

# DRAPER®

®

## INSTRUCTIONS FOR Manual Metal Arc Welder

Stock Nos. 53082  
53084

Part No. AW105T  
AW135T

**IMPORTANT:** PLEASE READ THESE INSTRUCTIONS CAREFULLY TO ENSURE THE SAFE AND EFFECTIVE USE OF THIS PRODUCT.



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### GENERAL INFORMATION

These instructions accompanying the product are the original instructions. This document is part of the product, keep it for the life of the product passing it on to any subsequent holder of the product. Read all these instructions before assembling, operating or maintaining this product.

This manual has been compiled by Draper Tools describing the purpose for which the product has been designed, and contains all the necessary information to ensure its correct and safe use. By following all the general safety instructions contained in this manual, it will ensure both product and operator safety, together with longer life of the product itself.

All photographs and drawings in this manual are supplied by Draper Tools to help illustrate the operation of the product.

Whilst every effort has been made to ensure the accuracy of information contained in this manual, the Draper Tools policy of continuous improvement determines the right to make modifications without prior warning.

# 1. TITLE PAGE

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## **1.1 INTRODUCTION:**

USER MANUAL FOR:

## **MANUAL METAL ARC WELDER**

Stock nos. 53082, 53084

Part nos. AW105T, AW135T

## **1.2 REVISIONS:**

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Date first published June 2014

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As our user manuals are continually updated, users should make sure that they use the very latest version.

Downloads are available from: <http://www.drapertools.com/b2c/b2cmanuals.pgm>

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## **1.3 UNDERSTANDING THIS MANUALS SAFETY CONTENT:**

**WARNING!** Information that draws attention to the risk of injury or death.

**CAUTION!** Information that draws attention to the risk of damage to the product or surroundings.

## **1.4 COPYRIGHT © NOTICE:**

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## 2. CONTENTS

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### 2.1 CONTENTS

	<b>PAGE CONTENT</b>	<b>PAGE</b>
1	TITLE PAGE	
	1.1 INTRODUCTION .....	2
	1.2 REVISION HISTORY .....	2
	1.3 UNDERSTANDING THIS MANUAL .....	2
	1.4 COPYRIGHT NOTICE .....	2
2	CONTENTS	
	2.1 CONTENTS .....	3
3	GUARANTEE	
	3.1 GUARANTEE .....	4
4	INTRODUCTION	
	4.1 SCOPE .....	5
	4.2 SPECIFICATION .....	5
	4.3 HANDLING & STORAGE .....	5
5	HEALTH & SAFETY INFORMATION	
	5.1 GENERAL ARC-WELDER SAFETY WARNINGS .....	6-7
	5.2 ADDITIONAL SAFETY INSTRUCTIONS FOR ARC-WELDERS .....	7
6	TECHNICAL DESCRIPTION	
	6.1 IDENTIFICATION .....	8
7	ASSEMBLING THE WELDER	
	7.1 PREPARING THE WELDING CIRCUIT .....	9
8	SETTING THE WELDER	
	8.1 ADJUSTING THE WELDING CURRENT .....	11
	8.2 THERMAL CUTOUT SIGNAL .....	11
	8.3 RECOMMENDATIONS FOR USE .....	11
9	MAINTENANCE	
	9.1 MAINTENANCE & PART REPLACEMENT .....	12
10	EXPLANATION OF SYMBOLS	
	10.1 EXPLANATION OF SYMBOLS .....	13
11	DISPOSAL	
	11.1 DISPOSAL .....	14
	DECLARATION OF CONFORMITY .....	ENCLOSED

## 3. GUARANTEE

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### 3.1 GUARANTEE

Draper tools have been carefully tested and inspected before shipment and are guaranteed to be free from defective materials and workmanship.

Should the tool develop a fault, please return the complete tool to your nearest distributor or contact Draper Tools Limited, Chandler's Ford, Eastleigh, Hampshire, SO53 1YF. England. Telephone Sales Desk: (023) 8049 4333 or Product Helpline (023) 8049 4344.

A proof of purchase must be provided with the tool.

If upon inspection it is found that the fault occurring is due to defective materials or workmanship, repairs will be carried out free of charge. This guarantee period covering parts/labour is 12 months from the date of purchase except where tools are hired out when the guarantee period is ninety days from the date of purchase. This guarantee does not apply to normal wear and tear, nor does it cover any damage caused by misuse, careless or unsafe handling, alterations, accidents, or repairs attempted or made by any personnel other than the authorised Draper warranty repair agent.

Note: If the tool is found not to be within the terms of warranty, repairs and carriage charges will be quoted and made accordingly.

This guarantee applies in lieu of any other guarantee expressed or implied and variations of its terms are not authorised.

Your Draper guarantee is not effective unless you can produce upon request a dated receipt or invoice to verify your proof of purchase within the guarantee period.

Please note that this guarantee is an additional benefit and does not affect your statutory rights.

Draper Tools Limited.

# 4. INTRODUCTION

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## 4.1 SCOPE

AC welding machine suited to light repair and fabrication work.

## 4.2 SPECIFICATION

Stock no .....	53082 .....	53084 .....
Part no .....	AW105T .....	AW135T .....
Rated voltage .....	230V~50Hz.....	230V~50Hz .....
Rated max supply current.....	26.4A .....	18A .....
No load voltage.....	48V .....	48V .....
Welding current .....	40-100A .....	50-130A .....
Coupling device.....	direct fit .....	direct fit .....
Degree of protection .....	IP21 .....	IP21 .....
Cooling.....	Air (fan) .....	Air(fan) .....
Max. working temp.....	40° .....	40° .....
Weight .....	12kg .....	17kg .....

## 4.3 HANDLING & STORAGE

The environment will have a negative result on its operation if you are not careful. If the air is damp, components will rust. If the machine is unprotected from dust and debris; components will become clogged: And if not cleaned and maintained correctly or regularly the machine will not perform at its best.

## 5. HEALTH & SAFETY INFORMATION

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### 5.1 GENERAL ARC-WELDER SAFETY WARNINGS

**WARNING: Read all safety warnings and all instructions.** Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury.

**Save all warnings and instructions for future reference.**

MMA manual metal arc welding systems using coated electrodes with limited service are referred to herein as “welding machines”.

- Make sure that the welding machine is **installed and repaired only by qualified persons or experts** in compliance with the law and with the accident prevention regulations.
- Make sure that the operator is trained in the **use and risks connected to the arc-welding processes and in the necessary measures of protection and emergency procedures.**
- Detailed information can be found in the “Installation and use of arc-welding equipment” **brochure: IEC or CLC/TS 62081.**
- Make sure that the power socket to which the welding machine is connected is protected by suitable safety devices (fuses or automatic switch) and that it is grounded.
- Make sure that the plug and power cable are in good condition.
- Before plugging into the power socket, make sure that the welding machine is switched off.
- Switch the welding machine off and pull the plug out of the power socket as soon as you have finished working.
- Switch the welding machine off and pull the plug out of the power socket before connecting the welding cables, installing the continuous wire, replacing any parts in the torch or wire feeder, carrying out maintenance operations, or moving it (use the carrying handle on the welding machine.)
- Do not touch any electrified parts with bare skin or wet clothing. Insulate yourself from the electrode, the piece to be welded and any grounded accessible metal parts. Use gloves, footwear and clothing designed for this purpose and dry, non-flammable insulating mats.
- Use the welding machine in a dry, ventilated space.
- Do not expose the welding machine to rain or direct sunshine.
- Use the welding machine only if all panels and guards are in place and mounted correctly.
- Do not use the welding machine if it has been dropped or struck, as it may not be safe. Have it checked by a qualified person or an expert.
- Eliminate any welding fumes through appropriate natural ventilation or using a smoke exhauster. A systematic approach must be used to assess the limits of exposure to welding fumes, depending on their composition, concentration and the length of exposure.
- Do not weld materials that have been cleaned with chloride solvents or that have been near such substances.
- Use a welding mask with **adiactinic glass** suited for welding. Replace the mask if damaged; it may let in radiation.
- Wear fireproof gloves, footwear and clothing to protect the skin from the rays produced by the welding arc and from sparks. Do not wear greasy garments as a spark could set fire to them. Use protective screens to protect people nearby.
- Do not allow bare skin to come into contact with hot metal parts, such as the torch, electrode holder grippers, electrode stubs, or freshly welded pieces.
- Metal-working gives off sparks and splinters. Wear safety goggles with protective side eye guards.
- Welding sparks can trigger fires.
- Do not weld or cut anywhere near inflammable materials, gasses or vapours.

## 5. HEALTH & SAFETY INFORMATION

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- Do not weld or cut containers, cylinders, tanks or piping unless a qualified technician or expert has checked that it is possible to do so, or has made the appropriate preparations.
- Remove the electrode from the electrode holder gripper when you have completed the welding operations. Make sure that no part of the electrode holder gripper electric circuit touches the ground or earth circuits; accidental contact could cause overheating or trigger a fire.
- The magnetic fields deriving from the welding current may interfere with electrical and electronic equipment. People fitted with vital electrical devices (pacemakers etc.) should consult a doctor prior to coming into contact with welding equipment.
- This welding machine satisfies the requirements of the technical product standard exclusively for professional and industrial use. Compliance with electromagnetic compatibility for domestic use is not guaranteed.
- The welding machine is installed and used under your own responsibility. In the event of electromagnetic disturbance, this should be reduced so that it does not cause problems. Ask a competent expert for technical assistance if required.

### **Welding in conditions of risk**

- If welding needs to be done in conditions of risk (electric discharges, suffocation, the presence of inflammable or explosive materials), make sure that an authorised expert evaluates the conditions beforehand. Make sure that trained people are present who can intervene in the event of an emergency. Use protective equipment described in the IEC or CLC/TS 62081 technical specification.
- If you are required to work in a position raised above ground level, always use a safety platform.
- If more than one welding machine has to be used on the same piece, or in any case on pieces connected electrically, the sum of the no-load voltages on the electrode holders or on the torches may exceed the safety levels. Make sure that an authorised expert evaluates the conditions beforehand to see if such risk exists and adopt the protective measures described in 5.9 of the IEX or CLC/TS 62081 technical specification if required.

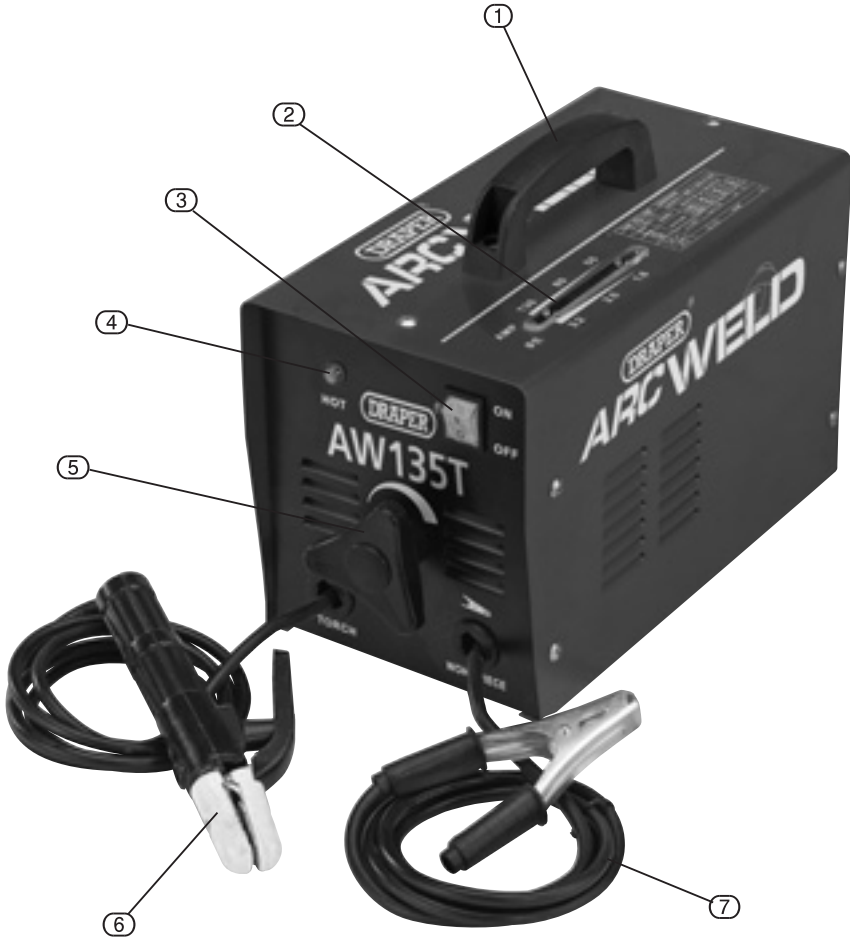
### **5.2 ADDITIONAL SAFETY INSTRUCTIONS FOR ARC-WELDERS**

- **Do not use the welding machine for purposes other than those described.** For example to thaw frozen water pipes.
- **Place the welding machine on a flat stable surface.** and make sure that it cannot move. It must be positioned in such a way as to allow it to be controlled during use but without the risk of being covered with welding sparks.
- Do not work with the welding machine hung from the body, using straps or any other device.
- Do not lift the welding machine. No lifting devices are fitted on the machine.
- Do not use cables with damaged insulation or loose connections.

## 6. TECHNICAL DESCRIPTION

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### 6.1 IDENTIFICATION



53084 shown

- |                              |                              |
|------------------------------|------------------------------|
| ① Carry handle               | ⑤ Current adjustment control |
| ② Welding current indicator  | ⑥ Electrode holder           |
| ③ On/off switch              | ⑦ Direct fit earth clamp     |
| ④ Thermal overload indicator |                              |



## 7. ASSEMBLING THE WELDER

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NOTE: Remove the plug from the socket before carrying out adjustment, servicing or maintenance.

Check that the electrical supply delivers the voltage and frequency corresponding to the welding machine and that it is fitted with a delayed fuse suited to the maximum delivered rated current.

NOTE: The welding machines are set to the highest voltage at the factory.

### ***7.1 PREPARING THE WELDING CIRCUIT***

Connect the ground "lead" to the piece to be welded. Connect the welding electrode to the electrode holder.

When the machine is turned on and the electrode touches, the workpiece, the electrical circuit is complete, this will result in the welding arc being produced.

# 8. SETTING THE WELDER

A data plate is affixed to the welding machine. Fig.4 & 5. shows examples of this plate.

- (A) Constructor name and machine part No.
- (B) Delivered alternate current frequency.
- (C) Serial number
- (D) European reference standard for the construction and safety of welding equipment.
- (E) **WELDING CIRCUIT PERFORMANCE**

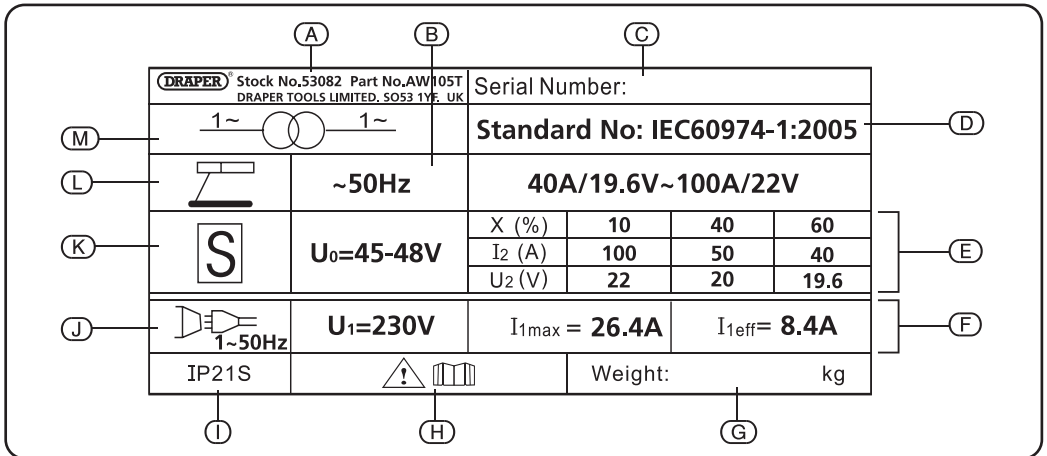
**U0V** Minimum and maximum open circuit voltage (open welding circuit).  
**Ø** Diameter of weldable electrodes.  
**I2A** Value of the current needed to weld using different electrode diameters.  
**tw** Welding time running from thermal cutout reset until the next tripping with the transformer at the operating temperature.  
**tr** Cooling time running from thermal cutout tripping until the next reset with the transformer at the operating temperature.  
**A/V** Conventional welding current (maximum) and corresponding normalised voltage.

(F) **POWER SUPPLY DATA**

**U1** Input voltage (permitted tolerance: +/- 10%)  
**I1 eff** Effective absorbed current.  
**I1 max** Maximum absorbed current.

- (G) Weight
- (H) Safety symbols.
- (I) Level of protection from solids and liquids.
- (J) Input power required:  
 1" alternate single phase voltage, frequency

- (K) Symbol indicating the possibility to use the welding machine in environments potentially subject to electric discharges.
- (L) Indicates the machine is an ARC/MMA process machine.
- (M) Indicates this machine produces an AC welding current.



## 8. SETTING THE WELDER

NOTE: Once you have put the welding machine into operation, switch it on and carry out the required adjustments.

### 8.1 ADJUSTING THE WELDING CURRENT

Select the welding current depending on the electrode, the joint and the welding position. Indicatively, the currents to be used with the different electrode diameters are listed in Fig.6. NOTE: Do not force the adjustment flywheel as this could damage the welding machine. Check the adjustment on the current adjustment indicator.

NOTE: To strike the welding arc with the coated electrode, brush it onto the piece to be welded and as soon as the arc is struck, hold it constantly at a distance equal to the electrode diameter and at an angle of approximately 20-30 degrees in the direction in which you are welding.

### 8.2 THERMAL CUTOUT SIGNAL

The warning light switched on means that the thermal protection is running.

If the welding time "tw" indicated in the data plate is exceeded, a thermal cutout stops operation before the welder is damaged. Wait for operation to be resumed and, if possible, wait a few minutes more.

If the thermal cutout continues to cut in, the welding machine is being pushed beyond its normal performance levels.

### 8.3 RECOMMENDATIONS FOR USE

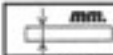
Only use an extension lead when absolutely necessary and providing it has an equal or larger section to the power cable and is fitted with a grounding conductor.

Do not block the welder air intakes. Do not store the welder in containers or on shelving that does not guarantee suitable ventilation.

Do not use the welder in any environment in the presence of gas, vapours, conductive powders (e.g. iron shavings), brackish air, caustic fumes or other agents that could damage the metal parts and electrical insulation.

NOTE: The electric parts of the welder have been treated with protective resins. When used for the first time, smoke may be noticed; this is caused by the resin drying out completely. The smoke should only last for a few minutes.

FIG.6



mm.	Ø mm.	AMP
1,0	1,6	30 - 50
2,0 - 3,5	2,0	50 - 75
2,5 - 3,0	2,5	75 - 105
3,0 - 4,0	3,2	105 - 140

(N)

(O)

(N) Plate thickness

(O) RCD Diameter

(P) Welding amperage

## 9. MAINTENANCE

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### ***9.1 MAINTENANCE & PARTS REPLACEMENT***

Regular inspection and cleaning reduces the necessity for maintenance operations and will keep your welder in good working condition.

The welder must be correctly ventilated during tool operation. For this reason avoid blocking the air inlets. After use disconnect the tool from the power supply and vacuum the ventilation slots.

If the replacement of the supply cord is necessary, this has to be done by the manufacturer or his agent in order to avoid a safety hazard.

# 10. EXPLANATION OF SYMBOLS

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## 10.1 EXPLANATION OF SYMBOLS



Attention.



Danger of electric shock.



Danger of fire.



Danger of explosion.



Danger of welding fumes.



Danger of ultraviolet radiation.



Danger of burning splashes.



Warning!  
Wear suitable respiratory protection.



Warning!  
Wear suitable welding eye/face protection.



Warning!  
Wear ear defenders (During grinding operations).



Warning!  
Read the instruction manual



WEEE  
Do not dispose of Waste Electrical & Electronic Equipment in with domestic rubbish



Class 1 appliance  
(Must be earthed).

# 11. DISPOSAL

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## 11.1 DISPOSAL

- At the end of the machine's working life, or when it can no longer be repaired, ensure that it is disposed of according to national regulations.
- Contact your local authority for details of collection schemes in your area.

In all circumstances:

- Do not dispose of power tools with domestic waste.
- Do not incinerate.
- Do not abandon in the environment.
- Do not dispose of WEEE\* as unsorted municipal waste.



\* Waste Electrical & Electronic Equipment.



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