

# Groundkeeper I43 Continuity Type Ground Monitor

Product  
Data  
Sheet

## Fail-Safe Operation with Constant Ground Monitoring Machine Remote Control

### Application

Fail-safe control of machines stop and start operations and ground wire monitoring at the same time, is provided in a convenient package with the Line Power Groundkeeper 143. It can be used on remotely controlled machines or operator attended machines in achieving fail safe operation with freedom from nuisance tripping. The Groundkeeper 143B (P/N 17-0143B) is available for use up to 5kV applications.

### System Operation

The Groundkeeper 143 Ground Monitor System is designed to monitor the continuity of both the pilot-conductor and ground-conductor in an equipment trailing cable. These cables are normally connected between a power source (i.e.: power distribution center) and a load (i.e.: motor), using a cable designed for power, safety ground, and pilot wire operation.

This type of ground monitor requires that a semiconductor diode be connected between the pilot wire terminal and the ground wire terminal at the load end of the trailing cable. A low voltage, D.C. signal current circulates in the pilot-wire/ground-conductor loop; the Groundkeeper 143 system continually monitors this circulating signal.

If this pilot-wire/ground-conductor loop is connected properly and is not open, shorted, or presenting a high impedance, the Groundkeeper 143 will continually provide permissive contact-closure for electrical interlocking of the control system...

The monitor's control contact will OPEN if any one of the following conditions are present:

- The semiconductor diode at the load end is absent
- The semiconductor diode at the load end is open
- The semiconductor diode at the load end is shorted
- The pilot-wire or ground-conductor is open at any location
- The pilot-wire and ground-conductor are shorted together at any location
- The total D.C. resistance in the pilot-wire/ground-conductor loop (in the trailing cable and/or pilot diode circuits) is greater than 50 ohms



Part Number: 17-0143

### Ground Wire Device (G.W.D.)

System interconnection of the Groundkeeper 143 requires that a G.W.D. be connected between the ground-wire return at the power source and the frame-ground of the power source. This device may be either a pair of back-to-back, high-current semiconductor diodes, or a high-current inductor, depending on the application. The purpose of the G.W.D. is to effectively isolate the pilot-wire/ground-conductor loops from each other while providing a ground to enclosure. This ground is used in the event of a problem resulting in significant ground-conductor current. In this way, the individual (separate) signals being monitored by each ground monitor system and its associated pilot-wire/ground-conductor loop are effectively prevented from interfering with each other.

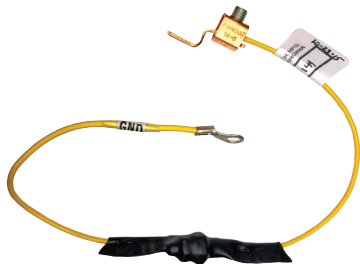


## GROUND KEEPER I43

| Item | Monitoring System Final Part Number | Monitoring System Component Part Numbers |                     |             |              |                    |         |
|------|-------------------------------------|--|---------------------|-------------|--------------|--------------------|---------|
|      |                                     | Electronic Assembly                      | Current Transformer | Pilot Diode |              | Ground Wire Device |         |
|      |                                     |  |                     | Low Voltage | High Voltage | Inductor           | Diodes  |
| 1    | 17-0147-01                          | 17-0143                                  | 08-0362             | 17-0144     |              |                    | A2054-A |
| 2    | 17-0147-02                          | 17-0143                                  | 08-0362             |             | 17-0125-01   |                    | A2054-A |
| 3    | 17-0147-03                          | 17-0143                                  | 08-0362             | A2315-001   |              |                    | A2054-A |
| 4    | 17-0149-01                          | 17-0143                                  | 08-0362             | 17-0144     |              | 92-1004            |         |
| 5    | 17-0149-02                          | 17-0143                                  | 08-0362             |             | 17-0125-01   | 92-1004            |         |
| 6    | 17-0149-03                          | 17-0143                                  | 08-0362             | A2315-001   |              | 92-1004            |         |
| 7    | 17-0149-05                          | 17-0143                                  | 08-0362             | 17-0144     |              | B2054-4            |         |
| 8    | 17-0149-06                          | 17-0143                                  | 08-0362             |             | 17-0125-01   | B2054-4            |         |
| 9    | 17-0149-07                          | 17-0143                                  | 08-0362             | A2315-001   |              | B2054-4            |         |

## GROUND KEEPER I43B

| Item | Monitoring System Final Part Number | Monitoring System Component Part Numbers |                     |             |              |                    |         |
|------|-------------------------------------|--|---------------------|-------------|--------------|--------------------|---------|
|      |                                     | Electronic Assembly                      | Current Transformer | Pilot Diode |              | Ground Wire Device |         |
|      |                                     |  |                     | Low Voltage | High Voltage | Inductor           | Diodes  |
| 1    | 17-0187-01                          | 17-0143-01                               | 08-0362             | 17-0144     |              |                    | A2596-A |
| 2    | 17-0187-02                          | 17-0143-01                               | 08-0362             |             | 17-0125-01   |                    | A2596-A |
| 3    | 17-0187-03                          | 17-0143-01                               | 08-0362             | A2315-001   |              |                    | A2596-A |
| 4    | 17-0188-01                          | 17-0143-01                               | 08-0362             | 17-0144     |              | 92-1004            |         |
| 5    | 17-0188-02                          | 17-0143-01                               | 08-0362             |             | 17-0125-01   | 92-1004            |         |
| 6    | 17-0188-03                          | 17-0143-01                               | 08-0362             | A2315-001   |              | 92-1004            |         |
| 7    | 17-0188-05                          | 17-0143-01                               | 08-0362             | 17-0144     |              | B2054-4            |         |
| 8    | 17-0188-06                          | 17-0143-01                               | 08-0362             |             | 17-0125-01   | B2054-4            |         |
| 9    | 17-0188-07                          | 17-0143-01                               | 08-0362             | A2315-001   |              | B2054-4            |         |



**P/N: 17-0144**  
*L.V. Pilot Diode*



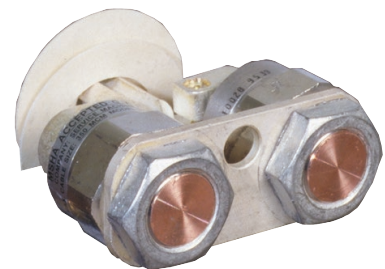
**P/N: 17-0125-01**  
*H.V. Pilot Diode*



**P/N: 92-1004**  
*Inductor Ground Wire Device*



**P/N: 08-0362**  
*Current Transformer*



**P/N: A2596-A**  
*Back-to-Back Diode  
Ground Wire Device*

**Specifications subject to change without notice.**

LPMS-GKI43-II/I5

