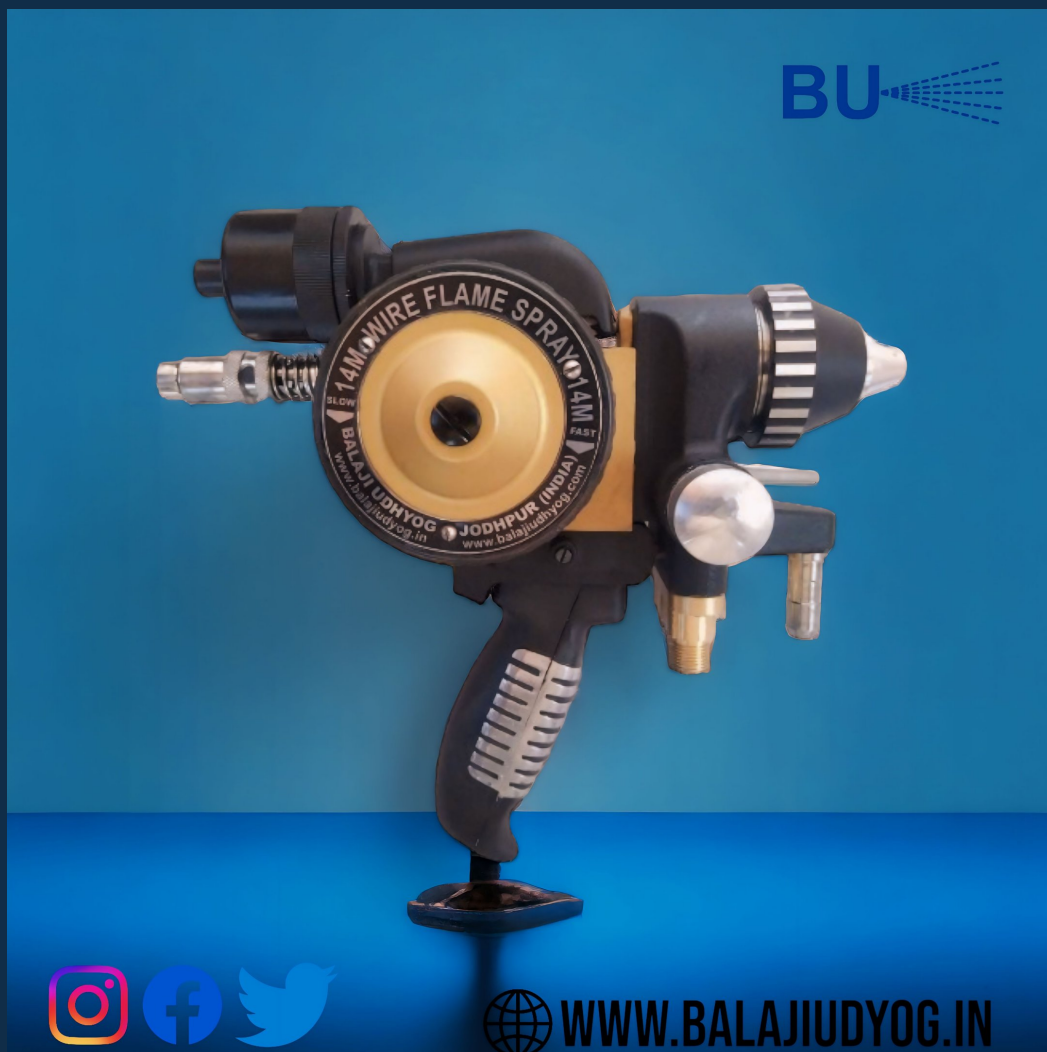


14M

Wire Flame Spray Torch

Operating and Maintenance Manual



INSTALLATION / OPERATION / MAINTENANCE / PARTS

For trained thermal spray operators and service personnel

GUIDE

Using this manual

A practical guide to the air-turbine-driven 14M torch, from installation and first checks to routine care and replacement-part identification.

Section	Page
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Before putting the torch into service

Read the safety sections first. Confirm the torch configuration, fuel gas, wire diameter and installed hardware against the approved job setup. Keep this manual available at the spray station.

Commissioning requirement

A competent person must approve the installation and the material-specific operating settings. Meter scale readings are instrument-specific. Confirm the matching meter and calibration before applying the reference data on pages 21–22.

This guide covers normal operation and routine maintenance. Internal gas-valve repair, turbine overhaul and modifications require qualified service personnel and the applicable assembly information.

01 SAFETY

Work safely before spraying

Thermal spraying produces hot particles, intense light, noise, fumes and metal dust. Oxygen and fuel gas introduce additional fire and explosion hazards.

Hazard	Required control
Fume and airborne dust	Use a thermal-spray booth with effective extraction. Select respiratory protection through the site exposure assessment and wire safety data sheet. Keep extraction operating during spraying.
Eyes and face	Wear suitable filtered eye protection and face protection for thermal spraying. Protect observers with screens and controlled access.
Heat and particles	Wear flame-resistant clothing, suitable gloves and safety footwear. Cover exposed skin; keep pockets and clothing free of combustible contamination.
Noise	Use suitable hearing protection. Measure exposure and restrict access to the operating zone.
Wire and moving parts	Keep hands, loose clothing, hair and tools clear of the drive rolls. Isolate the torch before adjustments that require access to moving parts.
Combustible dust	Use a collector designed for the metals being sprayed. Prevent dust accumulation. Do not use ordinary shop vacuums or disperse dust with compressed air.

Prepare the work area

- Remove combustible materials and protect hoses, cylinders and equipment from flame and overspray. Provide the site-approved fire response equipment.
- Secure the workpiece and maintain a clear escape route. Use the site hot-work procedure where applicable.
- Read the wire safety data sheet before use. Do not spray unknown materials, contaminated surfaces or sealed containers.

WARNING means a condition that can cause serious injury. CAUTION identifies a risk to equipment or coating quality. Follow both throughout this manual.

01 SAFETY

Gas safety and emergency response

Protect the gas supply

- Secure cylinders upright. Use regulators, hoses, flow meters and protective devices rated for the identified gas and required flow. Open cylinder valves slowly according to the gas supplier instructions.
- Keep oxygen equipment completely free of oil and grease. Never use oxygen for cleaning clothing, tools or the workplace.
- Fit suitable flashback arrestors and non-return protection in the locations specified by the gas-system supplier. Check flow capacity and pressure loss; do not bypass safety devices.
- Check connections using an approved oxygen-compatible leak-detection solution. Never test for leaks with a flame. Do not use damaged, kinked or contaminated hoses.

WARNING Acetylene pressure

Never exceed the lowest limit specified by the equipment supplier, gas supplier or applicable rules. In all cases, do not exceed 15 psig / 103 kPa gauge / 1.03 bar gauge. This is a ceiling, not an operating target.

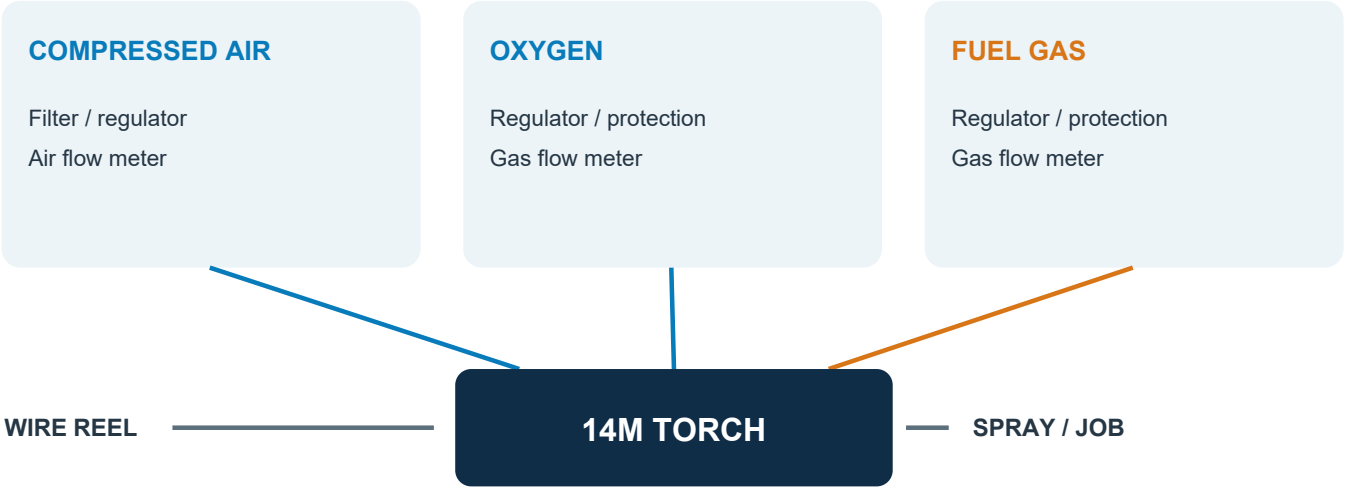
If this occurs	Immediate action
Pop, backfire, one-sided flame or burning inside the head	Shut off the torch immediately. Isolate supplies if safe, allow cooling and investigate. Do not repeatedly relight. A trained person must correct the fault and check for damage.
Gas leak, hose fire or suspected flashback	Stop work; isolate the gas at the supply only if safe. Raise the alarm and follow the site emergency plan. Evacuate if the supply cannot be isolated safely.
Cylinder heated by fire or suspected acetylene decomposition	Keep away, evacuate and call the emergency services. Do not move the cylinder or vent its contents.
Fume symptoms or extraction failure	Stop spraying, leave the exposure area and obtain assistance. Resume only after the cause is corrected.

Heat-damaged seals may leave hazardous residue. Do not touch charred or sticky seals with bare hands. Arrange trained handling and disposal; obtain urgent medical help after suspected exposure.

02 EQUIPMENT

System layout

The torch requires controlled supplies of compressed air, oxygen, fuel gas and metallizing wire.



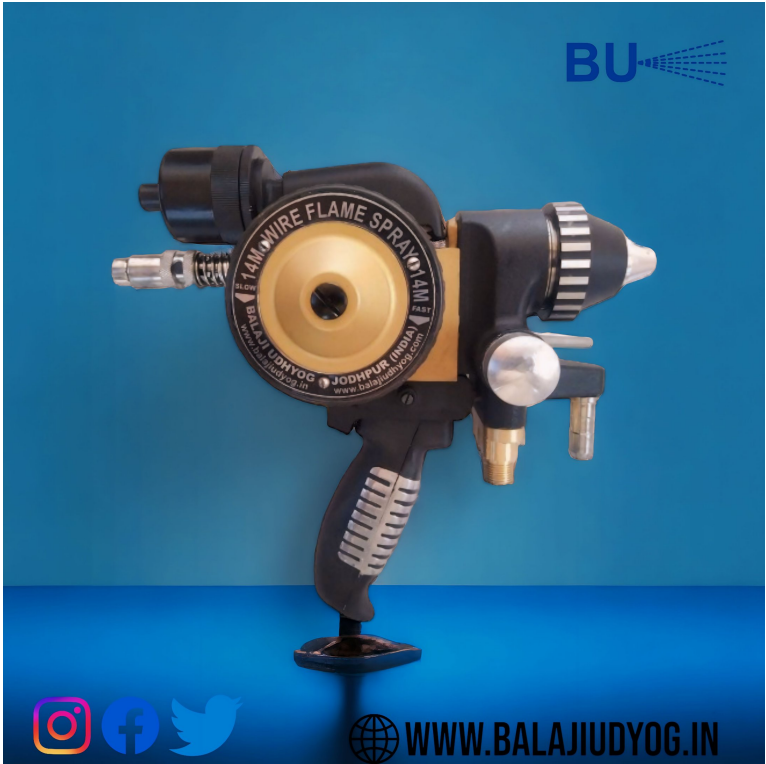
Functional arrangement only. Protective-device locations, connections and ratings must follow the approved installation design.

Equipment	Purpose
Air compressor and air control unit	Supply clean, dry air with sufficient free-air delivery under spraying conditions; remove condensate, oil and dirt.
Gas regulators and flow meter	Control pressure and monitor the matching oxygen and fuel-gas scale readings.
Air flow meter	Monitor atomizing air where specified by the system configuration.
Hose kit and protective devices	Provide gas-specific, secure connections and protection against reverse flow and flashback.
Wire reel stand and torch mount	Provide smooth wire payout and support the torch for the selected manual or machine-mounted application.

Package contents vary by order. Verify the supplied torch, meters, regulators, hoses, accessories and tools against the packing list.

02 EQUIPMENT

Know the torch controls



14M product photograph from balajiudyog.in. Hardware appearance may vary with the supplied configuration.

Control or assembly	Function and operator check
Gas-head valve handle	Controls the gases and air. Reference positions: OFF forward/horizontal; LIGHT at the intermediate detent; RUN fully up. Verify positions on the actual torch before use.
Speed-control ring	Changes turbine-governed wire-feed speed. Adjust for steady melting; do not use excess feed to compensate for incorrect gas flow.
Wire-feed thumb slide	Starts or stops wire feed. Confirm positive operation before lighting.
Wire-grip adjustment cap	Sets drive-roll pressure. Use only enough force for smooth feed; excessive pressure can flatten soft wire.
Rear guide and snubber	Guide the wire and resist withdrawal. The snubber must be in its operating position during start-stop spraying.
Air cap, nozzle and siphon plug	Must match the wire diameter and fuel gas. Keep jets, bleeder holes, seals and seating surfaces clean.

03 TECHNICAL PROFILE

Configuration and supply requirements

Item	Reference information
Process	Combustion wire flame spray; compressed-air atomization.
Wire drive	Self-contained compressed-air turbine with speed control and thumb-operated feed.
Standard wire setup	3.17 mm. Other sizes require the corresponding hardware.
Wire size capability	The supplied manual describes 1.6 mm to 4.76 mm with suitable components. Confirm availability and the complete conversion set.
Fuel selection	Oxygen with acetylene or propane/LPG, using the correct gas-specific components and approved setup.
Standard feed-speed range	Approximately 2–15 ft/min (0.61–4.57 m/min), as stated in the supplied manual. Confirm high-speed configuration separately.
Compressed air capacity	Supplied manual: minimum 33 CFM free-air delivery (approximately 0.93 m³/min) at approximately 4.4 bar. Size the supply for the actual chart pressure and total line losses.
Air supply at regulator	The source calls for approximately 5 bar while spraying. A no-flow pressure reading alone does not establish capacity.
Typical working distance	125–200 mm from nozzle to work surface; qualify for the material and job.
Mounting	Hand-held use or a compatible tool-post fixture for machine-mounted operation.

Match all four before use

Wire material + wire diameter + fuel gas + installed hardware. Changing any one of these requires checking the complete setup and the applicable operating data.

Pressure notation: historical source values expressed as kg/cm² are treated as kgf/cm². 1 kgf/cm² = 0.980665 bar. Do not confuse gauge pressure with absolute pressure.

03 INSTALLATION

Installation and pre-start checks

Arrange and connect the equipment

- 1. Place the torch and workpiece in a suitable spray area. Verify extraction, guards, work holding and access to shutoff valves. Mount the meters upright in a readable, protected position.
- 2. Secure cylinders and connect the correct regulators and protective devices. Keep hoses outside the spray path and protect them from heat, abrasion, sharp bends and vehicle traffic.
- 3. Identify each connection by its gas marking and specified fitting. The source describes right-hand air/oxygen and left-hand fuel connections; verify the actual supplied fittings. Never force an incompatible connector.
- 4. Position the wire reel so the wire approaches the rear guide as straight as practical. Set reel drag only high enough to prevent overrun. Use clean wire without kinks, corrosion or surface contamination.
- 5. Have a trained person carry out the specified individual line purge and leak checks in a ventilated area. Purge gases separately under the approved gas-system procedure. Never purge toward people or ignition sources.

Release to operate only when every check passes

Check	Pass condition
Configuration	Wire, nozzle, air cap, siphon plug, guides and drive parts match the approved setup.
Gas head	Nozzle nut and air-cap body secure; siphon plug seated; seals sound; controls move freely.
Wire feed	Smooth feed, correct grip pressure and functional snubber. No uncontrolled wire rollback.
Supplies	Correct gas identity, adequate flow capacity, no leaks and stable pressure under flow.
Work area	Extraction on; PPE in use; work secure; fire precautions and emergency access ready.
Job approval	Material-specific settings, meter identification and coating acceptance criteria recorded.

04 OPERATION

Initial adjustment and lighting

Only trained operators may light the torch. Complete page 08 and use the approved settings for the installed configuration.

WARNING Before ignition

Wire must be present in the nozzle and compressed air must be available to the gas head. Point the torch into the controlled spray area. Never light a torch with a leak, restricted flow or defective snubber.

Set up with the supplies controlled

1. With fuel and oxygen isolated, verify the air circuit and load the wire using the specified wire-release control. Keep hands away from the rolls. Confirm smooth wire feed using air only, then stop the feed.
2. Set the air pressure under flow. The source allows no more than approximately 0.69 bar (10 psi) rise when flow is stopped. A greater rise requires checking regulation or upstream restriction before proceeding.
3. Carry out the approved purge and initial gas adjustment procedure. Use the material-specific lighting pressures, then return the gas-head valve to OFF. Confirm wire feed is stopped and the snubber is active.

Lighting sequence for the standard 14M control

Step	Action
01	Have the approved spark lighter ready. Open the gas-head valve fully to RUN and pause about 3 seconds, as specified in the supplied 14M manual.
02	Move the valve to the intermediate LIGHT detent and operate the spark lighter in front of the nozzle.
03	As soon as the flame lights, immediately move the valve fully to RUN. Do not leave the torch burning at the lighting detent.
04	Allow a few seconds for turbine speed to stabilize, then start the wire feed with the thumb slide.
05	Readjust the gas regulators to the approved running flow-meter readings. Check steady melting and a stable spray before coating the job.

If ignition fails, shut off; do not allow unburned gas to accumulate. Ventilate and identify the cause before another attempt. Do not substitute a welding-torch lighting sequence for the 14M gas-head control sequence.

04 OPERATION

Spraying, pauses and shutdown

Control the coating

- Prepare the surface to the coating specification. Remove oil and contamination; produce the specified surface profile and keep the prepared surface clean and dry.
- Use the source working-distance range of 125–200 mm as a starting reference. Keep the spray directed toward the surface with consistent distance and overlapping, controlled passes.
- Adjust wire speed for a steadily melting tip without spattering or unmelted wire. The source describes about 5 mm wire projection as typical; the actual value depends on material and process.
- Monitor substrate temperature and coating thickness. Use the approved cooling method and limits. Small parts and thin sections can overheat quickly.

Brief pauses

Use the wire-feed control to stop feed only as trained for the configured torch. Keep the rear snubber in its operating position so the wire cannot pull back through the hot nozzle. Shut the torch off for longer interruptions or abnormal behaviour.

WARNING Wire rollback

Never use a plain rear guide without a snubber for start-stop spraying. If wire withdraws from the nozzle, flame can escape through the rear guide. Stop and isolate the torch before correcting the fault.

Normal shutdown

1. Turn the gas-head valve fully OFF to extinguish the torch. Put the wire-feed thumb slide in OFF. Do not withdraw the wire while the flame is present.
2. For an extended stop or unattended equipment, close the oxygen and fuel supplies and isolate compressed air. Relieve downstream pressure and release regulator loading in the order specified by the regulator and gas-system supplier.
3. Confirm gauges show zero, controls are OFF and the torch has cooled. Keep extraction running for the site-specified clearance period. Inspect, clean and store the equipment safely.

05 CHANGEOVER

Changing wire size or fuel gas

Isolation first
Extinguish, close supplies, depressurize, prevent re-energization and allow the torch to cool before removing hardware. Work on a clean bench away from metal dust.

Change	Items that must be checked
Wire diameter	Nozzle, front guide, rear guide/snubber, upper and lower drive rolls, lower drive gear and air cap.
Fuel gas	Gas-rated regulator, hose and meter; nozzle; siphon plug; air cap; seals and approved operating parameters.
Standard to high-speed drive	Correct matched turbine-worm and countershaft-gear configuration. Conversion is a qualified-service task.
Frequent start-stop work	Functional snubber and the approved nozzle/air-cap arrangement for the wire and duty.
Extension attachment	Approved extension for the torch and fuel, correct assembly and dedicated operating instructions. Do not assume standard-head settings apply.

Return to service

1. Verify component markings and inspect the nozzle bore, gas jets, air passages and all seals. Replace damaged items with the correct parts.
2. Assemble without forcing parts. Confirm the siphon-plug locating slots engage the gas-head pins and its flange sits firmly against the head.
3. Secure the nozzle nut and air-cap body as specified; the source describes firm hand tightening. Apply only the approved lubricant, in the specified locations.
4. Confirm smooth wire passage and feed. Carry out the required leak and function checks, then make a controlled trial coating before releasing production.

Acetylene and propane nozzles differ. The source describes a flat small end for acetylene and a counterbored small end for propane, but identification by markings and part specification takes precedence.

06 MAINTENANCE

Routine maintenance schedule

Intervals below follow the supplied 14M manual for continuous spraying under average conditions. Shorten intervals for heavy duty, frequent lighting or hot and dusty conditions.

Interval	Task	Method or limit
8 hours	Clean torch exterior, drive rolls and air cap	Remove loose deposits; brush the roll teeth and wipe soot. Use approved dust collection.
16 hours	Clean nozzle jets	Use the correct cleaning-wire kit. Never use drills or enlarge holes.
40 hours	Clean siphon-plug jets and bleeder holes	Use correctly sized cleaning wires; inspect seals and seating faces.
40 hours	Upper drive-roll bushing and carrier hinge	Source specifies 2 drops and 1 drop of machine oil respectively. Confine oil to these mechanical points; keep it away from all oxygen parts.
40 hours	Turbine-cover bearing	Source specifies a 6 mm strip of approved gear lube. Do not over-lubricate.
80 hours	Check gearcase lubricant level	Top up with approved gear lube. With torch upright and level, lubricant should be visible in the lower half of the sight plug.
200 hours	Brake disc and shoe; control-ring thread; grip/cam parts	Clean brake surfaces and keep them dry. Lubricate the other specified points under the service procedure.
500 hours	Gas-head valve inspection and lubrication	Qualified service; use approved valve lubricant in a thin film. Inspect immediately if stiff or leaking.
1000 hours	Complete overhaul	Qualified service; clean, inspect and renew worn parts and lubricants as required.

Before every maintenance task

Isolate and depressurize all supplies. Let the torch cool. Remove exterior dust before opening assemblies. Keep lubricant containers and tools clean.

Record operating hours and completed work. Inspection findings take priority over the hour interval; do not continue operating a leaking or malfunctioning torch.

06 SERVICE

Cleaning and service practices

Nozzle and siphon plug

Remove deposits without changing the geometry of the jets or seating surfaces. Pass the correct cleaning wire straight in and out; do not rotate it or substitute a drill. Check the small siphon-plug bleeder holes, which help prevent overheating and wire sticking.

Use only cleaning agents approved for the component and oxygen service where applicable. Do not soak O-rings in solvent or stretch them unnecessarily. Replace cut, swollen, hardened or heat-damaged seals. Keep lubricant out of gas jets.

Drive rolls and wire path

Brush chips from the drive-roll teeth. Check for worn rolls, tight reel drag, kinked wire and incorrect guide sizes before increasing grip force. Excess force can flatten soft wire and overload bearings and gears.

Lubrication rules

Location	Rule
Gearcase	Use approved gear lube. Keep the torch upright and level; allow the lubricant to settle before checking the sight plug. Do not overfill.
Turbine-cover bearing	Use only the specified amount of gear lube. Excess can contaminate the governing mechanism.
Gas-valve seals and sliding surfaces	Use only manufacturer-approved oxygen-compatible valve lubricant; apply a thin film at the specified locations.
Turbine brake disc and shoe	Run dry. No grease or oil. Contamination can cause erratic wire speed.
Air-cap body and nozzle-nut threads	Use approved valve lubricant only as specified for the torch; keep it away from jets and gas passages.

Leave precision assemblies to qualified service

Do not dismantle the factory-balanced turbine rotor or brake-disc assembly. Do not disturb the aligned pump housing or pressed-in housing dowels. Lower drive-roll and drive-gear threads are left-handed; use the proper tool rather than force.

After service: verify correct assembly, free control movement, leak tightness and steady air-only feed, then carry out a controlled spray trial.

07 FAULT FINDING

Troubleshooting

Stop and isolate the torch before opening it or correcting a mechanical or gas-path fault.

Symptom	Likely checks	Corrective action
Difficult ignition	Wrong setup; dirty jets; blocked bleed ports; restricted hose or regulator	Verify fuel and hardware. Have passages, hoses and supply capacity inspected; clean or replace defective parts.
Backfire or one-sided flame	Nozzle seal leak; damaged or dirty jets; blocked siphon bleeders; wrong air cap	Shut off immediately. Allow cooling, isolate and inspect. Correct the cause and check heat damage before relighting.
Wire slips or stops	Roll chips or wear; excessive reel drag; kinked wire; wrong guide; insufficient grip	Clean rolls, correct payout and replace unsuitable wire/parts. Use only the grip force needed for steady feed.
Wire jams in nozzle	Overheated or damaged nozzle; blocked bleeders; flattened or bent wire	Stop, isolate and cool. Inspect nozzle and wire path. Clear the fault without damaging the bore.
Unstable wire speed	Air pressure fluctuation; contaminated turbine brake; worn drive parts	Check air under flow and filters. Have brake surfaces cleaned dry and drive components inspected.
Spatter or coarse spray	Feed too fast; poor atomizing air; mismatched gas flow or hardware	Check the complete approved setup. Adjust feed within the qualified process window and make a test spray.
Poor adhesion	Dirty or insufficiently prepared surface; wrong technique; unsuitable material	Recheck surface preparation and coating specification. Correct the process and requalify on a test piece.
Overheating	Excess dwell; incorrect gas/air conditions; too little cooling	Stop and inspect. Restore qualified settings, pass pattern and temperature control.
Stiff valve or gas leak	Worn seals; contamination; damaged valve components	Remove from service. Qualified personnel must repair and leak-test before use.

Do not increase pressure beyond equipment limits to compensate for blocked hoses, incorrect parts or unstable feed. If a fault repeats, contact Balaji Udyog with the torch configuration and symptoms.

08 HARDWARE

Wire-guide and drive-roll selection

Reference combinations from the supplied 14M manual. Confirm the ordered configuration and physical part markings before fitting.

Component	3.17 mm wire	4.76 mm wire
Front wire guide	14M-23-3.17	14M-23-4.76
Rear guide and snubber	14M-118-3.17	14M-118-4.76
Plain rear guide	14M-24-3.17	14M-24-4.76
Upper drive roll	14M-32-3.17	14M-32-4.76
Lower drive roll	14M-35-3.17	14M-35-4.76
Lower drive-roll gear	14M-36-3.17	14M-36-4.76
Upper drive-roll gear	14M-33	14M-33

WARNING Start-stop duty

The plain rear guide is not suitable for start-stop operation. Use the correct guide and functional snubber assembly.

Siphon-plug families

Part reference	Description
14M-2-5	Acetylene siphon plug for large-wire configurations
14M-2-7	Acetylene siphon plug for small-wire configurations
14M-2-6	Propane/LPG siphon plug for large-wire configurations
14M-2-8	Propane/LPG siphon plug for small-wire configurations

The large-wire/small-wire descriptions do not by themselves establish an exact diameter assignment. Confirm the nozzle, siphon plug and air-cap combination for the actual wire. Obtain a complete selection sheet for sizes not listed above.

08 PARTS

Gas-head and nozzle parts

Ordering reference only. Specify 14M, fuel gas, wire diameter and installed hardware when requesting replacement parts.

Part reference	Description
14M-1	Air-cap body
14M-5	Gas-head assembly
14M-15	Gas-head body
14M-43	Valve core
14M-44	Small valve-core O-ring
14M-45	Valve handle
14M-165 / 166	Fuel/oxygen plunger / air plunger
14M-167 / 169	Air-plunger O-ring / air-plunger seal O-ring
14M-168 / 170	Fuel/oxygen plunger O-ring / seal O-ring
14M-171	Plunger spring
14M-173 / 174	Detent pin / detent-pin spring
14M-176	Hose connection block
14M-179	Valve-core stop screw
14M-184	Gas-head valve O-ring package
14M-6	Wire-nozzle nut
14M-7A	Wire nozzle; specify wire diameter and fuel gas
14M-108 / 109	Large / small nozzle O-ring
14M-14	O-ring used in the valve core, siphon plug and countershaft plug
14M-3-EA / EC / C	Air-cap references appearing in the acetylene chart

See the gas-head exploded view on page 19. Do not select a seal by dimensions alone: gas compatibility, material and the correct assembly application are essential. Confirm the matching manufacturer selection data.

08 PARTS

Wire-feed and drive parts

Part reference	Description
14M-27	Gun handle
14M-28	Gun-handle screw
14M-129	Wire-feed valve shaft seal O-ring; also listed in the grip mechanism
14M-131	Valve shaft assembly
14M-132	Valve shaft spring
14M-133 / 134	Cam-follower screw / cam-follower O-ring
14M-250	Wire-feed valve block
14M-206	Wire-grip cylinder support block
14M-207 / 208	Wire-grip piston / piston O-ring
14M-209	Cylinder cap
14M-138	Piston rod
14M-293	Piston stop screw
14M-30	Drive-roll carrier pivot pin
14M-136	Drive-roll carrier assembly
14M-37	Upper drive-roll axle
14M-25 / 26	Rear-guide set screw / upper drive-roll axle screw
14M-65 / 66	Drive shaft / drive-shaft gear
14M-68 / 69	Drive-shaft seal / right drive-shaft bearing
14M-241 / 242 / 243 / 245	Snubber spring retainer / roller / spring housing / spring

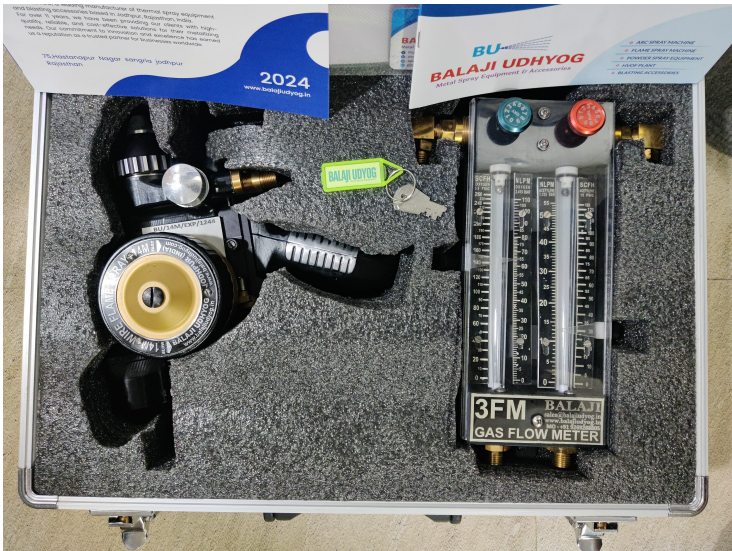
Identify before ordering

See the wire-drive exploded view on page 20. Send a clear photograph of the old part and its assembly location. Size-dependent guides, rolls and gears are listed on page 15. Confirm compatibility before ordering.

08 PARTS

Service items and supplied accessories

Part reference	Description
14M-100	Socket wrench
14M-101	Spark lighter
14M-102	2 mm Allen key
14M-104	Drive-roll tool
14M-105	Screwdriver
14M-107	Wire cutter
14M-107A / 107B	13–17 / 19–22 spanner
14M-110	Gear lubricant
14M-111	Valve lubricant
14M-114	Cleaning-wire kit
14M-140	3 mm Allen key
14M-124	Tool-post fixture assembly

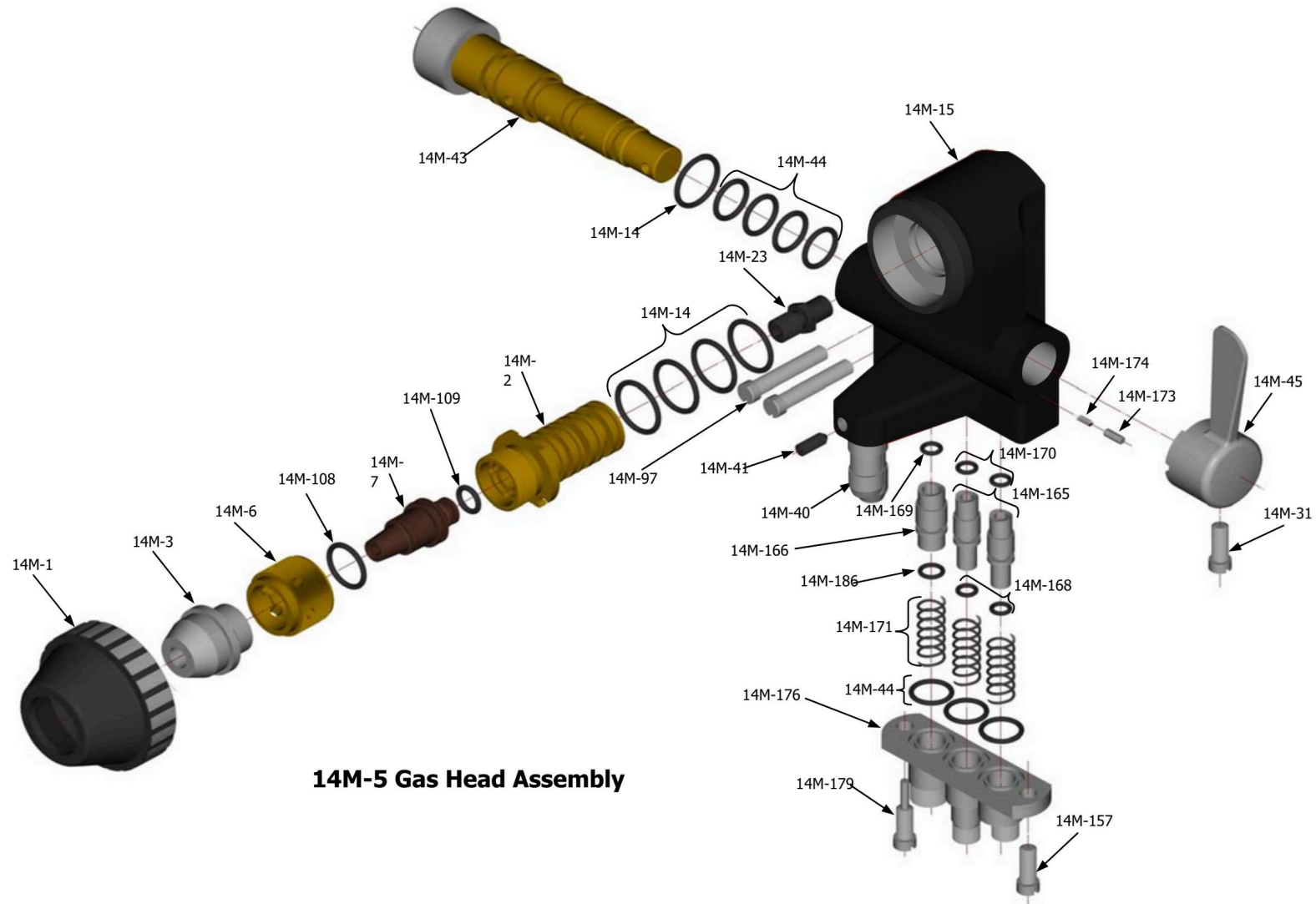


Example 14M torch and gas-flow-meter packing arrangement from the supplied Balaji Udyog photo library. Supplied contents depend on the order.

Use only the specified lubricant grade and compatible replacements. Ask for the current supply specification when replenishing service items.

Gas head assembly

08 PARTS / EXPLODED VIEW

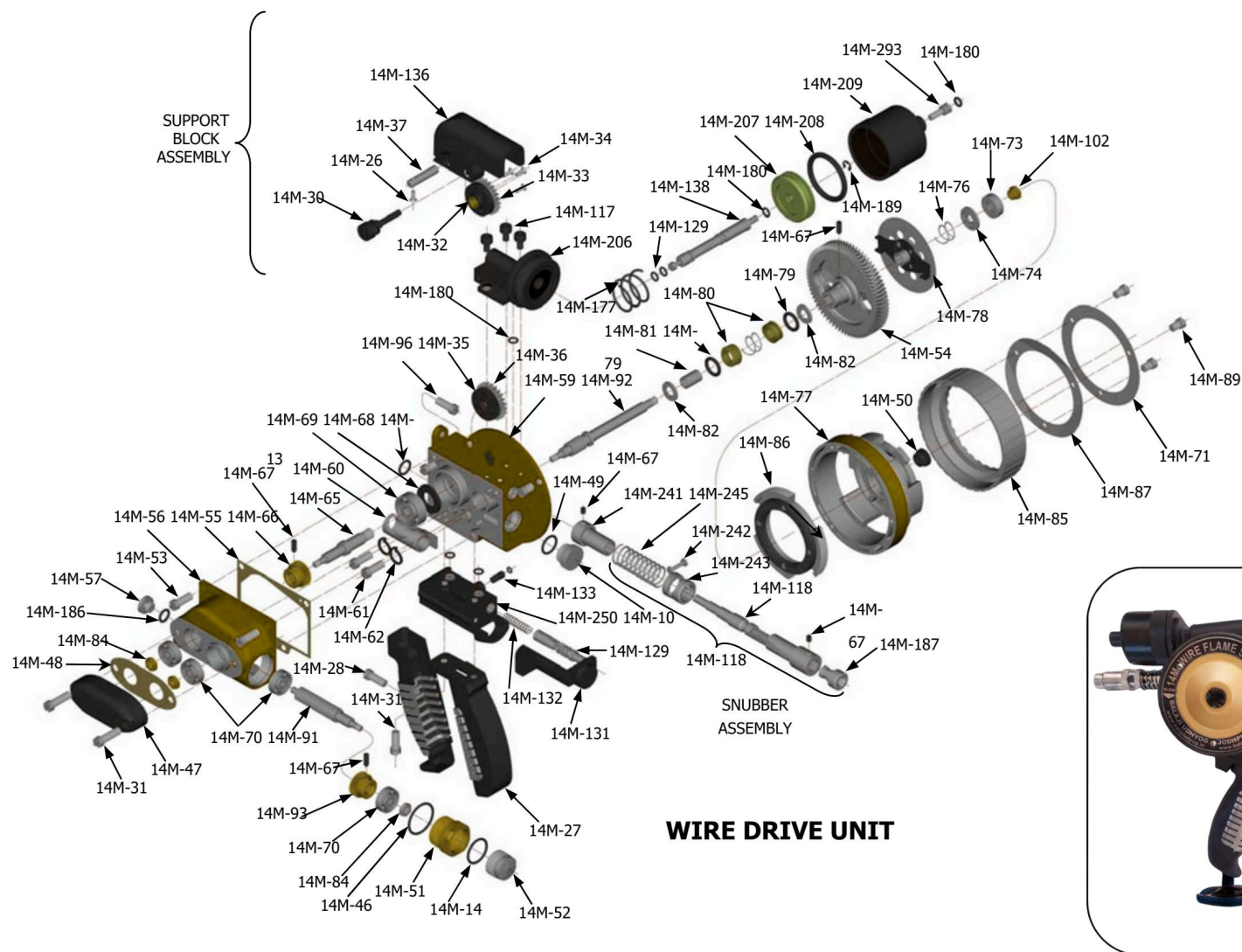


Original part callouts retained. Confirm part number, torch revision and configuration before ordering or service.

Drawing source: supplied 14M exploded-view catalogue

Wire-drive assembly

08 PARTS / EXPLODED VIEW



WIRE DRIVE UNIT



Original part callouts retained. Confirm part number, torch revision and configuration before ordering or service.

Drawing source: supplied 14M exploded-view catalogue

09 SETUP DATA

Acetylene reference settings

Selected 3.17 mm entries from the supplied manual, physical pages 56–57. These are reference starting data; release the job only after matching hardware and meter calibration are confirmed.

Read the units correctly

Pressures below are source values in kgf/cm² gauge. O₂ and fuel readings are the original flow-meter scale values, not L/min. Set lighting pressure before ignition; check running scale readings while spraying.

Wire	Cap / gear	O ₂ / fuel / air pressure	O ₂ / fuel scale	Wire kg/h
Aluminium	EC / STD	2.07 / 1.03 / 4.83	43 / 40	5.4
Brass	EC / STD	2.07 / 1.03 / 4.83	44 / 40	10.9
Copper	EC / STD*	2.07 / 1.03 / 4.83	44 / 40	10.9
Molybdenum	EC / STD	2.41 / 1.03 / 3.79	50 / 35	3.4
Pure nickel	EC / STD	2.07 / 1.03 / 4.83	44 / 40	3.6
Zinc	EC / STD*	2.07 / 1.03 / 4.83	45 / 40	14.5
Zinc	EC / HIGH	2.07 / 1.03 / 4.83	45 / 42	20.4
Zinc/aluminium	EC / STD	2.10 / 1.03 / 4.83	45 / 40	11.3

* STD follows the grouped standard-gear entry in the source table. Confirm the installed gear set. Wire consumption is an optimum reference rate, not a guaranteed deposited-coating rate.

Check before using these values

- 1.03 kgf/cm² is approximately 1.01 bar or 14.65 psi. Confirm this is within the actual acetylene system rating and gas-supplier limits; page 04 gives the absolute ceiling.
- Verify the meter model, gas-specific tube, scale and calibration pressure. If these are unknown, obtain a matching parameter sheet before operation.
- Use trial spraying to establish feed, distance, traverse and temperature limits. Record the accepted setup on page 23.

The separate lighting-flow table is not reproduced because its acetylene pressure differs from the performance-chart value. Obtain an approved lighting-flow sheet for the installed system.

09 SETUP DATA

Propane reference settings

Selected 3.17 mm entries from the supplied manual, physical pages 58–59. Use the propane/LPG nozzle and siphon-plug configuration and the correctly calibrated gas meter.

Fuel identity and calibration

Fuel columns below refer to propane, following the source table heading. Pressure values remain in kgf/cm² gauge. Scale readings are instrument-specific and must not be interpreted as volumetric flow units.

Wire	Cap / gear	O ₂ / fuel / air pressure	O ₂ / fuel scale	Wire kg/h
Aluminium	EC / STD*	3.45 / 2.76 / 4.83	72 / 33	5.4
Brass	EC / STD	3.45 / 2.76 / 4.83	68 / 33	11.8
Copper	EC / STD*	3.45 / 2.76 / 4.83	68 / 33	11.3
Pure nickel	EC / STD	3.79 / 3.45 / 4.83	68 / 36	3.6
Zinc	CH / STD*	3.45 / 2.76 / 4.83	68 / 34	14.5
Zinc	CH / HIGH	3.45 / 2.76 / 4.83	68 / 34	20.4
Zinc/aluminium	CH / STD	3.45 / 2.76 / 4.83	68 / 34	11.5

* STD follows the grouped standard-gear entry in the source table. Confirm availability and exact identification of the CH air cap before ordering or fitting.

Process approval

A gas change requires more than a regulator adjustment. Verify gas-rated hoses, regulator capacity, flashback protection, meter calibration, nozzle, siphon plug and air cap as a complete system.

The operating table is not a guarantee of coating quality or consumption. Actual results depend on the wire grade, equipment condition, job geometry, preparation, operator technique and overspray.

For other materials or diameters

Obtain a manufacturer-confirmed parameter sheet. Do not interpolate between wire diameters or copy settings from another torch model. Ambiguous grouped rows, inconsistent rates and unreadable build-up values have not been used here.

For cost estimates, measure actual wire use and elapsed spray time on a representative trial. Include surface preparation, masking, gas, air, finishing, inspection and overspray losses.

10 WORKSHOP RECORD

Job setup and inspection record

Complete this sheet for the approved coating job. Keep it with the work order and repeat qualification after a material, hardware or fuel change.

Record	Details
Job / work order	_____
Torch serial / configuration	_____
Operator / supervisor	_____
Wire material / batch / diameter	_____
Fuel / regulator / protection	_____
Gas meter model / calibration	_____
Nozzle / siphon plug / air cap	_____
Guides / rolls / gear set	_____
Air under flow / air-meter reading	_____
O2 and fuel lighting pressures	_____
O2 and fuel running scale readings	_____
Feed / distance / traverse	_____
Preparation / profile / cleanliness	_____
Target thickness / temperature limit	_____
Trial and acceptance results	_____
Approval / operating hours	_____

Pre-start: ☐ Leak check passed ☐ Extraction ready ☐ PPE ready
☐ Snubber working ☐ Feed stable ☐ Correct hardware ☐ Work secure

End of work: ☐ Torch OFF ☐ Supplies isolated ☐ Pressure relieved
☐ Cooled and cleaned ☐ Defects reported ☐ Maintenance recorded

11 SUPPORT

Service support and references

Balaji Udyog

Plot No. 75, Hastinapur Nagar, Sangria
Jodhpur, Rajasthan 342013, India
Phone: +91 92692 88805 / +91 92564 88805
Email: support@buspray.com
Web: buspray.com / balajiudyog.in

For service, send the 14M configuration, wire diameter and material, fuel gas, installed nozzle/air cap, meter details, pressure and flow readings, operating hours and clear photographs of the affected part.

Product video



Scan to open the supplied 14M video

youtube.com/shorts/u9VFZgCs3YA

Use as a visual reference alongside the approved operating procedure.

Technical and image references

Primary equipment reference: supplied 14M FLAME SPRAY MANUAL (2).pdf, 59 pages. Equipment and operation: pp. 15–21; construction and parts: pp. 22–44; care and maintenance: pp. 45–49; selection and performance data: pp. 55–59. Page numbers refer to physical PDF pages.

Exploded assembly drawings: supplied 14m explode viwe (2).pdf, physical pages 1 and 5. Gas-head and wire-drive illustrations retain the original part callouts; confirm catalogue revisions and component compatibility before use.

Company information and imagery: balajiudyog.in/wire-flame-spray-gun; [Buspray 14M complete-set listing](#); supplied Balaji Udyog product-photo library.

Supplementary gas-safety references: [OSHA 29 CFR 1910.253](#) (acetylene pressure and oxy-fuel safety); [HSE HSG139](#) (compressed-gas protective devices); [HSE Safe use of acetylene](#) (heated-cylinder response). Apply the rules and equipment limits relevant to the installation.

Keep with the equipment

Use the approved job setup and current supplier instructions for the specific torch configuration. Report unresolved setting, part-number or compatibility questions before operation.