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Instructions for Continued Airworthiness

Load Weigh System
for the
Airbus Helicopters AS350 Series Helicopter

System Part Numbers
200-310-00, 200-310-01

STC SR01804SE

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Record of Revisions

Revision	*Date*	*Page(s)*	*Reason for Revision*
0	7/24/06	All	First Issue
1	03/18/10	05-00-00 page 2 25-00-00 page 5	Updated electrical schematic to reflect new load weigh harness configuration. Changed overhaul frequency criteria.
2	10/29/15	Section 0 page 2 Section 5 Section 25 page 3	Removed daily check, expanded 5 year/1000 hour inspection, updated trouble shooting table, updated Precautions section. Removed section 25.18.
3	11/15/18	Section 0 page 1, Sections 4, 5, 11, 25	Added kit P/N 200-310-01 which includes C-40 Indicator P/N 210-293-00. Updated Airworthiness Limitations section to comply with 14 CFR sec. A27.4.

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Section 0
Introduction

0.4 Scope

The following information is necessary to carry out the service, maintenance, and inspection of the Load Weigh System P/N 200-310-00 and P/N 200-310-01.

0.5 Purpose

The purpose of these Instructions for Continued Airworthiness (ICA) is to provide the information necessary to inspect, service, and maintain in an airworthy condition the Load Weigh System.

0.6 Arrangement

This manual contains instructions for the service, maintenance, inspection and operation of the Load Weigh System P/N 200-310-00 and P/N 200-310-01 on Airbus Helicopters AS350 series helicopters. The manual is arranged in the general order that maintenance personnel would use to maintain and operate the Load Weigh System in service.
The arrangement is:

Section 0 Introduction.
Section 4 Airworthiness limitations (None apply to this system.)
Section 5 Inspection and overhaul schedule
Section 11 Placards and Markings
Section 12 Servicing
Section 25 Equipment and Furnishings

0.7 Applicability

These Instructions for Continued Airworthiness are applicable to Load Weigh System P/N 200-310-00 and P/N 200-310-01 for the Airbus Helicopters AS350 Series Helicopters. Refer to the appropriate Airbus Helicopters maintenance documentation for instructions regarding parts of the aircraft that interface with this system.

0.9 Abbreviations

FAA Federal Aviation Administration
FAR Federal Aviation Regulation
ICA Instructions for Continued Airworthiness

0.12 Precautions

The following definitions apply to safety labels used in this manual.

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

Draws the reader's attention to important or unusual information not directly related to safety.

Used to address practices not related to personal injury.

0.19 Distribution of Instructions for Continued Airworthiness

Before performing maintenance ensure that the Instructions for Continued Airworthiness (ICA) in your possession is the most recent revision. Current revision levels of all manuals are posted on Onboard Systems Int'l web site at www.onboardsystems.com. Also a Documentation Update Service is available on the web site. Registering for this service provides an e-mail notification when a manual has been revised. Hard copies of all manuals are available from the factory; contact the factory at 800-275-0883 to request a copy.

Section 4
Airworthiness Limitations

The Airworthiness Limitations section is FAA approved and specifies inspections and other maintenance required under Secs. 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

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Section 5
Inspection Schedule

5.1 Load Weigh System Inspection

The scheduled inspection intervals noted below are maximums and are not to be exceeded. If the load weigh system is subjected to unusual circumstances, extreme environmental conditions, etc., it is the responsibility of the operator to perform the inspections more frequently to ensure proper operation.

Annually or 100 hours of external load operations, whichever comes first, inspect the load weigh system per the following.

NOTICE

*Hours of external load operations should be interpreted to be **(1)** anything is attached to the primary cargo hook (whether or not a useful load is being transported) and **(2)** the aircraft is flying. If these conditions are **NOT** met, time does **NOT** need to be tracked.*

NOTICE

Kit P/N 200-310-01 includes the C-40 Load Weigh Indicator (P/N 210-293-00) which records and displays hours of external load operations accumulated. This resettable hour-meter automatically logs time when the external load goes above 50 lbs and stops counting when it goes under 25 lbs. For this method of tracking hours refer to the C-40 Owner's Manual for setup and additional instructions.

1. Move the load cell and the suspension system throughout their full ranges of motion and observe the load weigh electrical harness to ensure that it has enough slack. The harness must not be the stops that prevent the load cell, cargo hook or suspension from moving freely in all directions.
2. Visually inspect the electrical harness strain relief at the load cell for damage.

5.1 Load Weigh System Inspection continued

3. Visually inspect the load cell covers for damage and security (see Table 5.1.1 for damage limits).
4. Visually inspect the load cell link for damage (see Table 5.1.1 for damage limits).
5. Visually inspect the load weigh harness connector at the belly of the helicopter for damage and security.
6. Visually inspect the external electrical harness for damage and chafing.
7. Visually inspect the load weigh indicator and its mounting bracket for damage and security.

Every 5 years or 1000 hours of external load operations, whichever comes first, inspect the load weigh system per the following.

In addition to the items listed for the annual/100 hour inspection, perform the following. Refer to Figure 5.1.1 for load cell assembly components and Table 5.1.1 for inspection criteria.

1. Return the Load Cell Assembly (P/N 210-221-00) to the factory for inspection and calibration. The factory will inspect the condition of the load cell and perform acceptance test procedures including calibration and zero balance, repairing as necessary.
2. Inspect internal electrical harness from the load weigh indicator to the load cell for general condition, security of attachment, and chafing along the length of wire runs.

5.1 Load Weigh System Inspection continued

Figure 5.1.1 Load Cell Components

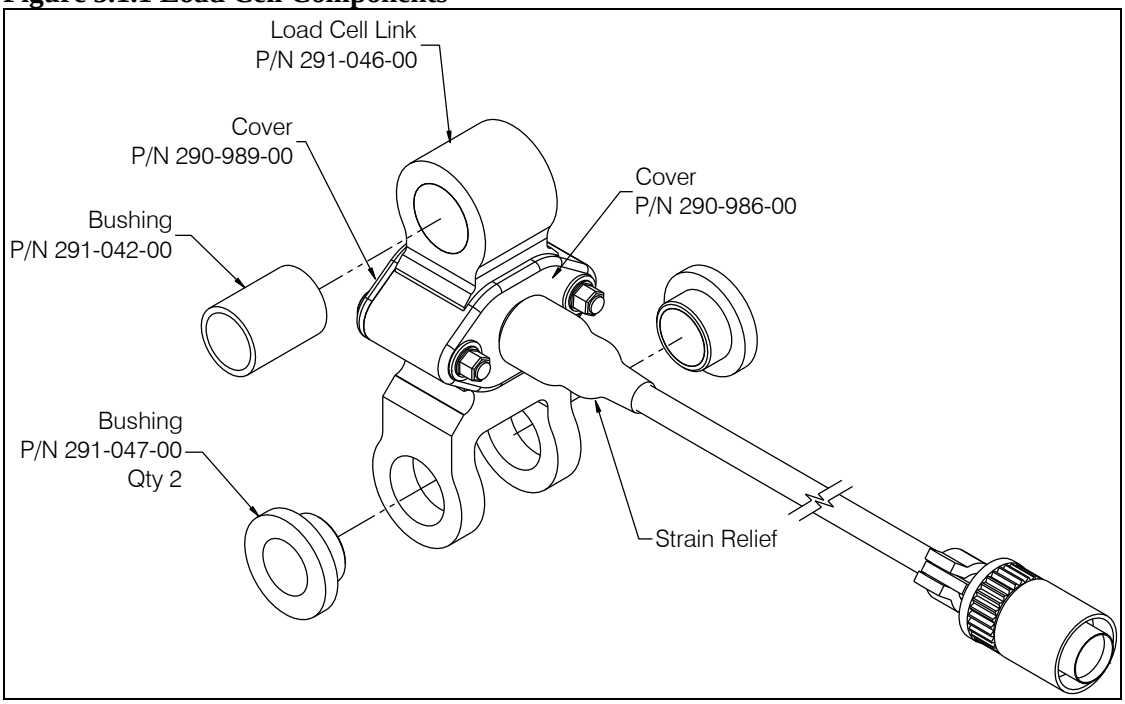

Table 5.1.1 Inspection Criteria

Part	Damage	Repair
Load Cell Link P/N 291-046-00	Dents, nicks, cracks, gouges, corrosion or scratches in the load cell link.	Repair dents, gouges, nicks, scratches and corrosion if less than .030 in. (.76 mm) deep, blend out at a ratio of 20:1, length to depth, replace if otherwise damaged. Part is 15-5 stainless steel, no finish touch-up required.
Covers P/N 290-986-00 P/N 290-989-00	Dents, nicks, cracks, gouges, corrosion or scratches in the covers	Repair dents, gouges, nicks, scratches and corrosion if less than .050 in. (1.27 mm) deep, blend out at a ratio of 20:1, length to depth, replace if otherwise damaged. Touch up with Alodine and zinc chromate primer.
Bushing P/N 291-042-00	Wear on inside diameter.	Replace bushing if inside diameter exceeds 0.570 in. (14.5mm). Install bushing with wet zinc chromate primer (TTP1757-1CY or equivalent) applied to the inside diameter of the mating hole.
Bushing P/N 291-047-00	Wear on inside diameter.	Replace bushing if inside diameter exceeds 0.570 in. (14.5mm). Install bushing with wet zinc chromate primer (TTP1757-1CY or equivalent) applied to the inside diameter of the mating hole.

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Section 11
Placards and Markings

11.1 Placards

The P/N 200-310-00 and P/N 200-310-01 Load Weigh Systems are replacement systems for the OEM load weigh system and utilize the helicopter's existing placarding. Consult Airbus Helicopters maintenance manuals for placards.

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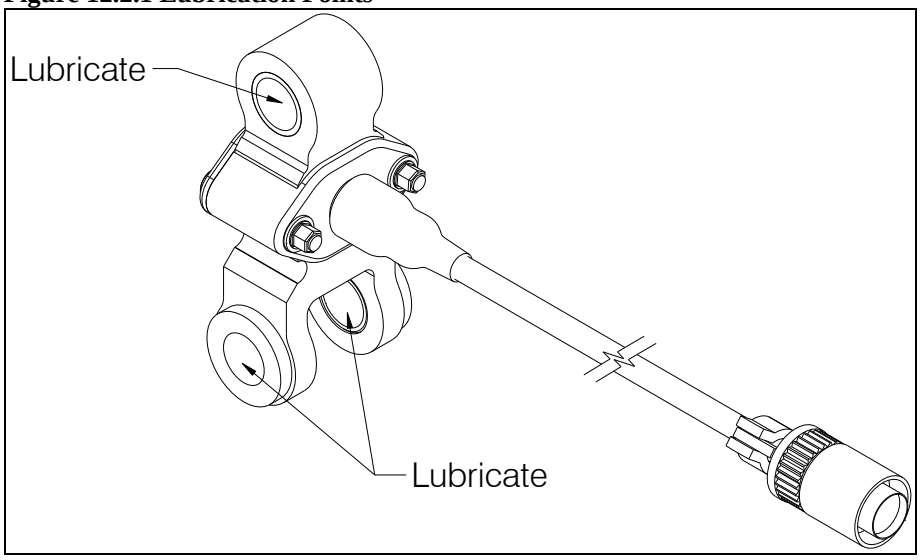
Section 12
Servicing

12.2 Lubrication Information

Lubrication of the Load Cell Assembly is recommended every 500 hours of external load operation. To obtain maximum life under severe duty conditions such as logging or seismic work, it is recommended to lubricate the Load Cell Assembly approximately every 250 hours.

Lubricate the Load Cell Assembly at points noted in Figure 12.2.1. Recommended lubricants are AeroShell 17, MIL-PRF-21164 or Mobilgrease 28, MIL-PRF-81322.

Figure 12.2.1 Lubrication Points



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Section 25
Equipment and Furnishings
25.2 Description

The Load Weigh System is a compliment to the helicopter lifting system. Its purpose is to display the weight of the load carried on the cargo hook. The P/N 200-310-00 and P/N 200-310-01 Load Weigh Systems are conversion kits for AS350 operators with an Airbus Helicopters cargo hook swing suspension. This kit replaces the load cell, the load weigh indicator, and the interconnecting electrical wiring of the OEM configuration.

The components of system P/N 200-310-00 are shown in Figure 25.2.1. System P/N 200-310-01 is the same as P/N 200-310-00 except it includes the C-40 indicator model and a bracket which replace the C-39 indicator and bracket of 200-310-00; these components are shown in Figure 25.2.2.

Figure 25.2.1 Load Weigh System Components (P/N 200-310-00)

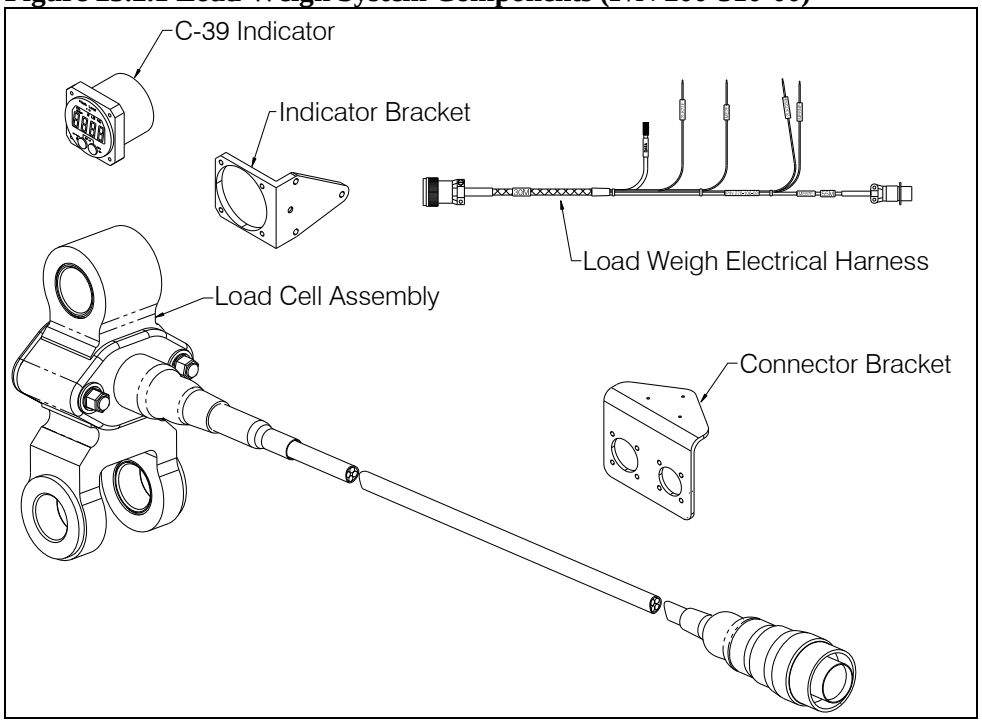
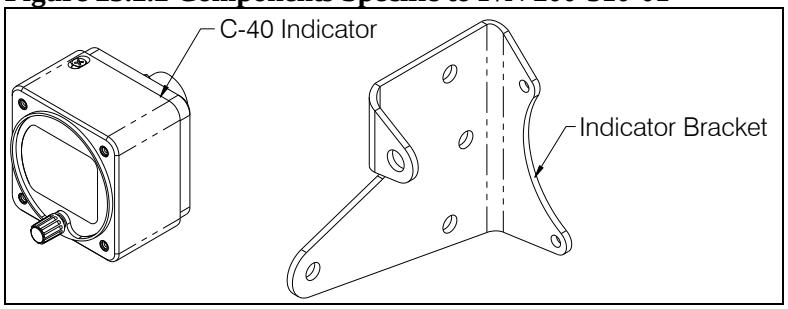


Figure 25.2.2 Components Specific to P/N 200-310-01



25.5 Component Weights

The weights and cgs of the systems are listed in Table 25.5.1.

Table 25.5.1 Component Weights and CGs

Item	Weight	Station
Removable Provisions*	0.80 lbs (.36 kgs)	133 in (3375 mm)
Fixed Provisions**	1.50 lbs (.68 kgs)	110 in (2794 mm)
Total	**2.30 lbs (1.04 kgs)**	**118 in (2997 mm)**

***** The removable provisions include the load cell and its associated external electrical harness. These items are easily removed if they are not needed on the helicopter's mission.

****** The fixed provisions are those items of the kit that remain on the aircraft. This includes the internal electrical harness and the load indicator.

25.12 Storage Instructions

Clean the load cell thoroughly of dirt and grease with a rag before packaging. Pack the unit in a heat-sealable package. If the unit is to be stored for long periods in a tropical climate it should be packed in a reliable manner to suit local conditions. Refer to MIL-PRF-23199 and MIL-STD-2073-1 for additional guidance.

Package the unit in a suitable fiberboard box and cushion the unit to prevent shifting. Seal the fiberboard box with tape and mark the box with the contents and date of packaging.

25.15 Troubleshooting

Table 25.15.1 is provided with the intention of isolating the cause of malfunctions within the load weigh system. Sections 25.16 and 25.17 include instructions for removing and replacing defective components. Refer to the appropriate Airbus Helicopters maintenance documentation for guidance on procedures relating to Airbus Helicopters parts that interface with the load weigh system.

For detailed operation instructions including settings of the Load Weigh Indicator (C-39 model or C-40 model) refer to the applicable Owner's Manual for the Indicator provided with the Load Weigh System.

Table 25.15.1 Troubleshooting

MALFUNCTION	PROBABLE CAUSE	CORRECTIVE ACTION
Load Weigh Indicator does not light up.	Faulty wiring or fuse or circuit breaker.	Check the fuse or circuit breaker (refer to Airbus Helicopters maintenance manual) and wiring (see Note 1). If this doesn't help, remove and replace indicator per sections 25.16 and 25.17.
The displayed load on the Indicator is incorrect.	Incorrect calibration code.	Ensure the correct calibration code has been entered (see Note 3).
C-39 Indicator displayed load is not stable.	Dampening level is too small.	Adjust the dampening level to a larger number (see Note 4).
C-39 Indicator displayed load takes too long to change the reading when the load is changed.	Dampening level is too large.	Adjust the dampening level to a smaller number (see Note 4).
C-39 Indicator does not change with changing hook loads.	Defective load cell, indicator failure or damaged wire harness.	Check for damaged wire harness (see note 2), remove and replace wire harness assembly or load cell (see sections 25.16 and 25.17).
Indicator displays large negative load	Indicator was zeroed under load.	Un-zero the indicator. Refer to applicable Owner's Manual for instructions.
C-40 Indicator analog bar not in sync with displayed load	Indicator is zeroed; analog bar always displays un-zeroed load.	Un-zero the indicator.

25.15 Troubleshooting continued

Table 25.2 Troubleshooting notes:

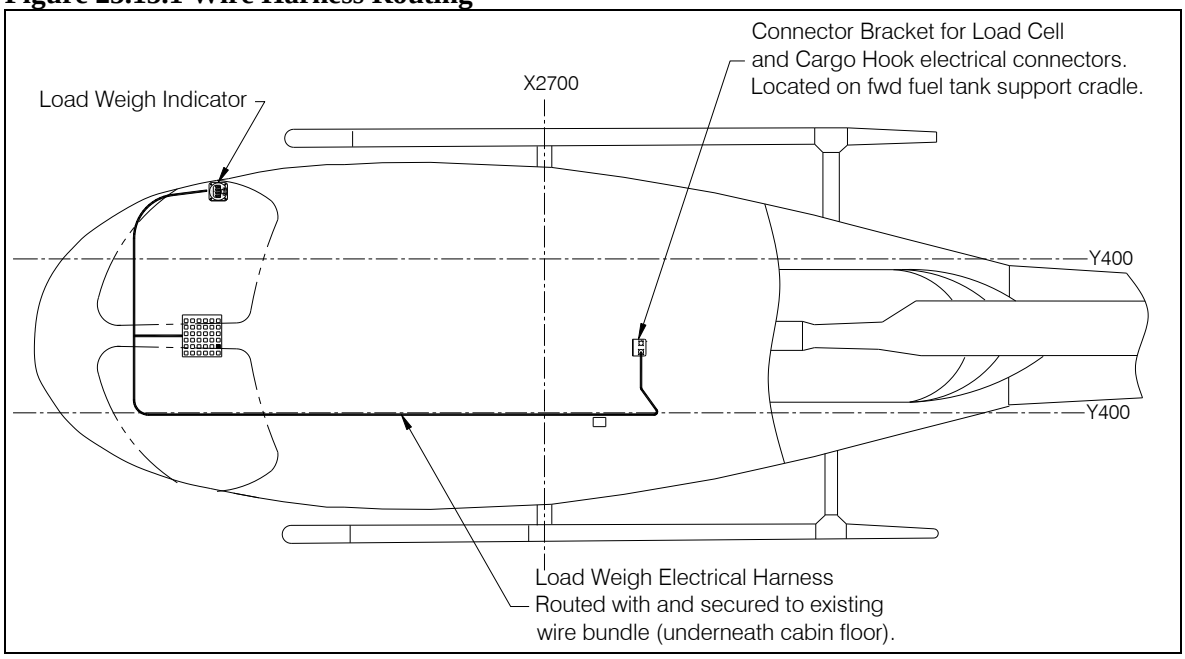
1. Checking Wire Harnesses.

As appropriate, before working on a circuit, e.g. - inspection, removal-installation of components, check that the aircraft system is not energized:

- "EXT. PWR. BAT." push-button is released.
- External power connector is not supplied
- Further precaution: remove the fuse(s) or open circuit breaker for the corresponding circuits.

The wire harnesses are routed with and secured to existing wire bundles and are located approximately as shown below. Remove lower fairings to inspect wiring underneath the cabin floor. Inspect for general condition and chafing along length of wire runs. See Figure 25.15.2 for electrical wiring schematic.

Figure 25.15.1 Wire Harness Routing

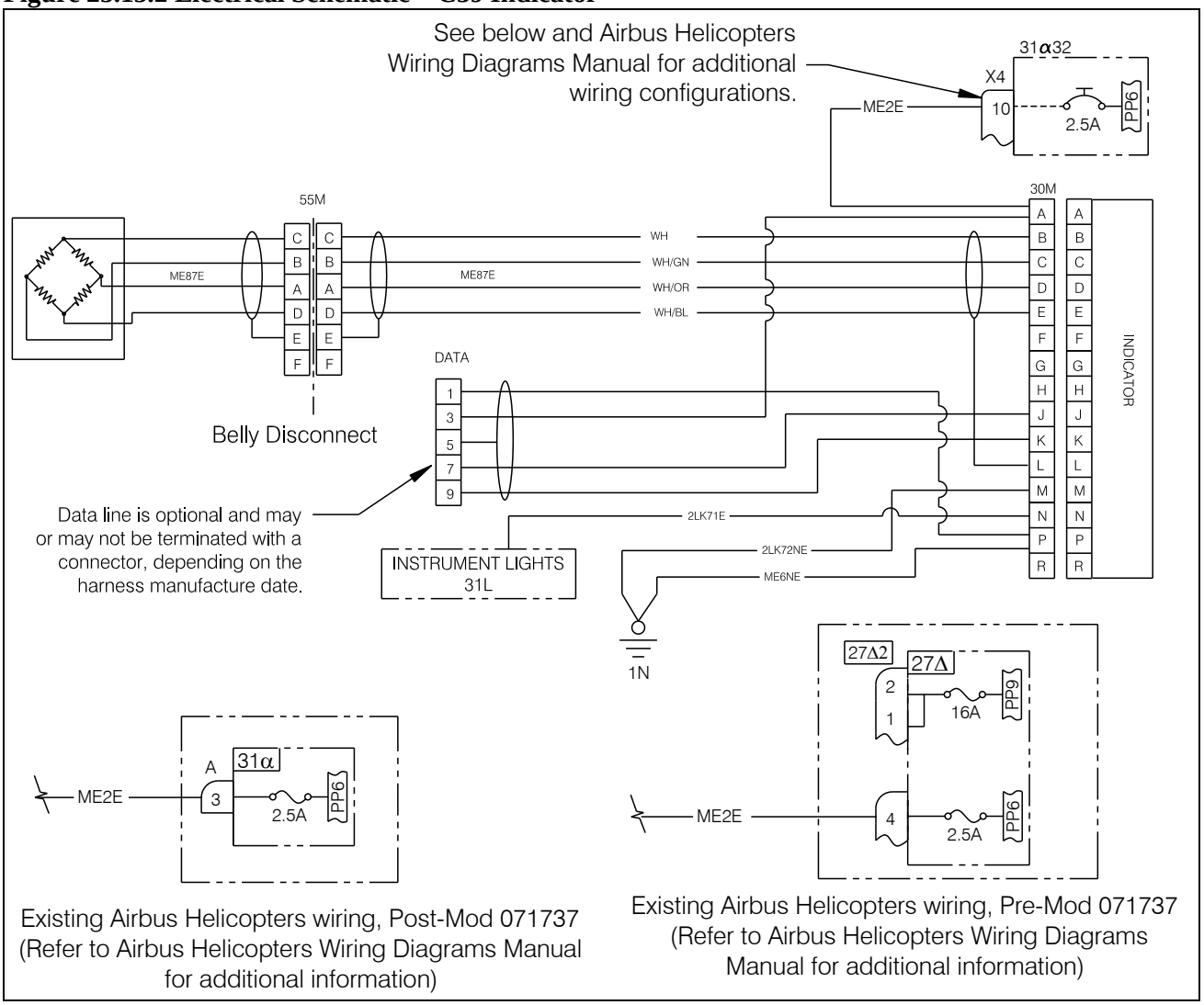


25.15 Troubleshooting continued

Table 25.2 Notes continued:

2. Checking Wire Harnesses continued

Figure 25.15.2 Electrical Schematic – C39 Indicator

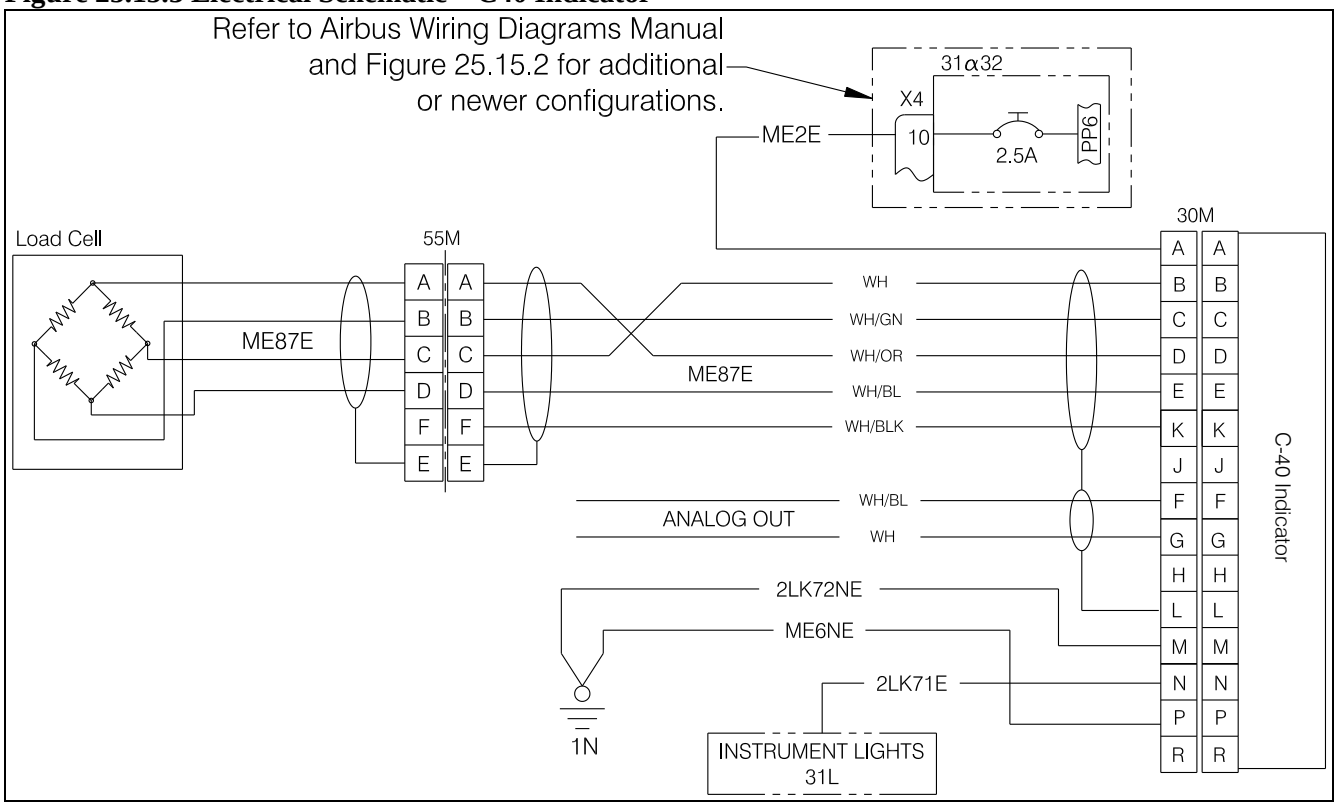


25.15 Troubleshooting continued

Table 25.2 Notes continued:

2. Checking Wire Harnesses continued

Figure 25.15.3 Electrical Schematic – C40 Indicator



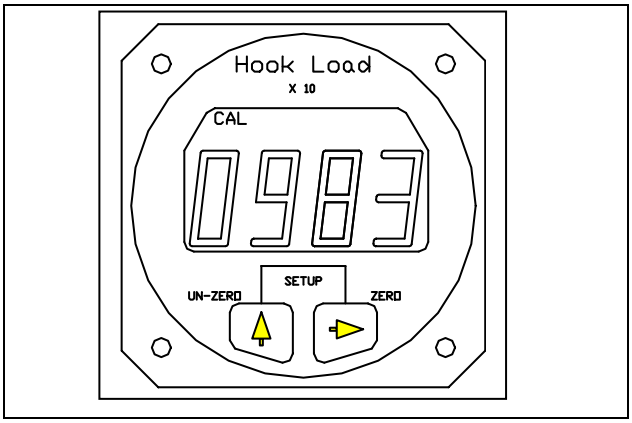
25.15 Troubleshooting continued

Table 25.2 Notes continued:

3. Checking Load Weigh Indicator calibration code:

On the C-39 Indicator: With the Indicator powered up and in the Run Mode, press both buttons at the same time to go to Setup. Scroll through the menu until the word CODE is displayed, then press the Right button. The display should look like this:

Figure 25.15.4 CAL Code (C-39 model)



On the C-40 Indicator: To enter the C-40 Settings menu, from the Load screen rotate the knob and the Settings introduction screen will appear. Press the knob again to enter the Settings menu. To scroll through the Settings menu, rotate the knob right to advance to Cal Code to view it.

Figure 25.15.5 C-40 Settings Screen

This code should match the code printed on the tag attached to the load cell cable.

If this code does not match, contact Onboard Systems for further guidance.

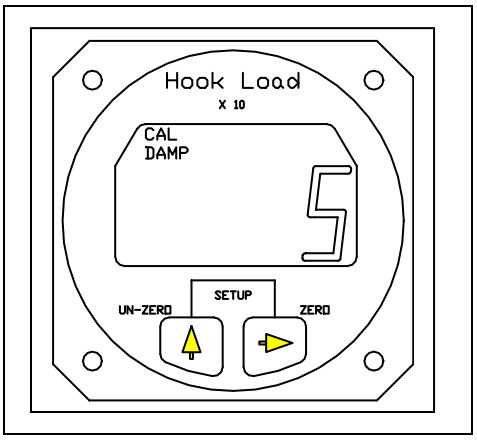
25.15 Troubleshooting continued

Table 25.2 Notes continued:

4. Adjusting dampening level (C-39 model only):

With the Indicator powered up and in the Run Mode, press both buttons at the same time to go to Setup. Scroll through the menu, using the Left button, until the word DAMP is displayed. To look at or change the Dampening Level press the Right button. The display should look like this:

Figure 25.15.6 Changing Dampening Level



The CAL and the DAMP legend is turned on and the previously set dampening level is displayed. To return to Run without changing the current dampening level press both the Right and Left buttons at the same time. To change the dampening number, use the Left button to scroll the blinking digit to the desired number. Ten dampening levels are available, from 0 through 9. At level 0 the display responds to the slightest change in weight. However, if the load bounced even slightly, the display digits would respond instantly, making the display look unstable. With a dampening level of 9, the display would be stable under the most turbulent conditions, however, it would take several seconds for the display to respond to a change in weight. The ideal dampening level will depend on the flying conditions. A mid range setting of 5 or 6 is usually adequate. After the selection has been made press both the Right and Left buttons at the same time to return to Run.

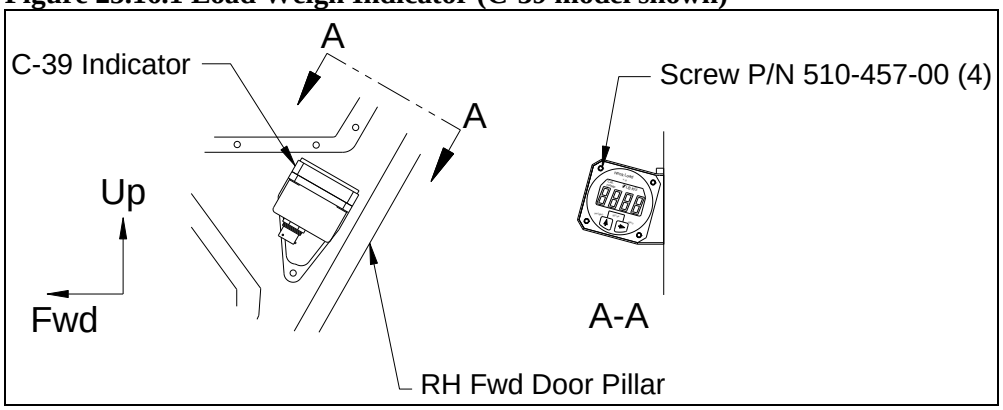
25.16 Component Removal

Load Weigh Indicator Removal

The Indicator is located on the RH forward door pillar.

1. Disconnect electrical connector from the back of indicator.
2. Remove the mounting screws that secure the indicator to the mounting bracket and remove the indicator.

Figure 25.16.1 Load Weigh Indicator (C-39 model shown)



Load Cell Removal

1. Disconnect the electrical connector at the belly of the helicopter.
2. Remove the Cargo Hook from the load cell (reference Airbus Helicopters maintenance documentation for hardware).
3. Remove the Load Cell Assembly from the fitting on the suspension frame (reference Airbus Helicopters maintenance documentation for hardware).

25.17 Component Re-installation

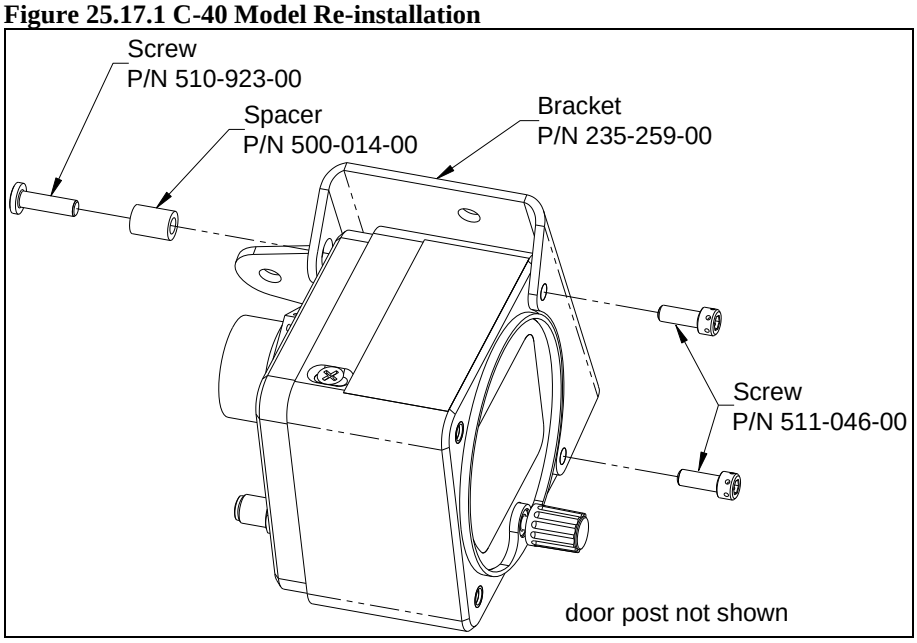
C-39 Model Load Weigh Indicator Re-installation

1. Place the Load Weigh Indicator into the mounting bracket (P/N 290-772-00) on the RH door pillar and secure with four screws (P/N 510-457-00). Refer to Figure 25.16.1.
2. Connect the electrical connector on the wiring harness to the connector on the back of the indicator.

C-40 Model Load Weigh Indicator Re-installation

1. Place the Load Weigh Indicator into the mounting bracket on the RH door pillar and secure with two screws (P/N 511-046-00) on the display side and a spacer (P/N 500-014-00) and screw (P/N 510-923-00) on the connector side. Safety-wire the screws on the display side per MS33540.
2. Connect the electrical connector on the wiring harness to the connector on the back of the indicator.

Figure 25.17.1 C-40 Model Re-installation



Load Cell Re-installation

1. Attach the load cell assembly (P/N 210-221-00) to the fitting on the suspension frame with bolt, washer, nut, and cotter pin (reference Airbus Helicopters maintenance documentation for part numbers).
2. Connect the load cell electrical cable connector on the load cell cable to the connector on the belly of the helicopter.