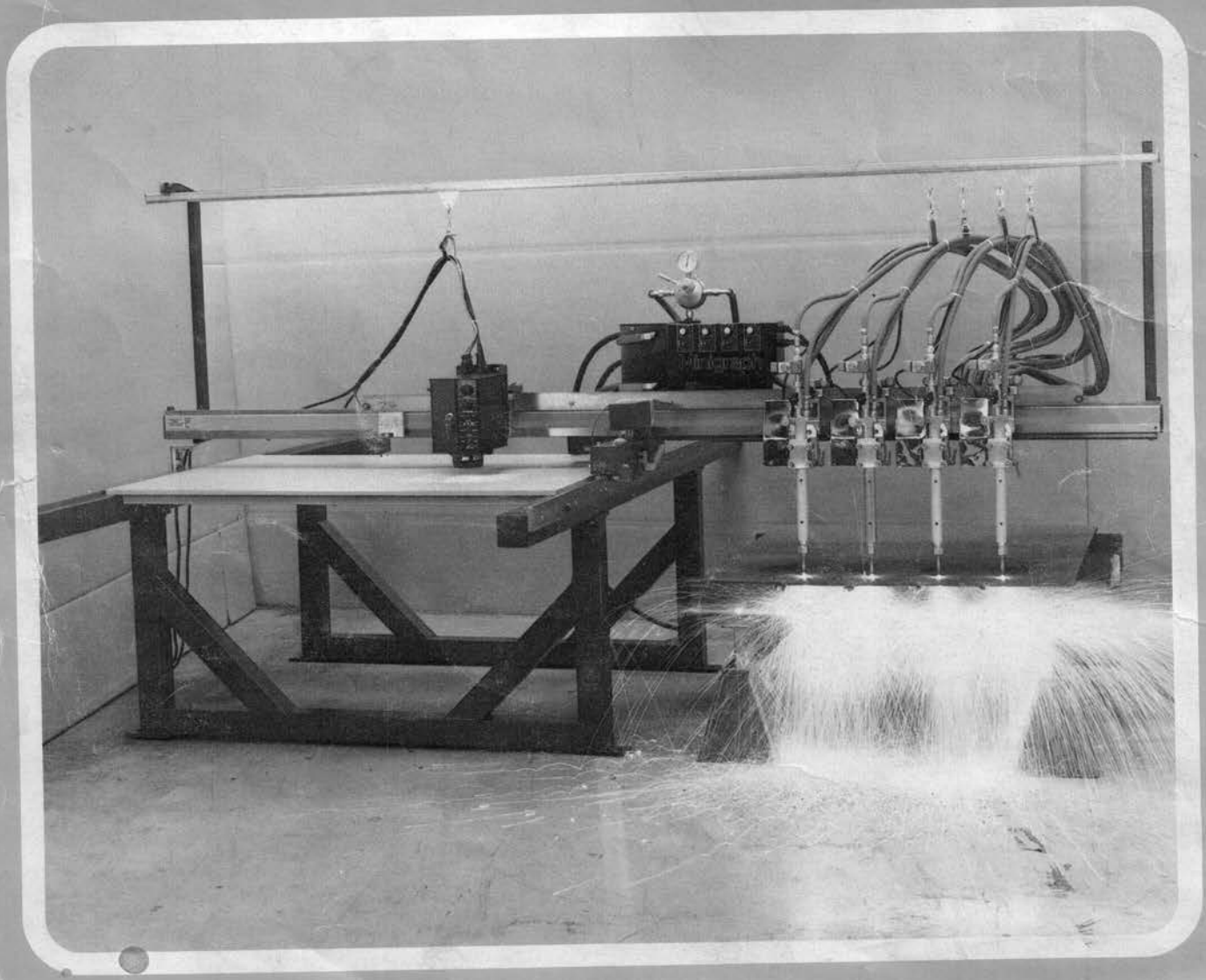
HANCOCK

CM 8002

Minigraph



Minigraph

An exciting development which opens up a new era in flame profiling for small fabrication shops. Using easily prepared drawings to trace even complicated shapes with extreme accuracy for both one-off or production batches, the Minigraph is the most cost effective multi-blowpipe flame cutting machine in its price range. Minigraph incorporates many user benefits normally found only on larger and more expensive equipments.

Minigraph's unique modular construction allows you to install and set to work within hours of being delivered to your workshop. Just look at the improvements which can be made to YOUR profiling operations:

Material Economy

Automatic edge of line or silhouette following allows nesting of profiles to reduce plate wastage and minimise thermal distortion. Some operators cutting blanks waste up to ⅓ of the plate in off cuts!

Labour Saving

Use of line drawings eliminates the use of workshop labour normally involved in marking out and template making. Considerable cost and time savings result.

Increased Throughput

Multi-blowpipe operation increases throughput without increasing workload by cutting up to four components as quickly as one.

Other cutting tools such as guillotines offer high linear cutting speeds but the true measure of capacity is the actual amount of cutting completed per man day, whether curved profiles can be cut, level of labour per component, whether material is cut into blanks before cutting to shape and if simultaneous component cutting is possible. Minigraph scores on all these points.

Improved quality

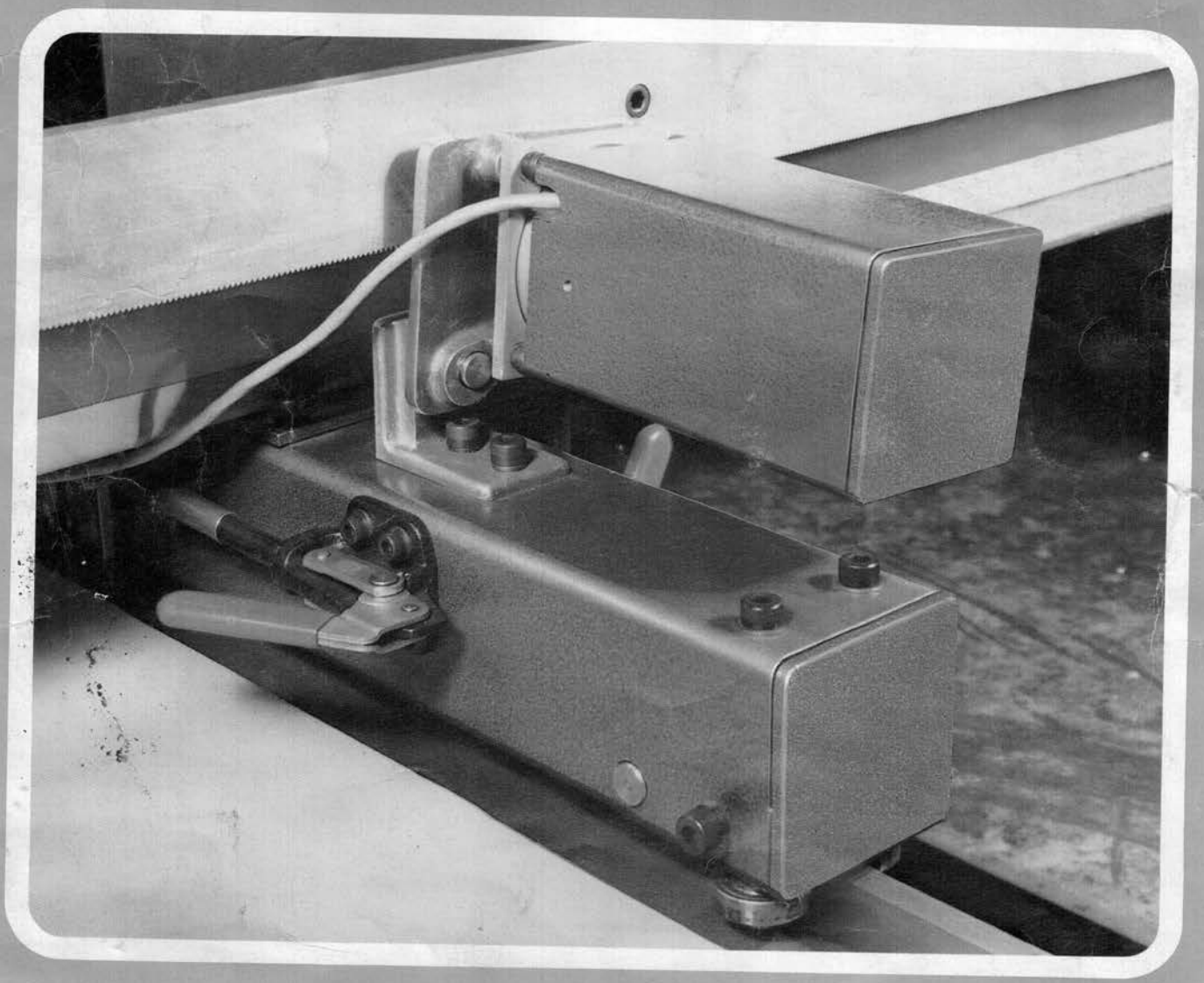
In many fabrication operations more time is spent dressing edges prior to welding than is spent on actual cutting time. Top quality cuts are readily obtained using the Minigraph machine and the majority of profiles can be used in the next manufacturing step in the 'as cut' condition. Surface finish is normally excellent, heat affected zone is minimal and strain damage to the adjacent material non existent.

In most applications a flame cut edge on mild steel grades has superior metallurgical qualities to, say, a sheared edge.

Improved Component Accuracy

The Minigraph can trace right angle corners at all flame cutting speeds unlike magnetic template followers which give large radii on outside corners. Repeatability is generally within 0.3mm. Generally tracing accuracy on such components as chain sprockets, ring gear segments etc is within 0.3mm on radii over 20mm, on smaller radii accuracy is within 0.8mm.

These improvements are achieved by the provision of a modern, functional design package.



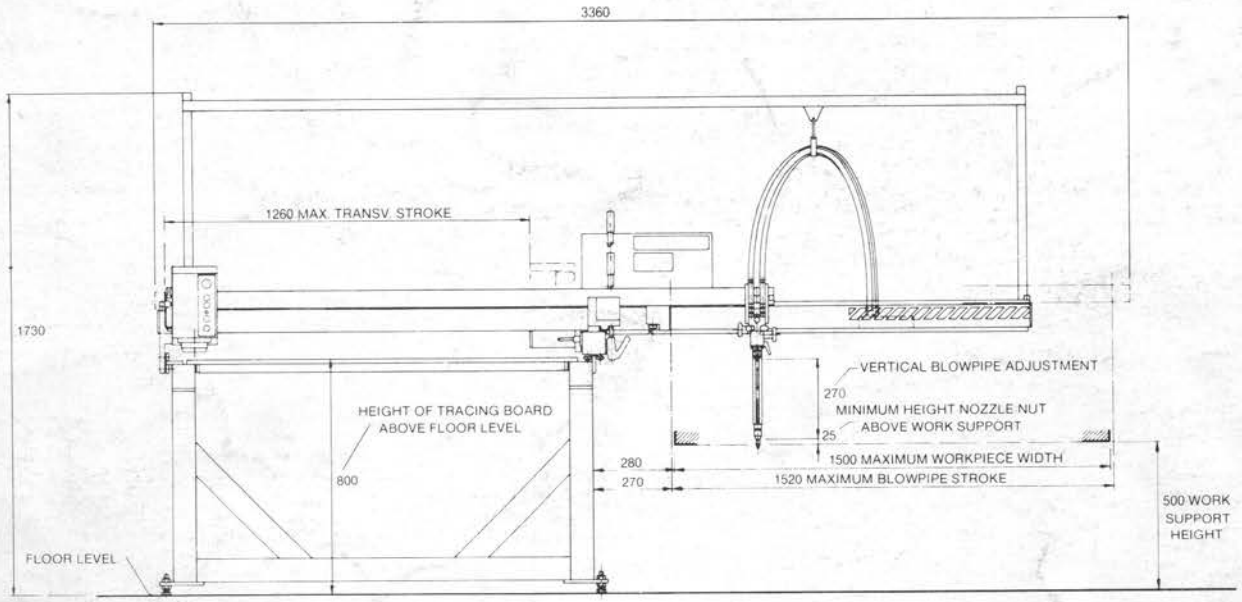


FIG. 1 — MACHINE DETAILS

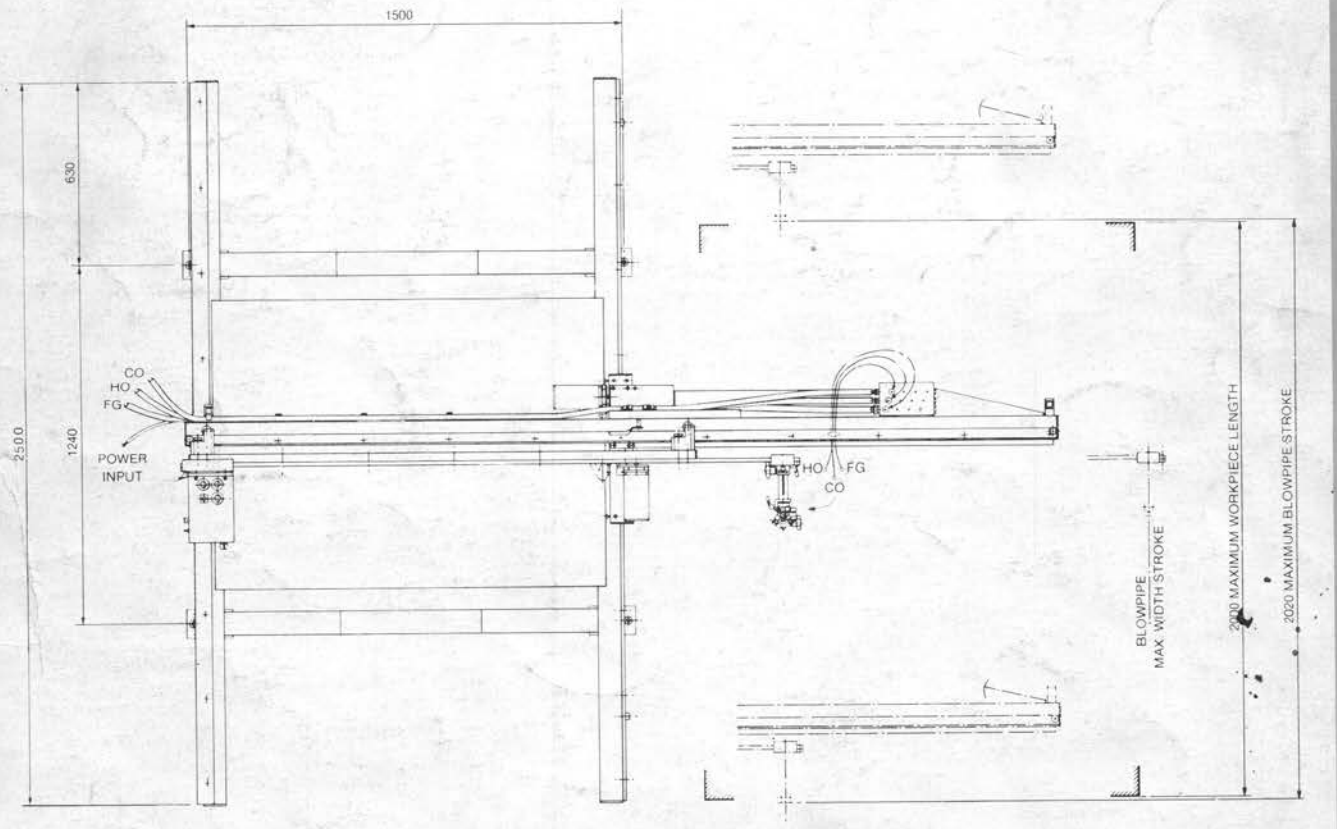


FIG. 2 — MACHINE SITE PLAN

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Specification

Standard machine	:	Cutting on right hand, tracing on left. The basic machine consists of: 1 — track assembly complete 1 — tracing table 1 — cross carriage 1 — manual gas system 1 — HL 90 co-ordinate drive system 1 — set instruction manuals 1 — tool kit. Shipping weight: nett 300 kg; gross 330 kg. Shipping volume: 900 × 600 × 3000mm.
Tracing width	:	1250mm.
Widest profile in one setting	:	1250mm.
Working width	:	1500mm.
Working length	:	2000mm.
Number of blowpipes	:	4 maximum.
Track assembly	:	2500mm basic. 2500mm extension.
Tracing tables	:	1000mm long.
Overall width (boom extended)	:	3360mm.
Cutting thickness	:	Up to 200mm.
Blowpipe height adjustment	:	270mm nominal.
Tracing capability	:	Lines of 0.5mm minimum width or silhouettes. Kerf compensation ±1.5mm.
Speed range	:	100-1000mm/min.
Fuel gas	:	Suitable for acetylene, propane, natural gas and MAPP gas. (Other fuel gases on application)
Power supply	:	Suitable for operation on 110/115V 50 or 60 Hz.

Hancock Cutting Machines Limited
Andover Works
South Way
Walworth Industrial Estate
Andover
Hampshire SP10 5HL
Telephone Andover (Std 0264) 53322
Telex 47458

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OPTIONAL ANCILLARIES

HI-LO Preheat Control

- A HI LO regulator, for use with injector type blowpipes, is available and incorporates a flick over lever with HI and LO positions. The HI position delivers heating oxygen at full pressure and flow to provide a vigorous pre-heat flame for rapid edge starts or piercing. The LO position instantly establishes pre-set pressure and flow providing optimum flame conditions for smooth, top quality cutting and gas economy.

  Pre-heating cycles are considerably reduced when using this unit.

Cutting Oxygen Solenoids

- Individual cutting oxygen solenoid valves can be fitted to each blowpipe mounting. These provide the dual advantages of:
  - Instant cut off of the cutting oxygen supply should pattern loss occur.
  - Rapid termination of the cutting oxygen supply from the tracer unit on completion of a cut. This avoids pressure fade effects which can 'nick' profiles before they fall clear of the parent plate.

Water Spray Equipment

Provision of a highly atomised curtain of water around the blowpipe nozzle considerably reduces distortional effects, with consequent improvement in profile quality and accuracy, when cutting thin plate of less than 10mm.

In addition this patented spray system allows excellent control of dust etc produced by most high speed cutting applications. Use in conjunction with a water table installation is recommended. Provision of a site water pressure of not less than 3.33 bar (50 p.s.i.) is required.

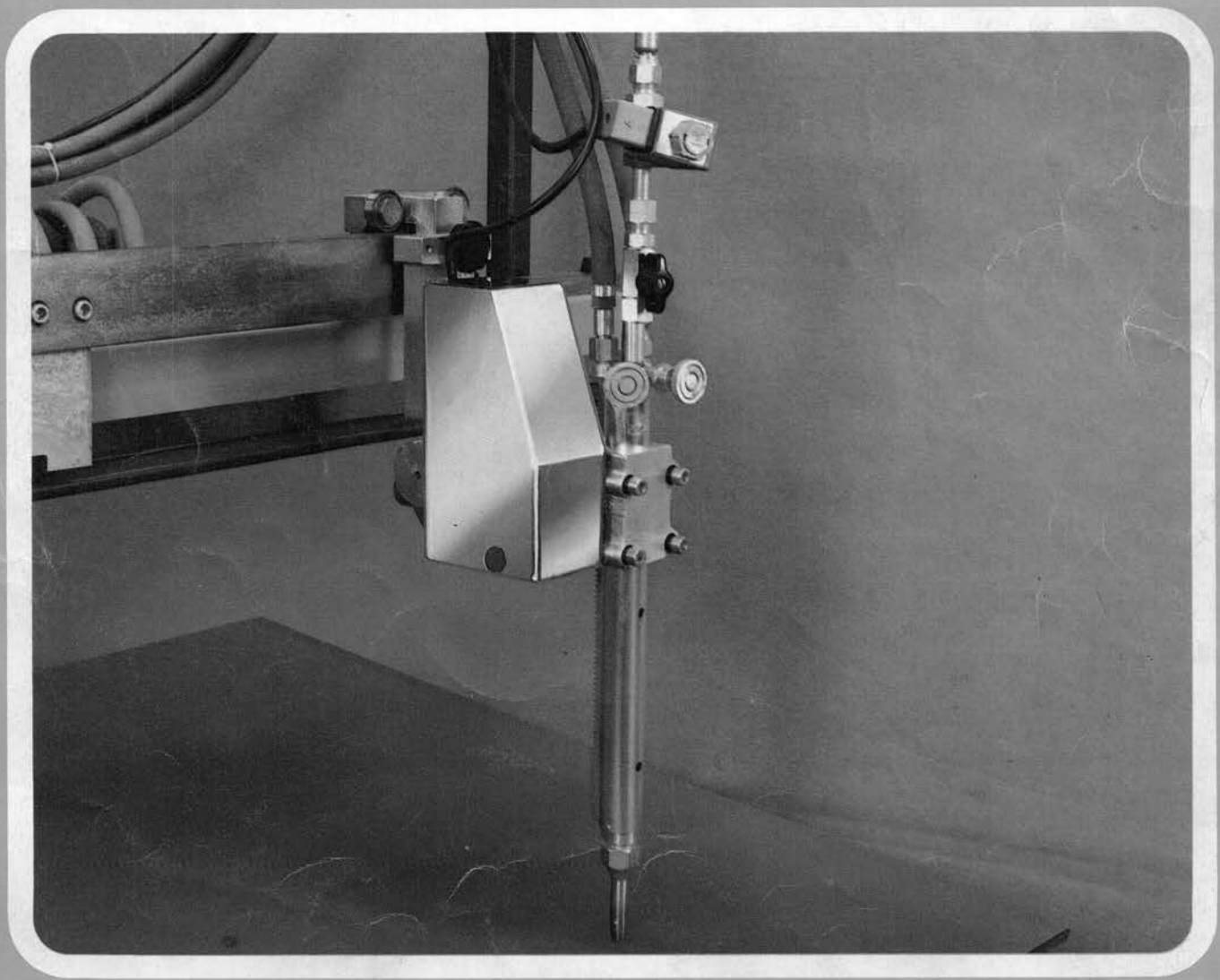
Pilot Jet Ignition

Jet ignition for the blowpipes is by air-fuel gas pilot flame. The system is simple, reliable and inexpensive. The pilot jets are lit at the start of each shift and their gas consumption is negligible.

Optical Circle Cutting Attachment

Provides a simple way to generate circles at minimum cost. The arrangement comprises a centre pivot assembly and a radius bar with target plate for the tracer head.

With the radius bar set as required the target deceives the tracer into driving the machine along the full circular path thus producing circles or flanges automatically. For internal or external circles from 92 to 900mm diameter.



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Adjustable Twin Tip Adaptor (for Injector Type Blowpipes)

This device gives a simple, inexpensive way of doubling production by providing a two nozzle output from a single blowpipe. The distance between the two nozzles can be set between 40 and 300mm apart and is an ideal arrangement for cutting small components and carrying out strip cutting applications.

Adjustable Bevel Attachment (for Injector Type Blowpipes)

When cutting bevels of up to 45° this attachment allows the operation to be carried out without swivelling the blowpipe assembly and hence accurate vertical height adjustment is retained when cutting undulating plates.

Worktables

These are of trestle and T-bar construction with long life cast iron support cones.

Longitudinal Hose and Cable Suspension

On machine installations having a track length in excess of 2500mm, the use of longitudinal hose suspension track is recommended. The basic unit is 3000mm in length with 1500mm extensions as required.

Either floor or wall mounted support stanchions are available.

Plasma Cutting Equipment

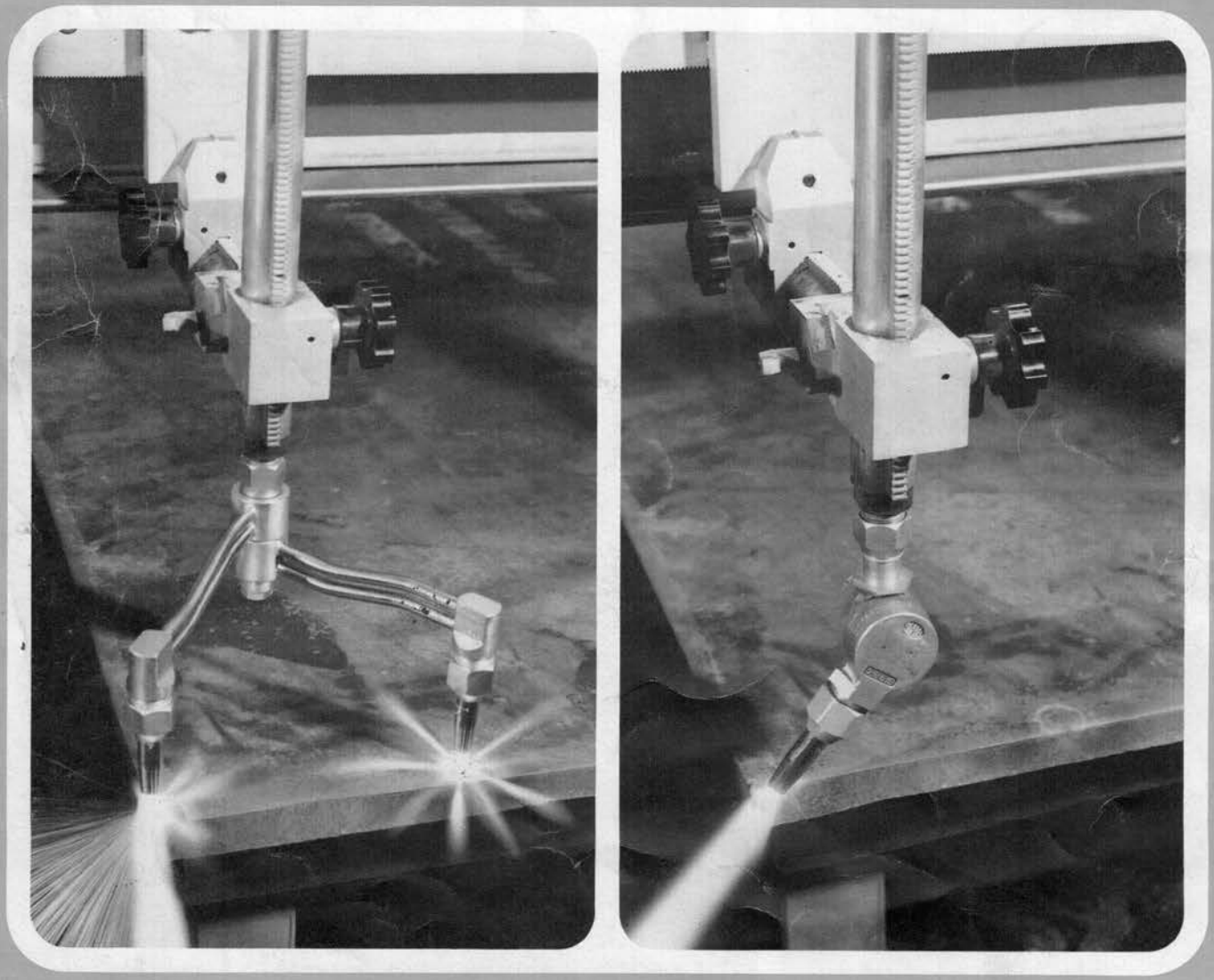
Low current plasma cutting equipment can be fitted to the machine if required. Suitable for cutting stainless steel, aluminium and many special alloys.

Fume Extraction

Depending upon certain localised conditions, dust and fumes from the cutting process may accumulate. On application, we will be pleased to advise details of either a down draught extraction system or water bath/work support arrangement.

Services Required

Oxygen — 5 bar (70 lb/in²) minimum.
Fuel gas — 0.15 bar (2 lb/in²) minimum.
Electricity — 110/115V single-phase 50 Hz or 60 Hz 100VA.
(Supply frequency to be specified when ordering).



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Simple Operation

- ALL co-ordinate drive controls conveniently grouped in one unit for ease of operation.
- Individual trimming valves provided on each blowpipe mounting.
- ALL controls are easily understood.
- Rapid tracing set up and start by automatic 'lead-in' and 'lock-on' to pattern.
- A manually operated piercing valve for fine control of the cutting oxygen is provided at a convenient position to give a slow bleed, thus effecting controlled piercing when required.
- Master shut-off valves fitted as standard.

Tracer Unit Design

The control unit is dust tight, drip proof and contains ALL co-ordinate functions.

The tracer operates automatically from full size edge of line drawings or silhouettes over a speed range of 100-1000mm/min. Electronics are latest solid state circuitry with circuit boards governing all functions including power supplies, drive amplification and tracing.

Line catching ability of the unit is exceptionally high and a small light spot produced on the template pattern allows easy, accurate positioning of the tracer over the intended starting point. A fail-safe interlock instantly stops machine motion should the tracer lose the pattern for any reason.

Kerf compensation of up to ±1.5mm is provided which greatly simplifies the preparation of drawings as they can be made to the dimensions of the finished part. For consistent long term component accuracy it is recommended that drawings are prepared on a stabilized tracing film.

Down time is kept to a minimum as operational faults can be quickly cured by simple circuit board replacement.

Blowpipe Mountings

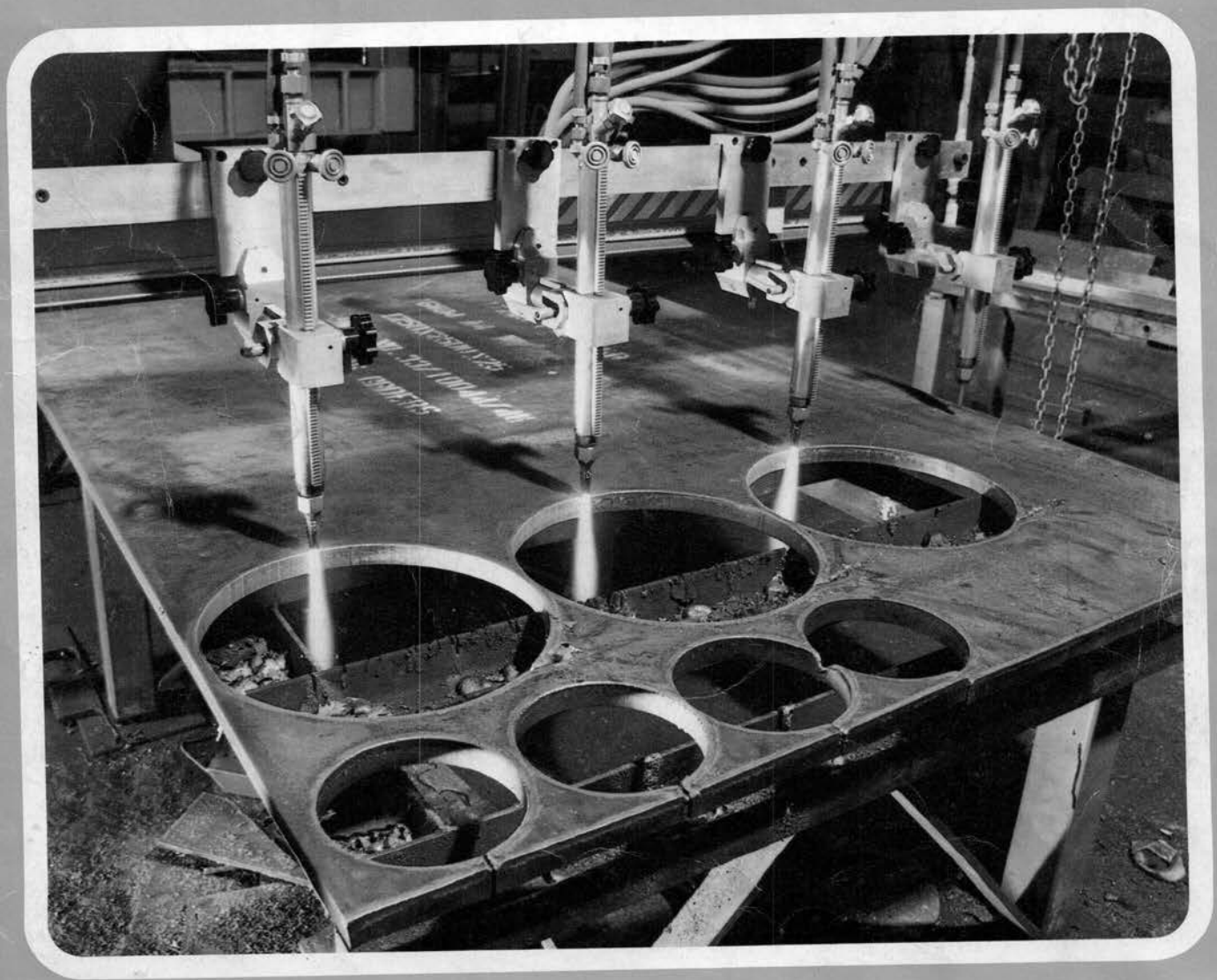
These can be rapidly positioned at any point along the blowpipe bar by means of rolling carriages, and securely clamped when in position.

Vertical and fore and aft adjustments are provided by rack and pinion arrangements with bevels up to 45° in longitudinal and transverse directions being provided by a pivot assembly.

Hose check valves, an important safety feature, are fitted as standard to the inlet connections of each blowpipe. The valves prevent backfeeding of gases and considerably reduce the possibility of a flashback occurring in the gas supply system. As a further safety measure flashback arrestors are available as an option.

The blowpipes, which meet latest ISO recommendations, are of the long barrel type thus avoiding hoses being exposed to excessive heat. They are available for either nozzle mix or injector type cutting nozzles.

High speed cutting nozzles are recommended for narrower kerf widths and high quality cut finishes.



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High Economical Output

- Continuous operation of up to 4 blowpipes.
- Automatic edge of line or silhouette following allows nesting of profiles to reduce plate wastage and minimise the effects of thermal distortion.
- Rapid re-positioning of cross carriage by de-clutching devices.
- Easy preparation of drawings, in ink or pencil, compared to metal or wooden templates.
- Automatic longitudinal or transverse cutting for plate trimming or stripping without templates.
- Independent positioning of tracer relative to blowpipes, for precise location over the template pattern without disturbing the blowpipe positions over the plate surface.

Accurate Cutting

High accuracy over the entire cutting area is achieved by a careful, production-engineering approach to machine design:

- Both the longitudinal carriage and blowpipe beam are constructed from 80mm square precision cold rolled tube providing maximum rigidity and high torsional strength in both horizontal and vertical planes. The two members are rigidly connected by a large gusset plate.
- The blowpipe bar, which consists of a precision rack bolted to a square section, moves along the beam, the track being constructed from precision straightened cold drawn bar which is bolted to the beam. The carriages run on hardened rollers, the side guide rollers being pre-loaded to take up clearances between the side guide rail. Rolling element bearings in all rollers aid free and exact movement of the machine in both axes.
- The track frame is readily assembled to form a rigid, well braced structure. Use of high quality materials and careful dimensioning of track sections has resulted in cutting inaccuracies being reduced to a minimum. In addition optimum positioning of the welded frames, which support the track rails, reduces the possibility of deflections even further.
- Precise travel using powerful motor/gearbox units in both longitudinal and transverse axes driving on hardened wheels. Rack and pinion final drive ensures positive and accurate motion in the transverse axes. Sufficient thrust is available to overcome all normal friction, thus ensuring precise tracing at a uniform travel speed, essential for high quality, accurate profiling.
- A high 'built in' tracing accuracy provides excellent performance.