obtain positive wire feed drive.
Do not overtighten the adjusting screw.
10. Cut off the wire to protrude 10mm from the torch connector.

TORCH

1. Check that the torch lead is laid out straight and connect the torch to the torch adaptor.
2. Remove the nozzle and contact tip from the torch.
Using the inching button, feed the wire through the torch.
Thread a contact tip over the wire and screw it into the torch. Tighten the contact tip with the key provided.
3. Fit the nozzle.
4. Press the torch switch and check that wire feeds smoothly from the torch.

REPLACEMENTS AND ADJUSTMENT

1. Guide Tube Removal

(a) Release the pressure roll.
(b) If the guide tube will move freely, push it out of the torch adaptor using a pencil or soft wooden dowel rod, then withdraw it from the torch adaptor using a pair of long nose pliers.
If the guide tube does not move freely, it may be necessary to drive it out using a hard wooden dowel or old guide tube.

Note: *Do not use a screwdriver or metal tool to push out the tube. Use of such a tool may screw the end of the guide tube and impair wire feeding.*

2. Feed Roll Changing

Remove the feedroll retaining screw. It will be necessary to give the screwdriver a sharp twist to avoid turning the motor.
Lift the pressure arm and pull off the feedroll. When replacing the feedroll, note the wire size which is stamped on the face of the roll.
The required size must face outwards when the roll if refitted. Ensure that the Woodruff Key is not lost.
Fit the feedroll and lower the pressure arm. Refit the retaining screw giving it a sharp twist with the screwdriver to tighten.

3. Feed Roll Pressure

Correct feed roll pressure will provide smooth, uninterrupted feeding of the wire. Inspection of the wire should reveal only slight marks from the feed rolls and no deformation of the wire. Use of the correct pressure is especially important when feeding aluminium wires. The pressure should be just enough to provide positive wire drive without slipping.

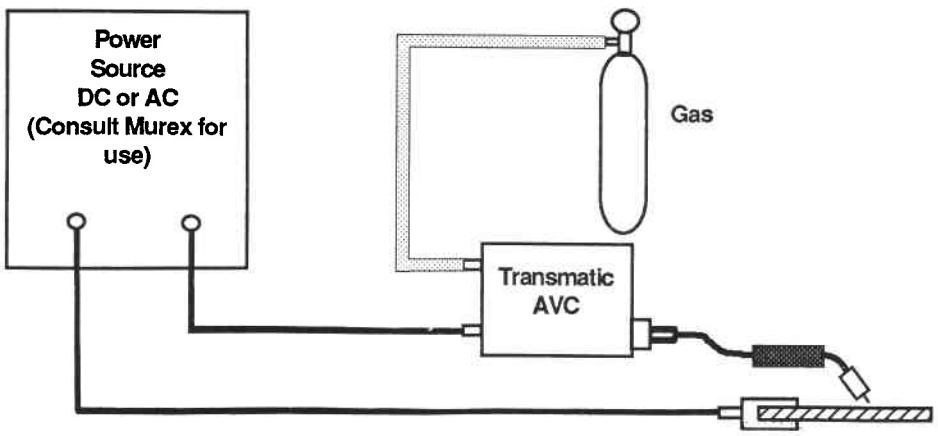

Fig. 3. - Interconnections

OPTIONAL EXTRAS - Fitting Instructions

Meter Kit Installation

Remove the front panel blank (4 screws).
Mount the meter unit.
Feed the harness through the hole in the internal wall and connect it to the pcb at upper pcb connector.

Meter Unit Calibration Voltmeter

Referring to the main AVC pcb - preset potentiometer VR1 sets the voltmeter scaling.

Using a calibrated standard voltmeter between the power source terminals, adjust VR1 so that the voltmeter reading is correct.

WFS Meter

Referring to the main AVC pcb - preset potentiometer VR3 adjusts the WFS meter scaling.

Note: *A jumper link is installed across R33 on the main pcb at the factory to give 10m/min range as standard.*
Remove the jumper if 20m/min range is required.

Calibrate WFS meter as follows:

Set the front panel control to 50%.

Energise the welding power source and press the torch trigger. Feed the wire for 15 seconds and measure the length of wire. Multiply the measurement by 4 to determine amount of wire that will be fed in 1 minute. Press the torch trigger and adjust VR3 so that this value is indicated on WFS meter.

Gas Valve Kit Installation

1. Open the feeder unit. Unscrew the nut and nipple from the back of the rear panel bulkhead gas fitting. Remove and discard 1/4in. BSP bulkhead fitting.

2. Ensuring correct gas flow direction (arrow on side of solenoid), mount the solenoid on the rear panel, using the new 3/8in. BSP bulkhead fitting (Part No. 1413082).

Screw the 1/4in. BSP fitting (Part No. 1409042) into the solenoid output and reconnect using the nut and nipple removed in para. 1 above.

3. Mount the gas solenoid pcb inside the feeder using the two screwholes provided. Attach the two 1/4in. push on connectors to the solenoid tabs - note centre tab (Ground) should not be used. Attach one of the two unterminated wires to the terminal block - position 3 (together with the existing earth sensing lead) and solder the other one to the rear panel fuse connection.

4. Push the plug onto the upper connector of the main AVC printed circuit board.

Note: *If the meter option is installed, detach the pcb connector from the two leads and connect the leads to the butt splices on the meter connector.*

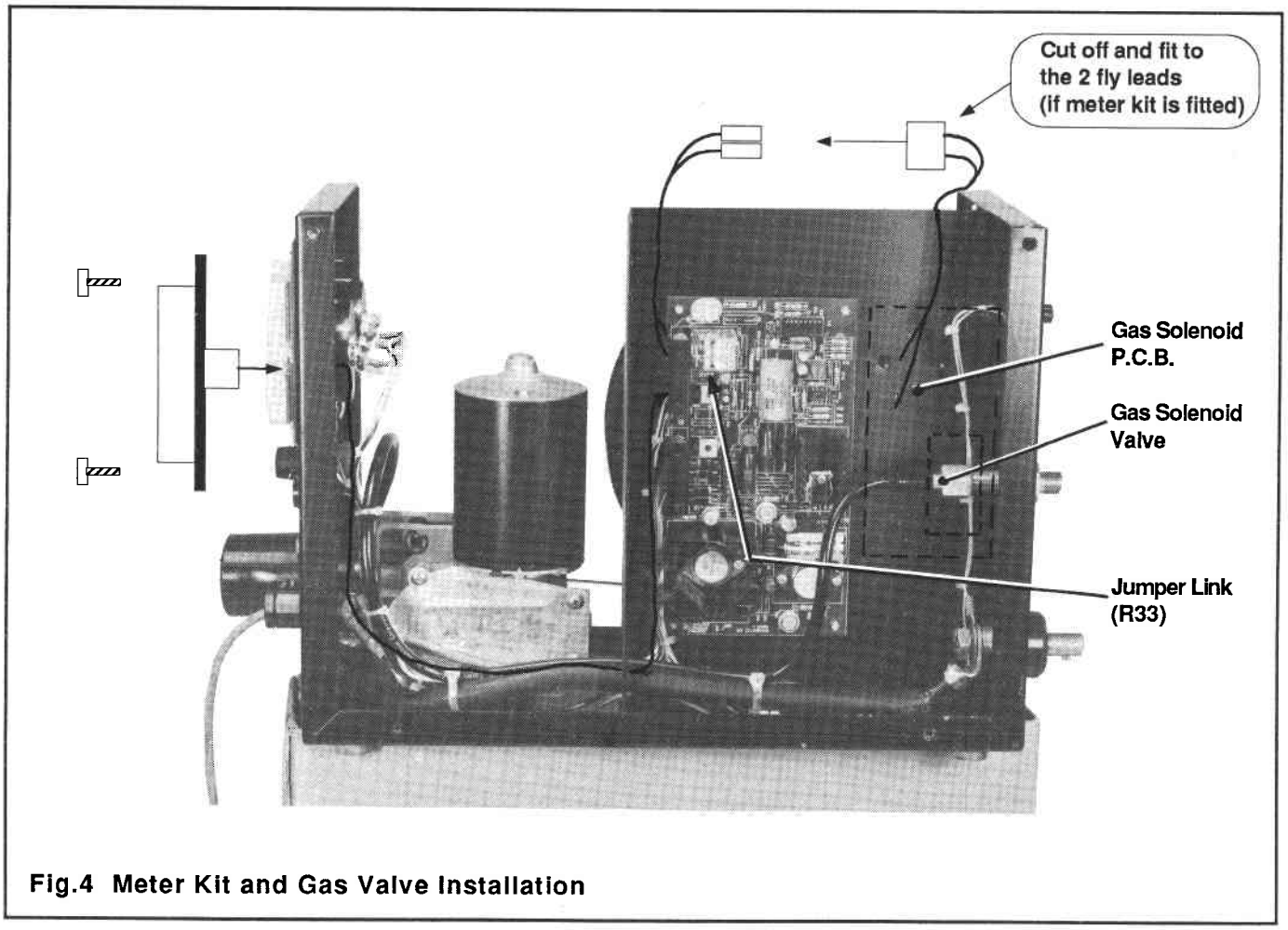

Fig.4 Meter Kit and Gas Valve Installation

Wire Speed/Arc Voltage Control

Turning the control clockwise increases wire feed speed (WFS) and proportionally decreases arc voltage.

Conversley turning the control anticlockwise decreases wire feed speed and increases arc voltage.

Note: *For initial parameter set-up, it is recommended that the control be set at between 10 and 20%, and an optimum value be established after striking the arc.*

The graph Fig, 5 shows the relationship between wire feed speed and arc voltage for various control settings between 0 and 100%.

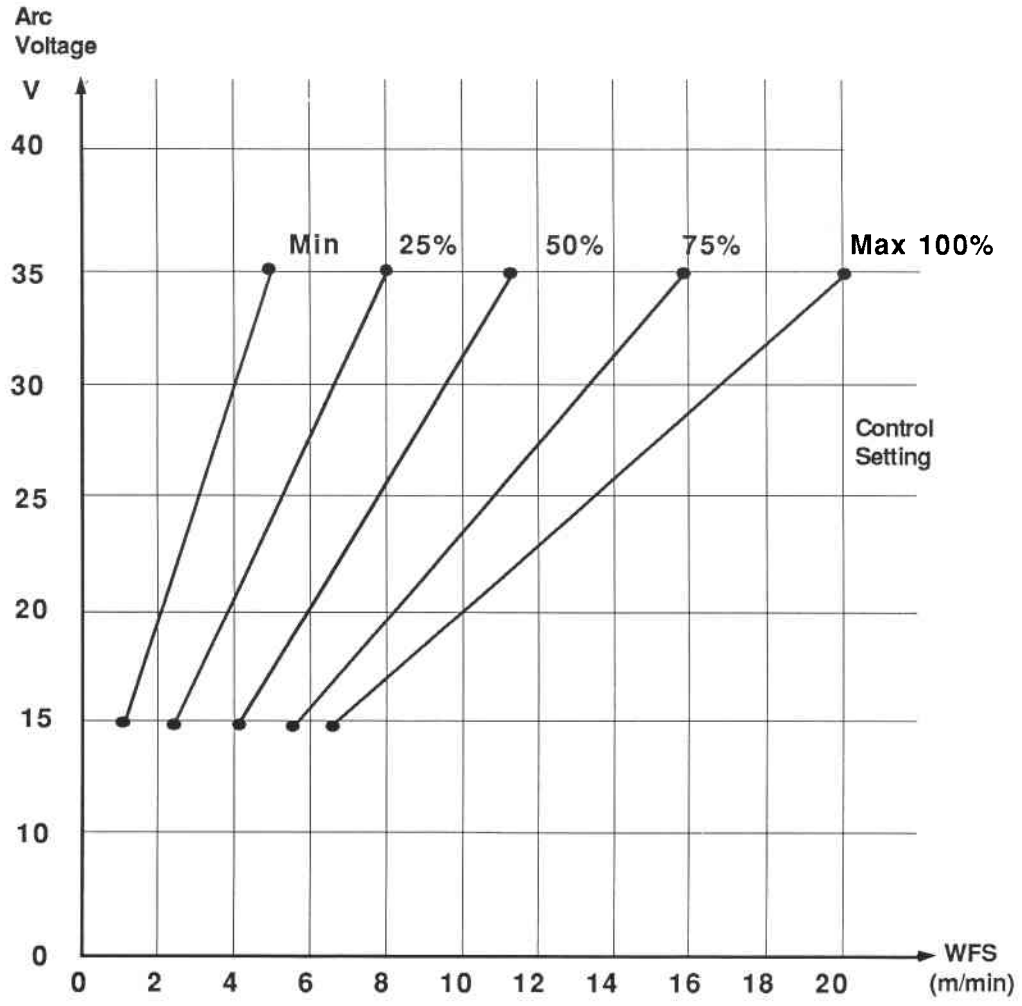

Fig. 5. - Arc Voltage/WFS - % Control Setting Chart

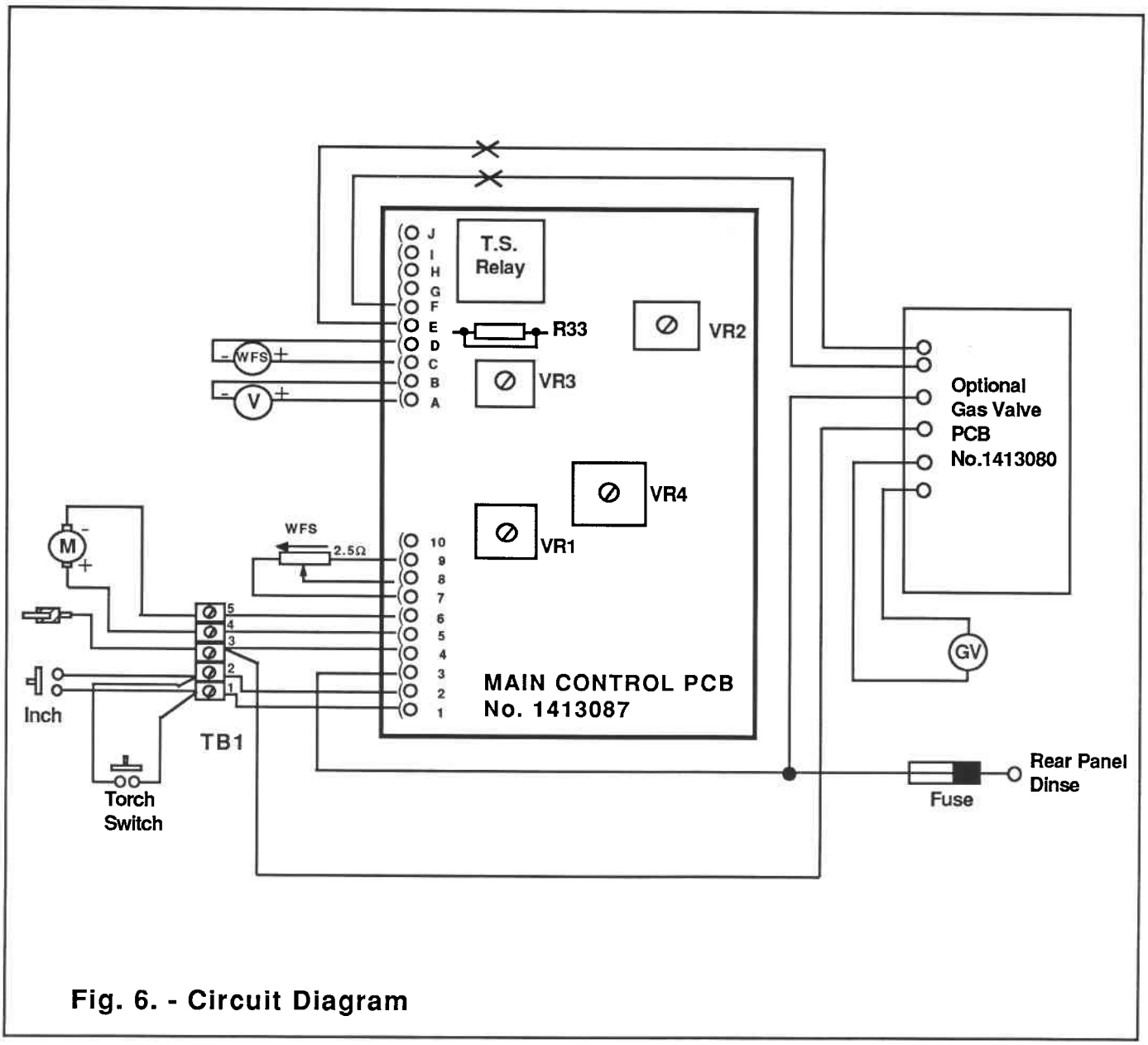

Fig. 6. - Circuit Diagram

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MUREX

Transmatic AVC

Parts List

Issue 1

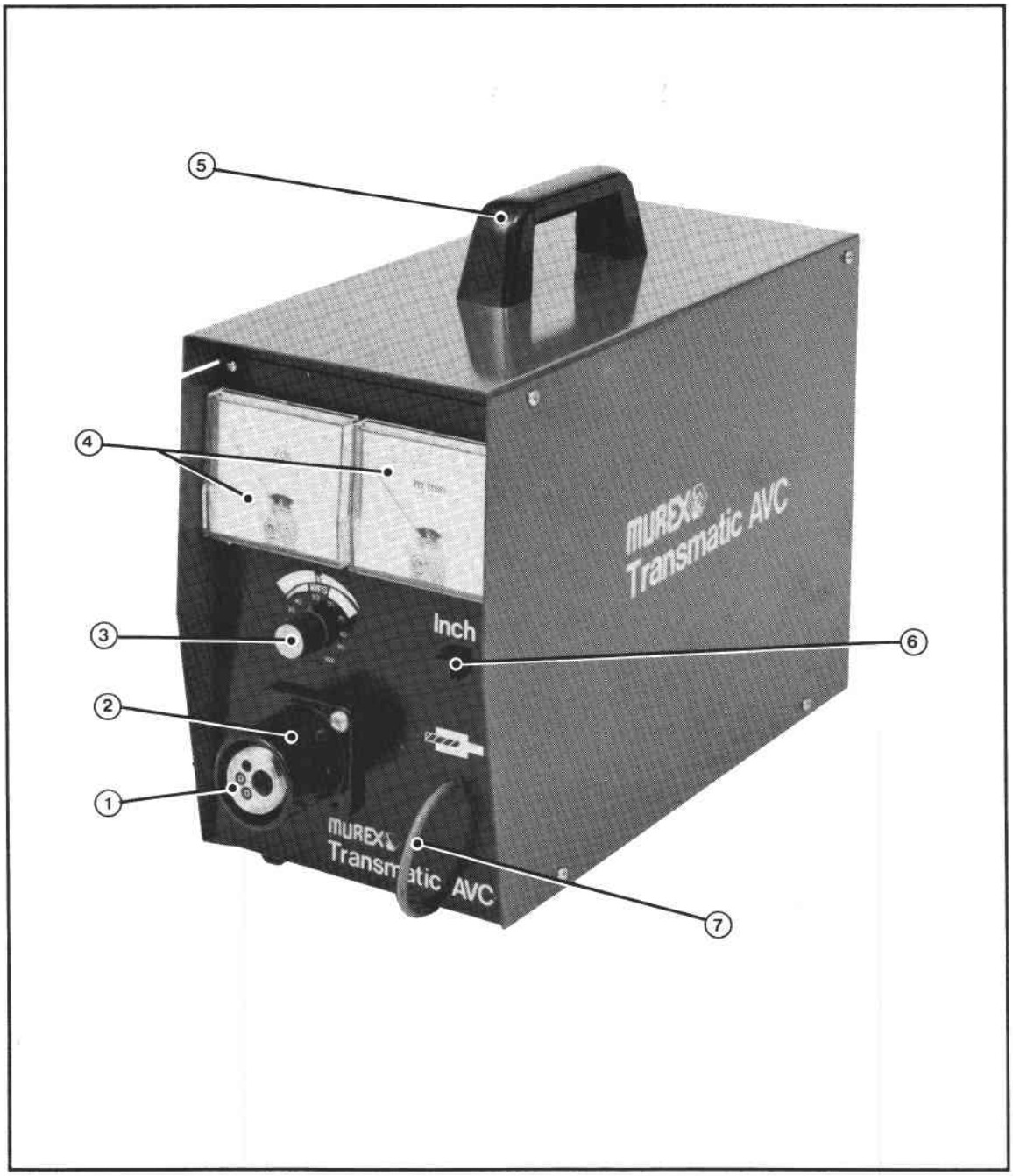

Fig. A

Item	Part No.	Description
1	1411524	Central adaptor block
2	1411523	Central adaptor shroud
3	1413089	Potentiometer 2.5kΩ
-	1413090	Knob for item 3
4	1413091	Voltmeter (Note 1)
-	1413092	Wire feed speed meter (Note 1)
5	1413093	Handle
6	1413094	Inching button
7	1413095	Sensing lead clamp

Note 1 - See Optional Extras