Position Title: Laser Technician  
Department: Operations & Infrastructure  
Incumbent: 
FLSA Status: Non-Exempt  
Reports To: Instruments and Optics Supervisor  
Job Code: 
Supervises: N/A  
Date: April 6, 2014

Summary
Under the general supervision of the Instruments and Optics Support Supervisor, this position is primarily responsible for technical support of the laser systems on the summit. It is expected that the incumbent will participate as a member of the team that supports all Laser systems, instrumentation and optical systems on the summit which may include adaptive optics, telescope optics and facility instruments.

Essential Functions
- Participate in the maintenance and operation of the existing dye laser system and solid-state laser systems as well as future laser systems.
  - Provide on-call support of the laser system in support of astronomical observations.
  - Maintain optical components and replace consumables and/or faulty components and assemblies, such as flash lamps, diodes, amplifiers, crystals, rods, and other parts.
  - Ensure proper optical alignment of laser subsystems as well as alignment of laser to telescope and adaptive optics systems.
  - Troubleshoot lasers when failures occur including optics, mechanical stages, shutters, calorimeters, sensors, mechanical pumps, temperature control, flow control and programmable logic controller.
  - Maintain laser safety system and ensure laser safety standards are met.
  - Assist with characterization and analysis of laser performance. Participate in testing and integration of future laser systems.
- Participate in the technical support of instruments and optical systems including, but not limited to activities such as fabrication, installation, optical alignment, calibration, testing, maintenance, troubleshooting to and repair so that they are in good operating condition, available for observing and safe.
  - Primary Responsibilities:
    - Operational laser systems at both Keck I and Keck II Telescopes
    - Testing and integration of new laser systems under development
  - Secondary Responsibilities:
    - Adaptive Optics
    - Telescope optics
    - Facility/engineering instruments
    - Telescope control system
- Update, maintain and organize documentation including, but not limited to, schematic diagrams, wiring diagrams, maintenance logs and instruction manuals.
- Participate in the maintenance of telescope optics, including participation in optics cleaning, re-coating, segment exchange, alignment, warping and repair.
- Keep supervisor informed of progress, problems and concerns related to the observatory; provide status reports as required.

Additional Responsibilities
- Under the guidance of the supervisor and the Summit Lead, collaborate with other summit technicians to create an efficient, effective and unified work environment based on the principles of teamwork and mutual responsibility for shared objectives.
- Drive WMKO vehicles as necessary to transport employees to and from the summit in a safe manner.
- Remove snow and ice as required to make the facility accessible, operational and safe.
- Perform other duties consistent with the scope of this position.
Required Qualifications

- AS Degree in Lasers or Electronics related field or Engineering degree or equivalent.
- Three (3) years’ of hands on experience with laser systems.
- Two (2) years’ of relevant optics and opto-mechanical experience.
- Ability to exercise great care when working with optics.
- Knowledge of laser safety and standards.

Preferred Qualifications

- Five (5) years’ experience working at an astronomical observatory as a Laser Optics Technician
- Five (5) years’ experience in highly-technical or science operations environment
- Experience working with cryogens – Liquid Nitrogen
- Knowledge of and hands-on work experience with dye lasers, solid state lasers, and fiber lasers.
- Mechanical, electrical and/or optical fabrication and assembly experience.
- Optical coating experience.
- Experience and ability working around complex and sensitive optics and instrumentation.

Skills

- Microsoft Office Proficiency.
- Knowledge of laser system technology and laser component adjustment, alignment, replacement, and maintenance.
- Knowledge of modern electronics technology including analog and digital integrated circuits, computer electronics, and computer communications.
- Knowledge of the methods, materials, and tools used in the fabrication, construction, maintenance, and repair of electrical and electronic equipment.
- Knowledge of the operation and uses of electronic test equipment, including oscilloscopes, analyzers, pulse and function generators, power supplies, etc.
- Ability to read and analyze complex electronic schematics.
- Motivated, self-starter who can manage multiple projects and priorities within a fast paced environment.

Certificates and Licenses

- Valid driver’s license and clean abstract.

Competences

To perform the job successfully, an individual should demonstrate the following competencies:

- **Communication**: Ability to communicate effectively and concisely at all levels.
- **Interpersonal skills**: Ability to build collaborative, effective relationships with staff.
- **Professionalism**: Approaches others in a tactful manner; reacts well under pressure; treats others with respect and consideration; accepts responsibility for own actions; follows through on commitments.

Other Requirements

- Willingness to commit to WMKO core values: Safety, Integrity, Respect, Discovery and Service.
- Willingness to commit to WMKO cultural values: Education/Learning, Communication, Teamwork, Rewarding Work Environment, Excellence, Community Involvement.
- Willingness and ability to occasionally work nights and weekends.

Physical Demands

These physical demands are representative of the physical requirements necessary for an employee to successfully perform the essential functions of the job. This is not a complete list of the physical demands that may be required.

- **Standing**: Remaining on one’s feet in an upright position at a workstation without moving about.
- **Walking**: Moving about on foot.
- **Lifting**: Raising or lowering an object from one level to another (includes upward pulling) up to 25 pounds.
- **Vision**: Color vision - Ability to identify and distinguish colors.
- **Hearing**: Perceiving the nature of sounds at normal speaking levels with or without correction, and having the ability to receive detailed information through oral communication, and making fine discriminations in sound.
- **Carrying**: Transporting an object, usually holding it in the hands or arms, or on the shoulder.
- **Pushing**: Exerting force upon an object so that the object moves away from the force (Includes slapping, striking, kicking, and treadle actions).
• **Pulling**: Exerting force upon an object so that the object moves toward the force (includes jerking).
• **Climbing**: Ascending or descending ladders, stairs, scaffolding, ramps, poles using feet and legs or hands and arms. Body agility is emphasized.
• **Balancing**: Maintaining body equilibrium to prevent falling when walking, standing, crouching, or running on narrow, slippery, or erratically moving surfaces.
• **Stooping**: Bending body downward and forward by bending spine at the waist, requiring full use of the lower extremities and back muscles.
• **Handling**: Seizing, holding, grasping, turning, or otherwise working with hand or hands. Fingers are involved only to the extent that they are an extension of the hand, such as to turn a switch or shift automobile gears.
• Ability to pass a high altitude physical.
• Ability to work at the Observatory (14,000 feet elevation).

**Environmental Conditions**
These environmental conditions are representative of what an employee will encounter while performing the essential functions of the job. This is *not* a complete list of the environmental conditions that may be encountered.

• **Exposure to weather**: Subject to extreme cold. Temperatures can be below 32 degrees for periods of more than one hour. Consideration should be given to the effect of other environmental conditions such as wind and humidity.
• **Subject to Noise**: There is sufficient noise to cause the worker to shout in order to be heard above the ambient noise level.
• **Subject to Hazards**: Moving mechanical parts.
• **Subject to constrained spaces**: Required to function in narrow aisles or passageways.

The above information on this job description has been designed to indicate the general nature and level of work performed by an employee in this classification. It is not to be interpreted as a comprehensive inventory, or all duties, responsibilities, and qualifications of employees assigned to this job. Management has the right to add to, revise, or delete information in this description. Reasonable accommodations will be made to enable qualified individuals with disabilities to perform the essential functions of this position.

_________________________  ____________  ___________________  ____________  
Incumbent                     Date                      Supervisor                 Date

A copy of the current Position Description with both employee and supervisor signatures is to be kept on file in the Human Resources office.