## Technically Write 7th Edition
## Project A 4.1: Interrupted Project Work

You are an independent consultant working under contract to H L Winman and Associates. The contract calls for you to take all the water-level data recorded over the past 20 years on lakes and rivers in the "Power Bay Territory" of northwestern Ontario. You have to enter this data into a new database, from which H L Winman and Associates will create spreadsheets to support a water-level study they are conducting for Ontario Hydro. For the years up to and including 1997, you are typing the data manually, extracting the information from hard copy printouts. For the years from 1998 up to last year, you are transferring the data from computer-generated records supplied to you on CD-ROM disks. The records in both cases have been provided by the Environmental Systems Division of the Province of Ontario.

You started the project on March 15 and are due to complete it on June 30. Today's date is Friday, June 27.

Two nights ago you were wakened by a violent electrical storm. The next morning (Thursday), when you unlocked your office door you noticed an acrid, pungent smell. You checked the surge protector and saw that it had tripped "off" during the night, which meant there must have been a major surge on the line. You reset the surge protector and switched on your computer. There was no response and the computer screen remained blank.

You checked the surge protector again: the "on" light was glowing. *Then* you noticed that the computer was plugged into *an ordinary socket*, not the surge protector! (Only then did you remember the note the office cleaner had left on your desk a week earlier: "Sorry. The vacuum cleaner head got caught in some of the wires under your desk and I had to plug them in again." You hadn't checked the connections at the time; if you had, you would have noticed the fault.)

You took the computer to Westside Computer Centre and borrowed a "loaner." In your office, you loaded the conversion programs into the loaner's hard disk, plus the work you had copied onto a backup disk, and checked that the system worked (it did). But then you realized you had been careless on June 23 to 25 and had not made backup copies of your work for those days.

On Friday morning Pam Withrow telephoned from Westside Computer Centre. "I'm afraid the damage to your computer is extensive," she reported. "The hard disk and the CD-ROM drive have been destroyed, and some other circuitry seems to have been affected. You're looking at a $1800 repair bill. Frankly, I'd write the unit off and buy a new one." Pam also mentioned that a CD in the CD-ROM drive had been "fried" and was welded to the drive.

You groan inwardly. Not only do you have to replace your computer, but you also have to redo at least three days' work *and* get hold of a replacement CD.

# Technically Write 7th Edition
# Project A 4.1: Interrupted Project Work

**Part 1**

Write a letter-form incident report to the Environmental Systems Division, Province of Ontario (address: Suite 1701, 330 Oswald Place, Toronto, Ontario, M5W 2R6) and email it to them. Tell them their CD has been destroyed and ask for a replacement. It's disk No. 3 of a three-disk series titled "Water Levels, Power Bay Territory." You notice that disks 1 and 2 carry the identification numbers OES3301 and OES3302. Ask for a fast response because you need the disk to continue with the data conversion.

**Part 2**

Write an email progress report to Vern Rogers, H L Winman and Associates's branch manager in the capital city of the province where your office is located. Inform him that you will not be sending a progress report on disk this week (every Friday afternoon you copy the results of that week's work onto a disk and mail it to him by Priority Post, for delivery on Monday morning). Inform him you are four days behind schedule and suggest how you propose to make up the lost time. Remember that to some extent you are depending on the speed with which the Environmental Systems Division responds to your request for a replacement CD.

Here are some additional details you will need to write these reports:

- Your company's name is Pro-Active Consultants Limited, and you run the business from your home (for more information, see project A 3.1 on the textbook website).
- The address of the H L Winman and Associates's branch office is 300 Broad Street of the capital city in your province (create a suitable postal code).
- The contract number you are working on is HLW2230, and it's dated March 8.
- Vern Rogers's email address is: v_rogers@winman.br3.ca.

## Technically Write 7th Edition
## Project A 4.2: Installing an Automatic Car Wash

*(Note: There are four assignments in this project. Your instructor will tell you whether you are to write all four reports or only selected reports.)*

You are an independent consultant managing a turnkey project for High Gear Truck and Car Rentals (HGTCR). The contract calls for the installation of three drive-through automatic car washes, at one of the HGTCR branches in Regina, Calgary, and Edmonton. In each city the car wash is to be installed at the most central and easily accessible rental outlet, and will be used to wash cars from all the HGTCR outlets in that city.

When Frank Moroni awarded the contract to you, he said: "This is an experiment. If having a central car wash works well, we'll be putting car washes in 12 other cities in Canada. And if we're happy with how you handle the installation phase, we'll be calling on you to manage the remaining 12 installations." That was on March 20.

The car wash manufacturer is AutoWash Limited of Thunder Bay, Ontario. AutoWash will provide a team who will travel to the three sites sequentially to install the hardware (the overhead ramp, the rotation brushes, the spray jets, the motors and gears, and so on): Regina in week 1, Calgary in week 2, and Edmonton in week 3. Your role is to hire and coordinate the work of local contractors, primarily a construction company, which will excavate the pit and pour the concrete footings, an electrician, a pipe fitter, and a computer consultant who will perform tests on and troubleshoot the microprocessor control equipment. For each contractor, AutoWash will provide detailed instructions and a checklist.

The AutoWash installation team will spend one week, Monday to Friday, in each city. The schedule is as follows:

| City | Installation Dates | Date Car Wash to Start Operating |
|---|---|---|
| Regina | May 8 to 12 | May 13 |
| Calgary | May 15 to 19 | May 20 |
| Edmonton | May 22 to 26 | May 27 |

To ensure a smooth operation, you arrange with AutoWash for the equipment to be shipped to and in place at each site one week in advance of the installation start date. In other words:

At Regina: May 1
At Calgary: May 8
At Edmonton: May 15

During the week of April 3 to 7, you visit the three cities and interview and hire the building contractors. In the contract you issue to each, you specify that the base construction must be completed *before* May 1 (Regina), May 8 (Calgary), and May 15 (Edmonton), and that they will incur a penalty of $500 for *each* day they are late.

On May 2 you visit the Regina HGTCR location and inspect both the construction work (for quality and completeness) and the delivered car wash equipment (for quantity and completeness, using a checklist provided by AutoWash). All is satisfactory. You email your contact at AutoWash to tell her that everything is ready for work to start on Monday May 8.

On May 8 you return to Regina and check that the installation is progressing satisfactorily and that the contractors are ready to come in at the appropriate moment. Then on May 9 you take an early morning flight to Calgary to inspect the construction work and the equipment there.

## Technically Write 7th Edition
## Project A 4.2: Installing an Automatic Car Wash
*Part 1 Inspection Report*

You realize immediately that the inspection in Calgary is not going to be as straightforward as the inspection in Regina. For one thing, there is debris scattered around the concrete shell: two piles of gravel and soil; broken pieces of wooden formers used for the concrete pours; scraps of
metal; and lunch bags and drink containers. You look up the contract: sure enough in para 17[c] it says "The contractor shall remove all construction debris from the site."

With a tape measure you measure the length, width, and depth of parts of the structure. The main structure is satisfactory but you are dissatisfied with the concrete's rough edges: in some places they should have been sanded down to remove furring and spikes. This has not been done along about 20% of the structure's edges. Paragraph 12(b) says "The contractor shall remove all evidence of rough construction by smoothing the joints and edges of all new concrete."

You are dismayed, too, to find that the groove for the cables and wires cut in the concrete between the locations of the entry control box and the computer control unit is too shallow. You measure it: it varies in depth between 31 mm and 36 mm, and in width between 42 mm and 51 mm. You check construction specification No. AW-2121, which says in step 24[c]: "The cable troughs must be a minimum 34 mm deep and 50 mm wide." This means the contractor must return and saw the edges and the base of the trough until it meets the specified depth and width over its whole length.

You decide to write in the list of deficiencies that the work must be completed by noon on Friday May 12, after which the $500 per day penalty clause will come into effect.

Your check of the AutoWash equipment is more straightforward: everything is satisfactory except for three items: a 100 metre roll of No. 22 AWG cable is missing; the seal over a 50 metre roll of No. 10 hookup wire has been removed and some of the wire has been cut off; and the lenses of the red and green "stop/go" lamps are cracked and the bulbs are missing. (You wonder if the missing items were not shipped or have been stolen since the equipment was delivered.)

Write an inspection report to email to both AutoWash and the construction company. Your contact at AutoWash is Anja Wiederhausen.AutoWash (awider@autowash.com). The construction company in Calgary is Westan Builders Ltd and your contact is the owner, Stan West (stanw@westanbuilders.com).

## Technically Write 7th Edition
## Project A 4.2: Installing an Automatic Car Wash
*Part 2 Progress Report*

You fly back to Regina on Wednesday May 10, arriving at 7:20 p.m. You check in at the Ramada Inn, then walk over to Albert Street to see how the installation has progressed. To your amazement, only the basic framework has been installed and there are four picketers with placards tied across their chests marching back and forth in front of the HGTCR rental outlet.
Inside, branch manager Janice Phelps is *not* impressed. "Can you imagine what this is doing to our business?" she growls. "Customers are staying away in droves, and none of it's my doing!"

You ask what happened.

"Something to do with using nonunion labor, I think. I didn't get the full story. You'd better talk to the installers from AutoWash."
You call the Travelodge, where the three members of the AutoWash crew are staying, but they are not there. You keep calling until 11 p.m., then leave a message that you will meet them for breakfast in the Ramada Inn coffee shop at 8 a.m. Thursday morning.

"What's the problem?" you ask as they sit down.

"It's simple," crew leader Bev Shallenberg replies. "The electricians and pipefitters are union labor. We're not, and they won't work with us."

(You had hired unionized contractors intentionally, to forestall any such problems.)

"When did this happen?"

"Tuesday morning, right before lunch, when the electrician showed up on site. He asked to see our union cards, and that was it!"

You phone the Department of Labour and ask if the strike is legal. It is. You phone the union boss, William Persimmon.

"I've been expecting you to call," he says, and he explains that no union member will touch the job. "And if you attempt to hire scab labor, my members will be down there in a flash, in full force. Nobody will want to drive onto the lot. High Gear's not going to like that!"

You try all day to get one side or the other to back down, but everyone is intransigent. In desperation, you call Freja Arundsen of the Department of Labour and ask her to arrange a meeting between all four parties: yourself, William Persimmon, Bev Shallenberg, and herself. She agrees: 9 a.m. on Friday, in her office.

The meeting lasts one-and-one-half hours, after which Freja suggest that perhaps the installer could hire a local *union* construction worker to become part of their team. Each

representative then confers by telephone with their organization. The union reluctantly says yes (they had wanted the whole crew to be unionized). AutoWash management also reluctantly says yes (reluctant because doing so will add $105 a day to their installation costs, and they will not be able to recover the extra cost from HGTCR).

At 11:15 William Persimmon calls off the picketers and assigns a union construction worker to join the crew.

You discuss progress with Bev Shallenberg, who says: “Management at AutoWash won’t let us work weekends—they’d have to pay us time and a half if we do—so we’re effectively three days behind schedule. There’s no way we can make up the lost time.

You readjust your installation plan and say you will arrange to hire a unionized construction worker to work with the installation crew in Calgary and Edmonton.

“It’s a total waste!” Bev says. “They won’t know enough to be really useful, or be able to speed up the work.”

Write a letter-form progress report to Frank Moroni at HGTCR. Inform him of the problem and the delay it has caused, and predict a new completion date for each location. Prepare the email to which the progress report will be attached. The address of HGTCR’s head office is 2130 Malton Road, Toronto, Ontario, M3J 2P6. Frank Moroni’s email address is frank_moroni@hgtcr.com.

 

## Technically Write 7th Edition
## Project A 4.2: Installing an Automatic Car Wash
*Part 3 Incident Report*

It's now Friday May 19 and it's day two of the installation at Calgary. The four sides and the roof of the building have been erected and the crew is now installing the major components of the overhead travelling arm, from which the brushes are suspended. It's 3:15 and you have just returned from inspecting the work at the site of the Edmonton installation (everything was okay).

At 3:22 there is a shout from a team member assembling parts on the overhead structure. One end of the heavy transverse crossbeam, which has been hoisted up by two pulleys with a rope tied to each end of the beam, slips out of his hands, drops, and swings across the car wash, giving a glancing blow to the union construction worker holding the rope at the other end. He is knocked sideways, lets go of the rope, and the whole beam crashes downward, landing on his feet. In its fall, one end scrapes against a side window and scatters glass all over him.

You call an ambulance, because the injured worker (whose name is Steve Hallohan) cannot stand or use his left hand and is bleeding from multiple cuts to his face and arms.

The ambulance arrives at 3:41 and whisks Steve to the nearest hospital. No further work is done that day. (No damage is done to the beam, but a replacement window has to be ordered from AutoWash.)

The following morning (Saturday May 20) you write an incident report which you email to Anja Wiederhausen at AutoWash in Thunder Bay, with a copy to Frank Moroni at HGTCR in Toronto and another to Carla Strothers in Calgary (she is manager of the affected car rental outlet, and you hand the report to her personally, rather than email it). You also send a copy to Phil Evershed, president of the union office in Calgary. (pevershed@conunion.org).

## Technically Write 7th Edition
## Project A 4.2: Installing an Automatic Car Wash
*Part 4. Project Completion Report*

It's now Friday morning, June 2, and you are at Edmonton preparing to write your project completion report to Frank Moroni (as a letter, which you will attach to an email to him). An hour ago you telephoned him to say the project is complete (but four working days or six calendar days behind schedule). All three car washes are operating as planned.

"I'm getting good feedback from Regina," Frank says. "They like the system. Of course, distances between outlets are less there than they are in Calgary and, particularly, Edmonton."
You tell him that you're still waiting for the red and green lenses. "I took the good ones from Edmonton and installed them into the Calgary wash, expecting replacements to arrive before we finished at Edmonton. They haven't, so I've taped the cracked lenses in place as a temporary measure and have left instructions with Kevin Hees, the HGTCR manager in Edmonton, on how to install them."

The only other delay you experienced was on the second day in Edmonton, when the electrical contractor had double-booked and failed to show up. A phone call to his home and then where he was working brought him in half a day late. (You have also heard the Regina construction worker is out of hospital and his broken left foot is recovering.)

Now write your project completion report, drawing attention to the main highlights experienced during the project, and mentioning any exceptions to the project plan.

## Technically Write 7th Edition

## Project A 4.3 Problem on Top of a Mountain

From February 14 to 21 you have been enjoying a 10-day skiing vacation at Whistler Mountain in British Columbia, a two-hour scenic drive north from Vancouver along provincial highway 99. However, when you return to Holiday Guest House at the end of your fourth day (February 17), you have an email from Jim Perchanski at H L Winman and Associates in Calgary (your employer). His message reads:

> The cafeteria at the top of the gondola lift at Blackcomb Mountain has a problem with their electromechanical compacting and waste disposal system. Please investigate and obtain a fix. Charge your time to work order 2730. Thanks. Jim.

You groan inwardly: the skiing has been excellent. You're going to take the gondola lift to the top of the mountain all right, but to work, not to ski!

At the top of Blackcomb you discover two faults: a burnt out automatic ALR switch type 261058, and a defective microprocessor (Tolstar model 66A). You suspect a power surge caused the switch to burn out and the microprocessor to overload. So you place two telephone orders for urgent delivery of three parts:

From Fraser Electronic Supply in Vancouver,

1. a replacement ALR switch, and
2. a power surge protector (which you will install ahead of the switch).

From Mercier Distributors in Montreal,

3. a replacement Tolstar 66A microprocessor.

You make a note in your diary: "Feb 18 – Time spent travelling to and from cafeteria and investigating problem: 5.5 hours."

On the sixth day you ski. When you return to Holiday Guest House at 4:30 p.m., the shipment from Vancouver has already arrived. The shipment from Montreal arrives an hour later.

On the seventh day (February 20) you install the parts and test the system. It works perfectly. Time spent: 3.5 hours. It's already 1:30 p.m., so you decide to sit in the cafeteria, admire the brilliant scenery, and write a trip report to fax to Jim Perchanski from the Guest House. In your report you also plan to ask for your vacation to be extended for two more days, and for the company to reimburse you for two nights accommodation ($125 per night), two "observer" (non-ski) lift tickets ($44 each), a per diem rate for two days at $30 per day, and the parts from Fraser Electronic Supply ($77 plus $15 shipping fee), which you had to charge to your personal VISA card. The cost of the Tolstar microprocessor ($240 plus $30 shipping) was charged directly to the H L Winman account. You should, however, inform Jim Perchanski of that cost, so he will know to include it in the invoice to the cafeteria.

Write your report.

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## Project A 4.4: A Computer Goes Missing

It's 9 p.m. and you are flying from Chicago O'Hare airport to your home city, aboard Remick Airlines flight 717. Your journey started in Washington, DC, at 5:30 p.m., when you boarded United Airlines flight 1216 at Washington National airport and flew to Chicago, arriving there at 6:25 p.m. Flight 717 left Chicago at 8:05 p.m. (Actually, you were to have flown a direct route to your home city, on a flight that left Washington at 4:30 p.m., but the meeting you were attending ran later than you expected, you were delayed in rush-hour traffic, and you missed the flight by eight minutes.) The date is today.

You are a member of the Society of Engineering Technologists (SET), and you serve as a member of a team that plans conferences and educational seminars for SET members. The particular meeting you attended is an annual event during which 12 delegates make up a long-range educational plan to submit to SET's executive committee. Your involvement is supported by your employer (the local branch of H L Winman and Associates), who donates your time. Your travel expenses are covered by SET.

You are this year's secretary to the planning committee and, as you have over an hour's flying time ahead of you, you decide to start typing the minutes of the meeting into your portable computer. You reach under the seat ahead of you, and lift up and open your black computer carrying case. But instead of your computer, you pull out an InFocus 550 computer projector! Clearly, this is not your case, although it looks exactly like it.

But where and when did you lose your case? There are three possibilities: (1) when you were checking in at Washington National and you put it on the floor beside you while you lifted your clothing case onto the scales; (2) when you disembarked from United flight 1216 and lifted it down from the overhead rack; and (3) when you stopped for a slice of pizza and a soft drink at Camille's crowded café in Chicago airport, and shared a table with a woman to whom you hardly spoke. There were three chairs and you both placed your coats and hand luggage onto the third chair.

You search the projector bag for identification of the owner, but there are no clues. (You realize that your computer has no identification on it, either.)

Unfortunately, it isn't *your* computer that is missing, but a company computer you have on loan from H L Winman and Associates. It's a Nabuchi CD801, serial number 2106A711. There is a pad of lined paper in the projector case, and you pull it out to write an incident report to Vern Rogers, your branch manager.

At your home airport you report the loss to Remick Airlines Customer Service Representative Ian Coulson, who takes down details and tells you he'll put a tracer on it for you. "But, really," he says, "hand luggage is hard to trace but if it had been checked luggage, I could have it here within 12 hours."

You take a taxi home and complete your incident report, ready to give to Vern Rogers when you go to work in the morning.

## Technically Write 7th Edition
## Project A 4.5: Accident at Cormorant Dam

You are supervising installation work at Cormorant Dam. The day before you left for the site, your branch manager (Vern Rogers) introduced you to Harry Vincent of the Department of the Environment.

Mr Vincent showed you a delicate instrument housed in a foam-rubber padded box. "It's a Vancourt MK 7 air sampler," he explained, "and it's very delicate." He explained that he wanted you to take air sample measurements twice daily throughout the six weeks you would be at Cormorant Dam. "It won't take long each time," he added, "but you must be somewhere reasonably high up, away from ground dust contamination."

Now it is 10 days later and you have just finished taking the late-afternoon air sample measurement. You are standing on a small platform half way up some construction framework, and are replacing the sampler in its box.

Suddenly there is a shout from above, followed immediately by two sharp blows, one on your hardhat and the other on your shoulder. You glimpse a 3 metre by 20 millimetre square construction lumber tumble past you, followed by the air sampler box, which has been knocked out of your hand. The box turns end over end until it crashes to the ground. When you retrieve it, the box is badly splintered and the air sampler inside it is twisted. Your shoulder is throbbing badly and you cannot grip anything with the corresponding hand. An examination at the medical center shows you have a dislocated shoulder, and now your arm is supported by a sling. (Fortunately, it is not your writing hand.)

**Part 1.** Write a letter-form incident report to Harry Vincent of the Department of the Environment. Tell him what has happened, that you have shipped the damaged air sampler to him on Remick Airlines 751 for him to pick up at your airport (you enclose the airline receipt for the package), and that if he wants you to take any more air sample measurements he will have to send you another sampler.

**Part 2.** Write a memorandum-form incident report to your manager, Vern Rogers. You can mention that you were absent from the construction site for 24 hours, but that otherwise the incident has not affected your supervision work.

# Technically Write 7th Edition
# Project A 4.6: Effect of a Power Outage

Your company has been carrying out a series of extreme cold and heat tests on electronic and mechanical switches for Terrapin Control Systems of Portland, Oregon. The tests have been running for four months and will last another two months. The schedule is tight because of initial problems with measuring equipment, which delayed the start by nine days and used up any spare time the project had available.

Currently you are testing the switches for continuous periods ranging from 8 to 14 hours. The tests have two parts:

1. For the first 6 hours each day you increase or decrease temperature in 2°C increments until a predetermined high or low temperature is reached. At each 2°C increment you test the switches and record how they perform.
2. For the remaining 2 to 8 hours you bake or deep-freeze the switches at the preselected temperature. No monitoring is necessary during this period, because the switches are not tested again until they are at room temperature the following day.

To avoid having a technician stay throughout part 2, which on some evenings runs as late as 12:30 a.m., you have installed electric timers in the circuits of the oven and freezer chamber. The timers are set to switch off at the end of the prescribed bake and deep-freeze periods.

This morning when you remove batches 87H and 84C from the oven and freezer chambers you notice that, instead of being close to ambient temperature, they are still hot and cold. It's then that you notice the electric clock on the lab wall is more than 5 hours slow. You telephone the electric company and are told that there was a transformer blowout at Penns Vale at 9:54 last night, which interrupted power to the area for 5 hours and 24 minutes.

You consult your log for the previous day:
- You started Part 1 at 9:55 a.m.
- You started Part 2 at 3:55 p.m. and set the timers to switch off at 11:55 p.m.

Consequently,
- the bake and deep-freeze periods were interrupted for 2 hours before the prescribed switch-off time, the oven temperature dropped, and the freezer temperature rose, for 5 hours and 24 minutes, and then
- the oven temperature rose again, and the freezer temperature dropped, for 2 hours before the switches terminated the tests.

This means that the switches have had uncontrolled, nonstandard testing and will have to be discarded. Yesterday's tests will have to be run again, with the following costs:

| | |
|---|---|
| *Labor:* | 14 hours (7 hours per batch) = $420 |
| *Materials:* | Two complete batches of switches at $76 each |
| *Time:* | One day extra to be added to the program schedule |

Write an incident report to your project coordinator, J. H. Grayson. Describe what has happened and the implications, and suggest what might possibly be done to prevent a recurrence.

## Technically Write 7th Edition

## Project A 4.7: Problem Connectors at Site 3

Assume that you work for a management consultant company that is supervising the installation of a power transmission line and a parallel set of microwave towers from Thunder Bay, Ontario to Winnipeg, Manitoba. The microwave towers are located 30-40 kilometers apart, and are numbered consecutively from No. 1 near Peoria to No. 17 south of Winnipeg.

The maintenance crew supervisor at microwave tower 14 reported a week ago that she has found nine faulty cable connectors type MT-27 and has had to replace them. She telephoned project manager Andy Rittman and asked whether the fault had been found elsewhere. Andy sent you to microwave tower 3 to investigate whether there are other faulty connectors. You were to test the connectors using company test procedure TP-33.

You drove to tower 3 two days ago and stayed there until this morning. The maintenance crew supervisor at tower 3 is Don Sanderson.

Here are notes describing your findings:

1. There were 317 type MT-27 connectors on site, with 92 in stock and 225 installed along the transmission lines and up the microwave tower.
2. You tested 278 of the connectors.
3. You could not test the remaining 39 connectors because they were along part of the transmission line that was powered-up during your visit.
4. You placed each connector under tension using test procedure TP-33.
5. 241 of the connectors tested satisfactorily.
6. 37 of the connectors proved to be faulty.
7. You identified the fault as a hairline crack, which became visible when a connector was placed under tension.
8. Although the connectors looked similar, there seemed to be two kinds on site. One batch had the letters GLA inscribed on the base. The other batch had the letters MVK on the base.
9. Of the 278 connectors you tested, 201 were stamped MVK and 77 were stamped GLA.
10. All the faulty connectors had the letters GLA stamped on the base. There were no faulty connectors with MVK on the base.
11. You suspect that the letters must identify either different manufacturers or different batches made by the same manufacturer.
12. You instructed the maintenance crew supervisor to replace all installed GLA connectors with MVK connectors, and to place all the GLA connectors in a separate box marked NOT TO BE INSTALLED.

You describe your findings to Andy Rittman when you return. "Write me a report," he says. "I want you to document your findings and to send a copy of your report to all 17 maintenance crew supervisors."

Write the report as a memorandum to Andy Rittman, with copies to the maintenance crew supervisors.