



ALIGNMENT SYSTEMS

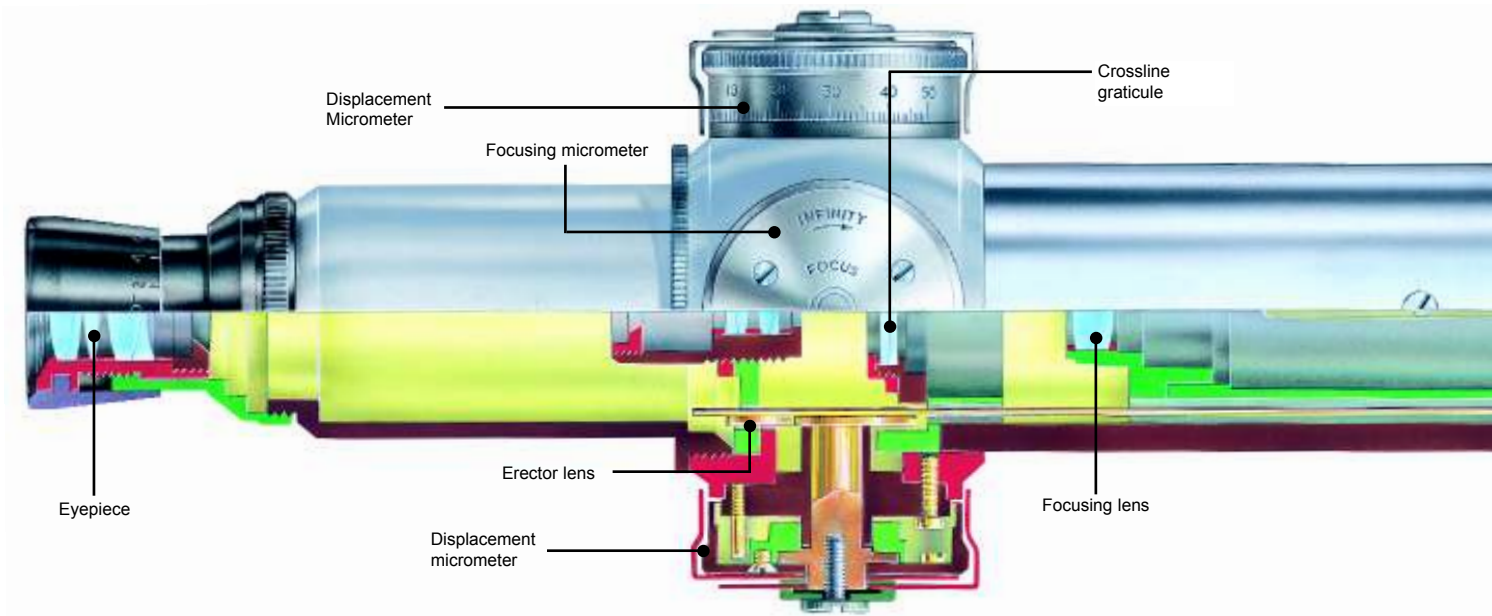


FOR CHECKING AND SETTING,
STRAIGHTNESS, ALIGNMENT,
VERTICALITY, PARALLELISM,
SQUARENESS AND LEVEL

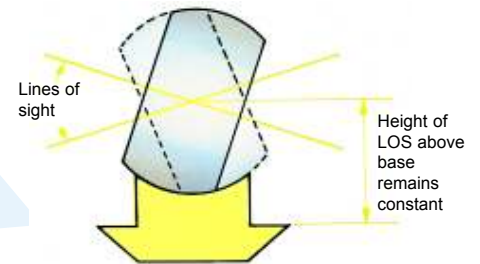


■ SOLVING PROBLEMS OF ALIGNMENT

The Micro Alignment Telescope



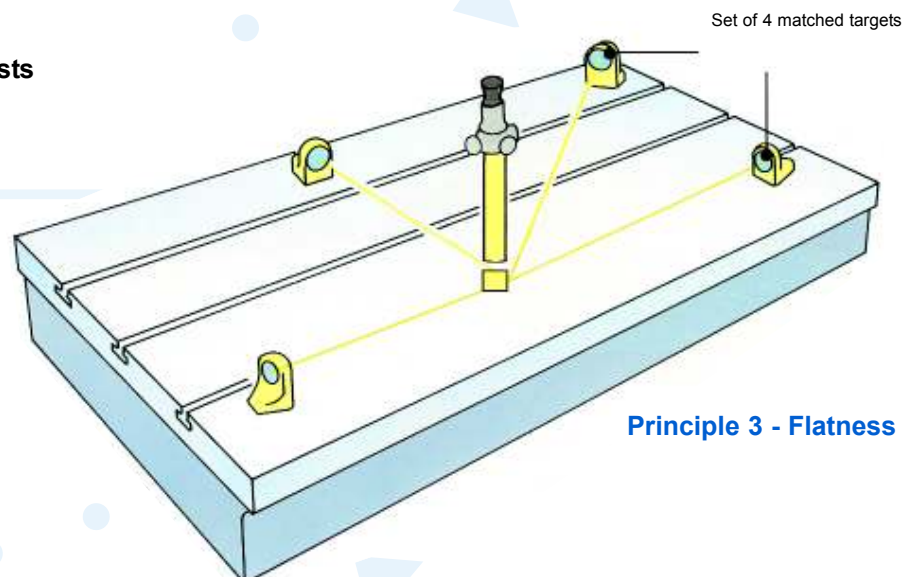
Since the late 1930's Taylor Hobson has sold thousands of Alignment Telescopes to industries throughout the world. The Micro Alignment Telescope is used to set and check alignment, squareness, straightness, flatness, parallelism, verticality and level. With its wide range of accessories the Micro Alignment Telescope forms a unique and comprehensive system for solving alignment problems in a wide variety of applications. The Micro Alignment Telescope system:



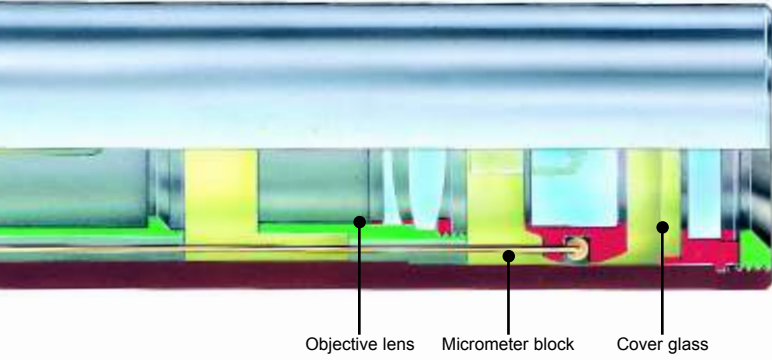
- Is simple and easy to use
- Is versatile and adaptable
- Enables improved product performance
- Enables reliable, accurate installation
- Reduces warranty and maintenance costs
- Is robust and reliable
- Is portable

The Micro Alignment Telescope has:

- Optical and Mechanical axes aligned to within 3 seconds and concentric within $6\mu\text{m}$ (0.00025in)
- Achievable accuracy within 0.05mm at 30m (0.002in at 100ft)
- Field of view: 50mm at 2m (2in at 6.5ft)
600mm at 30m (24in at 100ft)



Principle 3 - Flatness



Alignment of a refuelling system in the nuclear power industry.

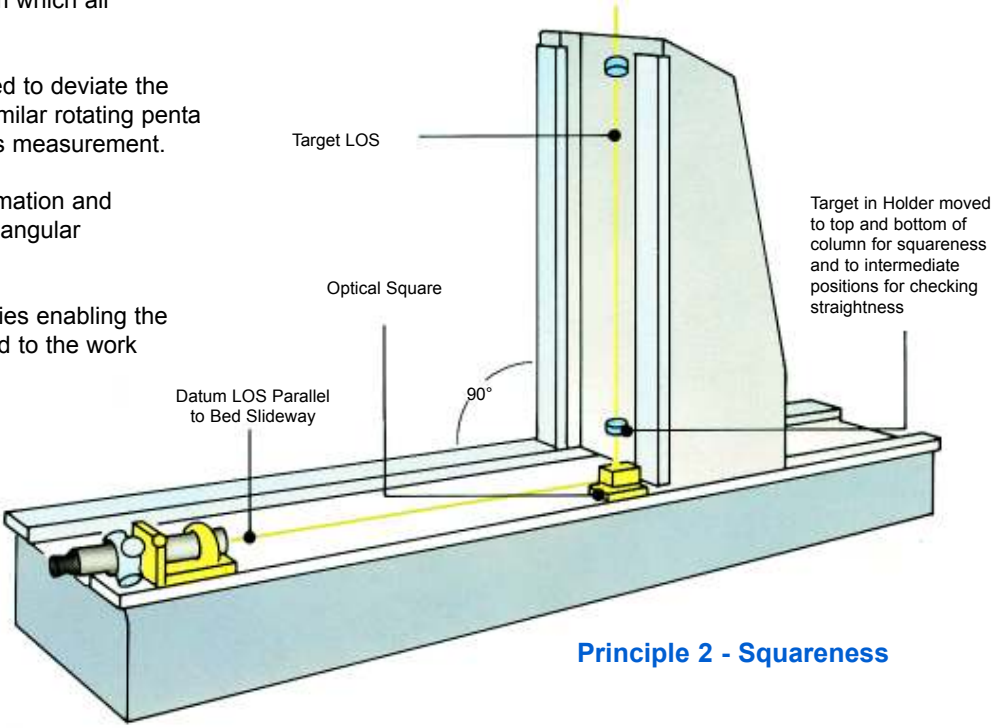
PRINCIPLES OF ALIGNMENT

The basic measurement principles available with the Micro Alignment Telescope System are Alignment, Squareness, Flatness, Autocollimation and Autoreflexion. The Micro Alignment Telescope generates a straight line of sight from zero to infinity. This forms the basic reference from which all measurements are taken.

To measure squareness a penta prism is used to deviate the straight line through exactly 90 degrees. A similar rotating penta prism is used to generate a plane for flatness measurement.

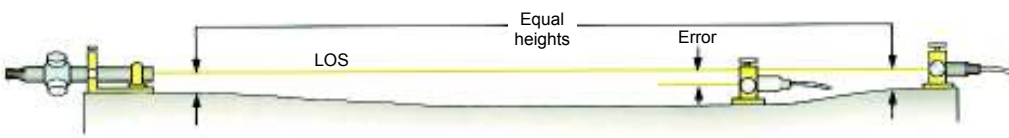
The Telescope is designed to allow Autocollimation and Autoreflexion, providing for squareness and angular measurement using reflective Mirror Targets.

There is a comprehensive range of accessories enabling the Telescope, Targets and Prisms to be mounted to the work concerned.



Principle 2 - Squareness

Principle 1 - Alignment



ENGINEERING APPLICATIONS

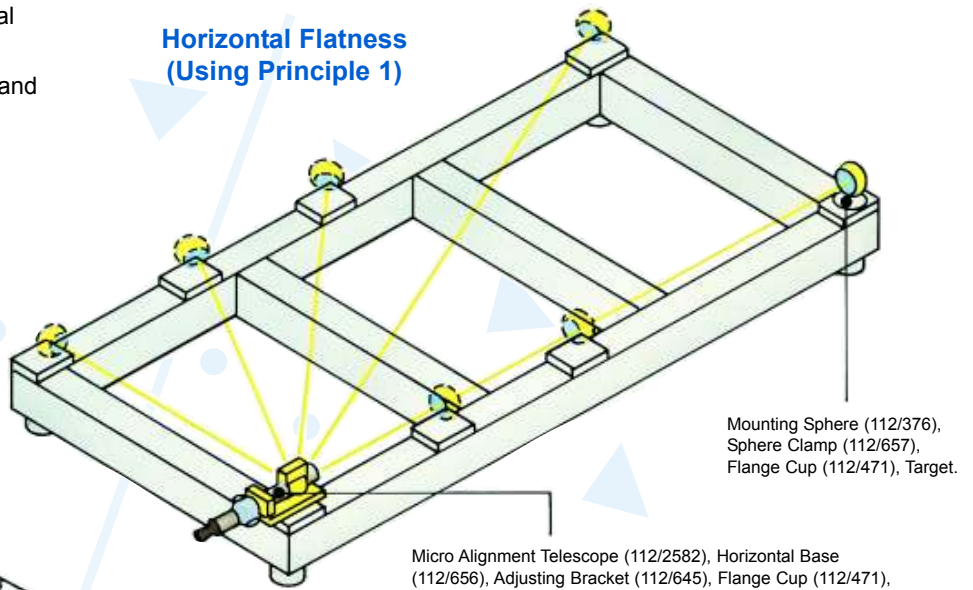
Typical applications for which the Micro Alignment Telescope is being successfully used are:

- Bore alignment checks
- Machine tool straightness and alignment checks
- Turbine installation and maintenance
- Flatness checking and setting of bed plates
- Shipbuilding repair and maintenance
- Weapon systems alignment and harmonisation
- Alignment of rollers of process machinery
- Aircraft jig setting and control
- Tool alignment of large boring machines
- Compressor installation and maintenance
- Main bearing alignment of large engines
- Railway equipment assembly and set-up
- Earthmoving machinery and general equipment alignment
- Portable machining system set-up and monitoring.

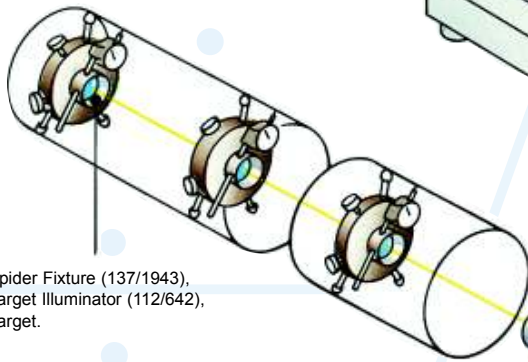


Checking Aircraft jigs with Micro Alignment Telescope

Horizontal Flatness (Using Principle 1)



Mounting Sphere (112/376),
Sphere Clamp (112/657),
Flange Cup (112/471), Target.



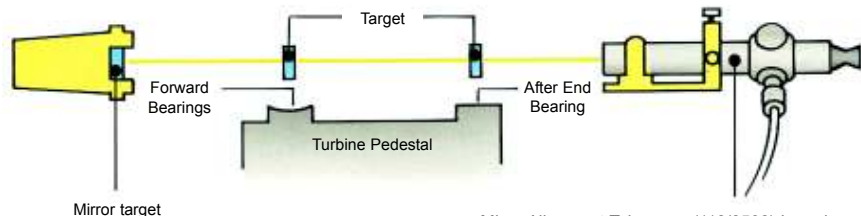
Spider Fixture (137/1943),
Target Illuminator (112/642),
Target.

Tube Alignment (Using principle 1)



Micro Alignment Telescope (112/2582), Adjusting
Bracket (112/645), Bore Fixture (112/1168), Mounting
Sphere (112/376), Right Angle Eyepiece (112/568).

Alignment using Autoreflexion



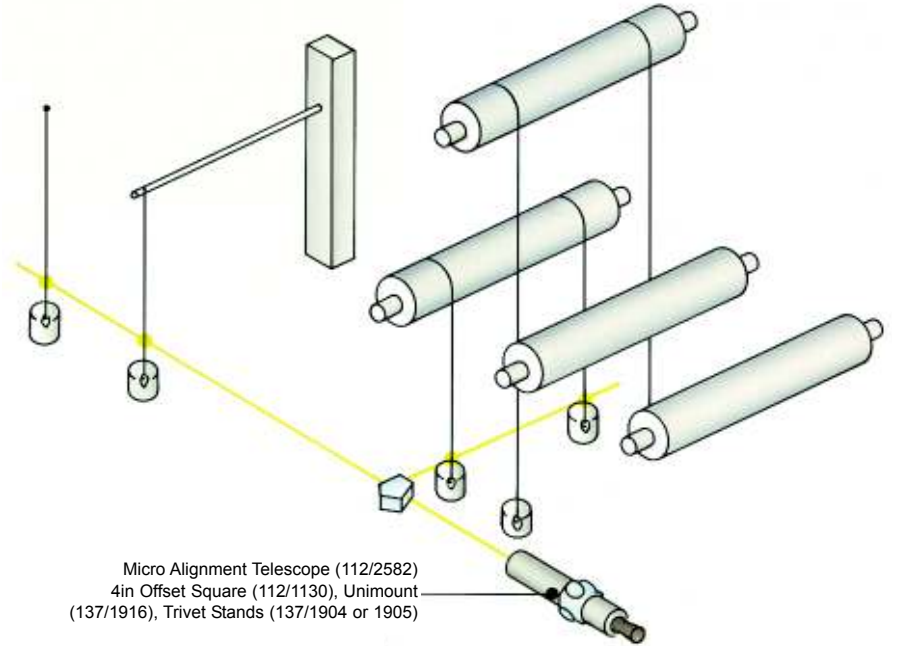
Mirror target

Micro Alignment Telescope (112/2582) Lamphouse (112/1365),
Horizontal Base (112/656), Adjusting Bracket (112/645) Mounting
Sphere (112/376), Adjustable Height Cup (112/849), Targets.

SOME TYPICAL APPLICATION AREAS

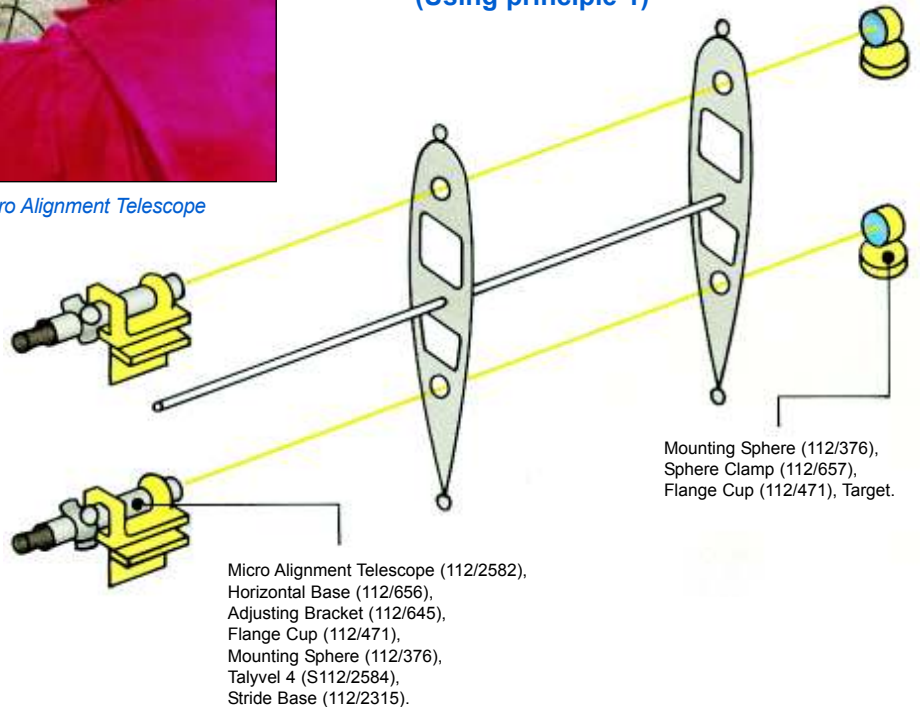
- Aircraft assembly jigs
- Satellite testing
- Steam and gas turbines
- Marine propulsion machinery
- Printing presses
- Air compressors
- Cranes
- Diesel engines
- Nuclear reactors
- Coal conveyors
- Shipbuilding and repair
(Civil and Military vessels)
- Rolling mills (steel, paper, sugar etc.)
- Rod and wire mills
- Extruder barrels
- Civil engineering projects

Squareness with plumbelines (Using principle 2)



Aligning diesel engine bearings using CCTV and Micro Alignment Telescope

Alignment - removing twist (Using principle 1)



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