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Modern survey equipment requires surveyors to be more maintenance-conscious than they have had to be in the past. We now have to worry about power sources, downloading data, and the integrity of data, as well as whether or not the instruments and accessories are accurately adjusted and in good repair.

When setting up a crew to work with a total station and data collector, it is helpful to supply the party chief with checklists to help the crew maintain its assigned equipment and handle the collected data upon returning to the office.

It is also important that each crew be supplied with all necessary equipment and supplies, which should be stored in an organized and easily accessible manner.

Let us first examine an equipment list that will assure the survey crew a sufficient equipment inventory to meet the general needs of boundary, layout, and topographic surveys. We assume that we are working with a two-person crew, consisting of a party chief/rodperson and a notekeeper/instrument person.

We will also assume that this crew has a regular complement of supplies such as hammers, shovels, ribbon, stakes, lath, and safety equipment.

Our discussion will be confined to what is needed to maximize productivity when using a total station with data collector.

The minimum equipment inventory required is as follows:

1. Total station
2. Data collector
3. Batteries for 14 hours of continuous operation
4. 3 tripods
5. 3 tribrachs
6. 3 target carriers
7. 1 plumbing pole
8. 4 target holders
9. 4 reflectors
10. 4 target plates.

With this equipment inventory, a two-person field crew will be able to handle most survey tasks that are routinely encountered in day-to-day operations.

An additional tripod, plumbing pole, carrier, tribrach, and reflector would give the crew even greater flexibility and allow them to handle many projects more efficiently.

It is also helpful for the field crew to have a convenient place to store their assigned equipment. We have equipped our crews with briefcase-sized cases that will hold 3 tribrachs, 4

reflectors with holders, 3 carriers, and 4 target plates. A hard camera case or pistol case works well for this purpose. With all the components stored in one place, it makes inventory of the equipment easy and reduces the chance of equipment being left at the job site.

This also allows management to quickly check that the equipment is being properly maintained. They can open a case and tell at a glance if all the equipment is there and also if the equipment has been properly cleaned.

The following checklist will aid each crew in properly maintaining and keeping inventory of their assigned equipment. At the end of each workday, the party chief should check that the following duties have been performed:

1. Clean all reflectors and holders. A cotton swab dipped in alcohol can be used on the glass surfaces. A crew member can do this during the trip back to the office.
2. Clean tribrachs. They should be dusted daily.
3. Clean tripods and replace the protective covers.
4. Remove dust from all instruments. A soft paintbrush or a shaving brush works well. If an instrument has been exposed to moisture, thoroughly dry it and store in an open case.

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