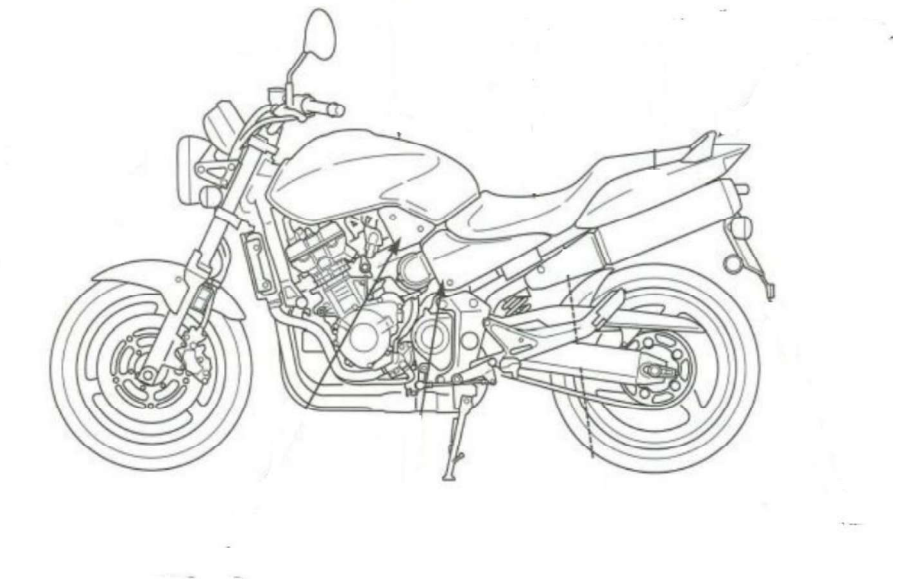
Engine Removal and Installation

Honda CB 900F



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Revision History

Revision No.	Date	Revision
001	August 2025	Original release

1 Customer Acknowledgment

Use only Honda original parts. Damage or breakdown that is caused by non-original spare parts are not covered by the warranty or product liability.

Honda is not held responsible for damages that are caused by unauthorized modification of the bike and its associated equipment.

The manufacturer is not liable for damage that is caused by inappropriate use.

The following damages are not covered by the customer warranty policy:

- Damage from substandard repairs,
- Injury to personnel from unresolved repairs,
- Damage to equipment from unresolved repairs.

Always refer to the customer warranty policy.

Performance specifications are based on maximum computed values and are subject to revisions without notification. Nothing in this instruction extends any warranty or representation expressed or implied, regarding the products described. Any such warranties or other terms and conditions shall be in accordance with Honda standard terms and conditions of sale for such products, which are available upon request.

Specifications represented herein are calculated values at 100% efficiency. Honda is constantly striving for product improvements and enhancements. Accordingly, Honda reserves the right to make such changes in specifications and design as the company considers in conformity with this policy or due to unavailability of materials or assemblies.

2 General Information

2.1 Introduction

This SOP provides an administrative control to help manage the hazards and risks of doing the task of Component Removal and Installation.

As a preface to using this SOP, all other types of controls, such as elimination, substitution, isolation, and engineering must be considered and implemented.

2.2 Qualifications / Licenses Required

THIS PROCEDURE IS ONLY FOR HONDA-CERTIFIED TECHNICIANS.

Service technicians/workers doing this maintenance procedure must have a Technical Level 1 or Technical Level 2 certification.

This task serves numerous customer jurisdictions. If a particular procedure or clause conflicts with the site-specific requirements or a particular country's occupational health and safety standards, the responsibility rests on the user to amend those procedures or clauses, as applicable.

2.3 Terms and Abbreviations

Term	Definition
Job Safety and Environmental Analysis	Local job risk observation tool, used for job hazard identification and determination of how to manage the risk through appropriate control measures.
Technician	A person who is qualified to do the work according to local regulations and requirements.
Approved lifting device	A device that is connected to, or applied on, a component for the purpose of lifting it. The device must fulfil local regulations and requirements for the lifting operation. All lifts must be assessed and calculated by an approved person inclusive of rigging selection and placement on the load to determine the safe lifting methods that are applied.
Bike	The complete Honda bike that the component is located within.
Equipment	Auxiliary equipment to assist task operations, including but not limited to Lifting Devices, Compressors, Tooling.

Abbreviation	Definition
JSEA	Job Safety and Environmental Analysis
PPE	Personal Protective Equipment
OEM	Original Equipment Manufacturer

3 Safety

3.1 Safety First

The person or persons doing the tasks contained in this document must be qualified in accordance with local regulations and requirements. It is the duty of all personnel involved in doing the tasks to read and understand the bike-specific Safety, Operation, Mainte- nance, and Isolation manuals and any other documentation specifically referenced in this document before starting any work on the bike.

The instructions include specific safety messages that are marked with **Danger**, **Warning**, **Caution**, **Notice**, or **Note**. Give extra attention to these messages, as they contain additional information to the instruction text. Comply with any local safety rules that are specific to the work location.

Use this instruction in conjunction with a local Job Safety and Environmental Analysis (or equivalent) to identify and manage hazards.

3.2 Job Safety and Environmental Analysis (JSEA)

Job Safety and Environmental Analysis provides job hazard identification, potential risk assessment, and suggested controls for the tasks that are described in this instruction. All persons involved in the task must create a JSEA for the job or task on the physical objects in front of them, and consider any local conditions, environmental hazards, and risks.

Remove or minimize all of the hazards that are identified before you begin work.

If hazards cannot be reduced to an acceptable level of risk, do a complete review of the site-specific JSEA.

NOTE: *Refer to local or site-specific regulations and the JSEA or equivalent type of job-risk-assessment documentation.*

3.3 Risk Factors

- Hot fluids or components
- High-pressure system
- Crushing hazard
- Environmental contaminant
- Energized equipment
- Pinch points
- Heavy components

3.4 Safety Precautions Before and During the Work

- All the persons who are involved in this task must be aware of hazards on and around the bike.
- Refer to the bike-specific safety manual.

- Be careful when you attach and secure the lifting device to the individual parts and to the large assemblies being moved for replacement purposes to prevent the risk of accidents.
- Use lifting device that is in correct condition and with an adequate lifting capacity always.
- Do not work or stand below suspended loads at any time.
- Manual handling of components must be completed with attention to correct manual handling techniques.
- Take correct measures to prevent the people getting into the work area while you lift the components.
- Make sure that only authorized personnel operate the crane.
- Disconnect the electrical power and cover exposed terminals before you work on the electrical system.
- Before starting the work, test the circuit receiving maintenance for voltage to make sure that no electricity is present.
- Make sure that all of the hydraulic hoses are connected in the same locations as they are removed.
- Release all of the pressure in the hydraulic system before you disconnect the hoses.
- Do not let the used fluid drain onto the ground.
- Obey all local standards and regulations for discarding the used fluid.

3.5 Personal Protective Equipment

Make sure that all necessary personal protective equipment (PPE) is available and properly used when doing this procedure, including:

- Head – Hard hat
- Ears – Hearing protection
- Eyes – Applicable glasses
- Hands – Applicable gloves
- Feet – Safety shoes with steel toes
- Safety devices

Obey all site-specific standard PPE requirements, mandatory area PPE regulations, and any other PPE requirements identified in the risk assessment.

4 Preparations and Prerequisites

4.1 Labor Resource (People/Skills)

Service Technicians x 2

Crane Operator x 1

Electrical Technician x 1

4.2 Technical Data

To select correct lifting devices, stands, and tools, refer to the technical data as detailed throughout the instruction sections.

! ***NOTE:*** *Due to the variation of bike options and components, actual values can dif- fer from data. Data is for reference only.*

4.3 Bike Technical Data

See bike-specific manuals for weight, dimensions, and other data relevant to bringing the bike to the work area and doing the task.

4.4 Component Technical Data

Description	Data	Remarks
Engine	68 kg (149 lb)	

4.5 Tools

Description	Specification
Standard mechanic toolkit	
Torque wrench, calibrated	1/2-in drive, capacity up to 69 Nm (51 ft-lb)
Tags	As required

4.6 Support Equipment

Description	Specification
Crane	As required
Adjustable support stand	As required

4.7 Consumables

Description	Specification	Quantity
Plugs and caps	-	As required
Strap	-	As required
Cover	-	As required
Oil absorbent materials	-	As required
Engine oil	As specified in Fluids and Lubricating Greases	As required
Coolant	As specified in Fluids and Lubricating Greases	As required

4.8 Spare Parts

> ***NOTE:*** *To create an order list request for the spare parts, refer to the Spare Parts Catalog for your specific bike model and serial number.*

Description	Specification	Quantity
Engine		1
Screw	Engine	2
Screw	Engine bottom	2

4.9 Suggested Time Required (Standard Planning Hours)

Ref. Section	Description	Planned Time (HH:MM)
5,6,7	Engine Removal and Installation	05:00

4.10 Reference Documentation

The following list of reference material relates to this instruction. Additional specific documentation is referenced at each applicable step.

> ! ***NOTE:*** *The listed documentation must be available in valid version at the location where the job is being performed.*

Manual	Reference
Safety Manual	Model Specific
Operation Manual	Model Specific
Service/Maintenance Manual	Model Specific

5 Removing the Engine

Precondition ✓ The drive sprocket is removed in accordance with the Drive Sprocket Removal and Installation procedure.

1. Park the bike in dry level surface.
2.
3. Put the center stand and lock the wheels with wheel chocks.
4. Put a container below the engine drain plug to collect the spilled oil.

WARNING

Hot Fluids or Components

Hot fluids or components can burn.

- Fluids must be at a safe working temperature when you drain it.
- Do not touch hot fluids or components.

5. Remove the drain plug (Figure 1, item A) to drain the engine oil according to the OEM instructions.

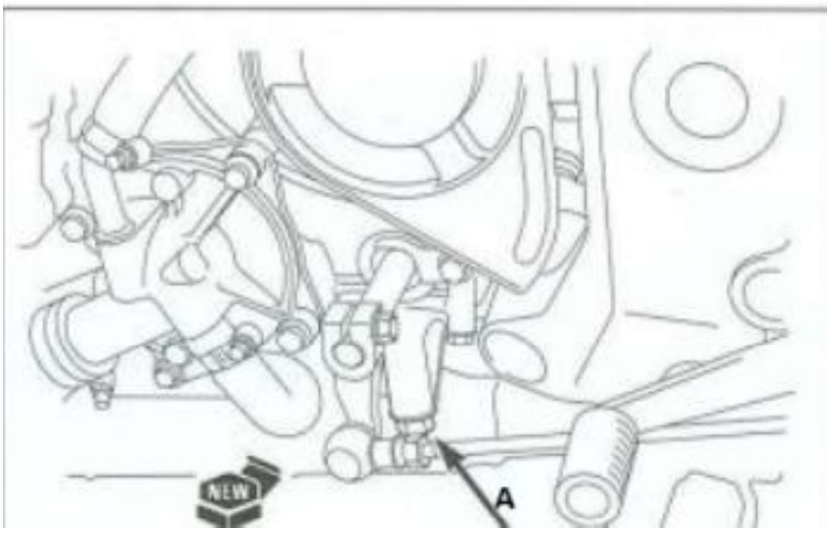

Figure 1

A	Drain plug		

NOTE: *Make sure that the engine oil is drained completely.*

6. Install the drain plug to the drain hole.

7. **CAUTION**

Environmental Contaminant

Oil is an environmental contaminant and must be discarded correctly.

- Do not let the used oil drain onto the ground.
- Discard the used oil in accordance with local environmental regulations.

Remove the container from below the engine drain plug.

8. Put a tag onto the battery isolation switch stating that the engine oil is drained.

9. **WARNING**

Hot Coolant or Components

Hot coolant or components can cause burn hazard.

- Coolant must be at safe operating temperature when you drain it.
- Do not touch hot coolant or components.

Open the coolant drain valve (Figure 2, item A) from the radiator and drain the coolant.

NOTE: *Make sure that the coolant is drained completely.*

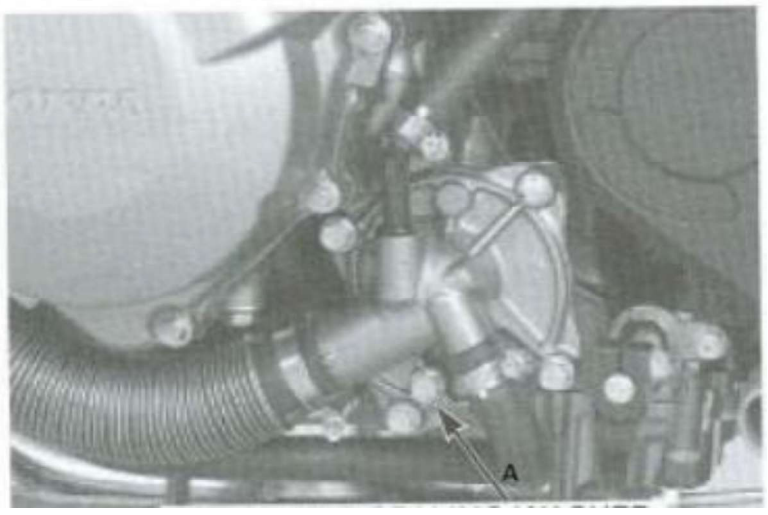

Figure 2

A	Drain valve		

10. Close the coolant drain valve (item A) to the radiator.

CAUTION

Environmental Contaminant

Coolant is an environmental contaminant and must be discarded correctly.

- Do not let the used coolant drain onto the ground.
- Discard the used coolant in accordance with local environmental regulations.

Remove the container from below the radiator drain plug.

12. Put a tag onto the battery isolation switch stating that the radiator coolant is drained.
13. Clean, label, and disconnect all the hoses (Figure 3, item A) from the engine. Cover all of the open ports immediately.

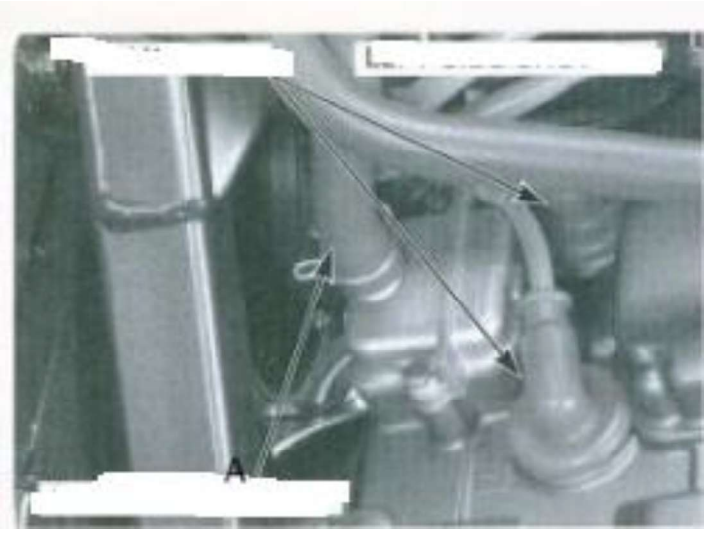

Figure 3

A	Hose		

14.

Electrical shock hazard

Risk of Electric Shock

Working with electrical systems can cause serious personal injury.

- Only authorized personnel can do the work involving cables, electrical cabinets, fuses, and connectors.
- Attach safety locks and tags to the electrical switches of the specific components before working.
- Do not use a high-pressure washer to clean the electrical components.

Clean, label and disconnect the electrical cables (Figure 5, item A) from the engine. Cover the cable ends with tape immediately.

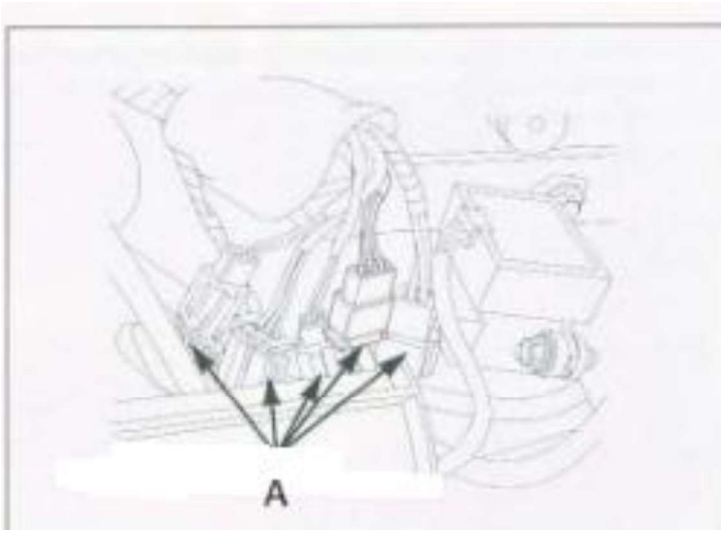

Figure 5

A	Electrical cable		

15. **WARNING**

Slipping Hazard

Fluid leaks or spills can cause personal injury.

- Cover all of the open ports.
- Wipe off any spilled fluid immediately.

Put the container or oil absorbent materials below the engine to collect the spilled fuel.

16. Close the fuel valve of the engine.

17. **CAUTION**

Environmental Contaminant

Fuel is an environmental contaminant and must be discarded correctly.

- Do not let the fuel drain into the ground.
- Discard the used fuel in accordance with local environmental regulations.

Remove the container or oil absorbent materials from below the engine.

WARNING

Crushing Hazard

Can cause personal injury.

- Lifting equipment must be adequately sized, have the correct lifting capacity, and be in good condition.
- Be careful when you lift heavy components.

18. Support the engine with adjustable support stand.
19. Remove the screw (Figure 12, item A) that attach the gear shift arm (item B) to the engine. Discard the hardware.

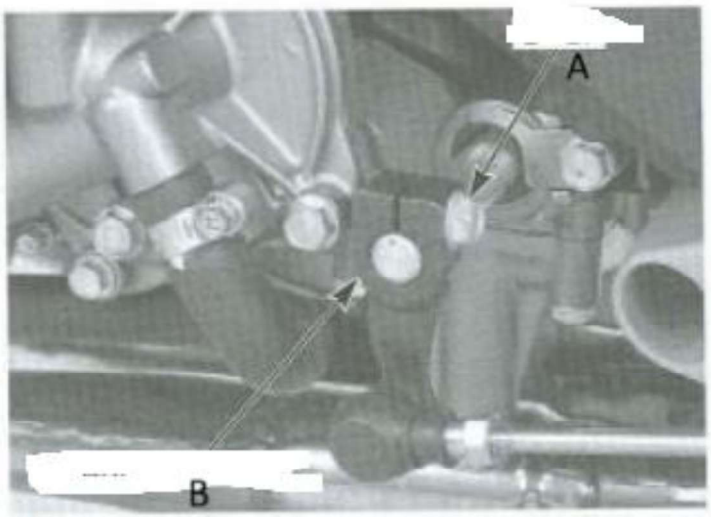

Figure 12

A	Screw	B	Gear shift arm

20. Remove the screw (Figure 14, item A), collars (item B) that attach the cover (item C) to the engine. Discard the hardware.

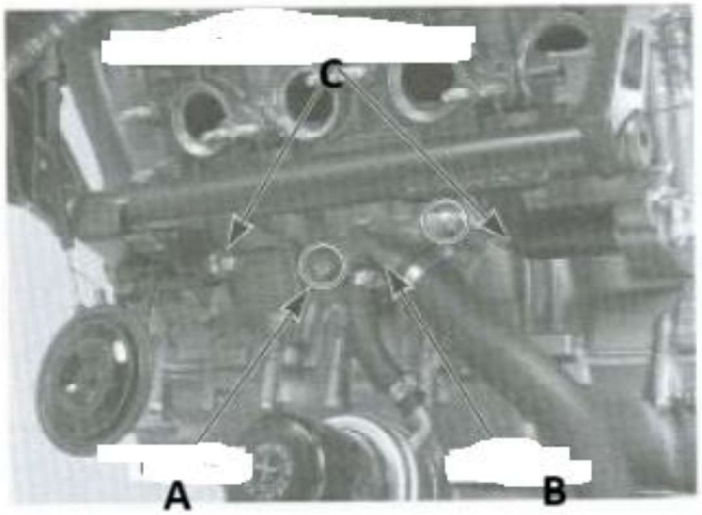

Figure 14

A	Screw	B	Collar
C	Cover		

21. Lift the engine away from the bike and put it in a safe location.

22 Remove the adjustable support stand and from the engine.

22. Remove all of the accessories from the engine.

23. Cover all of the open ports on the engine to prevent fluid leaks.

24. Put a tag onto the battery isolation switch stating that the engine is removed from the bike

6 Installing the Engine

1. Make sure that the bike is isolated and, if necessary, isolate the bike with the battery isolation switch.
2. Install all of the accessories to the engine.

WARNING

Pinch Points

Can cause serious injury.

- ► Keep hands and fingers away from the moving parts during removal and installation of the component.
- ► Put on the applicable Personal Protective Equipment (PPE).

3. Install the adjustable support stand below the engine frame.

4

WARNING

Crushing Hazard

Can cause personal injury.

- ► Lifting equipment must be adequately sized, have the correct lifting capacity, and be in good condition.
- ► Be careful when you lift heavy components.

Slowly lift the engine into the power frame and align it in position.

> **NOTE:** *Make sure that the engine does not hit any components when it is lowered into the power frame.*

5. Install the screw (Figure 14, item A), collars (item B) to attach the cover (item C) to the engine.

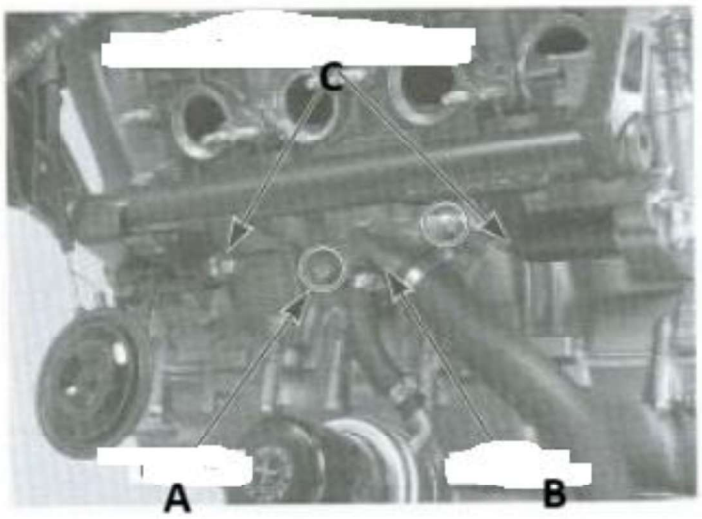

Figure 14

A	Screw	B	Collar
C	Cover		

6. Torque the screws to 69 Nm (51 ft-lb) dry.

7. Install the screw (Figure 12, item A) to attach the gear shift arm (item B) to the engine.

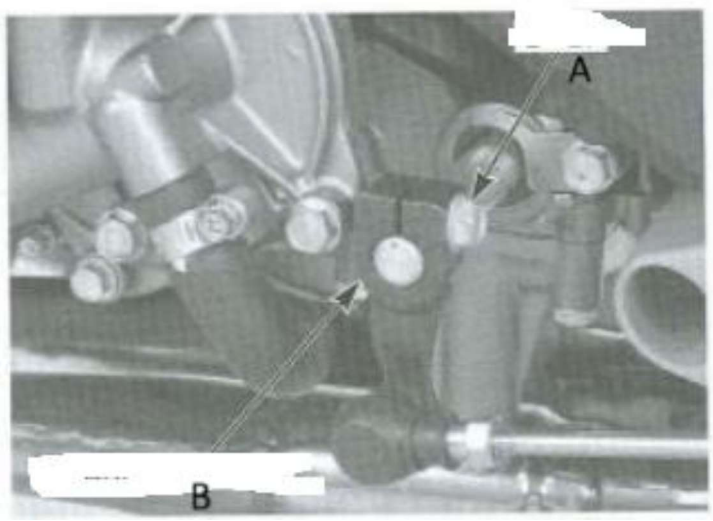

Figure 12

A	Screw	B	Gear shift arm

8. Torque the nuts 40 Nm (30 ft-lb) dry.
9. Remove the adjustable support stand below the engine.

10. Connect all the hoses (Figure 23, item A) to the engine as per labels.

Figure 23

A	Hose		

11. **CAUTION**

Environmental Contaminant

Oil is an environmental contaminant and must be discarded correctly.

- Do not let the used oil drain onto the ground.
- Discard the used oil in accordance with local environmental regulations.

Remove the containers or oil absorbents materials from below the engine.

12. **WARNING**

Slipping Hazard

Fluid leaks or spills can cause personal injury.

- Cover all of the open ports.
- Wipe off any spilled fluid immediately.

Put the container or absorbent materials below the engine to collect the spilled fuel.

13. Connect all the electrical cable (Figure 27, item B) to the engine as per labels.

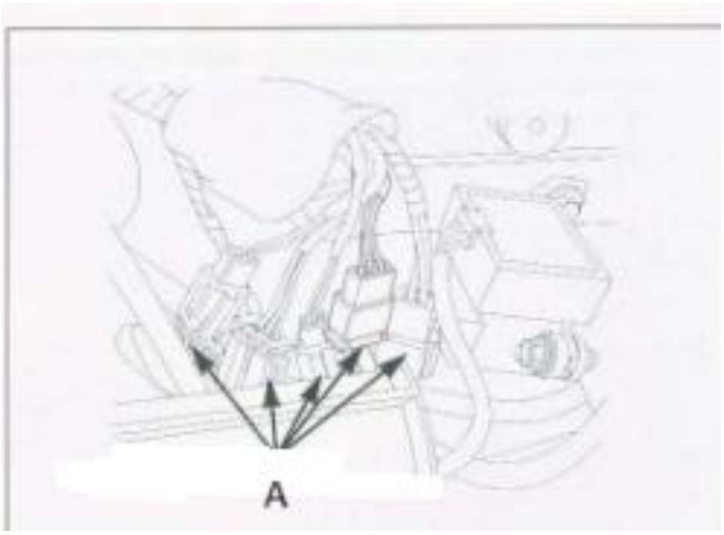

Figure 27

A	Electrical cable		

14. Install the drive sprocket in accordance with procedure.

> **NOTE:** *Refer to Drive Sprocket Removal and Installation.*

15. Fill the engine with oil in accordance with the procedure.
16. Fill the radiator with coolant in accordance with the procedure.

7 Testing the Engine Operation

NOTE: *After completing the installation section of this instruction, the component is installed but possibly not ready to operate. A trained bike specialist must proceed with a commissioning start-up procedure to make sure that the bike system status is correct for start-up and all bike safety and functional requirements are met. Refer to the bike-specific manuals for information about bike start-up requirements.*

NOTE: *Make sure that the work area is clean, free of unwanted material, and tools are returned to the designated locations.*

NOTE: *The bike must be isolated when doing any repairs or adjustments during testing.*

WARNING

Energized Bike

Can cause serious injury.

- The bike must be fully energized and the engine must be switched on to complete this procedure.
- Be careful around moving parts and pinch points.

1. Inform the supervisor, lead hand, and all other persons concerned of the intent to restart the bike for testing purposes.

   NOTE: *Make sure that all personnel and bystanders are clear of the bike before start-up.*

2. Do a check for oil level and, if necessary, fill with oil in accordance with the specifications.
3. Do a check for coolant level and, if necessary, fill with coolant in accordance with the specifications.
4. Remove the safety locks and tags from the bike in accordance with the site-specific procedures.

5. Start the engine and operate it at idle speed.
6. Do a brake test in accordance with the instructions in the maintenance manual.
7. Release the parking brake.

> ***NOTE:*** *Make sure that the bike moves in all selected gears.*

8. Apply the parking brake.
9. Stop the engine and isolate the bike with the battery isolation switch.
10. Block the wheels with wheel chocks in accordance with local regulations.

> **WARNING**
>
> **High-Pressure System**
>
> Working with pressurized systems can cause personal injury.
>
> - Do not do the maintenance work when you operate the bike.
> - Make sure that the hydraulic, water, and air systems are depressurized before you start to work on these systems.
> - Put on the applicable gloves.

11. Do a check for fluid leaks.
12. Repair the leaks, if observed.
13. Make sure that the engine oil level is maintained in accordance with the specifications.

8 Procedure Compliance

8.1 Procedure Acknowledgement

This procedure has been read and fully understood by the employee.

8.2 Adherence and Compliance

The employee acknowledges that they agree to obey the procedure and all safety requirements that are contained and referred here. This acknowledgment is given by virtue of the signature below by the employee.

Employee (Name Printed)	Employee (Signature)	Date

9 Procedure Report

Use the report to document all of the installation specifications such as torques and pressures.

The report must be completed, signed, and stored to use as a record, if settings or installtion conditions requires verification. Include photos where necessary.

9.1 Bike / Component Details

Service Order Number:

Bike Model:

Bike Number:

Bike Serial Number:

Bike Hours:

Component Model:

Component Serial Number:

Technician Name:

Technician Signature:

9.2 Task Specifications

Use this section to record installation specifications such as torques and pressures.

Ref. Step	Installation Step Description	Value
6	Engine mounting screws	
8		