

Exhibit I

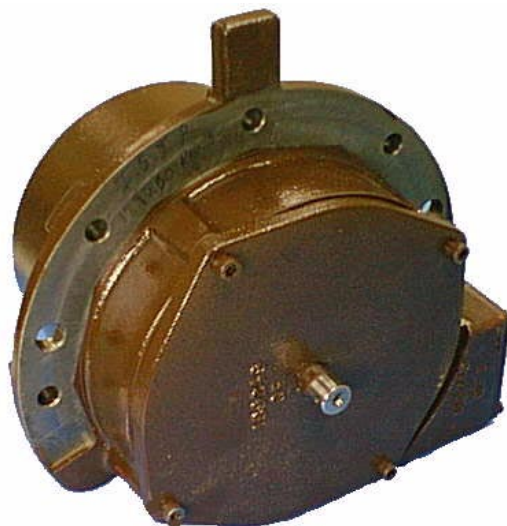
CCU Installation Manual

NOTE: Based on discussions with FCC personnel, GE Harris is submitting only the sections pertaining to the CCU and antenna unit.

BHPIO EP^{X™} Direct Braking System

Ore Car

Installation Instructions



April 1999

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Section 1 INTRODUCTION

1.1 SCOPE

This document identifies the installation procedures used to install the GE Harris Train Talk Electronically Controlled Pneumatic Brake (ECPB) Valve and associated equipment and hardware onto a customer owned freight car, specifically a BHP Ore car manufactured by Goninan, (drawing number 076-M-153).

1.2 APPLICABLE DOCUMENTS

The following documents are applicable.

1. 1002575-001 Ore Car Drawing
2. 1002407 GE Harris ECPB Freight Car Wiring Diagram - BHP
3. 1002180 GE Harris ECPB Freight Car Control Device (CCD) Assembly Drawing - BHP
4. 1002182-901 GE Harris Freight Car Modification Kit - BHP
5. 1002183-901 GE Harris Car Control Unit (CCU) Installation Hardware Kit - BHP
6. 1002188-901 GE Harris Generator Installation /Assembly /Hardware Kit - BHP
7. 1002577-901 GE Harris Antenna Installation /Assembly /Hardware Kit - BHP
8. 1002328-901 GE Harris Battery Box Installation / Assembly / Hardware Kit - BHP
9. TP1002546 Test Procedure, BHP

1.3 REQUIRED TOOLS & MATERIALS

These items are required for proper installation:

1. Arc Welding Equipment
2. ½” SQ DR ratchet handle with 3”-6” extension
3. ½” SQ DR torque wrench - 100-150 ft.-lbs. capacity
4. 3/8” SQ DR torque wrench - 80-100 in.-lbs. capacity
5. 3/8” SQ DR 3”-6” extension
6. 15/16” socket for ½” SQ DR
7. 1/2” socket for ½” SQ DR
8. 9/16” socket for ½” SQ DR
9. 7/16” socket for 3/8” SQ DR

- 10.7/16" combination box / open end wrench
- 11.1/2" combination box / open end wrench
- 12.9/16" combination box / open end wrench
- 13.13/16" combination box / open end wrench
- 14.5/32" Hex Driver (Allen Wrench)
- 15.Vise-Grip pliers
- 16.Pipe wrench 12" - 16"
- 17.Slip Joint Pliers
- 18.#2 Phillips screwdriver
- 19.#3 Phillips screwdriver
- 20.Generator coupler installation tool - 1000850-001
- 21.Liquid Wrench
- 22.Loctite Primer, Type N
- 23.Loctite Thread Sealer, #242 Blue

1.4 INSTALLATION INSTRUCTIONS

The following instructions are divided into 5 sections:

- Section 2. Freight Car Modifications,
- Section 3. Generator and Cable Installation
- Section 4. CCU Installation
- Section 5. Antenna and Antenna Cable Installation
- Section 6. Battery Box and Power Cable Installation
- Section 7. Programming and Testing

These instructions are arranged in the sequence that appears most convenient for the installers. If there are any questions, please contact:

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24.

Section 2 CAR CONTROL UNIT (CCU) -1002173-901, 1002183-901

The CCU is supplied as one assembly - part number 1002173-901, which is mounted to the Pipe Bracket in place of the existing Service Valve, and to which one power cable and two antenna cables are attached. Installation hardware for the CCU is in kit 1002183-901.



FIGURE 2 - 1 CAR CONTROL UNIT

CAUTION: THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS A DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES. THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS. OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

CAUTION: USE OF ANY COMPONENTS OTHER THAN THOSE SUPPLIED OR AUTHORIZED BY GE HARRIS (I.E. TESTED TO MEET FCC REGULATIONS WITH THE TRINTALK SYSTEM) IS A VIOLATION OF FCC REGUALTIONS. CHANGES OR MODIFICATIONS NOT EXPRESSEDLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

CAUTION: AIR PRESSURE IN BRAKE CYLINDER AND ALL SERVICE AND EMERGENCY RESERVOIRS MUST BE RELEASED BEFORE WORK ON PIPE BRACKET MAY PROCEED.

1. Release or vent all air from Brake Cylinder and ALL Emergency and Service reservoirs on freight car.
2. Locate Pipe Bracket and brake valve assembly. Remove the cotter pin holding the Manual Release Push-Pull Rod to the Service valve. Remove three 5/8-11 nuts (15/16" hex) holding the service valve, and remove service valve and gasket.
3. Remove upper short 5/8" stud from pipe bracket.

NOTE: CUSTOMER MAY REQUIRE THAT THE AIR FILTER BE REPLACED WHEN THE STRAINER NUT IS REPLACED. IF SO, CUSTOMER WILL SUPPLY NEW AIR FILTERS.

4. Remove Strainer Nut from pipe bracket and replace with new Modified Strainer Nut 1002418-001 with larger hole from CCU Installation Kit 1002183-901; replace air filter if required by customer.
5. Examine lower two 5/8" studs: Outer threads should be clean and show no signs of cross threading. Length extension from pipe bracket should be 6-1/2" minimum with a minimum of 1.0" thread engagement in the pipe bracket. Replace if necessary with 5/8-11 x 8.0" studs in Hardware Kit 1002183-901.
6. Insure gasket surface of Pipe Bracket is clean and free of loose dirt and debris. Place Service Valve Gasket from CCU Installation Kit 1002183-901 over the two lower studs, or at customer option, use existing gasket or customer supplied gasket.
7. Slide CCU Assembly onto the two lower studs and install 5/8" flat washer and 5/8-11 hex nut finger tight on each stud.
8. If CCU interferes with pipe bracket mounting plate then spacer plates must be installed. This is done by loosening the 4 bolts and lowering the pipe bracket about 1/4" to 1/2" as needed. Slide the spacer plate(s) (xxxxxxx) in around the bolts. After the plates have been inserted tighten the bolts checking to see if there is at least 1-1/2 threads showing at the bottom of the nuts. If not then remove the bolt replace with 12-1/2" bolts provided. Note: a pry bar may be needed to lower the pipe bracket.

9. Install 5/8-11 x 6-1/2" bolt and flat washer into Pipe Bracket through upper hole in CCU assy, and tighten finger tight.
10. Torque the two nuts and one bolt to 35 ft.-lbs., then 60 ft.-lbs., then 85 ft.-lbs. $\pm$ 5 ft.-lbs.
11. Reattach the Manual Release Push-Pull Rod to the CCU with cotter pin provided on the CCU Manual Release Clevis.

NOTE: SOME AMOUNT OF ADJUSTMENT OF THE PUSH-PULL ROD MAY BE REQUIRED TO ALLOW THE MANUAL RELEASE MECHANISM TO OPERATE PROPERLY.
SET-UP AS FOLLOWS:

- a. At least half the weight of the Push-Pull Rod must be supported by the cotter pin in the Manual Release Clevis. Most likely the rod will have to be bent downward by approximately 1-2 inches.
 - b. The rod must be straight where it passes through any and all support tabs, and it must be free to move without binding. This may require the rod to be bent sideways (along the length of the car) near one or more of the support tabs, depending on how much the rod has been deformed through previous usage.
12. Return service valve, gasket, old strainer nut, old air filter (if replaced) and any used studs and nuts to the customer's maintenance facility. Used Service Valves should be protected with either duct tape or a shipping plate - supplied by customer.



FIGURE 2 - 2 MANUAL RELEASE MECHANISM

13. Return any unused new studs and nuts to GE Harris on-site contact for disposition.

Section 3 ANTENNAS AND ANTENNA CABLES - 1002577-901

CAUTION: RF OUTPUT IS SET BY GE HARRIS. DO NOT CHANGE ANTENNAS, CABLE LENGTH, OR TYPE. TO DO SO MAY VIOLATE FCC RULES. IF CHANGES ARE NECESSARY, CONTACT GE HARRIS CUSTOMER SERVICE.

CAUTION: THIS DEVICE EMITS NON-IONIZING RADIATION. TO MEET RF SAFETY REQUIREMENTS, STEPS MUST BE TAKEN TO PREVENT ALL PERSONNEL FROM BEING CLOSER THAN ONE (1) METER FROM THE ANTENNA MAIN BEAM WHEN THE TRANSMITTER IS OPERATIONAL.

1. From Antenna Installation Kit 1002577-901 locate 2 antenna assemblies 1000468-901 and 2 antenna cables 1002397-903 (2') and -904 (10'), a roll of connector waterproofing tape, and 8 bolts, 3/8-24 x 3/4" and eight 3/8" flat washers.
2. Bolt the 2 antennas to the 2 mounting brackets installed earlier, with antenna connector facing toward center of freight car, using four 3/8" bolts and four 3/8" flat washers. Apply Loctite Primer Type N to bolt threads and Blue Loctite Thread Sealer 242 to the tapped threads in the antenna casting; torque 3/8-24 bolts to 210 ± 15 in-lbs.



FIGURE 3 - 1 ANTENNA AND CABLING

3. Route the two antenna cables from the CCU to the two antennas, through all required cable clamps. Do not tighten cable clamps until antenna connections have been made.
4. AT CCU END, LONG CABLE CONNECTS TO THE TOP TYPE-N COAX CONNECTOR (J1) AND SHORT CABLE TO THE BOTTOM TYPE-N COAX CONNECTOR (J2).
5. Apply two drops of Blue Loctite Thread Sealer 242 to connector threads, and tighten to 15 ft.-lbs. (180 in-lbs.) $\pm 10\%$.
6. Connect the cables to the antennas, using the same procedure as on the CCU.

7. At both antennas, and at the CCU, wrap each connector pair with a length of waterproofing tape (4 total).
8. From Antenna Installation Kit 1002577-901 locate two U-bolts and two rubber cushion sleeves, 1002393-001. Slide the rubber sleeve over the connected cable at the antenna end, and install U-bolt over the sleeve and cable, into the antenna bracket installed earlier. Apply Loctite Primer Type N and Blue Loctite Thread Sealer 242 to U-bolt threads, and tighten nuts on the U-bolt to 40-50 in-lbs.
9. From Antenna Installation Kit 1002577-901 locate double saddle clamp, 1000938-001, two more rubber cushion sleeves and one 3/8-16 x 1-1/2" bolt with 3/8" flat washer and self locking nut. At the CCU end, install the two rubber cushion sleeves over the two antenna cables and install the double saddle clamp with the 3/8" bolt and nut & washer to the support angle, part of the CCU assembly. Tighten 3/8" nut & bolt to 15 ft.-lbs. (180 in-lbs.) $\pm 10\%$.