HONDA
ENGINES

SERVICE

OPERATIONS

MANUAL

for OEM

PREFACE

Honda industrial engines are not used as standalone units; they are employed as power sources for pumps, generators and other equipment.
Such equipment is produced by countless original equipment manufacturers (OEM) around the world.

The purchasers of these OEM products equipped with a Honda engine are also Honda customers.
It is Honda's aim to do everything possible to meet the needs of these customers.

This "Service Operation Manual for OEM" describes, as the title suggests, the support Honda can provide to OEM and OEM distributors to service efficiently Honda engines installed in OEM products.

Needless to say, whether or not services are provided in the market as defined in this manual, customer service totally depends on the joint efforts of the local Honda Distributor and OEM.
We are sure that this manual will be utilised to improve service on Honda engines installed in OEM products.

All information contained in this publication is based on the latest product information available at the time of printing.

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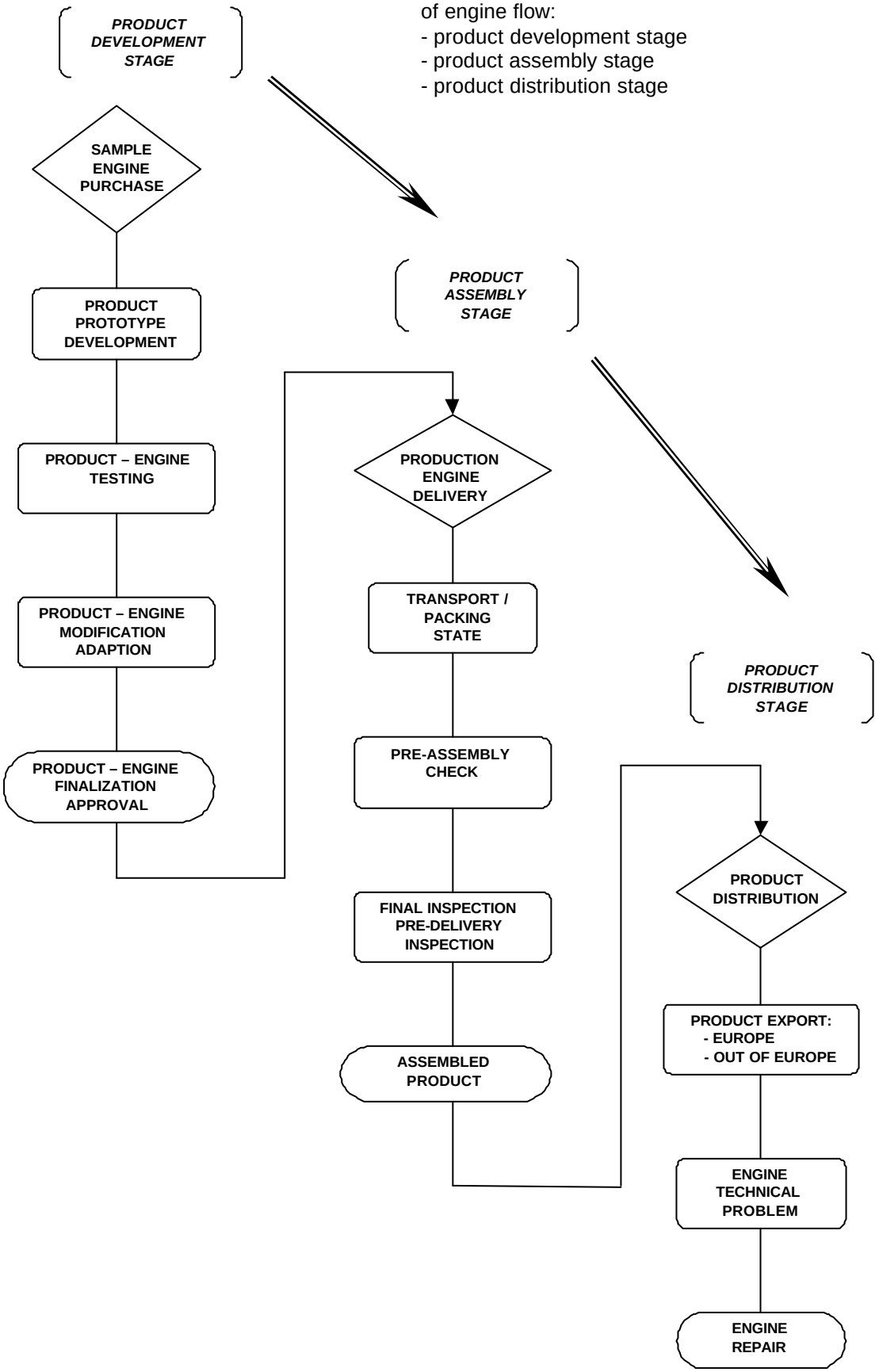
CONTENTS

The contents of this manual and the order of the sections is based upon the chronological stages of engine flow:
- product development stage
- product assembly stage
- product distribution stage

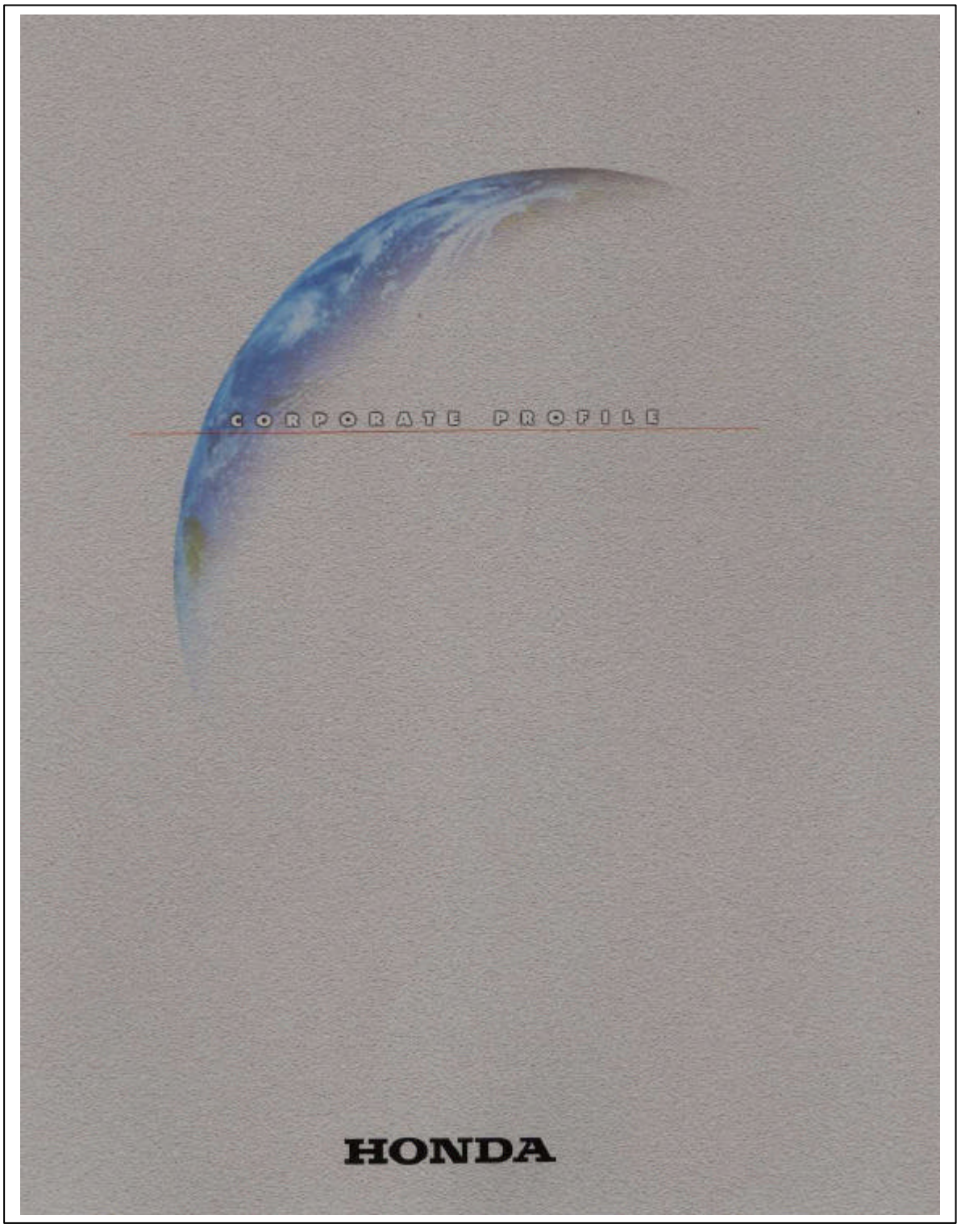


CONTENTS: SEARCH BY KEYWORDS

Honda ACRONYMS

ASH:	Asian Honda (Thailand, engine factory)
CARB:	California Air Resource Board (exhaust emission regulation)
CBU:	Completely Built Unit (Honda product)
CSI:	Customer Satisfaction Index
E/N:	Engine Number
EPA:	Environmental Protection Agency (exhaust emission regulation)
F/C:	Cast Iron
F/N:	Frame Number
FRT:	Flat Rate Time (standard labour time for warranty operations)
GENPO:	Local Honda Subsidiary
HE:	Honda Europe (European Parts Center – Gent, Belgium)
HE-EEC:	Honda Europe – European Engine Center
HEPE:	Honda Europe Power Equipment (Head Office Orléans, France)
HED:	Honda Engine Distributor (spare parts and engine distributor)
HES:	Honda Engine Specialist (specialised engine service dealer)
HIA:	Honda Italy Atessa (Italy, motorcycle, engine factory)
HM:	Honda Motor (Head Office Tokyo, Japan)
HM-HPP:	Honda Motor Head Office Power Products
HPE:	Honda Power Equipment (America, engine factory)
HTI:	Honda Technical Information
IQC:	Initial Quality Check (new product inspection)
M/F:	Microfiche
MTOC:	Model, Type, Option, Colour code
OEM:	Original Equipment Manufacturer
O/M:	Owners Manual
OHC:	Over Head Camshaft
OHV:	Over Head Valve
PDI:	Pre Delivery Inspection
P/E:	Power Equipment
P/L:	Parts List
P/N:	Part Number
PTO:	Power Take Off (engine output shaft)
PUD:	Product Update
QIC:	Quality Improvement Correspondence
R&D:	Research and Development
RPM:	Rotations Per Minute
S-S:	Shiyo-Shinsei, customised engine
S/M:	Shop Manual (workshop manual)
SS/M:	Supplement Shop Manual
SU/M:	Set-up Manual
S/V:	Side Valve
FRT:	Flat Rate Time
MMD:	Mass Merchandising
DIY:	Do It Yourself shop

Honda Motor Co.



THE Honda COMMITMENT
TO PEOPLE, SOCIETY AND THE ENVIRONMENT

Honda began business as a manufacturer of engines to power bicycles in 1948; since then, it has contributed to the mobility of individuals and society by developing and providing motorcycles, automobiles and other products.

Promoting a corporate culture that emphasises respect for the individual has enabled Honda to foster many unique ideas for products ranging from small general purpose engines to sport cars.
Honda's basic corporate philosophy stresses commitment to realising customer satisfaction worldwide. Sales, production and R&D functions have been localised to facilitate the development and timely supply of products and services that meet customers' needs in each region.

Today, the Company maintains more than 100 manufacturing facilities in 33 countries, which deliver approximately 10 million products annually.

Honda's Production Policy = Glocalisation (Global + Local)

- Production where there are demands
- Integration in the local community
- Environmental and safety requirements change the way new products are developed and built
- Commitment to develop new technologies ahead of regulatory requirements
- Awareness of the priority to develop products that pollute less, use less gasoline and that people want to use and enjoy

E.g.: Honda Italia Industriale S.P.A. (Italy)
Thai Honda Mfg. Co. Ltd. (Thailand)

As a corporate citizen, Honda takes its responsibilities concerning environmental and safety issues seriously. Minimising environmental impact is a key theme in all corporate activities. Measures to raise the efficiency of resource usage and decrease carbon dioxide and other pollutant emissions are promoted in R&D, production and sales. While striving to contribute to better mobility in society, Honda has maintained a focus on safety issues.
In addition to developing products with the highest safety standards, Honda has worked proactively to improve traffic systems through such measures as safe-driving programs.
By creating innovative products, providing them to customers around the world, and preserving the environment for future generations, Honda aims to increase its value to society.

COMPANY PRINCIPLE
Maintaining a global viewpoint, we are dedicated to supplying products of the highest quality yet at a reasonable price for worldwide customer satisfaction.

ENVIRONMENTAL COMMITMENT IN ALL CORPORATE ACTIVITIES

As we stand on the threshold of the 21st century, current environmental conservation activities are gaining ever-growing importance for future generations. Honda places a high priority on environmental conservation and actively promotes environmental efforts on a global scale.

Prompt Action

Honda began grappling with the challenges posed by environmental issues at an early stage. For example, in 1972 we developed the low-emission CVCC engine, the first engine to meet U.S. Muskie Act standards – the world's most stringent exhaust emission regulations at the time.

A pioneering and progressive spirit led to the Honda Environment Statement of 1992, which made clear the Company's proactive approach to solving environmental issues. To promote environmental activities, in 1995 Honda held its first World Environment Conference, with participants attending from Honda's worldwide operations.

Life Cycle Assessments

The concept behind life cycle assessments is to minimise environmental impact at every stage of a product's life cycle. Material recycling, energy conservation, pollutant emissions and waste disposal are carefully considered from the development stage through the production, sales, service and disposal of the product.

Development stage

Honda is committed to introducing cutting-edge environmental technologies to achieve cleaner exhaust emissions, improve fuel economy, and develop alternative power sources for its total product line-up. We are continuously working on next-generation environmental technologies to ensure that our products meet and exceed worldwide environmental regulations.

For motorcycles, in addition to developing emission reduction systems, by 2002 the company plans to equip almost all motorcycles with four-stroke engines, which produce fewer emissions and consume less fuel than two-stroke models.

For automobiles, in addition to pursuing cleaner exhaust emissions and improved fuel efficiency for gasoline engines, the Company has developed vehicles that run on such alternative energy sources as natural gas, electricity and fuel cells.

In power products, Honda uses four-stroke engines in environment-friendly products ranging from small handheld grass cutters to large outboard marine engines.

Manufacturing

Honda is promoting its concept of the "Green Factory" pursuing measures to reduce the environmental impact of all production processes. The revision of manufacturing methods and the introduction of higher quality fuels are helping to lower the volume of emissions at all factories. The success of efficient material recycling and reuse methods has enabled us to reduce waste generated by our production facilities 75% compared with 1990 levels. In 1999, the Suzuka Factory in Japan achieved zero-level waste and the Company is on course to realise its goal of zero waste at all factories in 2001.

Honda's Environmental Statement

As a responsible member of society whose task lies in the preservation of the global environment, Honda will make efforts to contribute to human health and the preservation of the global environment in each phase of its corporate activities.

Only in this way will we be able to count on a successful future, not Only for our Company but for the world.

Honda Eco-Mark
This label representing the beautiful, verdant Earth, the sighing wind, the deep blue sea and a clear, sun-lit dawn sky indicates Honda's proactive engagement in environmental conservation.

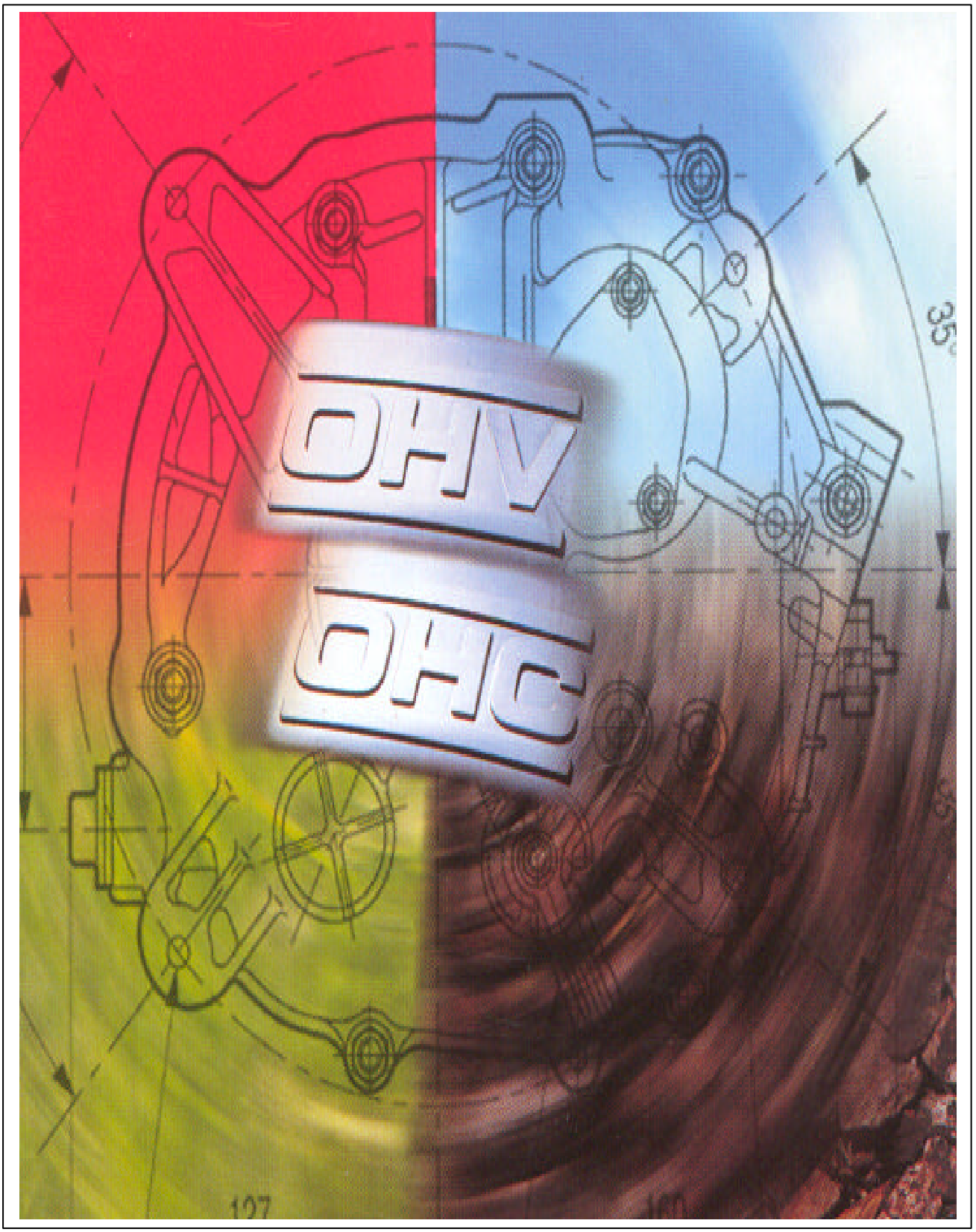
Disposal and Recycling

Honda is actively engaged in the development of spare parts recycling and supportive technology for the disposal of scrapped vehicles.
Honda is developing vehicles with easy-to-recycle designs, dismantling technology and technology for separating detac hed structural components.
Minimising the toxicity of waste products is another issue in which Honda is actively engaged. The Company has set a target for reducing the lead content of passenger cars to one-third of 1996 levels by December 2003.

ISO 14001 Certification

By fiscal 1998, Honda had obtained ISO 14001 certification – an internationally recognised set of standards for environmental management systems – for its principal manufacturing plants around the world, including all its factories in Japan. Honda is moving ahead with preparations to obtain certification at other facilities and will continue to take the steps necessary to ensure compliance with ISO standards.

Honda Europe Engine Center



EUROPEAN ENGINE CENTER - EEC

In the early '90, Honda decided to actively commercialise their industrial engines.
These Honda industrial engines can now be found in various products such as lawnmowers, cement mixers, generators, go-carts, etc.

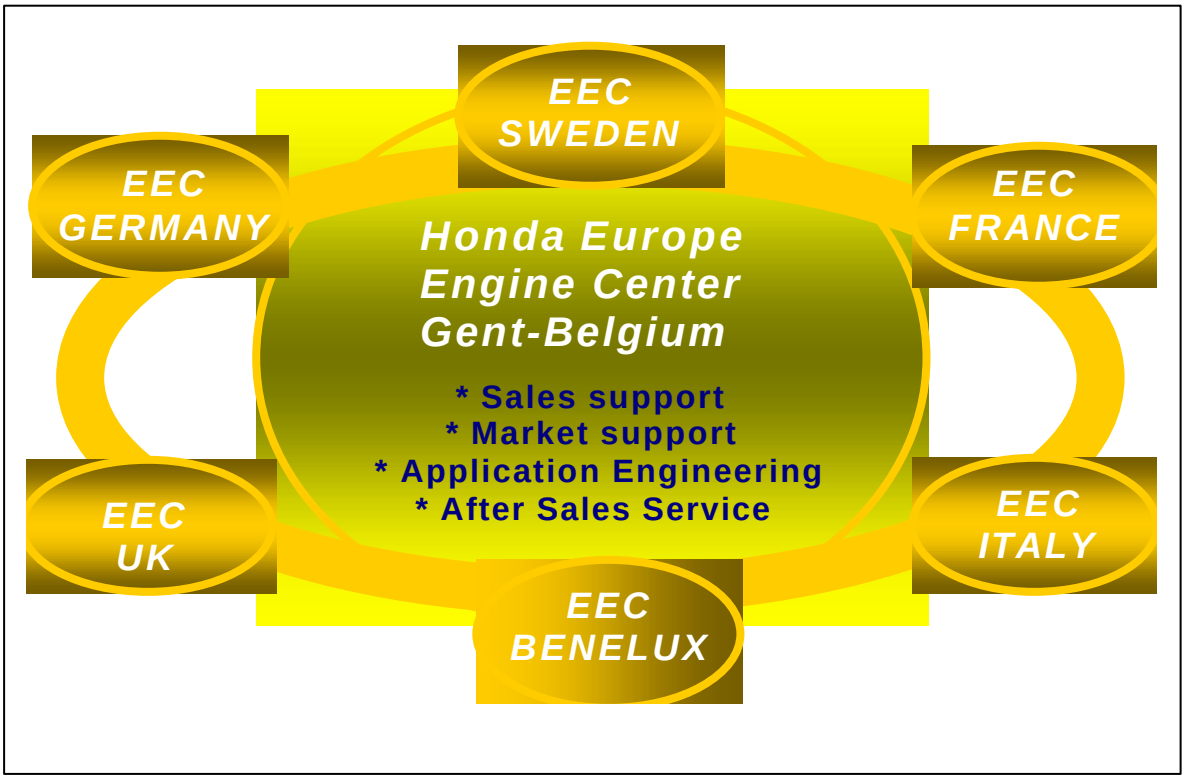
Honda engines' sales and logistics were centralised in the European Engine Center (EEC).
EEC started its work in 1994 with the goal of stimulating engine sales in Europe. This goal was attained by locating a central organisation , having direct communication with Honda Research and Development in Japan, close to the market area. Moreover, the five sales points in the United Kingdom, France, Italy, Sweden and Germany ensured closer contact with local customers, wherever in Europe they might be. This meant that the needs of the European customer could be reported and discussed immediately with the development departments.

The explosive growth in sales and speedy evolution of the logistics system proves that Honda Europe has completed the integration of this new sales department quickly and efficiently.

Presently the EEC sells over 1,000,000 engines a year. Honda's decision to situate the EEC in Gent, Belgium is proof of its trust in Honda Europe's efforts towards service, quality and flexibility.

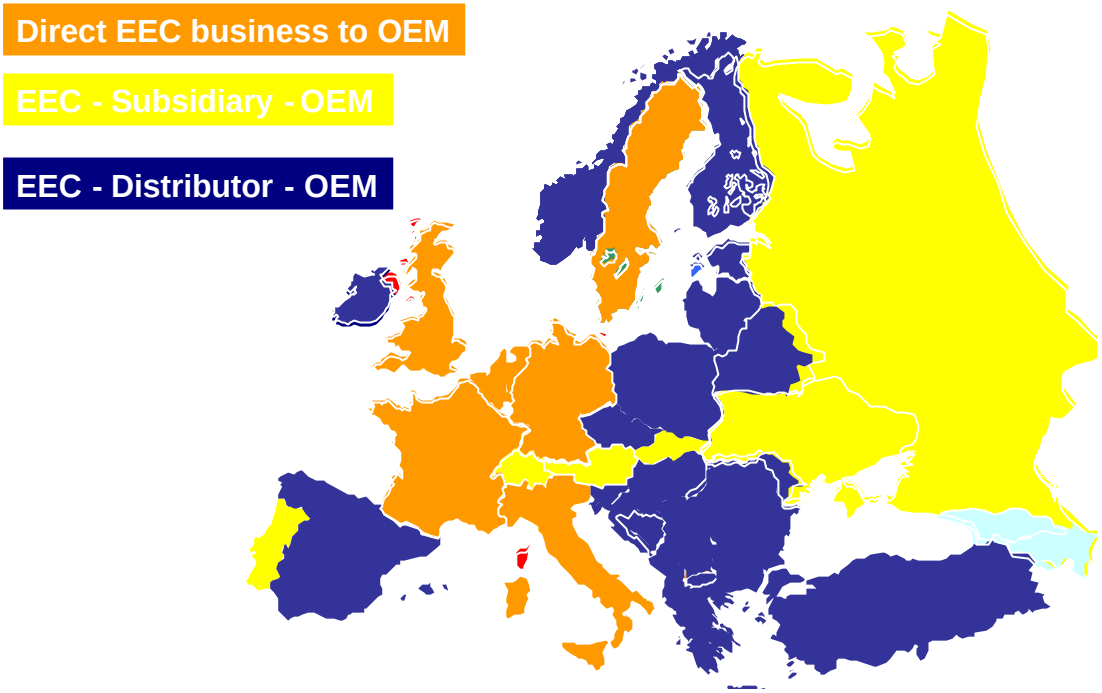
What's more, Honda can sport the most environment-friendly engine on the market. As early as 1993, we had CARB certification, the most stringent norms for exhaust gases in existence. Moreover, the complete range of engines will have to meet all the stricter emission standards, which will take effect in the coming years.

Given that the EEC also has a technical service department, it bundles all the functions that support its ever-increasing sales.



EUROPEAN ENGINE CENTER FUNCTIONS

- **Sales Center Function towards OEM's in European area.**



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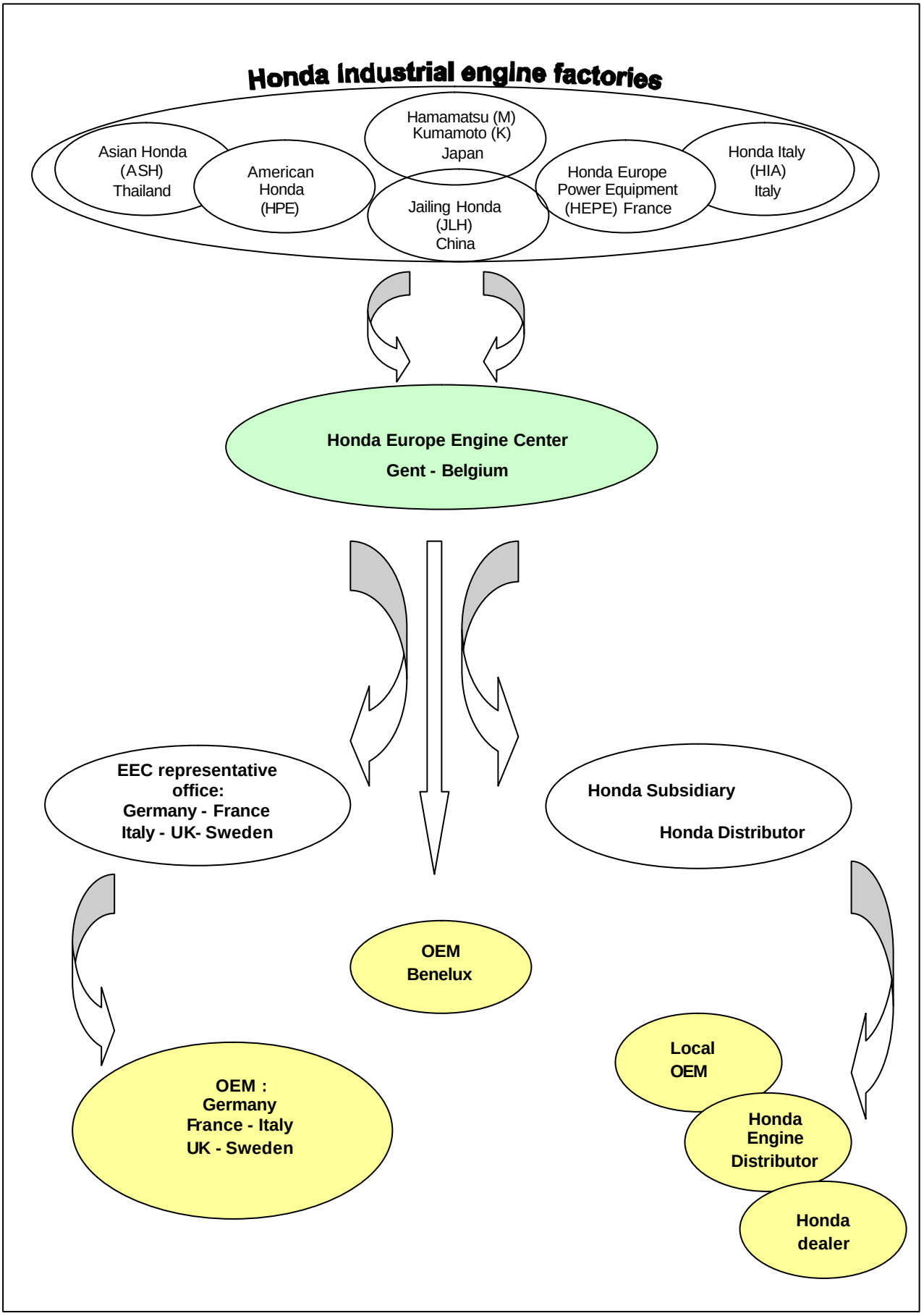
The Honda engine sales network in Europe



Honda subsidiaries and distributors in Europe

Complementary to the EEC organisation in Europe, the Honda Subsidiaries: importers of Honda products owned by Honda Motor Co. and Distributors: importers of Honda products privately owned, offer support in engine sales and service.

Subsidiaries:

Honda Motor Europe North-Austria
Honda Motor Europe North-Belgium
Honda Motor Europe North-Germany
Honda Motor Europe North-Netherlands
Honda Motor Europe South-France
Honda Italia
Honda Portugal
Honda Suisse
Honda Sweden
Honda Motor Europe-UK
Honda Slovakia
Honda Ukraine
Honda Motor RUSSIA

Distributors:
Albania – Alba Motor
Belarus - J.V. Scanlink
Bulgaria – Kirov
Canary islands - Automocion Canarias
Croatia - Hongoldonia
Cyprus – Dimitriou & Sons
Czech Rep.- BG Technik
Denmark - Tima
Estonia - Brandt Baltic
Finland - OY Brandt
Gibraltar - Bassadone
Greece – Saracakis Brothers
Hungary- Motorpedo
Iceland - Gunnar Bernhard
Ireland - Two Wheels
Israel - Mayer's
Latvia - Bensons Auto
Lithuania - SP Motors
Malta- Associated Motors
Norway - Berema
Poland - Aries
Romania – Hit Power
Serbia & Montenegro - Bazis Group
Slovenia - AS Domzale
Spain - Greens
Turkey - Anadolu Motor

- **Delivery Center Function stocking common engine types.**

  Delivery from the warehouse in Gent and direct delivery from the factories (container delivery).

- **Technical Center Function.**

  Main activities R&D – Application Engineering

  - Joint development with OEM: new products and improvements of current products.
  - Execute matching test at OEM: for new products and modifications.
  - Make shiyo-shinsei (modification of existing engine type to OEM requirement) if needed.
  - Give advice for technical issues.
  - Pre market-in activity

  Main activities After Sales Service

  - Technical support to OEM's and dealers.
  - Training to OEM's, dealers, internal.
  - Technical documentation supply: parts catalogue, workshop manual, owners manual.
  - Enhance service availability: spare parts, warranty, service points.
  - Quality assurance in the market.
  - QIC reporting: feedback quality issues from market to and from factories and R&D.

PRODUCT DEVELOPMENT STAGE

OEM PRODUCT DEVELOPMENT STAGE	Honda SUPPORT

Inserts

SAMPLE ENGINE PURCHASE

- **P. 1-4** — TEST SAMPLE ENGINE PURCHASE; HONDA MTOC CODE

PRODUCT PROTOTYPE DEVELOPMENT

- **P. 7** — ENGINE TECHNICAL FILE
- ENGINE SPECIFICATION POSTER
- **P. 9** — APPLICATION ENGINEERING SUPPORT

PRODUCT – ENGINE TESTING

- **P. 10** — ENGINE INSTALLATION CHECK
- INSTALLATION CHECK SHEETS
- **P. 11-13** — CUSTOMIZED ENGINE PROCEDURE

PRODUCT – ENGINE MODIFICATION ADAPTION

- OEM REQUIREMENT CHECK SHEET
- **P. 15-20** — REGULATION – HOMOLOGATION SUPPORT
- AGREEMENT AND CERTIFICATES

PRODUCT – ENGINE FINALIZATION APPROVAL

- **P. 21-23** — HONDA ENGINE ACCESSORIES

Honda ENGINE MODEL NAMING SYSTEM

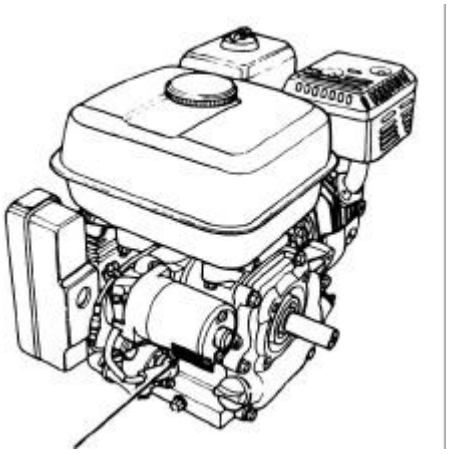
Honda engine "M T O C" code

MODEL

TYPE

OPTION

COLOUR



Engine serial number and type

GX . **1 6 0 U T 1 - Q X E 4 - O H**

V: Vertical output shaft
H : Horizontal output shaft
. : No digit = horizontal

GX : OHV or OHC engine – Professional use
GC : OHC engine – Consumer use
GS : OHC engine – Semi-professional use
GD : Diesel engine
G : Side valve engine
GK : Side valve engine, kerosine use engine

G X . ***1 6 0*** **U T 1 - Q X E 4 - O H**

Engine displacement cm^3

G X . 1 6 0 ***U T 1*** **- Q X E 4 - O H**

U: universal type for Europe, USA, Canada and Australia

. : manufactured in Japan
A: manufactured in HPE (USA)
E: manufactured in HIA (Italy)
T: manufactured in ASH (Thailand)
H: manufactured in JLH (China)
K1, T1, H1: Indication of minor model change
K2, T2, H2: Indication of second minor model change

GX . 160UT1 - *Q*XE4 - OH

OUTPUT SHAFT TYPE (PTO)

Q, T, B : Straight, imperial (inch)
S : Straight, metric (mm)
W : External threaded
V : Tapered
H : 1/6 reduction
R : ½ reduction + clutch
L : ½ reduction

The following two digits in the MTOC code can be individualised and are not linked to a systematic coding.

GX . 160UT1 - Q*X*E4 - OH

X : Oil alert

GX . 160UT1 - QX*E*4 - OH

E : Electric start
M : Oil bath aircleaner
C : Cyclone aircleaner

GX . 160UT1 - QXE*4* - OH

4 : European specification
2 : American specification

GX . 160UT1 - QXE4 - *OH*

COLOUR CODE
OH : (R8) Bright red
SD : (NH1) Black
Others …

HORIZONTAL SHAFT TYPES: GC - GS

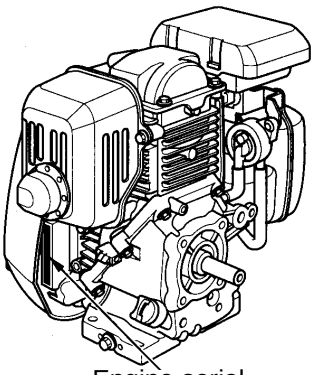
Q H A 1

Special specifications, options
1: Remote control (engine switch interlock)
2: Remote control (engine switch manual)
3: Manual control (engine switch separated)
4: Tiller specification (fuel return)
-: Standard manual control

Destination
A: USA
E: Europe
C: Canada
D: General export
J: Japan
U: Australia
T: Southeast Asia

Case cover specification
H: Standard
X: With oil alert (with ball bearing)
B: With ball bearing
E: Electric starter specification

Crankshaft PTO
Q: Straight, imperial (inch)
S: Straight, metric (mm)
W: External threaded
V: Tapered
P: External threaded (UNF)



Engine serial number and type

VERTICAL SHAFT TYPES: GCV - GSV

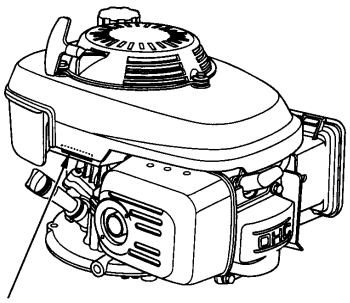
A 1 A 1

Special specifications, options
Numeral: Special specification, etc..
F: Fixed

Destination
A: USA
E: Europe
C: Canada
D: General export
J: Japan
U: Australia
T: Southeast Asia
G: Castelgarden
P: Pubert
W: Wolf

Crankshaft PTO
1: Type N1
2: Type N2
3: Type N3
4: Type N4

Brake
A: With brake
N: Without brake
S: Fixed throttle + Auto Return Choke
B: BBC
E: Electric starter
R: Fixed throttle + ARC + Electric start



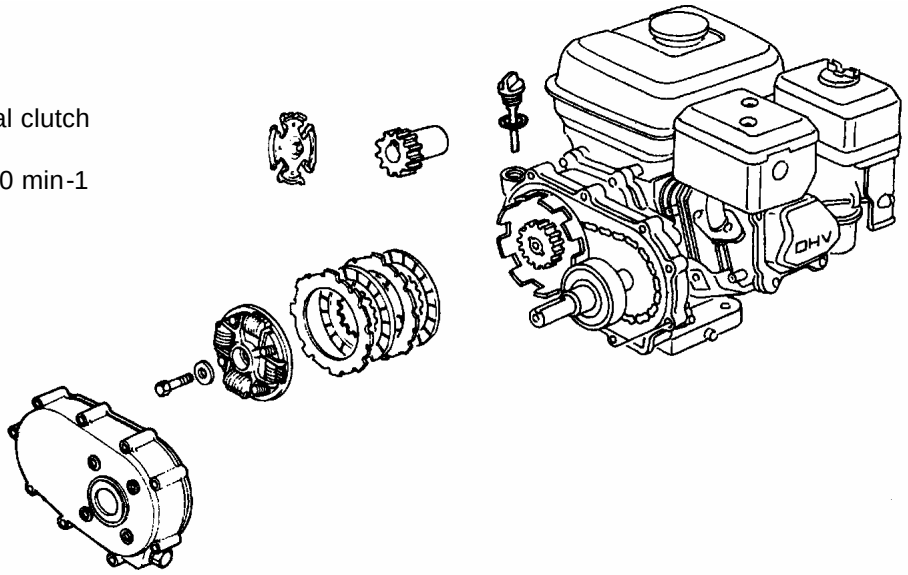
Engine serial number and type code

STANDARD REDUCTION UNITS

R-TYPE

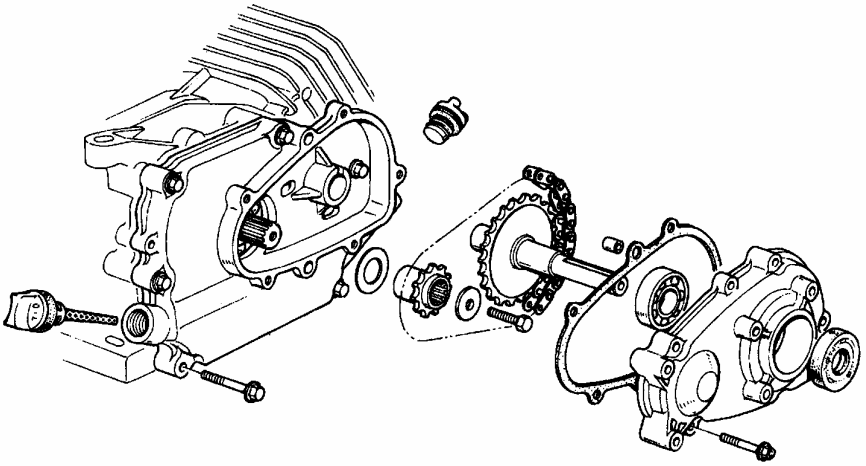
½ reduction with centrifugal clutch

Clutch engagement at 1800 min-1
Clutch lock at 2200 min-1



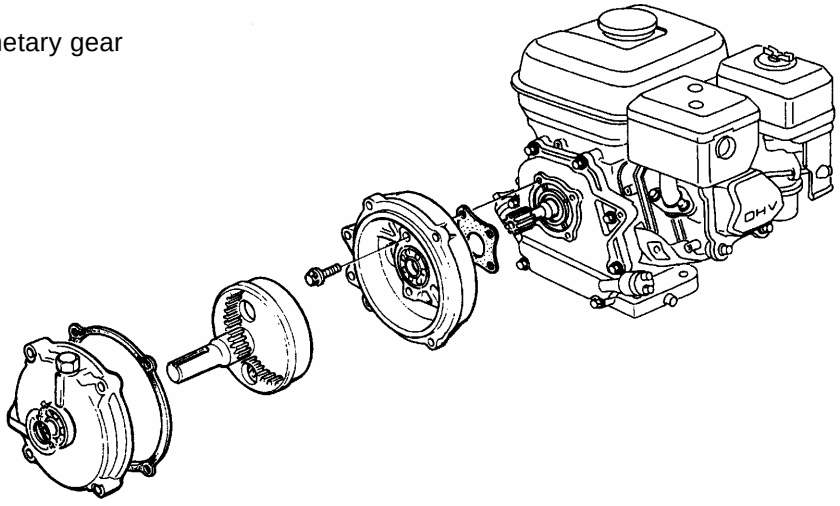
L-TYPE

½ reduction with chain-sprocket



H-TYPE

1/6 reduction with planetary gear



TEST SAMPLE ENGINE

PURCHASE

A sample engine for application testing can be purchased through the engine sales department.

The engine will be a standard mass production engine unless it is specified otherwise.

According to the OEM's request, a specially prepared engine can be set up.
Modifications on the engine may include:
- removed parts
- added parts
- modified adjustments or settings

Testing, evaluation and final specification set-up of the sample engine should be done in collaboration with the Application Engineering Department.

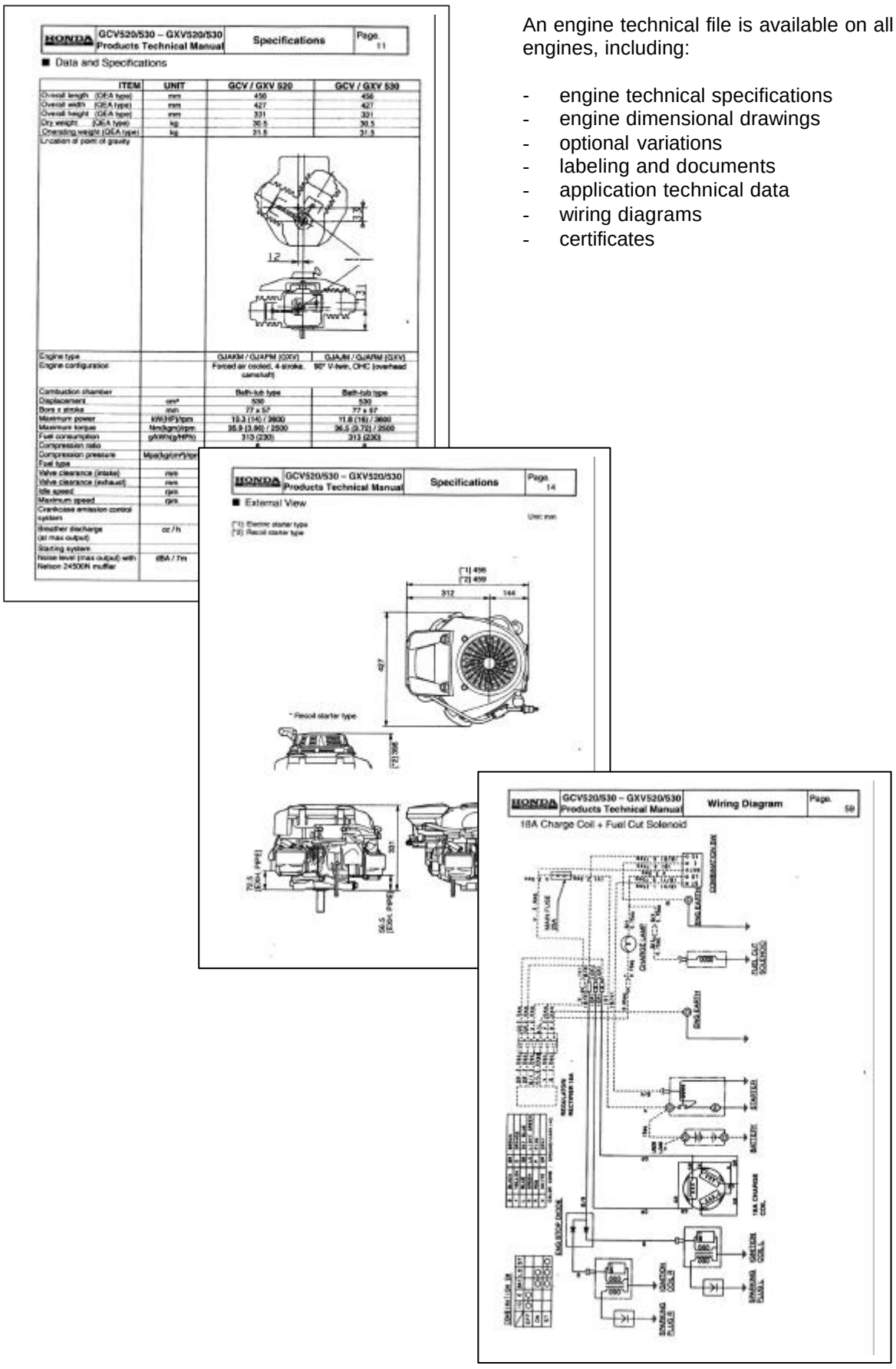
SAMPLE ENGINE TESTING

No troubles should be experienced with the sample engine under test conditions.
Extensive modifications or special applications will have to be duplicated on all further engines purchased; refer to the customised engine procedure.

The sample engine received will be identical to the eventual production engines, however always be sure to check the following before undertaking the engine tests.

- External appearance: check to ensure no rust, scratches or chipped paint.
- Starting: check to ensure the engine starts easily and stops properly.
- Engine speed: check to ensure idling and maximum unloaded engine speeds meet specifications and that the engine speed increases and decreases smoothly.
- Standard components: check all components for correct fit and ensure all separately packed auxiliary components are included. Check the tightness of all nuts, bolts and other fasteners.
- Alternate components: refer to the types and variations chart to ensure all factory-fitted components are of the specified type and fitted correctly.
- Prototype components: check plans, illustrations, photographs, etc. to ensure all components can be mounted correctly.
- Check there is no unusual operating noise or vibration.
- Check for fuel, engine oil or coolant leaks.

ENGINE TECHNICAL FILE



An engine technical file is available on all engines, including:

- engine technical specifications
- engine dimensional drawings
- optional variations
- labeling and documents
- application technical data
- wiring diagrams
- certificates

ENGINE APPLICATION SUPPORT

It is vital for both Honda, the OEM and the end user that the engine installation and usage is suited to a particular application. If not, engine and/or frame damage may occur, performance will suffer, service life may be reduced and in extreme cases operator injury may result.
This is of course outside the scope of the Honda warranty and product liability and can be the source of dissatisfaction to OEM and end user.

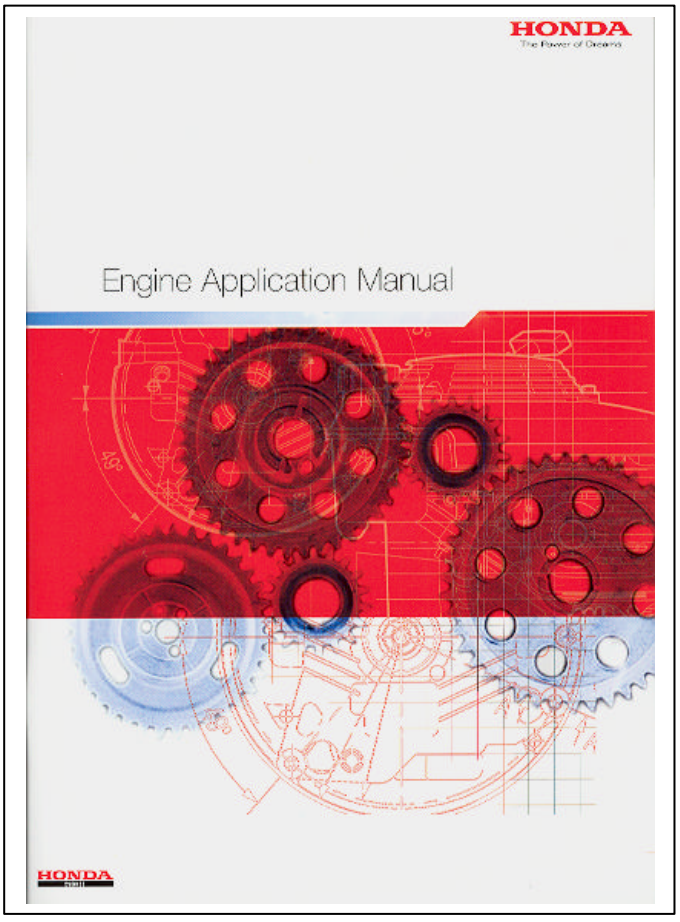
Application engineering department

The Honda application engineering department can offer support in:

- Application testing – engine installation check
- Development of new engine parts
- Setting up technical specifications

Engine application manual

The Honda engine application manual describes the engine application fundamentals, engine installation and usage conditions.



ENGINE TO LOAD MATCHING – INSTALLATION CHECK

- An engine to load matching – installation check is to be carried out by a Honda application engineer or service engineer with the co-operation of the OEM.

- Requirements for undertaking an engine installation check are:

  - Application with Shiyo-Shinsei engine (customised engine) request.
  - Product liability and safety items related to the engine installation / application.
  - " New engine " applications.
  - " New applications " which have not been tested before.
  - Applications from " new OEM's ".
  - At the OEM's request.
  - Special lay-out of application (multiple PTO, build-in unit, etc…).
  - High potential sales volume.
  - Export: Worldwide, Pan-European
  - Applications used under severe conditions:

    * Enclosed engine applications (high temperature condition)
    * High load operating conditions
    * High vibration operating conditions
    * Inclined mounting operating conditions

- Matching test information and OEM product specifications information is confidential information to the OEM and Honda and is not disclosed to other parties.

Engine Installation Technical Check Sheet

- The engine installation technical check sheet provides only evaluation data of the engine and equipment, which underwent the test.

- This document can not be construed in a different way and exempts Honda Europe NV, European Engine Center from any different responsibility.

- This document either electronic or paper format has no legal value.

- The Engine Installation Technical Check Sheet comes in 2 formats: industrial applications and lawnmower applications.

- The engine installation technical check sheet will be archived at Honda Europe.

- A copy of the document can be supplied to the OEM on request.

DEVELOPMENT AND PRODUCTION OF CUSTOMIZED ENGINE TYPES

According to customer or market needs, a customised engine type can be developed and produced.
The procedure for customised engine development, called Shiyo-Shinsei and S-flow procedure, will only be launched after a marketability evaluation and when following requirements are fulfilled.

REQUIREMENTS FOR PRODUCTION OF NEW AND/OR CUSTOMIZED ENGINE TYPES

Requirements	Minimum sales volumes units/year *				Remarks
	GX	V2	GC(V)	M4	
1. Remove components from current engine type or alter assembly method	20 ft container quantity	100	40 ft container quantity	40 ft container quantity	**Normal Shiyo-Shinsei**
2. Combination of components not existing on current engine type. Required components are available as engine parts. No new parts / part numbers	20 ft container quantity	100	40 ft container quantity	40 ft container quantity	**Normal Shiyo-Shinsei**
3. Colour change (other than standard colour: red, black) : Metal fuel tank, metal fan cover	40 ft container quantity	-	-	-	**Normal Shiyo-Shinsei**
4. Colour change (other than standard colour: red, black) : Plastic fuel tank, plastic fan cover	-	500	10 000	10 000	**S-flow**
5. New application for the engine model with technically unknown factor and/or with new parts. **a.** Utilisation of existing components of Honda finished products vital for the engine operation (intake, exhaust, controls) **b.** New parts development (intake, exhaust) **c.** Modification of governor/carburettor setting **d.** New control components **e.** New emblems, stickers	5000	500	5000	5000	**S-flow 3 year purchase commit-ment is necessary**

*** GUIDELINE FOR MINIMUM SALES VOLUMES (UNITS/YEAR) : FINAL AGREEMENT ON ISSUING SHIYO-SHINSEI WILL DEPEND ON RELIABLE SALES FORECAST AND MARKETABILITY EVALUATION.**

REQUIRED PREPARATION AND INFORMATION

The following information has to be collected and an engine installation check needs to be done on the OEM product before the Shiyo-Shinsei and S-flow procedure will be launched.

1. OEM PROFILE INFORMATION

For new customer (OEM) only.

Company outline
- Date of establishment
- Yearly sales (for previous 3 years)
- Number of employees
- Production facilities
- Products manufactured
- Other important information
- Include annual report if available

Sales network
- Sales route and organisation
- Number of dealerships
- Other important information
- Export information

Product outline
- Product name (include product catalogue; if already available)
- Production volume (for previous 3years)
- Market positioning
- Other important information

Business with Honda
- Start year
- Number of units by model (for previous 3 years)

General
- Positioning and importance of your OEM sales

2. OEM REQUIREMENT CHECK SHEET

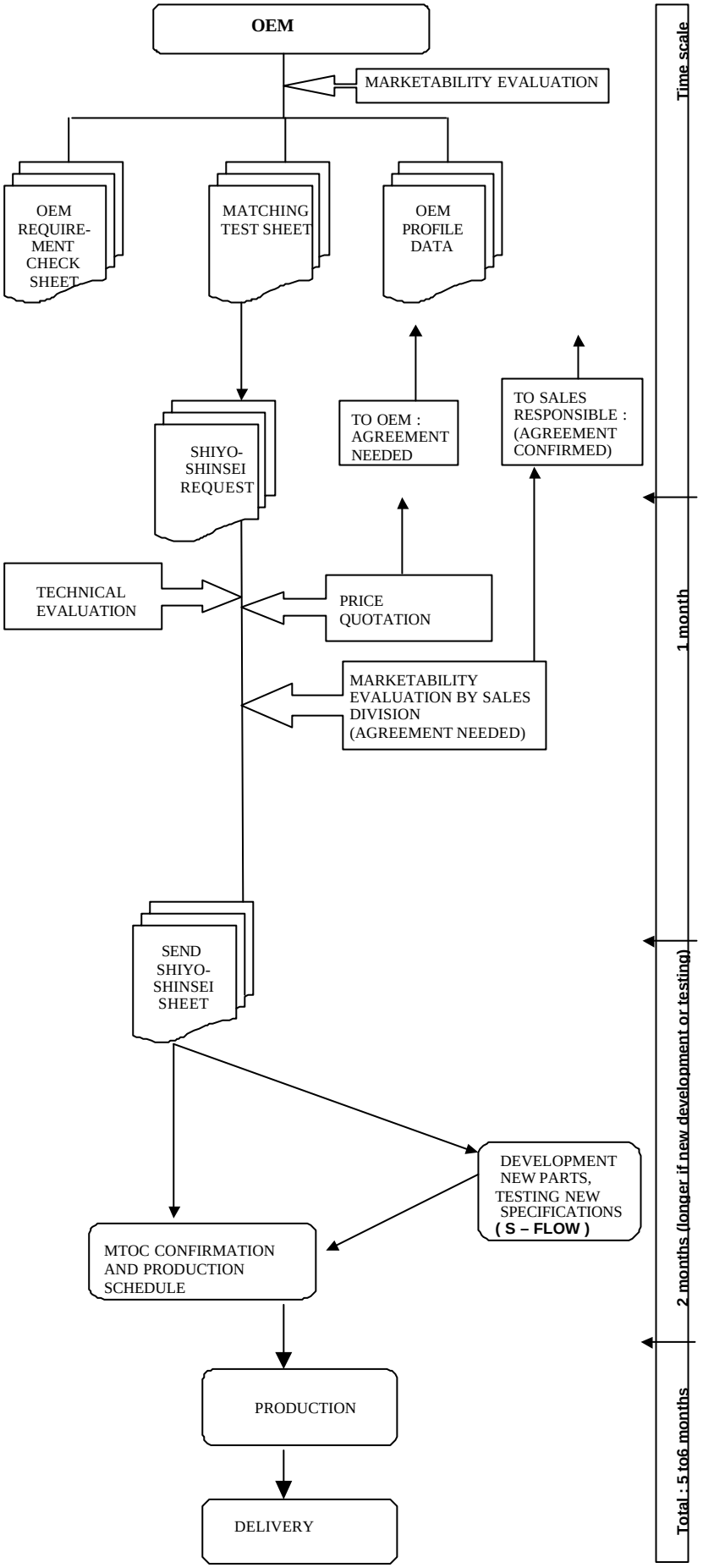
Includes information on OEM product, sales forecast and requested production start.

Sample engine will be constructed based upon the requirements noted on the check sheet.
The OEM requirement check sheet contains all necessary information to set up specifications for the new customised engine.

3. APPLICATION MATCHING TEST SHEET

Full matching test needs to be done on the application equipped with sample engine.

4. PROCEDURAL FLOW AND TIME SCALE



REGULATION AND HOMOLOGATION SUPPORT

As a global engine and power equipment manufacturer, Honda is always striving to be ahead of new laws and regulations.
The engines placed on the market are conform to existing and future regulations.
Furthermore, Honda can offer support and advice to the OEM during product development and homologation.

HONDA'S ENVIRONMENTAL COMMITMENT

Decreasing world-wide pollution from lawn, garden, and other maintenance equipment has become a challenge in the developed countries. New regulations have been established in many different countries, but the Californian Air Resources Board has pioneered the leading policy with significant results. Although small engines comprise today only one percent of California's air pollution inventory, federal and state mandates for clean air by 2010 compel every source to reduce air pollution as much as is economically and technologically possible.
Three main regulations (CARB, EPA and future EU) have to be explained, in order to understand the tremendous effort of Honda to convert and adapt all the power products.

CARB

The Californian Air Resources Board first in the world regulated off-road engines less than 25HP in December 1990. Setting implementation dates of January 1995 for Tier 1 standards and January 2000 for Tier 2 standards. CARB only applies in the state of California.

CARB 95 Tier 1
Engines less than 25HP. Two classes of engines according to displacement for non hand- held, three classes according to displacement for hand-held. Exhaust emission (HC + Nox) reduced by 20%.
CARB 2000 Tier 2
From 2000 to 2010. Engines less than 25HP. Four classes of engines according to displacement and diesel engine added. Emissions (HC + Nox) reduced by 30 to 67% according to the engine class. New endurance test from 50 to 500 h according to the engine class (3000 h for diesel).
CARB Tier 3
Implementation from 2005 to 2008, depending on engine class. HC + Nox further reduced, from 12.1g to 8.0g. Evaporative emission (from tank and fuel tube) introduced.

EPA / CEPA (Canada)

The Environmental Protection Agency (EPA) is the specialised federal agency created by the US administration. EPA regulations apply in the US. CEPA 1999 applies the same regulations in Canada.

EPA Phase 1
From 1997. Almost the same as Carb regulations. Five classes of engines according to displacement and usage style (hand-held or non hand-held).
EPA Phase 2
From 2001. Almost the same as CARB regulations (except added regulation according the output). Five classes of engines according to displacement. New endurance test from 250 to 1000 h according to the engine class.

EU regulation 2002/88/EC

The regulation is based on Industry demand (1998) to conform with existing US EPA emission regulations.
A two stage approach will be applied: Stage 1 in August 2004 and Stage 2 foreseen for 2008.
On stage 2, the Emission Durability Period will be introduced: the initial emission of the new engine, as well as the emission of the engine at the end of the EDP must be lower than Stage 2 emission limits.

Honda's entire worldwide line-up of gasoline general purpose engines will meet the United States Environmental Protection Agency's (EPA) Phase 2 emission levels – the most stringent emission standard in the world – set to go into effect in 2007.
When completed, all of our Class 1 (100-225 cm^3) engines will meet EPA Phase 2 emission levels six years prior to the required compliance date while all the Class 2 (over 225 cm^3) engines will satisfy the standard four years ahead of the requirement.

ENGINE EMISSION LABELLING

ENGINES FOR EXPORT TO EUROPE

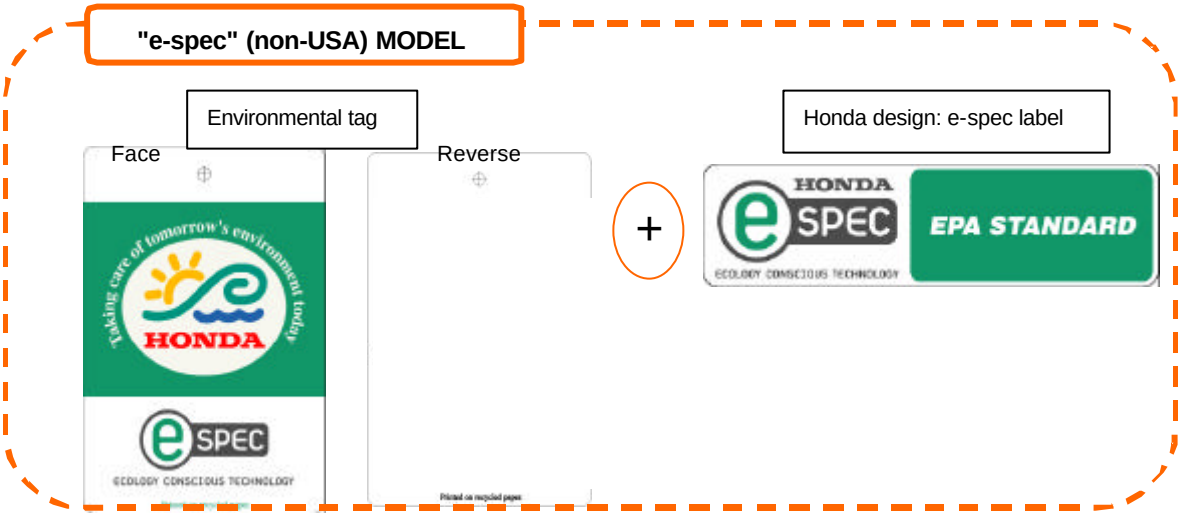
Honda started putting the tag and label to the engines having CARB/EPA emission levels from 2nd half of 2000, with our message " Taking care of tomorrow's environment today ".

New environmental tag

New environmental tag is fastened on the High tension cord of the engine.
The tag shows the symbol mark of our corporate idea for environmental issues.

Label

Honda will replace the current regulated label to new " e-spec " label* which expresses our posture to solve the environmental issues with Honda " Ecology conscious technology ".
* The e-spec label is put on the fuel tank or fan cover when the engine is without fuel tank.
* This label is not a certification label.



Additional information on switching over to EPA Phase 2 / CARB Tier 2 emission level engines

Exceptions
- Kerosene fuelled engines
- Low compression engines for use in areas that only have low octane fuels.
- Engines that have specially arranged intake and exhaust systems.
- GXV270, GX810, GE100, G101, GV100.

Remarks
- Honda has not obtained EPA Phase 1 / CARB Tier 1 for G150/200 and will not obtain EPA Phase 2 / CARB Tier 2 for these engines not sold in the USA.
- G100 will meet EPA Phase 2, but we will not obtain CARB Tier 2.

Old/New parts
- Basically, all of the parts replaced by certification of EPA Phase 2 / CARB Tier 2 are interchangeable. However, EPA Phase 2 / CARB Tier 2 certified engines MUST use the new parts.

Discrimination
- Model, Type, Option and Colour code will remain unchanged.
  The "E2" letters and vertical bar on the right edge of the bar code sheet (attached to the engine box) identify the new type (EPA Phase 2 / CARB Tier 2 emission level) engines.

ENGINES FOR EXPORT TO EUROPE – NEW EU EMISSION REGULATION

From August 2004 on, the emission regulation for general-purpose engines will be enforced in the European Union.

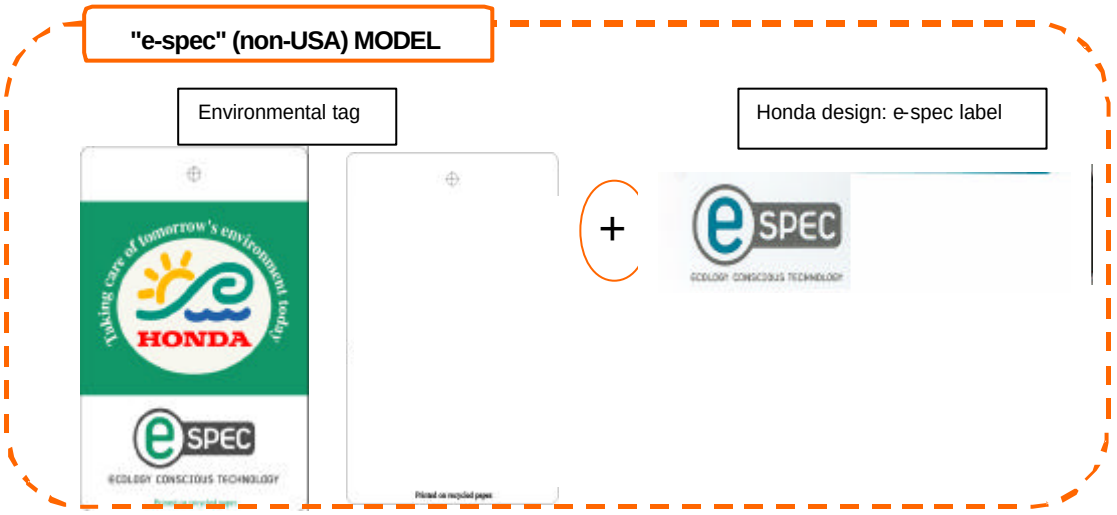
Environmental tag

The environmental tag is fastened on the High tension cord of the engine.
The tag shows the symbol mark of our corporate idea for environmental issues.

Labels

The current “e-spec” label is replaced by the new “ e-spec “ label which does not longer indicate “EPA STANDARD”.
* The e-spec label is put on the fuel tank or fan cover .

The new “EU emission approval label” is on the fan cover of the engine.



EU emission label

ENGINES FOR EXPORT TO THE USA

AIR INDEX Information

New requirement from CARB Tier 2

Engine Manufacturer must indicate both of the emission performance and durability period of the engine to the end users.

The AIR INDEX TAG will be put on the high-tension cord of the engine for CARB Tier 2 certified engines.

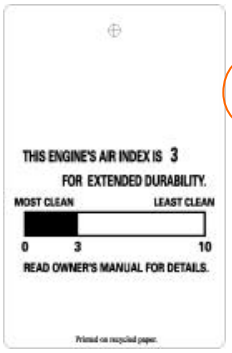
Please make sure that the AIR INDEX TAG is visibly attached to your product

ONLY FOR USA MODELS

Air Index Tag

Face

Reverse



Emission control label

The “Air Index Tag” is fastened on the high tension cord of the engine.

The “Emission control label” is on the fan cover of the engine.
Only the Honda factory is authorized to install this label at the time of production;

ATTENTION

Engines mounted on products sold in the USA must meet several market requirements, in addition to the above mentioned tag and label.

1. Special Owner’s Manual for the USA
2. Emission Warranty Statement
3. Caution and other labels in USA-English and conform to Honda requirements.

If you plan to export products to the USA, the engines must satisfy regulatory and other market requirements. Please confirm with Honda if the engines meet market requirements in the USA.
Export to the USA without meeting regulations of the USA is illegal and could result in fines and/or product confiscation. Honda is not responsible for any losses or expenses that may result from such exports.

Discrimination
Model, type, option and colour code will remain unchanged except for GX22/31 USA types.
The “E2” letters and vertical bar on the right edge of the bar code sheet (attached to the engine box) identify the new type (Phase 2/Tier2 emission level) engines.

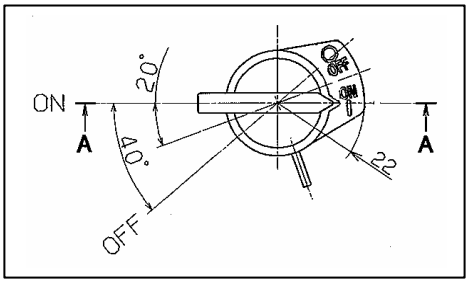
COMMON TYPE FOR EXPORT TO THE USA AND EUROPE

A common engine MTOC that complies with both product safety and emission legal requirements in US (CARB/EPA) and EU (EN) market can be established.
The requirements for such a common type are divided into 3 groups:

- Engine hardware requirements with regard to functional components
- Engine software requirements with regard to labelling and documentation
- OEM agreement on CARB/EPA/EN specification model.

The application of both software and hardware requirements, as well as the OEM agreement are compulsory for legal sales of a CARB/EPA/EN common engine MTOC.

Engine hardware requirements:



Engine switch with combined I/O and ON/OFF indication.
Mounted on the engine.

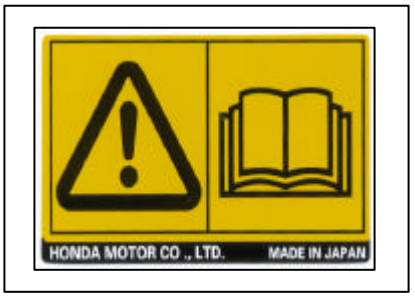
Engine software requirements:

- Emission control label.
  Attached to the engine cover.

- Emission warranty statement.
  Included in engine packing.
  Included in US owner's manual for US made engines.
  Has to be included in OEM product packing.

- EC Manufacturer's declaration.
  Included in engine packing.
  This declaration is only for the OEM, not to be included in the OEM product packing.

- Environmental tag.
  With AIR INDEX for engine meeting CARB Tier 2 on reverse side.
  Attached to the high-tension cord of the engine.
  The environmental tag must not be removed.



- Caution mark label.
  Included in engine packing as loose part.
  These caution labels do not have to be installed on the engine if the same contents is already covered by the OEM Warning Label on the OEM product.

  Pictogram type: obligatory for sales in the EU.

  Language type: obligatory for sales in the US.

- Owner's manuals.
  USA and EU (6 languages) owner's manual included in engine packing.
  For sales in USA, the EU owner's manual has to be removed.

OEM agreement on CARB/EPA/EN specification model.

See attached document.

From 2005 onwards, these common types are replaced by the Universal Export types: U-types for export to Europe, USA, Canada and Australia.

Specification change details for Unified engine type: U-type

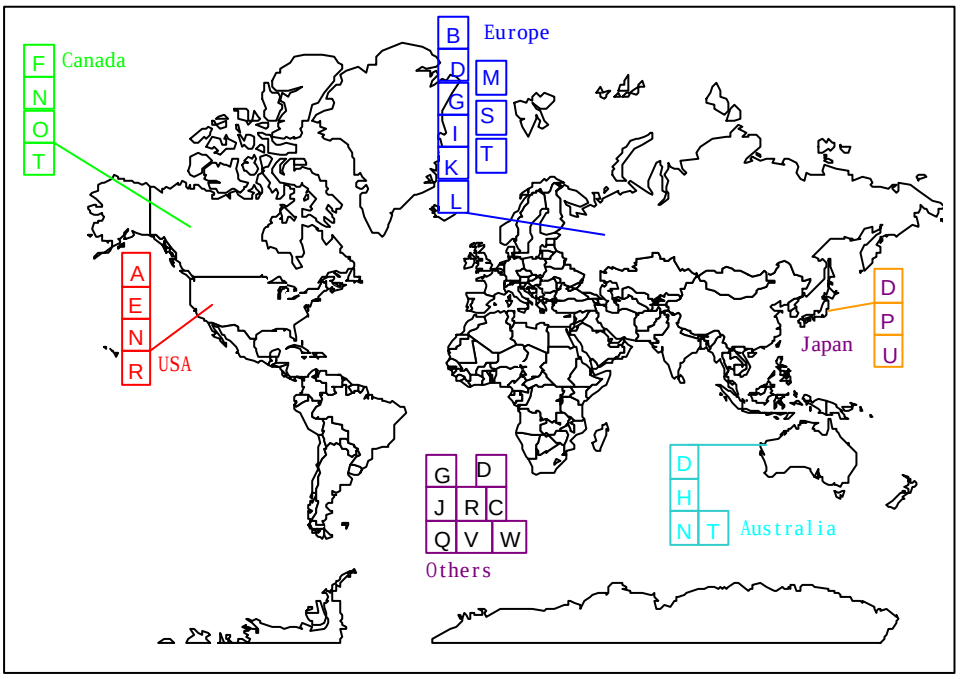
	Current labels and printed materials			After change
For GX160	USA/Canada/Australia	EU		Unified type for 4 areas (USA, Canada, EU, Australia)
Emission control label	Only USA & Canada (EPA, CARB, Canada Emission) Only USA (CARB)		⇒ ⇒	EPA / CARB / Canada/EU unified Emission label Air index info Unified to the label Deleted
Electric Interference label	Canada(RFI) Australia (C-tick)	No label necessary (Regulation exists)	⇒	RFI, C-tick unified label
Warning label			⇒	Installed: English + Pictogram Loose parts: French + Pictogram YOP: Pictogram
Throttle Indication	–		⇒	English + Pictogram

Specification change details for an Unified engine – Label, Switch, Enclosed document, O/M -

	Current labels and printed materials			After change
For GX160	USA/Canada/Australia	EU		4 Region specifications (USA, Canada, EU, Australia)
Choke・ Fuel valves Label		(ISO)	⇒	
Oil alert label (Applied types only)		–	⇒	– Discontinued
Engine switch	ON/OFF	I/O		I/O & ON/OFF Same change for Control box
Emission warranty statement	Emission Warranty Statement Only USA & Canada	-	⇒	Emission Warranty Statement In the box
Declaration of Incorporation	-	Declaration of Incorporation	⇒	Declaration of Incorporation In the box
Owner's manual	USA : USA version Australia: Simple version in 6 languages Canada: Both	EU : Simple version in 6 languages	⇒	(English・French・Spanish) + (German・Italian・Dutch) *Other languages will be prepared at Honda's web-site by EEC. Common contents based on US A version

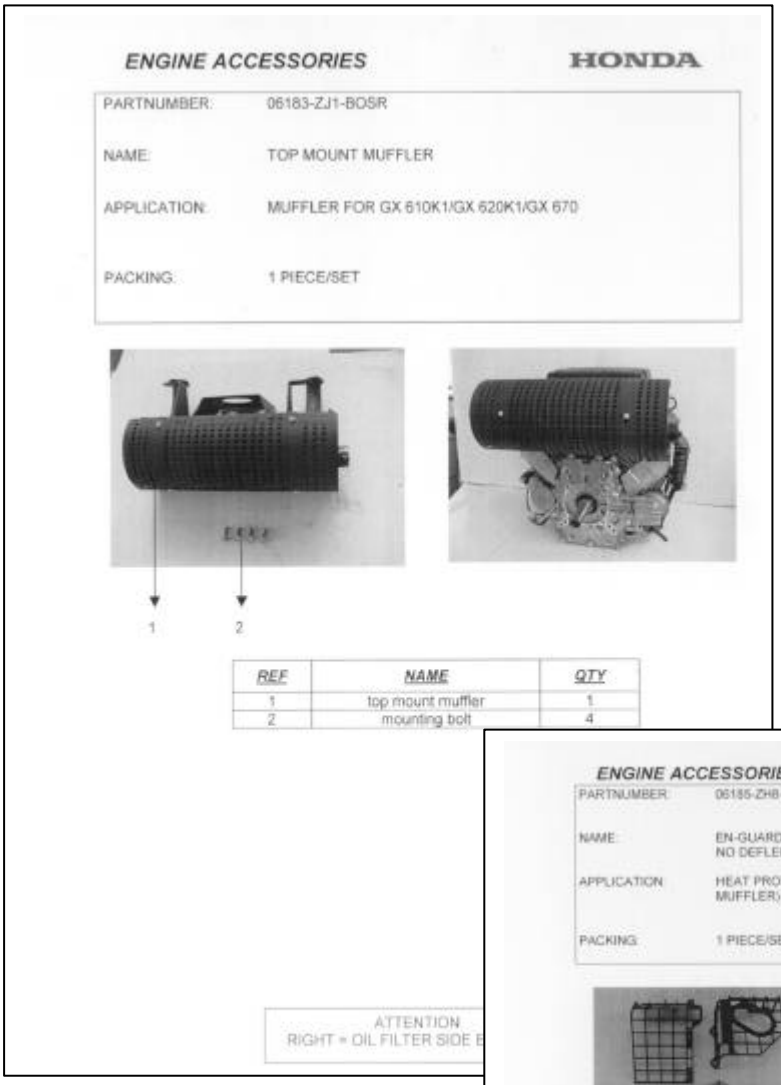
comply with local regulations. When you purchase Honda engines, please contact our technical staff on engine specification requirements of each area.

Category	Name	Area	Contents	Specification required	Mark
Emission	EPA	49 States of U.S.A Canada	Emission regulation for non-road engine	CARB/EPA Label O/M conform with emission regulation Warranty Statement Air Index Label	A
	CARB	California State			
	EC	Europe	General purpose engine	From August 2004, follows EPA	B
	CPCB	India	Small Generator	Certification label	C
		General	HM Environmental Indication	Honda's original emission label and tag	D
Spark Arrester	FSS	USA	Complete Product	Spark arrester	E
Radio Interference	CSA	Canada	Complete Product	Conform label	F
Elector-Magnetic Compatibility	EMC	EC	Includes immunity and emission (radio interference)	Declaration of Conformity for Machinery and for each engine	G
	AS	Australia		C-tick Mark	H
Noise	EC	EC	Complete product: some product needs only labelling, others need to comply with limits	Manufacturers Declaration for Machinery Parts(for engines): not required by law * Declaration of Conformity (for CBU)	I
	CPCB	India	Small Generator	(to be regulated)	J
Safety	EC	EC	Protection of hot + rotating parts	Manufacturers Declaration of Incorporation (For engines, optional muffler protector)	K
Caution Label		EC	Pictograph or 11 official languages	Pictograph Label or 11 language-label	L
		France	French Language (Law *1)	labels	M
		U.S.A.	English Indication	4 languages (English, French, German, Spanish)	N
		Canada	English & French	label	O
		Japan	Japanese	Japanese label	P
		Other Language Law		Confirmed by Subsidiary / Distributor	Q
Owner's Manual		U.S.A.	English	Conform with Emission Regulation	R
		Europe	6 languages	11 Languages	S
		Canada	6 languages	6 Languages	T
		Japan	Japanese	Japanese	U
		Others		Drawing+6 languages (English, Indonesia Arabian, Malay, Chinese, Thai)	V
		Specific Areas		Confirmed by Subsidiary / Distributor	W



*1 French translation is required if it is written in other languages than French.

ENGINE ACCESSORIES



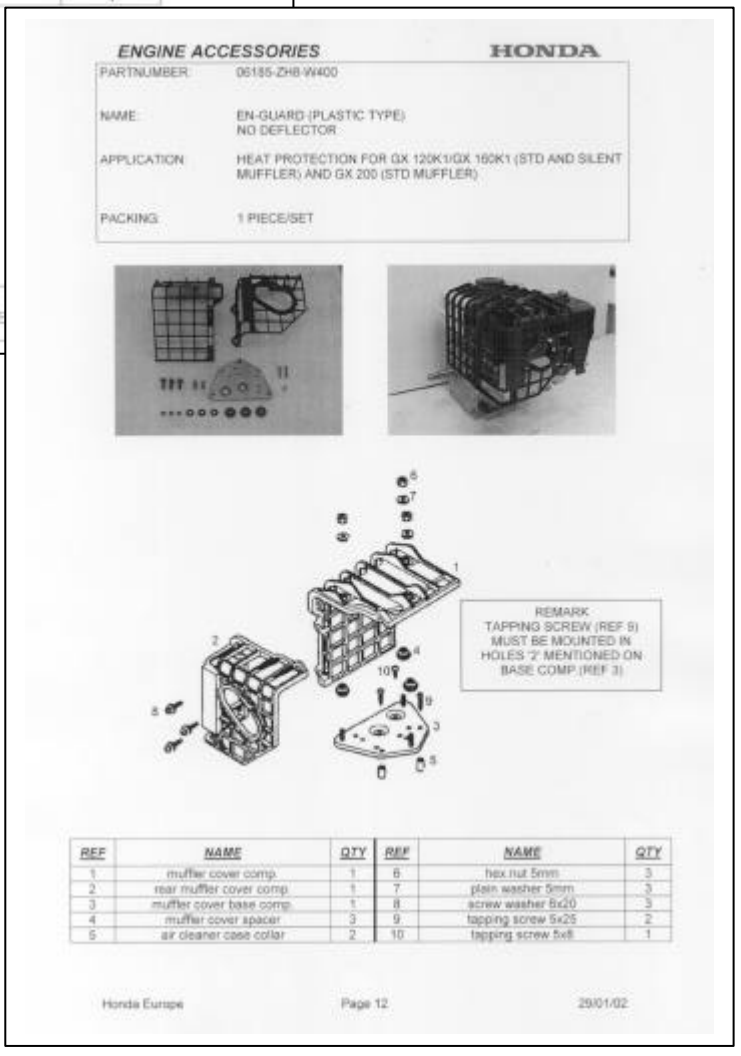
ENGINE ACCESSORIES HONDA

PARTNUMBER:	06183-ZJ1-B0SR
NAME:	TOP MOUNT MUFFLER
APPLICATION:	MUFFLER FOR GX 610K1/GX 620K1/GX 670
PACKING:	1 PIECE/SET

1 2

REF	NAME	QTY
1	top mount muffler	1
2	mounting bolt	4

ATTENTION
RIGHT = OIL FILTER SIDE E



ENGINE ACCESSORIES HONDA

PARTNUMBER:	06185-ZH8-W400
NAME:	EN-GUARD (PLASTIC TYPE) NO DEFLECTOR
APPLICATION:	HEAT PROTECTION FOR GX 120K1/GX 160K1 (STD AND SILENT MUFFLER) AND GX 200 (STD MUFFLER)
PACKING:	1 PIECE/SET

REMARK
TAPPING SCREW (REF 9)
MUST BE MOUNTED IN
HOLES '2' MENTIONED ON
BASE COMP (REF 3)

REF	NAME	QTY	REF	NAME	QTY
1	muffler cover comp	1	6	hex nut 5mm	3
2	rear muffler cover comp	1	7	plain washer 5mm	3
3	muffler cover base comp	1	8	screw washer 6x20	3
4	muffler cover spacer	3	9	tapping screw 5x25	2
5	air cleaner case collar	2	10	tapping screw 5x8	1

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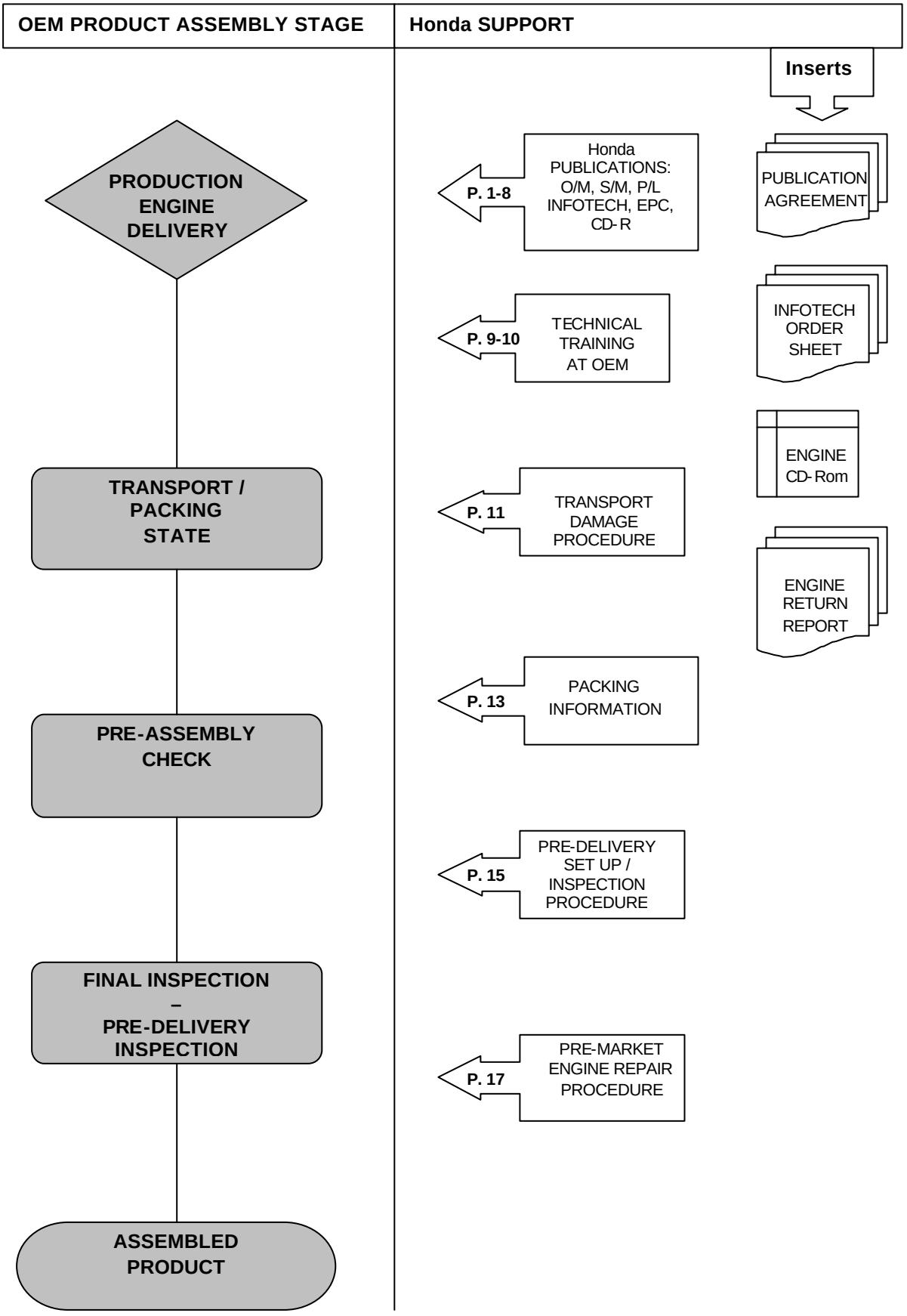
A variety of engine accessories: mufflers, muffler guards, oil dipstick extensions, etc. is available for the industrial engine range.

All accessories are tested and approved by Honda.

An Engine Accessories Catalogue is available at HE-EEC or at

www.honda-engines-eu.com

PRODUCT ASSEMBLY STAGE



Honda PUBLICATIONS

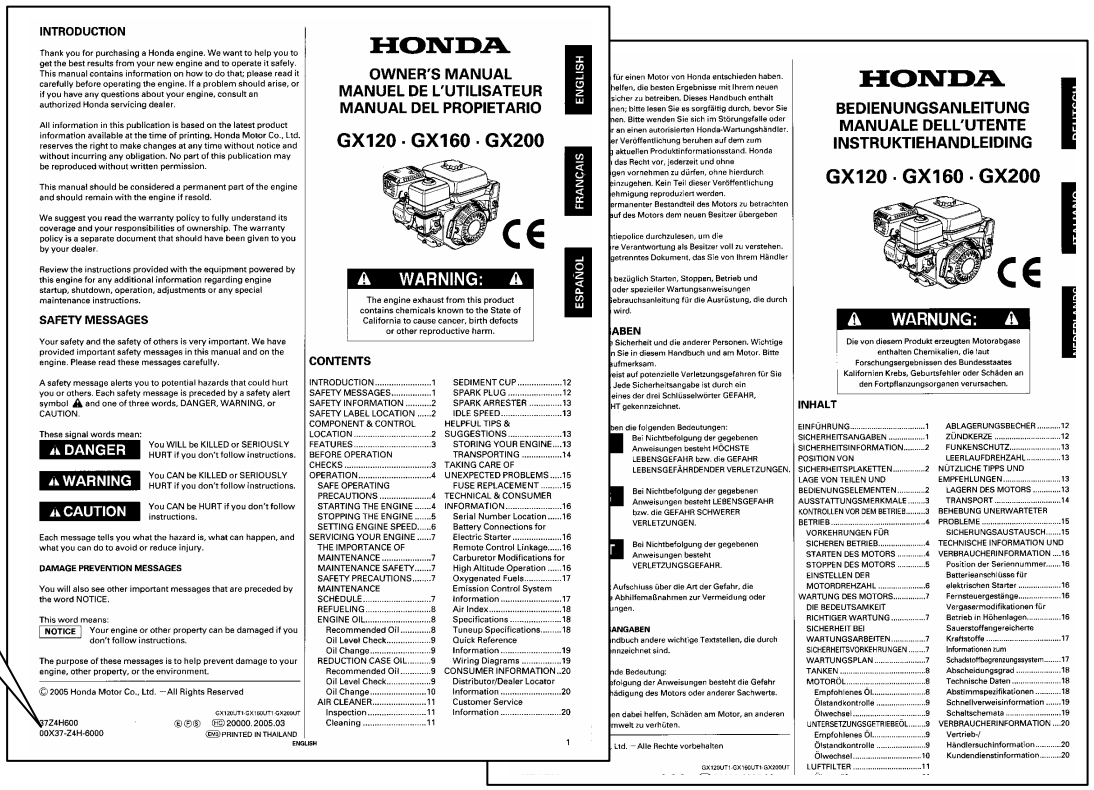
The Honda publications: owner's manual, shop manual and parts catalogue are available at the Honda Europe Parts Center.
These publications can be ordered through the standard parts supply route with the related part number.

OWNER'S MANUAL

The owner's manual comes packed with the engine and it provides details about using the engine, points to remember and simple maintenance procedures. Be sure that this manual is provided along with the OEM product.
Owner's manuals are available in a variety of languages: Japanese, English, German, French, Spanish, Arabic, Indonesian, Thai, Chinese and other languages needed by the eventual user of the product.
It should be noted here that some countries require by law that documentation is supplied in one or more languages (such as English and French for Canada, French and Dutch for Belgium).
If the OEM product is to be exported, make sure that the owner's manual is provided in the required language.

- **As a standard package, a 6 language owner's manual (English, French, German, Dutch, Italian, Spanish) is delivered with the engine in Europe.**

- **Other language owner's manuals can be delivered upon request. (see www.honda-engines-eu.com)**



Part number

The European directive stipulates that the owner's manual has to be supplied with the machine in the language of the end user (customer).

The following 20 languages are the official languages of the countries of the European Union: Dutch, French, German, Swedish, Danish, Finish, Italian, Spanish, Portuguese, Greek, English, Czech, Estonian, Latvian, Lithuanian, Hungarian, Maltese, Polish, Slovak and Slovene.
Some countries that are not member of the European community have also taken over this directive as a national law e.g. Switzerland, Norway.
In 2007, Bulgarian and Romanian will be added to EU languages.

DUPLICATION OF SERVICE PUBLICATIONS (OWNERS MANUAL)

Duplication of the Honda engine owner's manual contents or integration of the Honda engine owner's manual contents into the OEM product owner's manual is strictly ruled by the Honda copyright.

OEM SERVICE PUBLICATION AGREEMENT

A license can be granted which entitles the OEM to revise, adapt or translate Honda service publications and reproduce, distribute or lease these secondary service publications for the purposes of providing OEM product service publications and for providing effective and reliable services to users.

Honda can supply the owner's manual in electronic format when OEM has signed the service publication agreement.

See included service publication agreement document and list of available owner's manuals.

WORKSHOP MANUAL

The workshop manual provides detailed information on engine maintenance, including basic assembly, disassembly, adjustment, periodic inspection items, troubleshooting, and the use of special tools.

Workshop manuals are available in Japanese, English, German, French and Spanish.

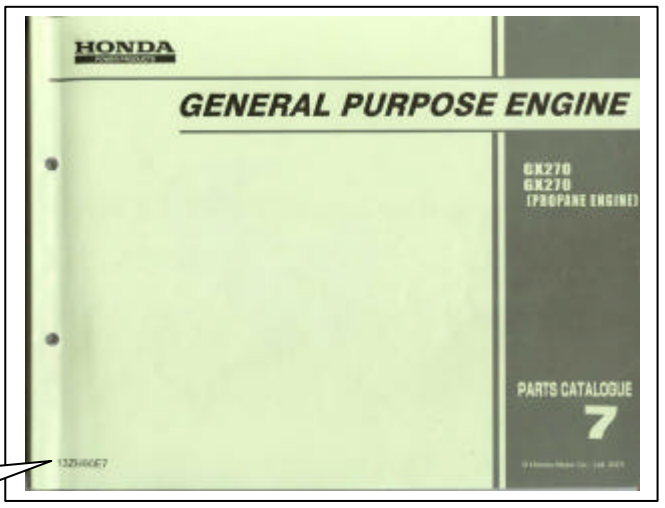
Part number (on backside)

PARTS CATALOGUE

The parts catalogue shows part numbers and names, along with the flat rate times (FRT) required when replacing parts under warranty.

Paper form parts catalogues are available in Japanese and English.

On request, an MTOC-based parts catalogue can be set up: one model, type, option and colour.



Part number

POWER EQUIPMENT DIGITAL INFORMATION SYSTEM - INFOTECH

Honda's "Global Infotech" is a spare parts and technical information database on CD-Rom and DVD-Rom (DVD-Rom only, from end 2003 onwards)
The "Global Infotech" covers 4 independent Honda product groups: Green products, Industrial products, Marine and Engines for a better flexibility and higher access speed.

The database on each of these product groups includes the complete range of:

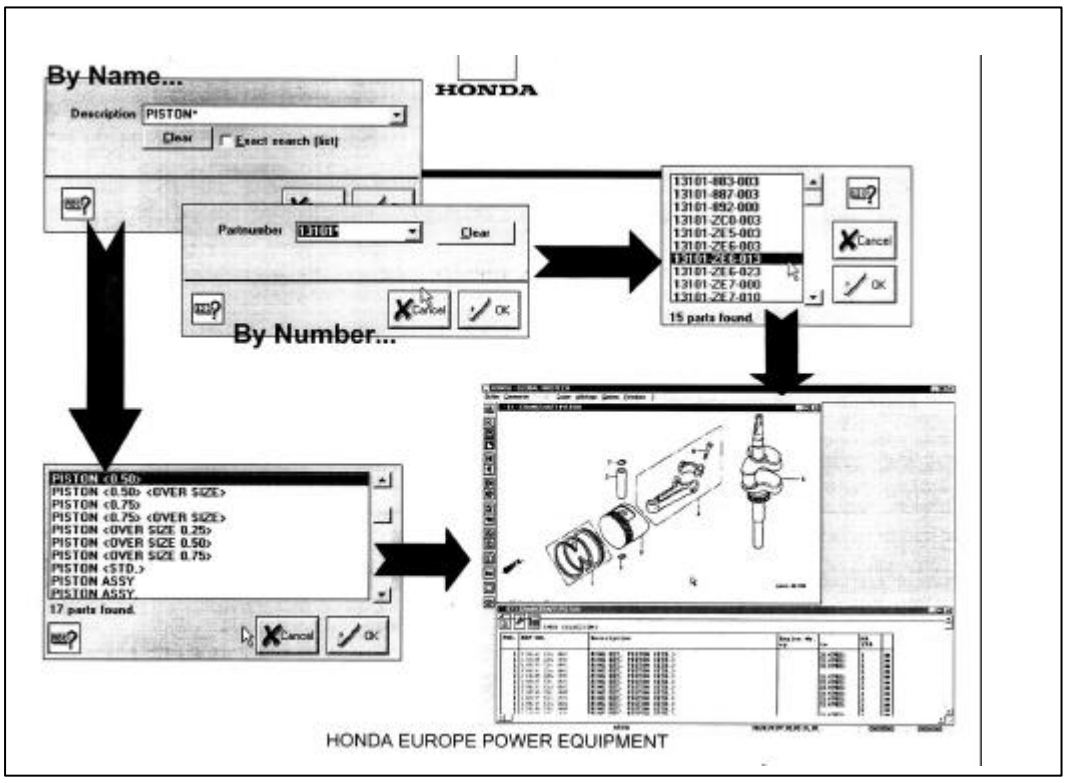
- Spare parts information: spare part catalogue, spare part search by name or number, on-line ordering system.
- Documentation database: workshop manuals, owner's manuals, service bulletins with technical information linked to the relevant spare part.

The installation of the "Infotech" system can be done:
Global : spare parts information + documentation database or
Independent: documentation system only

An update of the database is provided twice yearly.

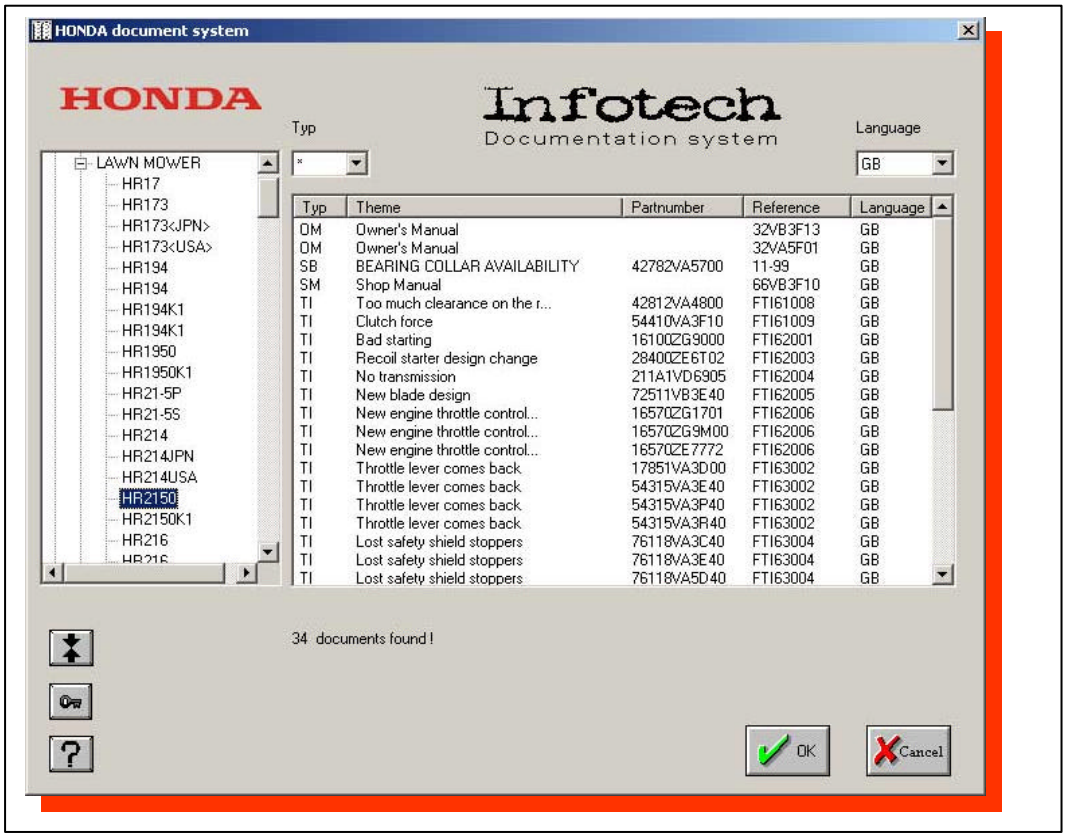
SPARE PARTS INFORMATION

Search spare part by name or number, online ordering of spare parts



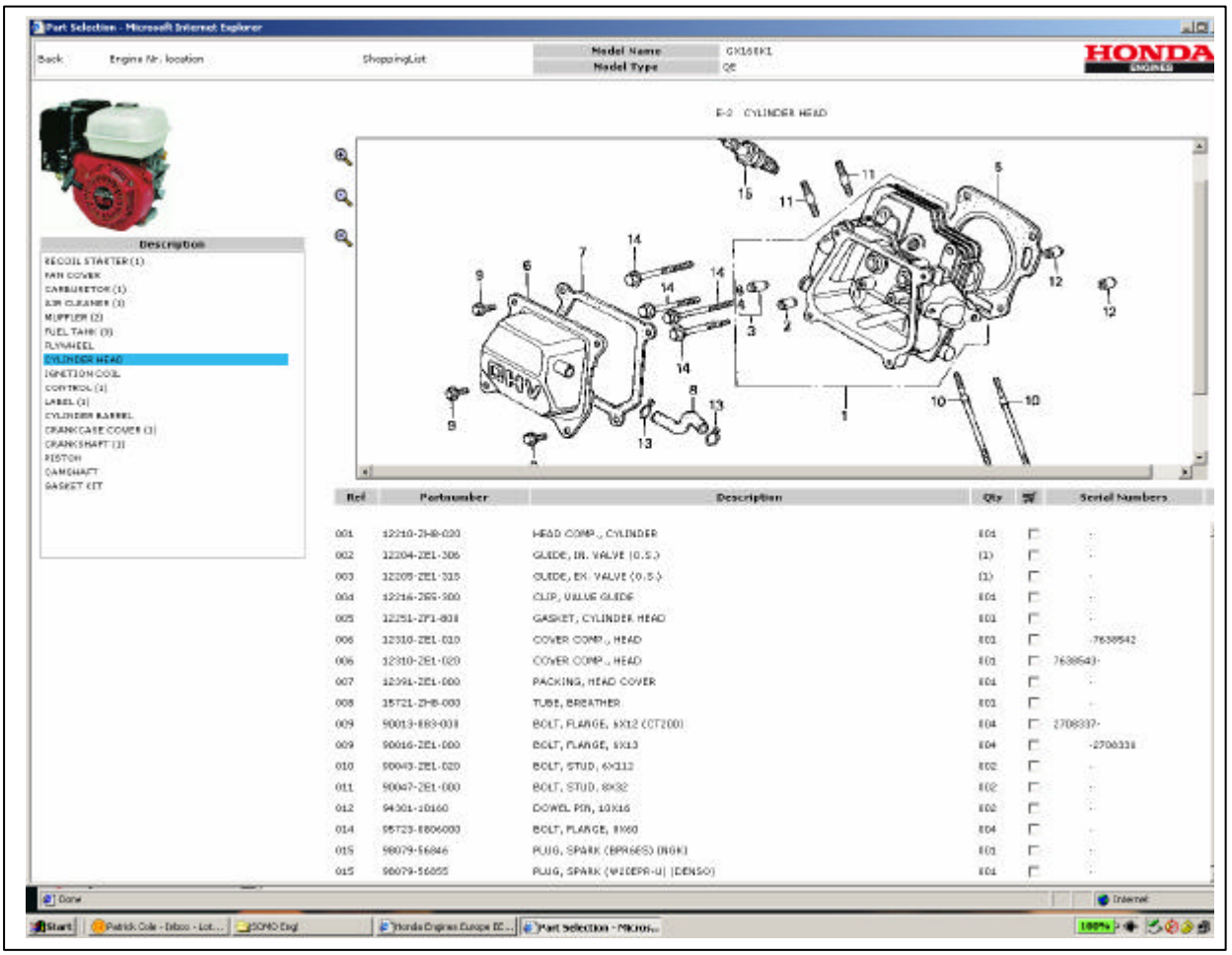
DOCUMENT SYSTEM

Including workshop manuals, owner's manuals and service bulletins.



Honda's ONLINE PARTS CATALOGUE: E-EPC

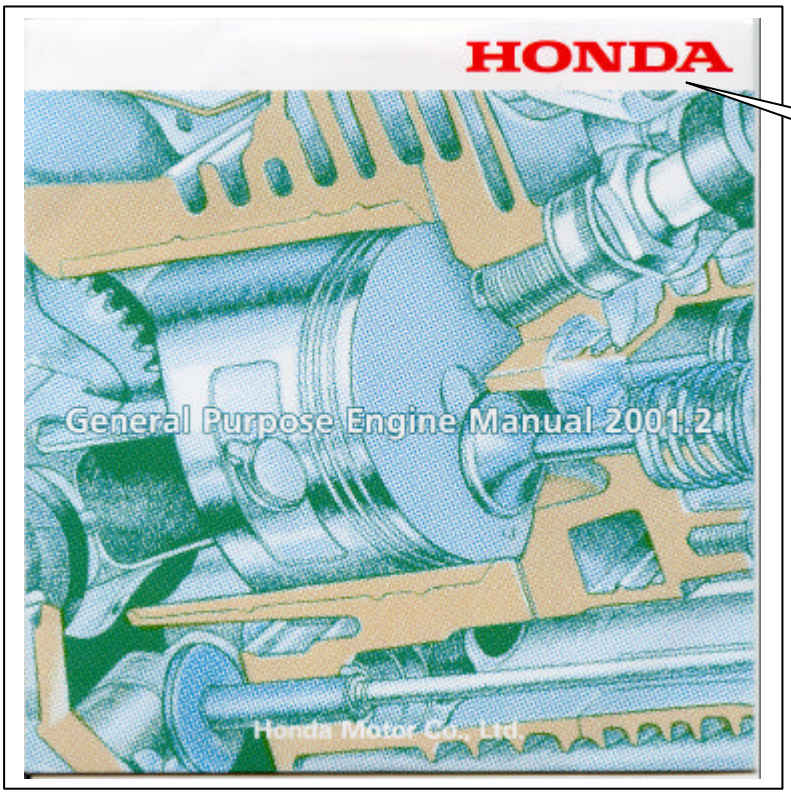
Honda launched a global parts catalogue on the Internet: the e-EPC.
This e-EPC is accessible to the private internet (UUNet) equipped, authorised dealers.
The e-EPC - engine only, short version - is also accessible on the public internet through **www.honda-engines-eu.com**
This electronic parts catalogue has a central database that allows a high frequency of data and price updates.
The direct link with Honda Europe Parts Center allows on-line parts ordering (only on UUNet).
In the near future, the workshop manuals and other technical documents will be linked to this electronic parts catalogue.



GENERAL PURPOSE ENGINE CD-ROM

This engine CD-Rom has been compiled to assist business activities of Honda engine customers around the world.
It contains product information on:

- GX/GXV/GD engine series
- Mini 4 -stroke engine series
- GC/GCV engine series



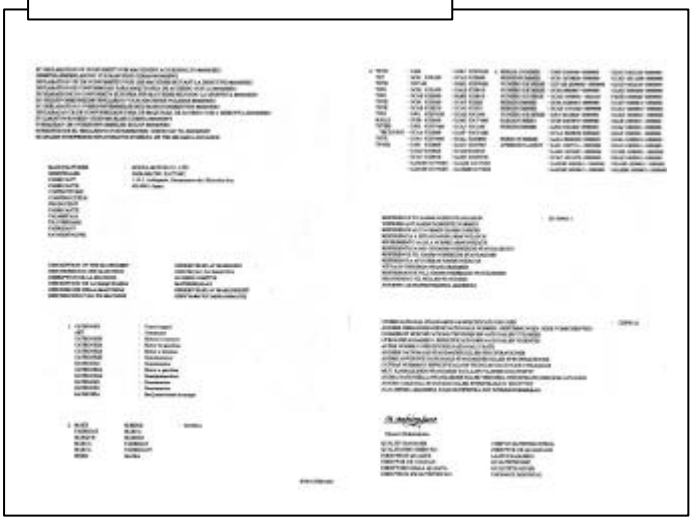
Available at HE-EEC
Order ref.: CDGEN

Besides a product manual and technical manual on the Honda general purpose engines, the CD-Rom contains an engine MTOC combination table.

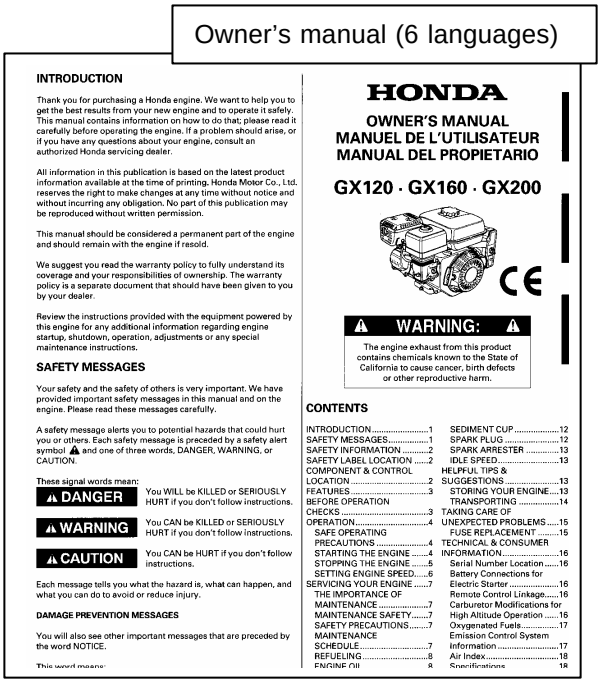
SERVICE PUBLICATIONS DELIVERED WITH THE ENGINE

1. EUROPE ENGINE TYPES

EC Manufacturer's declaration



Owner's manual (6 languages)



INTRODUCTION

Thank you for purchasing a Honda engine. We want to help you to get the best results from your new engine and to operate it safely. This manual contains information on how to do that; please read it carefully before operating the engine. If a problem should arise, or if you have any questions about your engine, consult an authorized Honda servicing dealer.

All information in this publication is based on the latest product information available at the time of printing. Honda Motor Co., Ltd. reserves the right to make changes at any time without notice and without incurring any obligation. No part of this publication may be reproduced without written permission.

This manual should be considered a permanent part of the engine and should remain with the engine if resold.

We suggest you read the warranty policy to fully understand its coverage and your responsibilities of ownership. The warranty policy is a separate document that should have been given to you by your dealer.

Review the instructions provided with the equipment powered by this engine for any additional information regarding engine startup, shutdown, operation, adjustments or any special maintenance instructions.

SAFETY MESSAGES

Your safety and the safety of others is very important. We have provided important safety messages in this manual and on the engine. Please read these messages carefully.

A safety message alerts you to potential hazards that could hurt you or others. Each safety message is preceded by a safety alert symbol ⚠ and one of three words, DANGER, WARNING, or CAUTION.

These signal words mean:

⚠ DANGER — You WILL be KILLED or SERIOUSLY HURT if you don't follow instructions.

⚠ WARNING — You CAN be KILLED or SERIOUSLY HURT if you don't follow instructions.

⚠ CAUTION — You CAN be HURT if you don't follow instructions.

Each message tells you what the hazard is, what can happen, and what you can do to avoid or reduce injury.

DAMAGE PREVENTION MESSAGES

You will also see other important messages that are preceded by the word NOTICE.

HONDA

OWNER'S MANUAL
MANUEL DE L'UTILISATEUR
MANUAL DEL PROPIETARIO

GX120 · GX160 · GX200

⚠ WARNING: ⚠

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

CONTENTS

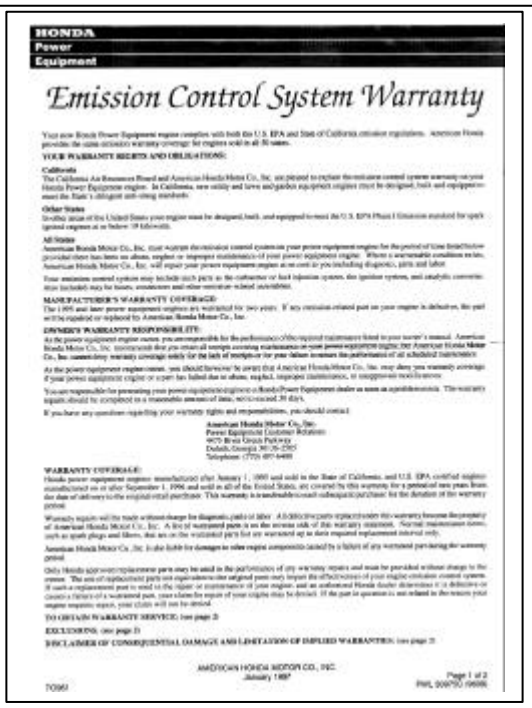
2. USA ENGINE TYPES

Following two documents are obligatory for engine export to the USA: Emission Control System Warranty document and the US Owner's manual.
For engines produced in the USA, the Emission Control System Warranty document is included in the US Owner's manual.

US Owner's Manual

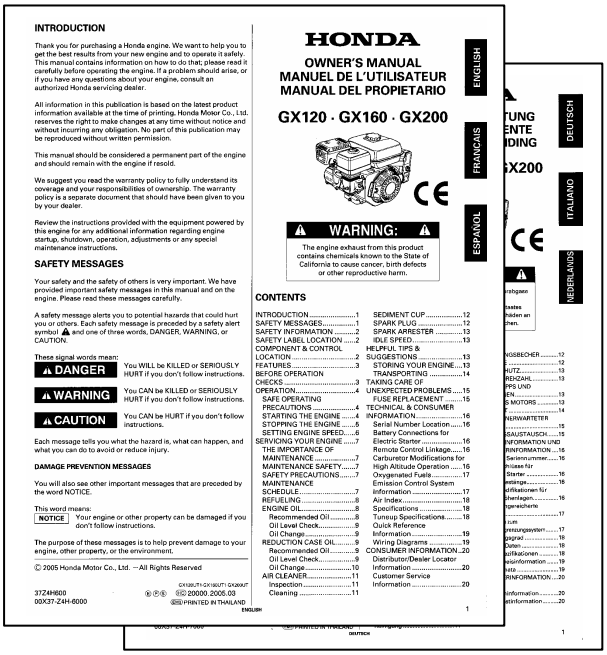
The US Owner's manual is in English only and contains maintenance recommendations and the maintenance schedule related to emission regulation.

Emission Control System Warranty document



3. GENERAL EXPORT TYPES: U-TYPES

Owner's manual (6 languages) including: Emission Control System Information and Consumer Information



HONDA

OWNER'S MANUAL
MANUEL DE L'UTILISATEUR
MANUAL DEL PROPIETARIO

GX120 · GX160 · GX200

ENGLISH · FRANCAIS · ESPAÑOL · DEUTSCH · ITALIANO · NEDERLANDS

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DAMAGE PREVENTION MESSAGES

You will also see other important messages that are preceded by the word NOTICE.

This word means:

NOTICE — Your engine or other property can be damaged if you don't follow instructions.

The purpose of these messages is to help prevent damage to your engine, other property, or the environment.

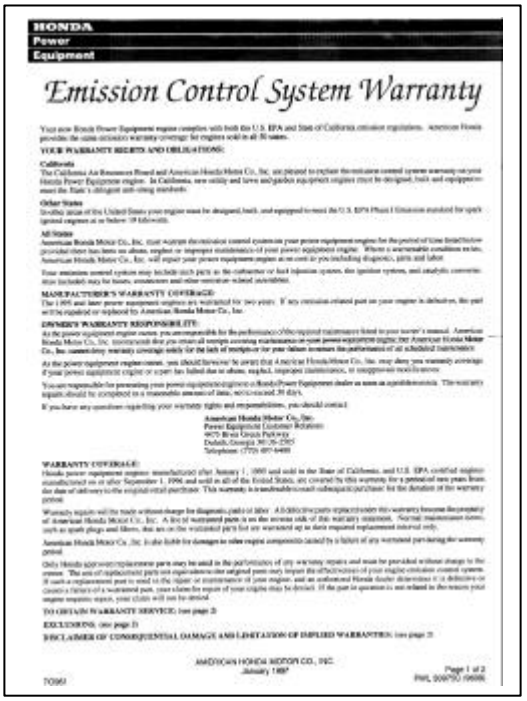
37Z4H600
00X37-Z4H-6000
20000.2005.03
PRINTED IN THAILAND

WARNING:

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

CONTENTS

Emission Control System Warranty document



HONDA
Power Equipment

Emission Control System Warranty

YOUR WARRANTY RIGHTS AND OBLIGATIONS:

California

Other States

MANUFACTURER'S WARRANTY COVERAGE:

OWNER'S WARRANTY RESPONSIBILITIES:

American Honda Motor Co., Inc.
Power Equipment Customer Relations
4475 River Green Parkway
Duluth, Georgia 30136-2595
Telephone: (770) 497-6400

WARRANTY COVERAGE:

TO OBTAIN WARRANTY SERVICE: (see page 2)

EXCLUSIONS: (see page 2)

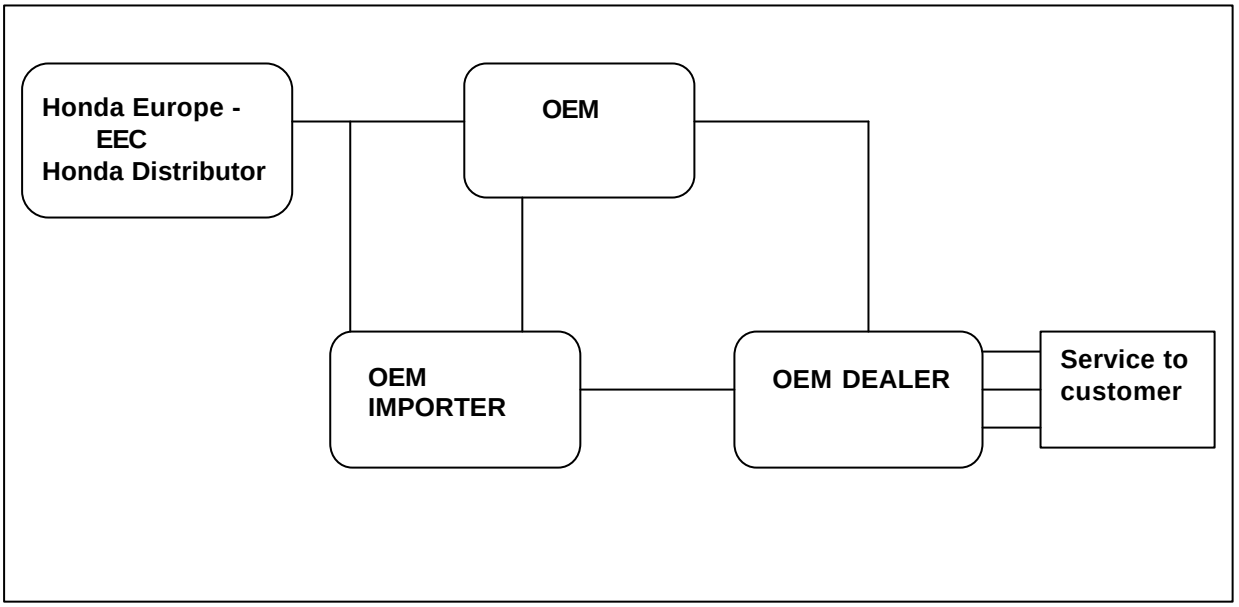
DISCLAIMER OF CONSEQUENTIAL DAMAGE AND LIMITATION OF IMPLIED WARRANTIES: (see page 2)

AMERICAN HONDA MOTOR CO., INC.
January 1997

EC Manufacturer's declaration

TECHNICAL TRAINING

Honda Europe-EEC in collaboration with the local Honda distributor shall provide technical service training covering the correct handling and maintenance of engines and other matters requested by the OEM.
Such training should be conducted so that the OEM can complete training to OEM dealers or importers prior to the marketing of the product.



BASIC ENGINE TRAINING

Basic engine training is offered as a computer based training module under the name of **"e-start"**. "e-start" is a self-study module covering: engine principles, engine configuration and maintenance.

A training certificate for the accomplishment of Honda “e-start” can be printed out after completing the quiz, integrated in the module.

PRODUCT AND APPLICATION TRAINING

An extended program on product training and engine application training is available on request at the local Honda subsidiary or Honda engine importer.

TRANSPORT DAMAGE

SCOPE

Any engine damage that results from improper handling during transport between the Honda engine distributor and OEM delivery address.

COVERAGE

The products are covered by transport insurance during shipment.
Any damage or deterioration occurring during shipment is a matter to be handled between the Honda engine distributor and the responsible insurance company.

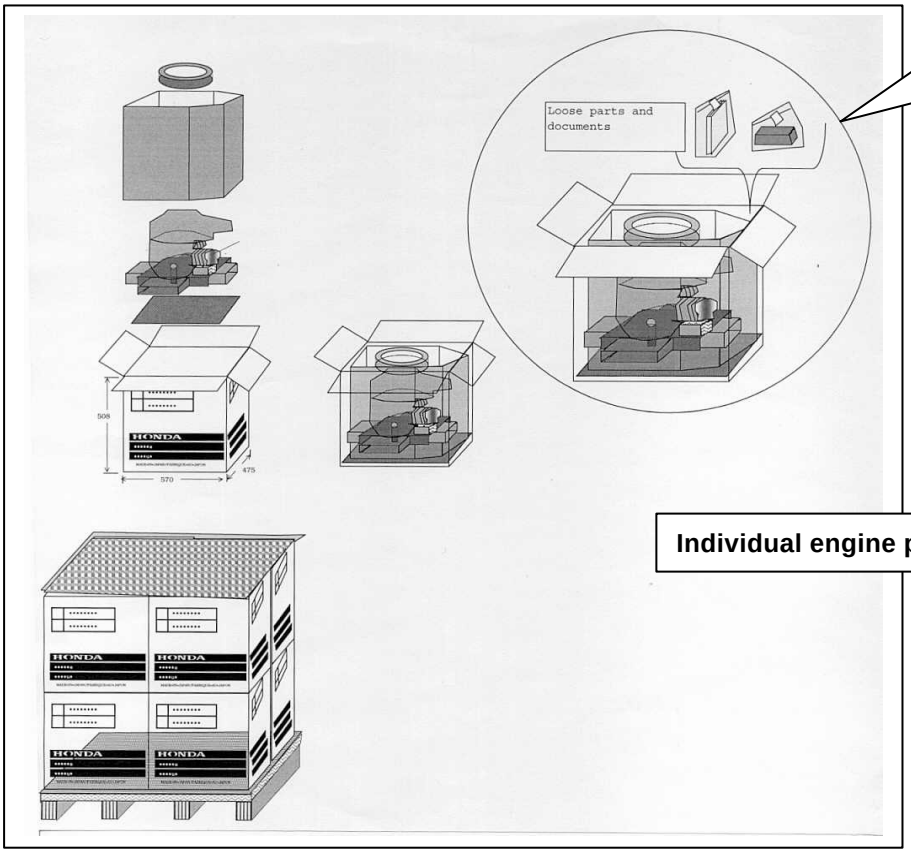
REPAIR

Repair of damaged engines is done through the authorised Honda dealernetwork or HES network.
A detailed report on repair cost: labour cost and spare parts cost should be presented to the Honda distributor.

In case there is no Honda dealer available or the quantity of damaged engines is too big, the damaged engines should be returned to the Honda distributor.
An engine return report has to be send to the Honda distributor and a copy of the report has to be attached to the return shipment.

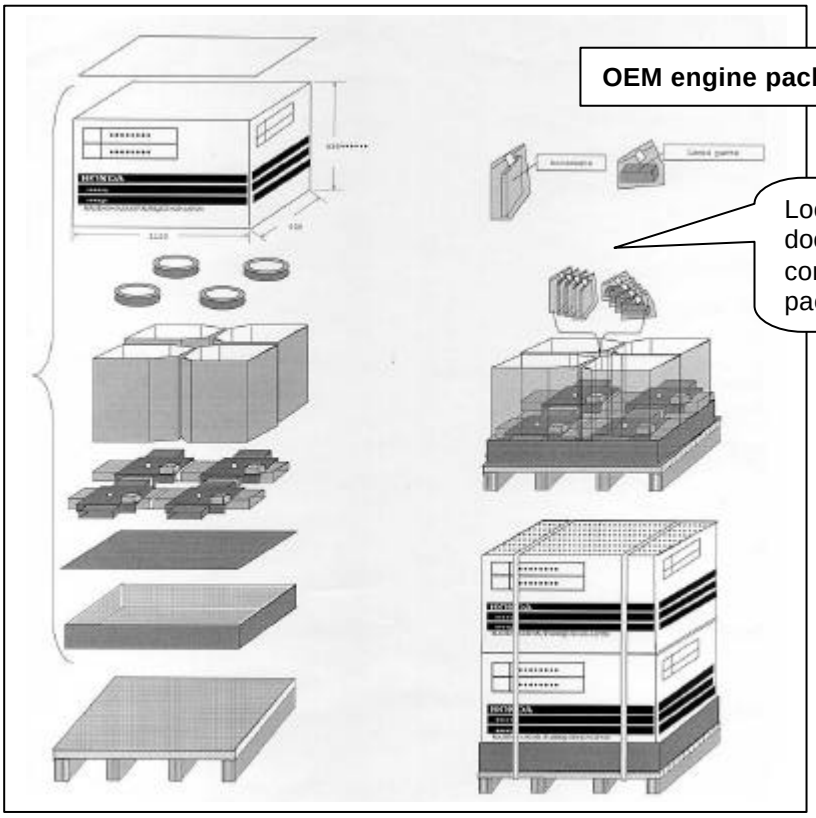
PACKING INFORMATION

Packing information on engine, included documents and loose parts is available for the OEM engine package and individual engine package.



Loose parts and documents are included in each engine box.

Individual engine package - STW



OEM engine package - STC

Loose parts and documents are combined and packed separately.

PRE-DELIVERY SET UP AND PRE-DELIVERY INSPECTION

All products shipped from Honda receive a final inspection after completion of assembly. However, some engines may be packed in a partially dismantled condition, depending on the mode of transportation or requested assembly. The OEM must restore products to their original condition for normal use before delivery to customers, according to the instructions provided by Honda. Honda will not assume any costs incurred in pre-delivery servicing or set up.

Set up

Some of the parts and equipment related to the product are disassembled to prevent damage during shipment.
Set up preparation can consist of the following operations:
- reassembly and inspection of disassembled components
- installation and inspection of accessories
- connection of electric components and wiring

Pre-Delivery Inspection (PDI)

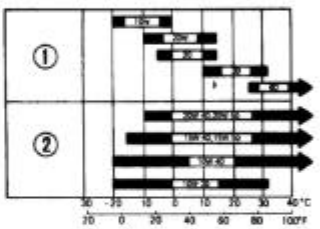
Inspection and adjustment must be performed at the time of delivery to a customer.
PDI instructions are noticed in the related engine owner's manual.

3 PRE-OPERATION CHECK

1. Engine oil level
CAUTION:
- **Running the engine with insufficient oil can cause serious engine damage.**
- **Be sure to check the engine on a level surface with the engine stopped.**

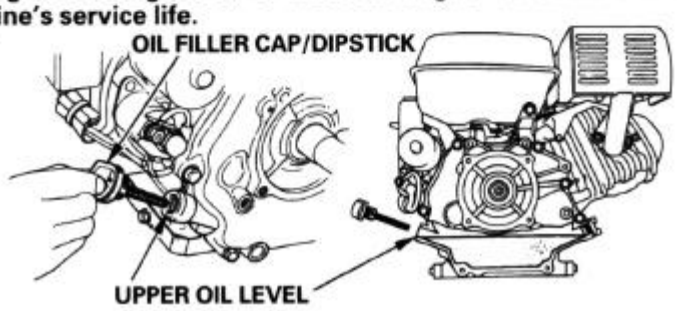
1. Remove the oil filler cap and wipe the dipstick clean.
2. Insert the dipstick into the oil filler neck, but do not screw it in.
3. If the level is low, fill to the top of the oil filler neck with the recommended oil.

Use Honda 4-stroke, or an equivalent high detergent, premium quality motor oil certified to meet or exceed U.S. automobile manufacturer's requirements for service classification SG, SF Motor oils classified SG, SF will show this designation on the container.
SAE 10W-30 is recommended for general, all temperature use. If single viscosity oil is used, select the appropriate viscosity for the average temperature in your area.



Ambient temperature
① SINGLE VISCOSITY
② MULTI VISCOSITY

CAUTION:
Using nondetergent oil or 2-stroke engine oil could shorten the engine's service life.



PRE-MARKET ENGINE REPAIR PROCEDURE

If an engine problem is found while inspecting the completed product on the OEM's production line, a request has to be made to Honda for engine repair / modification or warranty repair.
Honda will start an investigation campaign in order to clarify the size of the problem and the necessity to modify or repair the engine stock.

TECHNICAL REPORT – QIC REPORT

A QIC (Quality Improvement) report will be submitted to the related Honda factory so that possible countermeasures in the production process can be taken.

ENGINE REMOVAL COST CLAIMING

A claim request can be made to Honda including the cost for engine removal and replacement on engines mounted on an OEM product.
Such a claim should be made using the normal warranty claim route.
It should be noted that the OEM or service dealer must consult with Honda concerning the engine removal and replacement flat rate times before submitting a warranty claim.

REPAIR OR MODIFICATION ACTION

Depending on the problem importance level and availability of service staff, three possible repair or modification actions are possible:

- action by HES
- action by OEM
- action by HE-EEC

1. ACTION BY HES

   The repair or modification action is done through the authorised Honda dealernetwork or HES (Honda Engine Specialist).
   A detailed warranty claim or cost report including: labour cost, spare parts cost and general costs should be presented to the Honda distributor.

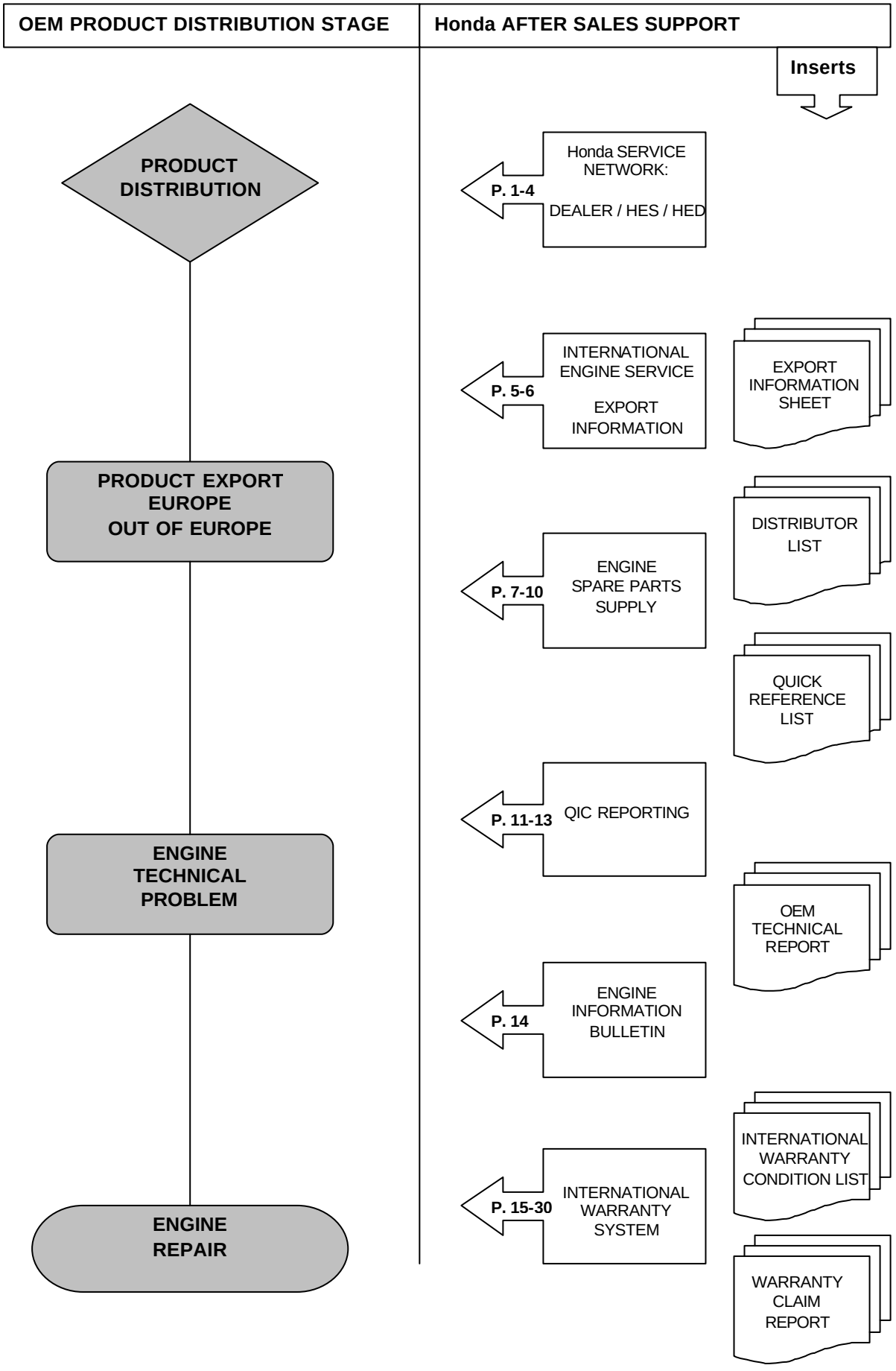
2. ACTION BY OEM

   After mutual agreement between the OEM and Honda, a repair or modification action can be set up at the OEM's assembly line or warehouse.
   A fixed cost per engine or the complete cost for engine repair or modification should be agreed between OEM and Honda.

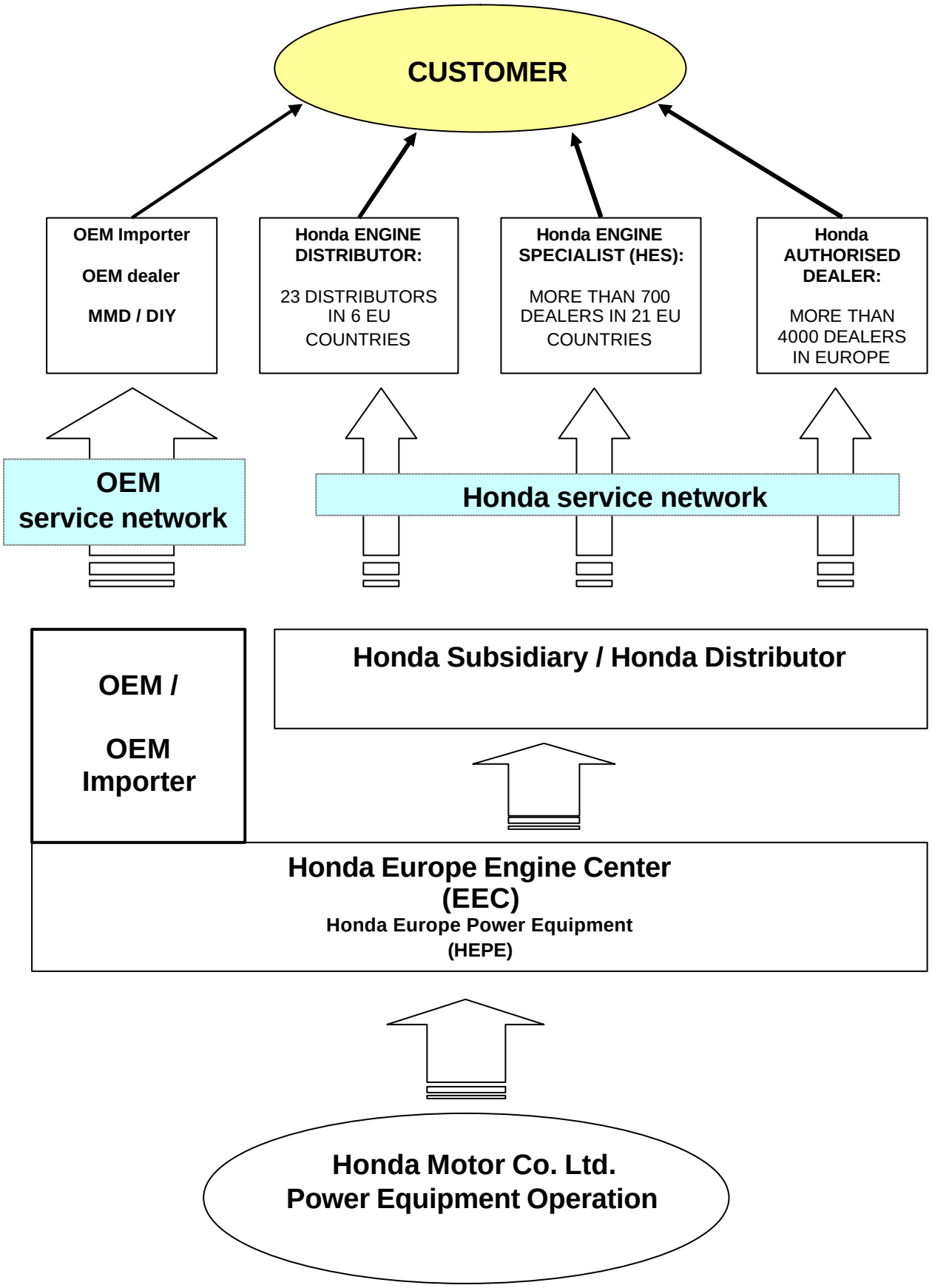
3. ACTION BY HE-EEC

   In case of a big volume or complicated repair and modification action, HE-EEC will organise the repair or modification.

PRODUCT DISTRIBUTION STAGE



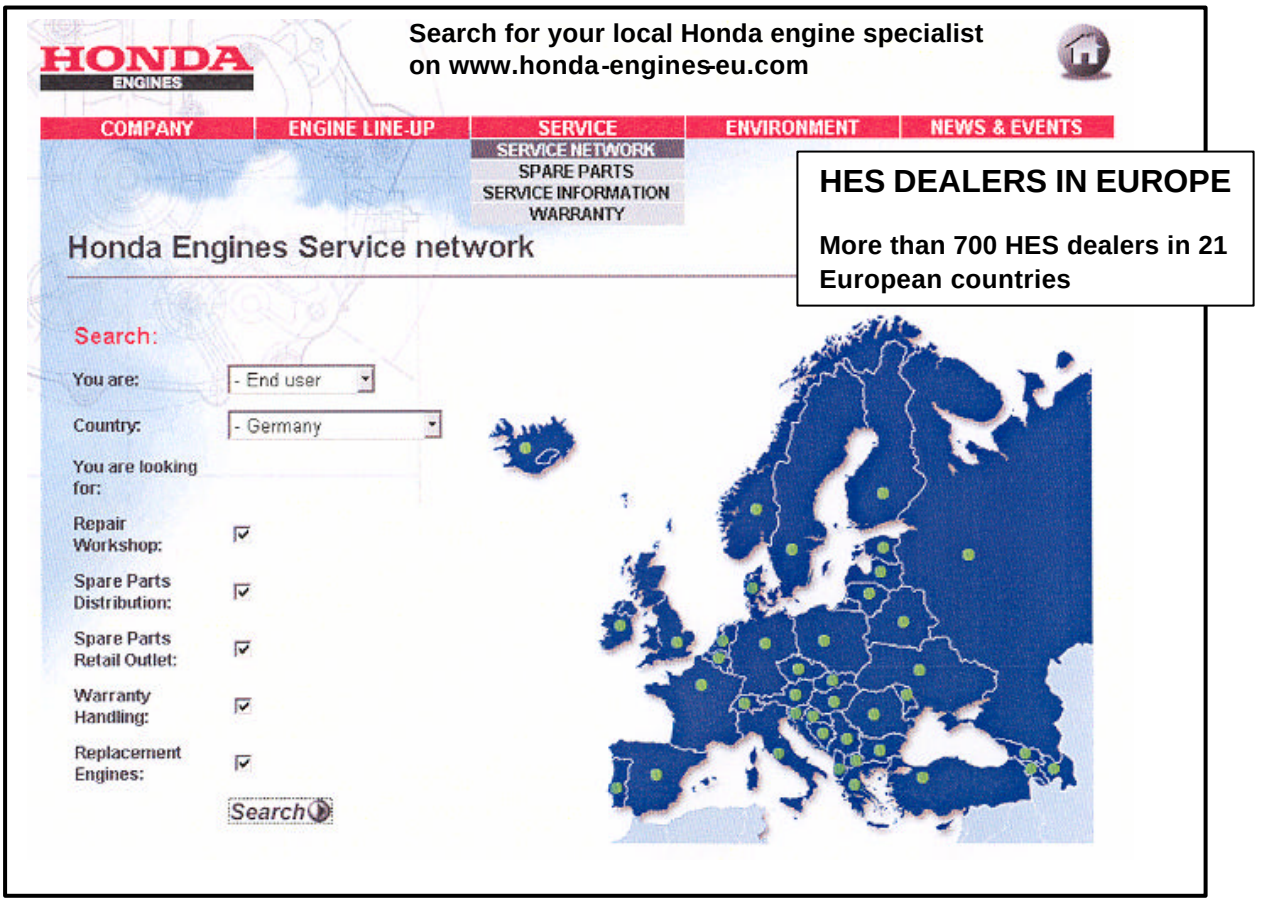
Honda SERVICE NETWORK FOR OEM ENGINES IN EUROPE



HONDA ENGINE SPECIALIST (HES)

SCOPE

- A HES is an authorised Honda dealer engaged in the maintenance and repair of industrial engines and power equipments.
- A HES is an authorised Honda dealer engaged in the sales of industrial engines to professional and non-professional customers.
- The Honda Engine Specialist will service all Honda engines, no matter where they are originally purchased and no matter on which product they are fitted.
- A HES is a “Honda” dealer: the HES is linked to the local Honda importer/distributor by a service contract.



GENERAL CONCEPT

HES offers on-site service to Honda industrial engines
HES has trained technical staff
HES has recommended engine spare parts on stock
HES applies Honda warranty conditions
HES supports engine service program to:

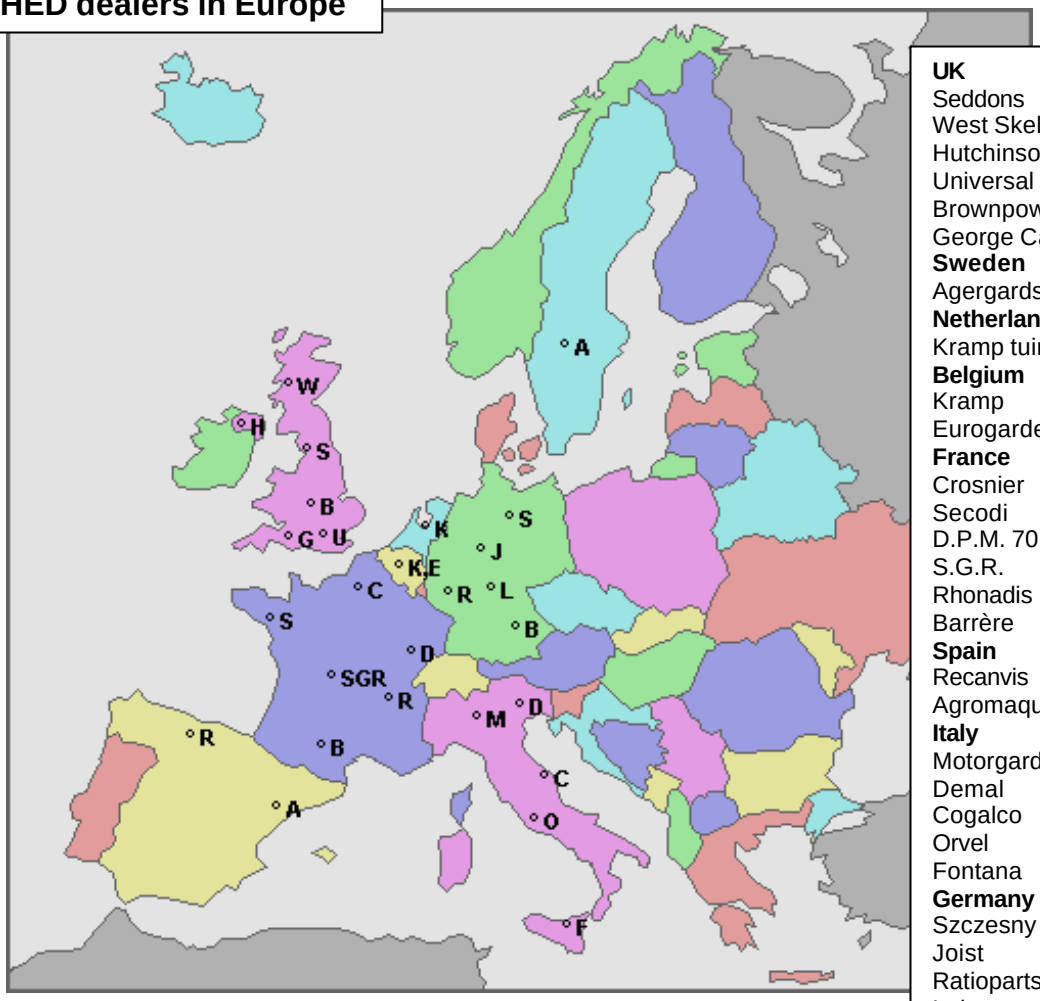
- Professional and non-professional customer
- Small OEM’s
- OEM dealers
- Rental company
- MMD/DIY shops and customers
- Building contractor and construction company.

HONDA ENGINE & PARTS DISTRIBUTOR (HED)

SCOPE

- A HED is a company authorised by Honda to sell and distribute industrial engine spare parts and replacement engines.
- A HED is a company specialised in the re-distribution of engine spare parts and organisation of engine service through its own independent dealer network.

HED dealers in Europe



UK
Seddons
West Skelston
Hutchinson
Universal
Brownpower
George Carr
Sweden
Agergards Maskiner
Netherlands
Kramp tuin & park
Belgium
Kramp
Eurogarden
France
Crosnier
Secodi
D.P.M. 70
S.G.R.
Rhonadis
Barrère
Spain
Recanvis
Agromaquinaria
Italy
Motorgarden
Demal
Cogalco
Orvel
Fontana
Germany
Szczesny
Joist
Ratioparts
Lehmann
Bauer

GENERAL CONCEPT

HED has a service contract with the local Honda distributor/importer
HED applies Honda warranty conditions
HED has trained technical staff
HED has a well organised, professional structure to distribute engine spare parts
HED supports engine service program through its dealer and repair shop network to:

- Professional and non-professional customer
- Small OEM's
- OEM dealer and importer
- Rental company
- MMD/DIY shop and customer
- Building contractor and construction company.

INTERNATIONAL ENGINE SERVICE – EXPORT INFORMATION

Service for Honda engines is available throughout most areas in the world (see Honda distributor list) .
Some limitations however, have to be considered.

Limitations

Servicing for OEM engines may not be available or parts supply may be delayed or impossible in importing countries under the following conditions.

- **When there is no Honda distributor in the importing country.**

  Engine servicing is impossible in such case, so the OEM dealer/importer should be prepared to take care of all servicing, including the engine.

- **When the engine being applied is not being marketed through the Honda distributor in the importing country.**

  If an OEM product with a diesel engine is exported to a country where the Honda distributor does not handle diesel engines, for example, the OEM dealer/importer should be prepared to take care of all servicing, including the engine.

- **When the Honda distributor in the importing country does not stock parts required for servicing.**

  Generally, Honda distributors stock basic engine parts, but they may not stock special OEM engine parts or low-demand parts. In this case, parts supply may require considerable time.

Considerations

Honda should be consulted before an OEM product is exported or marketed in an area where there is no authorised Honda distributor.

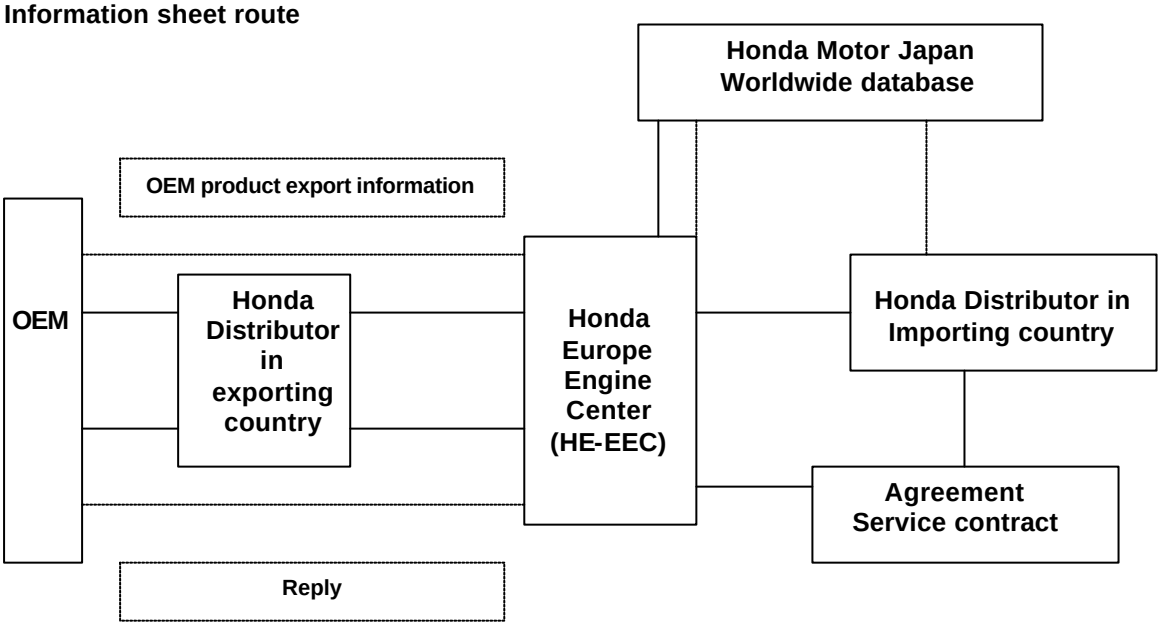
It is absolutely necessary to inform Honda when a special engine MTOC is exported, otherwise parts supply and service may be delayed.

It is recommended to inform Honda on the export data of the OEM product, using the export information sheet.

OEM product export information

It is recommended that an OEM Product Export Information Sheet is issued for engines mounted on OEM products designated for export. This helps to ensure smooth servicing and parts supply in the importing country.

Information sheet route



Role and responsibility

OEM:
- Supply product export information

Honda distributor in exporting country:
- Collect OEM product export information and inform to HE-EEC
- Reply of result to OEM

Honda Europe Engine Center (HE-EEC):
- Inform collected OEM product export information to Honda Motor Japan
- Inform Honda Distributor in importing country
- Supply related service information to Distributor in importing country

Honda Motor Japan:
- Collect and distribute worldwide OEM product export information

Honda Distributor in Importing country:
- Organise service and spare parts supply
- Reply result to HE-EEC

Export information sheet

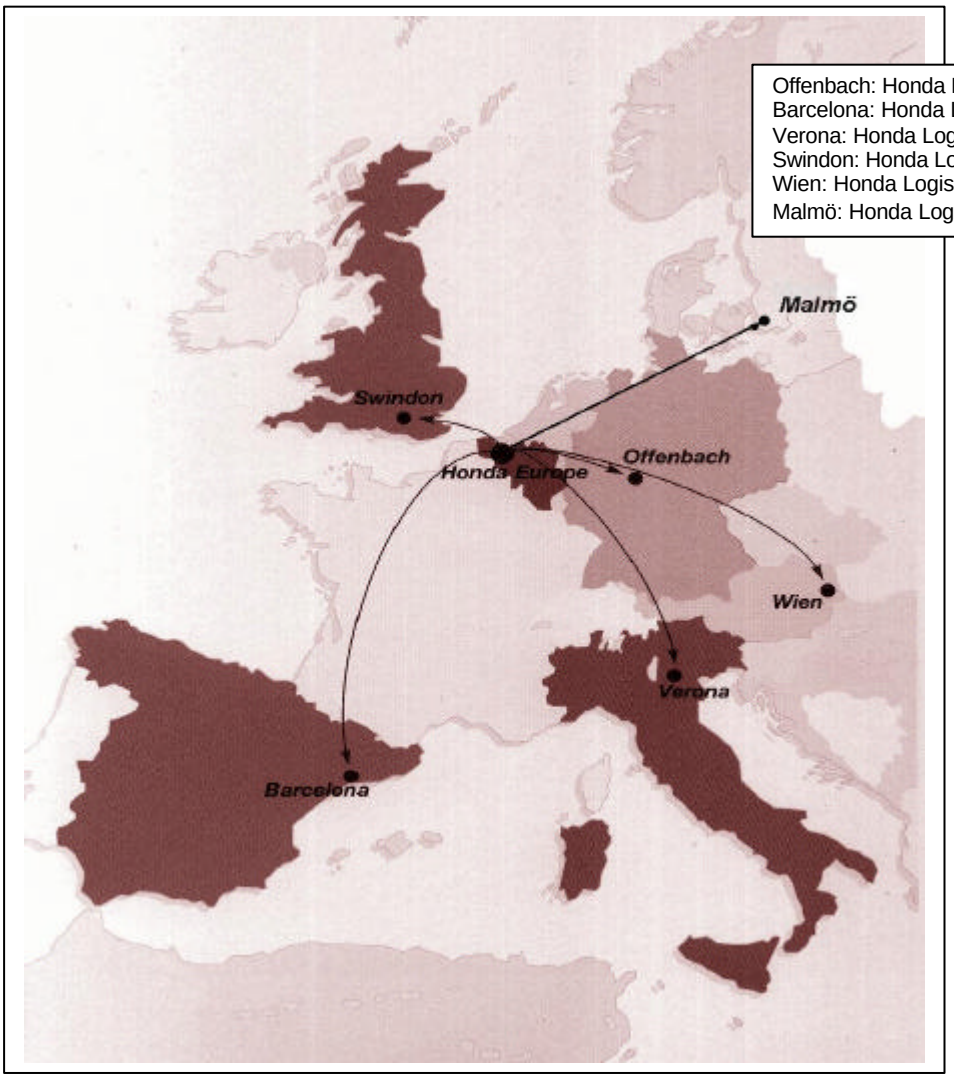
See included sample sheet.

HONDA EUROPE: TAILOR-MADE CUSTOMER LOGISTICS

Three elements are extremely important in Honda's core philosophy:

- Manufacturing in the area of sales
- Integration into the local community
- Multilateral exchange within the world-wide Honda network

We have a presence in various countries, with each company having its own speciality, which completely integrates into the local culture.
Conversely, each of these companies has a vital link in the world-wide exchange between Honda branches. Using this idea as a starting point: Honda Europe (Gent, Belgium) was established in 1978, as a logistic center for the European market. Since 1996, Honda Europe has also been supplying Africa and the Middle East. For over 20 years, Honda Europe has been growing into a unique link in the Honda international network. To optimise the European integration of the parts division, Honda Europe has built Honda Logistics Centres (HLC's) in 6 European countries. As the busy hub of this European network, we are continually occupied with striving to achieve Honda's'goal: to win and maintain our customers' unconditional trust and satisfaction.



The Honda Logistic Center manages the European stock of Honda parts for cars, motorcycles and power equipment. Stocking and distribution of Honda accessories, Industrial Engines, Motorcycles and Power Equipment is also done here.
The Honda Logistics Center in Belgium, the axis of the entire operation, has a total surface area of 190,000 m².

THE Honda LOGISTIC CENTER ensures fast, reliable and efficient delivery of parts, as well as the exchange of parts between Honda branches in Europe and worldwide.
Each day 35,000 orders are processed.
The parts warehouse is set up so that large stock orders can be processed at the same time as small individual orders.

This makes it possible to guarantee fast delivery of Honda parts from the various production units to anywhere in the world.
The parts center receives around 20 containers with parts every day, all of which are taken into stock.
This corresponds to a volume of approximately 1300 m³. Transport takes place by air, road and sea.

Urgent orders reach their final destination within 24 hours. An in-house bar code system and an automatic sorting system guarantee quality of the delivery. Night deliveries ensure that transport runs like clockwork.
Each day, more than 20 trucks leave the warehouse for 6000 to 7000 destinations in Europe, Africa and the Middle East. On a yearly basis, this means approximately 9 million order lines are delivered, both directly to the dealer and to other logistics centers, as well as to independent importers.
A team of 300 specialised associates ensures that these large-scale but extremely efficient operations run smoothly.

PARTS SUPPLY

Reliable parts supply is essential to the sales and servicing of OEM products. It is very important for Honda distributors and the OEM to carefully define the method to be used for the supply of engine parts to the dealer / repair shop. The parts manager of the Honda distributor should be fully consulted to ensure the smooth parts supply.

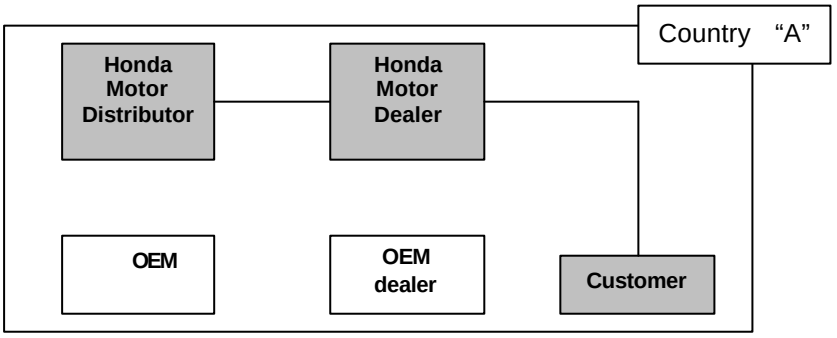
When providing engine service through the service net of an OEM, the OEM is supposed to secure sufficient inventory of engine parts and the pertaining parts catalogue so that parts can be supplied as ordered through the OEM service net.

PARTS SUPPLY LEAD TIME

Parts supply in the main European countries is within 72 hours.
Main areas in West-Europe are served within 24 hours.
Parts supply lead time for Russia is 1 to 2 weeks.
Parts supply lead time for countries outside Europe depends on the local distributor and regional parts center's spare parts stock.

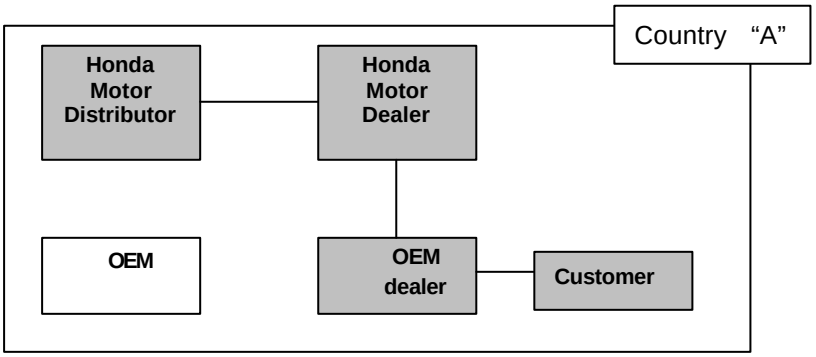
DOMESTIC PARTS SUPPLY

When the OEM and customer are located in the same country, the route to be used for the supply of engine parts should be determined in consultation with the OEM.



Honda service route

Decision of business conditions between Honda Distributor and Honda dealer

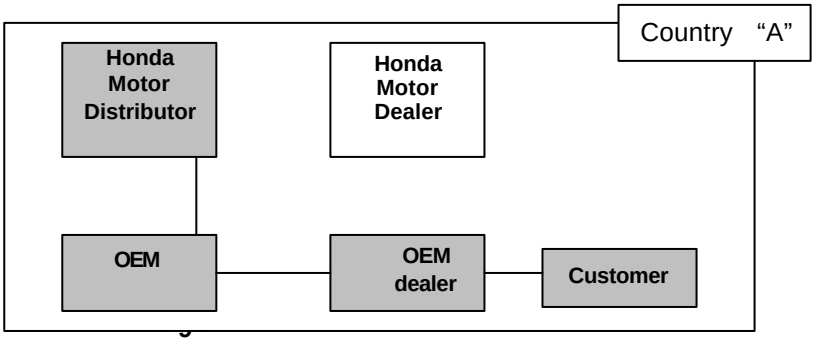


Honda service route

Business conditions decided between Honda dealer and OEM dealer

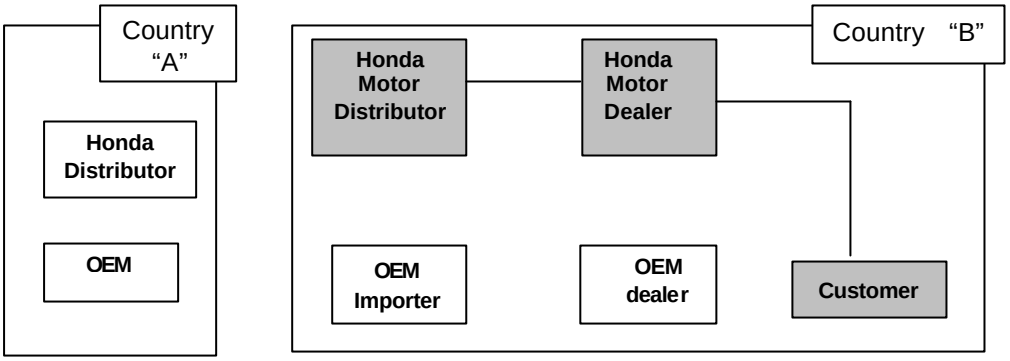
OEM service route

Decision of business conditions between Honda Distributor and OEM



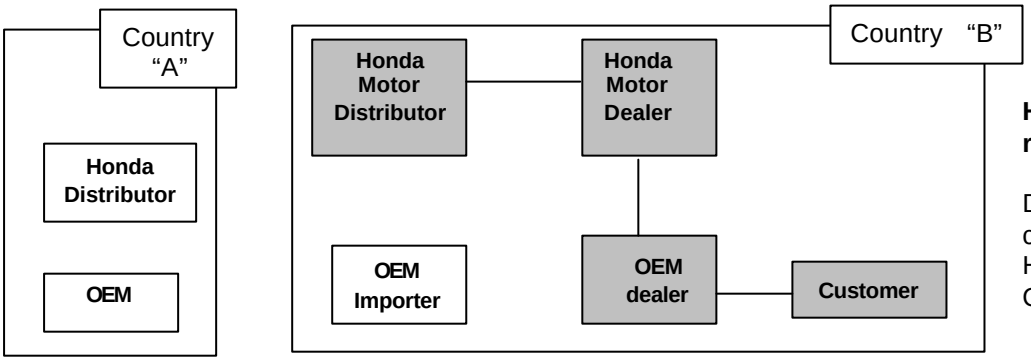
INTERNATIONAL PARTS SUPPLY

The Honda distributor in the importing country should be consulted, in order to determine the supply route for engine parts.
If the Honda distributor in the importing country does not handle the applicable engine and engine parts, the OEM parts supply route should be applied.



Honda service route

Decision of business conditions between Honda Distributor and Honda dealer

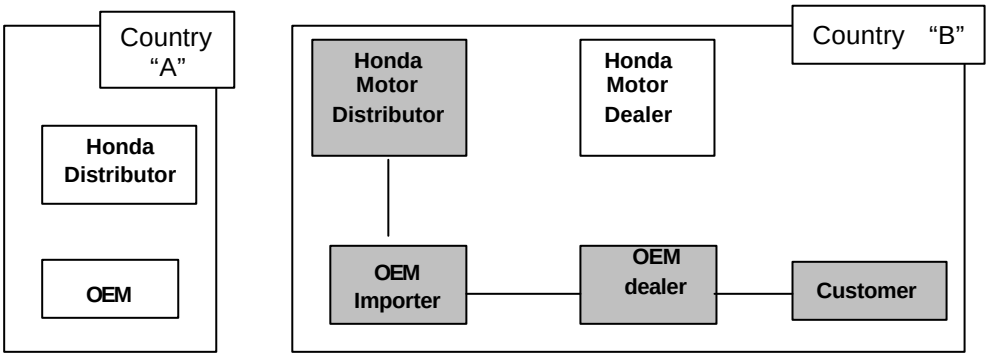


Honda service route

Decision of business conditions between Honda dealer and OEM dealer

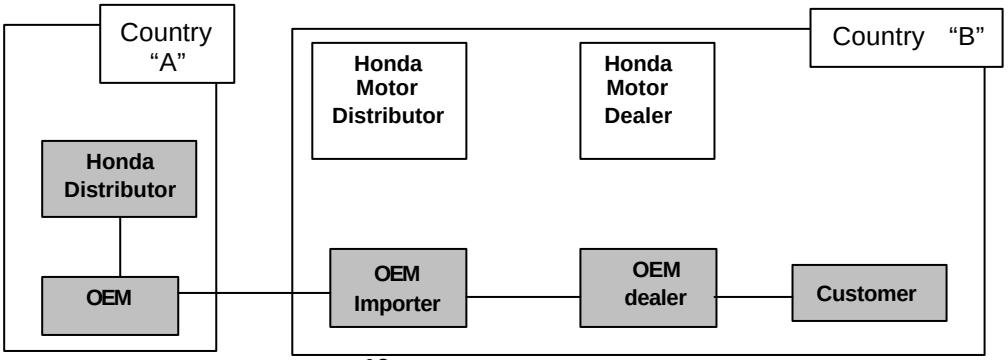
OEM service route

Decision of business conditions between Honda Distributor and OEM Importer



OEM parts supply route

Decision of business conditions between Honda Distributor and OEM



QIC REPORTING

QIC – Quality Improvement Correspondence

The QIC report informs the Honda factories of product quality problems occurring in the field. To allow Honda to take the most prompt action, the necessary information should be filled in immediately and accurately using the QIC report format.

QIC activity targets

- To reduce warranty cost by solving quickly market problems
- To improve product quality and product reliability
- To prevent problem reoccurrence
- To collect market requirements for the development of future models.

Quality reporting

- A QIC report is written and send quickly after receiving information of product quality problems like:
  - Safety related problem
  - Quality problem (occurring under normal usage and maintenance) which may affect other units
  - Problem which can affect the performance of the machine
  - Problem which can affect the sales
  - Problem that occurs after a countermeasure already applied (reoccurrence).

- The problem is described accurately.
  The report is written while observing the problem analysis.

- The problem is stated clearly and in a way that everyone will understand easily.
  Short sentences, words and expressions that are easy to understand.

- All information is provided to ease the factory engineer's understanding and the problem duplication.

- A QIC report is completed in English in the format specified.

- One QIC report is issued for each problem phenomenon.

- The level of priority is well stated.
  A grade is assigned to the problem (A.B.C.) that will quickly identify the level.

Analysis of the problem

To be sure that the problem in question will be well investigated, the collected information should have the following characteristics:

Based on accurate facts: 3R principles

Reality of the facts

Real site

Real part

Closed questions: YES - NO

Based on 5 W and 1 H rule

What ?

When ?

Who ?

Where ?

Why ?

How ?

During the problem investigation:

- Avoid assumptions – use only confirmed facts (real facts)
- Physically go to the problem (real site)
- Make comparison with another product (real product) or part and in different location to determine if the cause of the customer's complaint is related to:
  - Product specification
  - Using condition
  - Customer handling
- Check if any kind of changes have occurred before the problem:
  - On the product (new equipment, new supplier, new part)
  - On the climate conditions (which season)
  - On the usage conditions (high grass, on slope, continuous usage)
- After the investigation, we will know:
  - When, where it happens ?
  - What are the circumstances ?
  - How does it happen ?
  - Who is involved ?
  - Why does it happen ? (unfortunately, it is not always true)

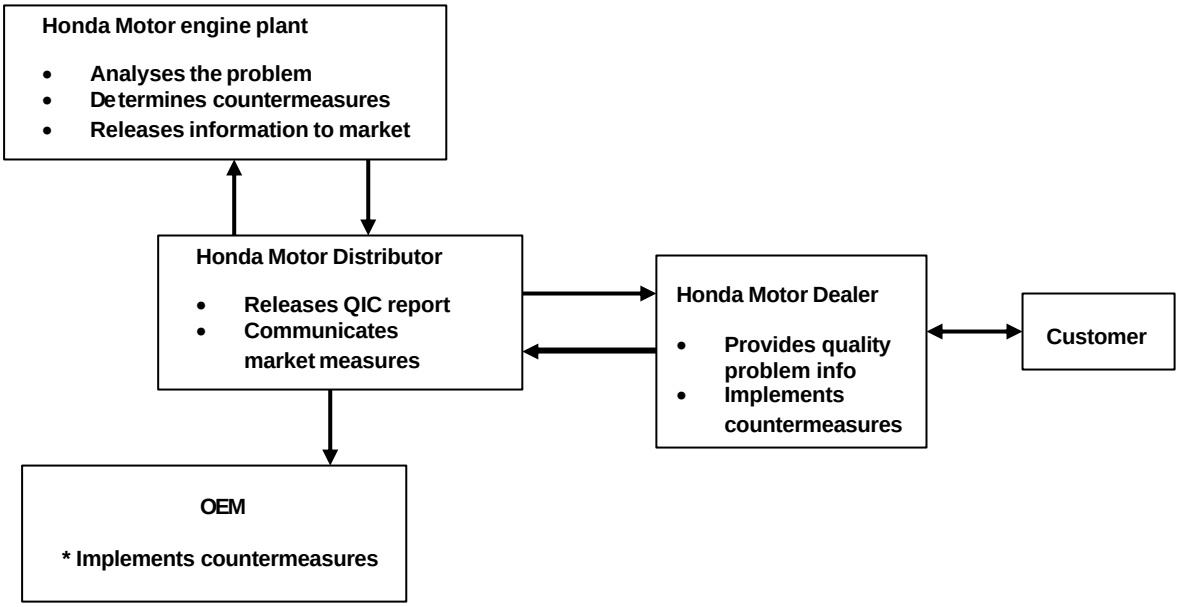
To be sure the analysis of the problem is completed, use the 4 way final check and make sure these following questions have been answered:

- Backward: What caused the cause ?
- Sideways: What could be other cause (hidden) of the problem ?
- Forward: What to do to prevent the problem from happening ?

Important points to keep in mind while collecting information.

- A quality problem is a problem that occurs under normal usage and maintenance and will affect several units.
- The factory will have to be able to repeat the problem. This is a key point to get efficient countermeasure.
- A QIC report is not a complaining form. Only facts must be reported: no feeling, no guess, no assumption.
- Too many questions may irritate the customer.

General QIC information flow



Problem parts management

Problem parts must be shipped to Honda to aid quick identification of the problem source.
Because it allows seeing the problem more clearly and analysis can be carried out by engineers in Honda directly, parts collection is very important to QIC success.
The shipment of the complete unit is only necessary on specific Honda request.

Parts shipping procedure

Parts: Be sure to tag the part; fill in model and engine type, engine serial number,report number
Attach a copy of the technical report

Freight payment: Paid on arrival at Honda distributor

Destination: local Honda distributor

Problem reporting: OEM technical report

The Honda representative (sales and service) is in daily contact with dealers and customers.
They are receiving information about the products concerning:

- Performance: noise, startability,….
- Operation: engine controls, difficult maintenance, ….
- Finishing: sharp edge, paint quality,…
- Durability: lifetime, corrosion, ….

These are subjective problems linked with the design, usage and specification of the product for which it is difficult to get clear and accurate information.

Only the field staff can get an objective idea about the importance of the problem on the market.

They have to fill in the OEM Technical Report and supply it to the QIC responsible at the Honda distributor.

ENGINE INFORMATION BULLETIN

The Honda Europe Engine Center informs the engine distributors and customers on important engine technical items by means of the Engine Information Bulletin.

Information bulletin (sample)

HE EEC ENGINE INFORMATION BULLETIN

TO :

EH	MR CAMUS / MR SCHWOB	BEREMA A/S	MR FINSVEEN / MR NITTER
HEPE S	MR OUF/MR ROBICHON	GREENS	MR PASCUAL / MR PRAT/ MR.PLANS
HIR	MR BIGI/ MR NICOSIA / MR BONACONZA	OY BRANDT AB	MR BRANDT / MR PAJAANEN
HUK	MR SANDERS/GIBSON	TIMA	MR CHRISTENSEN / MR NIELSEN
HME-A	MR VAN ASSCHE / MR. DUTRIEUX / MR. NECKEBROECK	ARIES PE LTD	MR PORUCZNIC / MR MARGASINSKI
SH	MR FRISCHHERZ / MR BIANCHI/ MR. HEUSSER	BG TECHNIK	MR STEPAN / MR SLANY/ MR NOVAK
HNL	MR SIJSSES / MR BRON	MOTORPEDO	MR HUDACSEK
HAG	MR ABLÖSCHER	HIT POWER	MR BESOIU / MR GIHAC
HPES	MR HOSAKAWA / MR SVENSSON	MDL	MR ALBINS
HPFP	MR OKAMURA/ MR.FARIA/ MR. CAVACO	AS DOMZALE	MR PETKOVSEK
BH	MR GOOSSENS / MR HUYLENBROECK	JV DNIPRO	MR NAUMENKO
HONDA SLOVAK	MR ESTOK	AUTOMOCION CANARIAS	MR TREVINO
		GENERAL AUTOMOTIVE	MR KAPITSALAS
		MAYER'S	MR WEISS
		ANPA ANADOLU	MR BURAK PIR
		TWO WHEELS	MR GALBRAITH / MR MURPHY

CC EEC SATELLITES.
EEC STAFF

FROM : EEC.

☐ URGENT ☐ CONFIDENTIAL ☐ HIGHLY CONFIDENTIAL

SUBJECT	NUMBER	DATE
Instructions for OEM sales of CARB /EPA / EN common engine types	183	14/Dec 2001
☐ REPLY REQUESTED FROM : No reply requested	☐ INFORMATION FOR : SALES AND SERVICE RESPONSIBLES	

Dear Sirs,

Compliance of General Purpose engines (0 – 18 kW) with CARB/EPA Emission Regulations is mandatory for all engines integrated in OEM products that are exported to the USA.
On the other hand, compliance of General Purpose engines with certain requirements of the EU Machinery Directive is mandatory for all engines integrated in OEM products that are sold in the EU.

Until now, none of the available Honda General Purpose engine mtoc features a real common engine specification, that complies with both product safety and emission legal requirements in both the US and EU market.

In order to facilitate logistics, order forecasting and production flexibility of OEM that are selling their engine powered products in both markets, Honda Europe EEC establishes the possibility for creating and selling common CARB/EPA/EN engine mtoc (i.e. 1 engine mtoc for both US and EU), under certain conditions (only for OEM that sign the attached agreement).
After consulting between Honda Motor Co., American Honda and Honda Europe EEC, these conditions are summarized in the attached Honda Instructions for OEM sales of common CARB/EPA/EN.

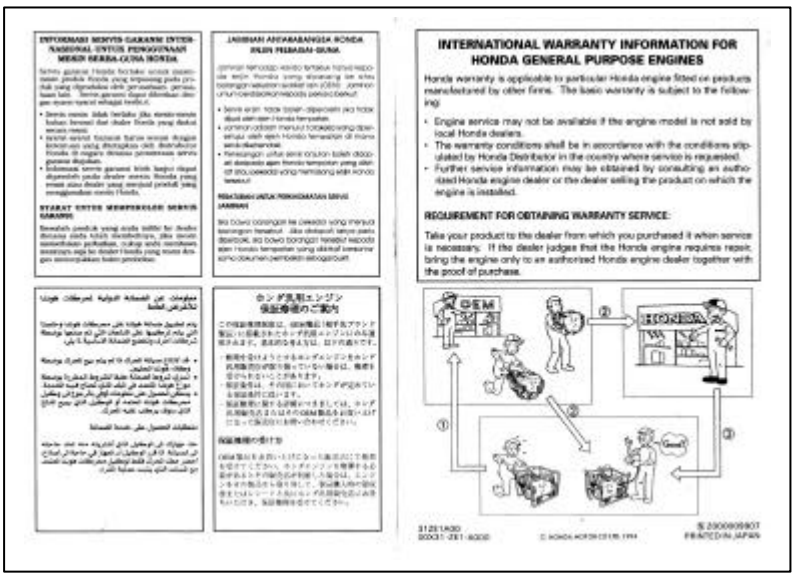
We wish you a good receipt and are convinced that these instructions will clarify this complicated matter. Furthermore, we remain at your disposal for any further information and assistance you may need concerning this subject.

Kind Regards,

INTERNATIONAL WARRANTY SYSTEM

Format

The International Warranty Sheet is delivered with each Honda engine.
It is the OEM's responsibility to attach this warranty sheet to the OEM product.



Applicability

This warranty is basically applicable, in accordance with the warranty terms below, to the engines that are produced at any engine plant authorised by Honda.

The warranty does not apply to countries where there is no Honda distributor.

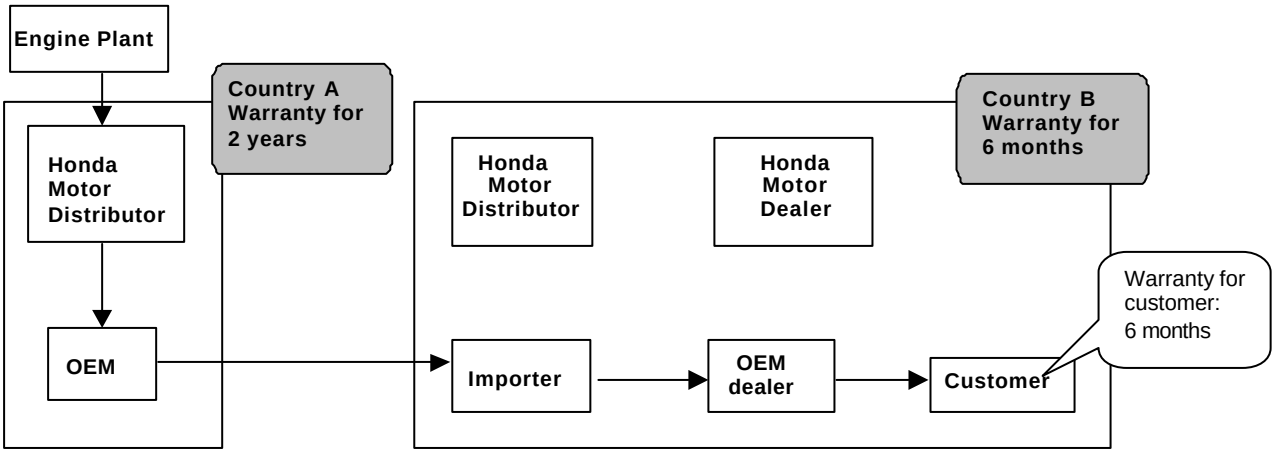
Terms

The warranty terms agreed both by Honda and the Honda distributor of the country where the warranty service is to be provided are applied to the Honda engine mounted on an OEM product, regardless of the country where the engine and OEM product are produced.

The warranty period applicable to the Honda engine may differ in certain continents and countries.

Warranty repair can be applied when the following conditions are all met:

- The problem does not fall within any of the categories that are separately stated to be exempted from application of warranty repair.
- The engine is within the warranty period that is set by the Honda distributor of the importing country.
- Anything that proves the purchase date of the product is presented.
  The warranty period starts from the date that the OEM product was sold to the customer.



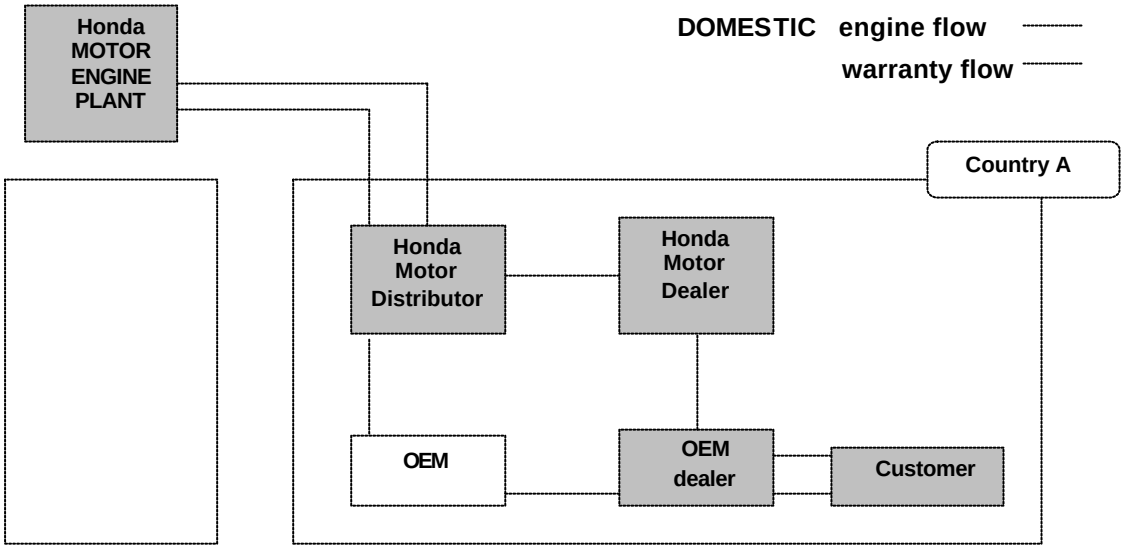
Warranty claim operation

Two routes are available to claim for warranty service on a Honda engine mounted on an OEM product.

1. Providing warranty repair to an OEM product through the "Honda service net"

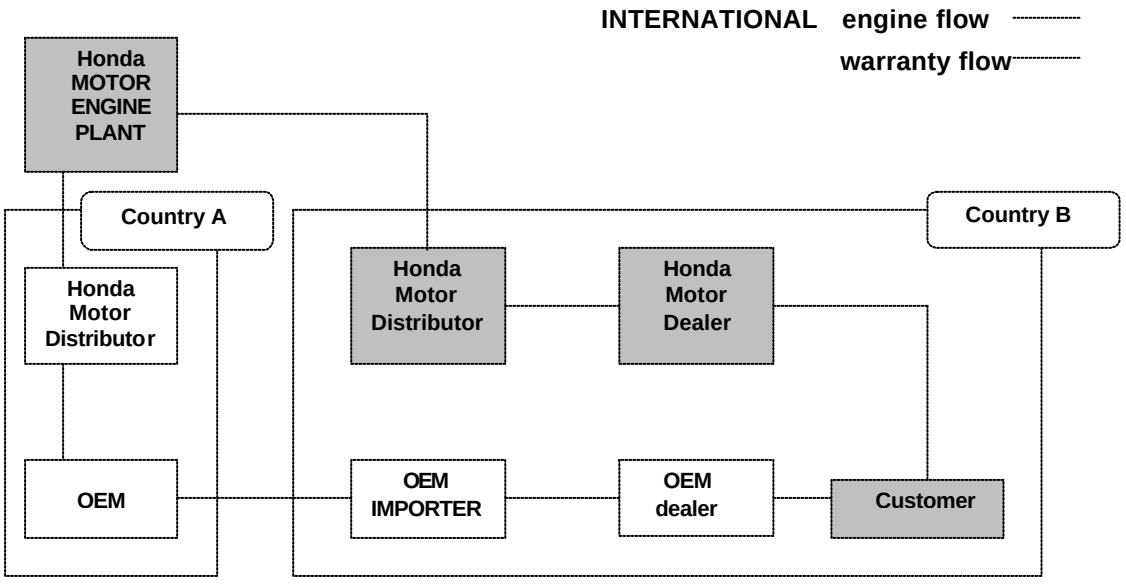
DOMESTIC

- The warranty claim shall be presented to the Honda distributor in accordance with the warranty conditions decided between the Honda distributor and the Honda dealer.
- Claims shall be submitted using the warranty claim currently in use for submission of claims between the Honda distributor and Honda dealer.



INTERNATIONAL

- The warranty claim shall be presented to the local Honda distributor in accordance with the warranty conditions decided between the Honda distributor and the Honda dealer.
- Claims shall be submitted using the warranty claim currently in use for submission of claims between the local Honda distributor and Honda dealer.

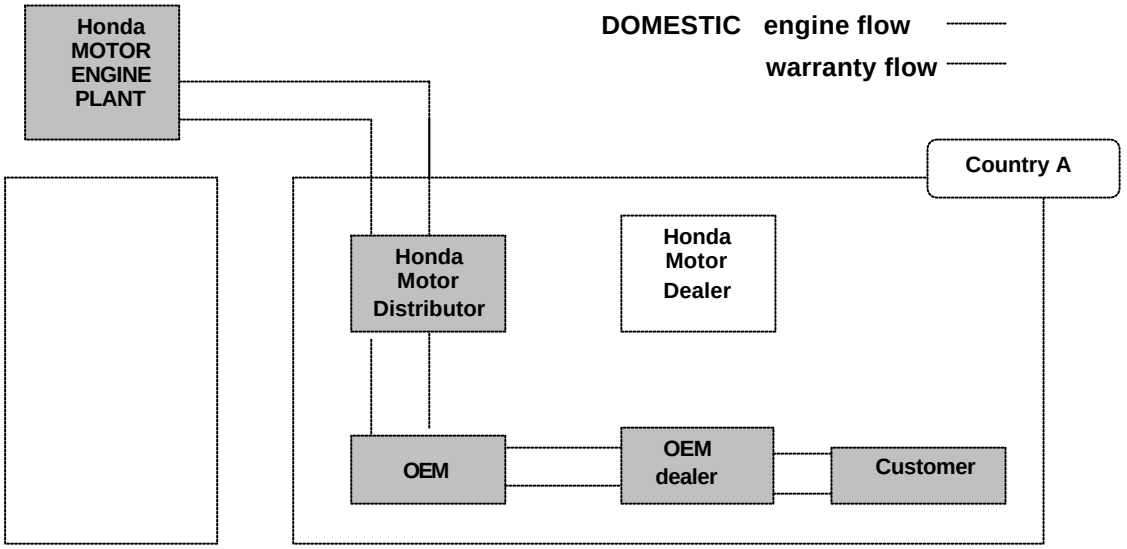


2. Providing warranty repair to an OEM product through the "OEM service net"

DOMESTIC

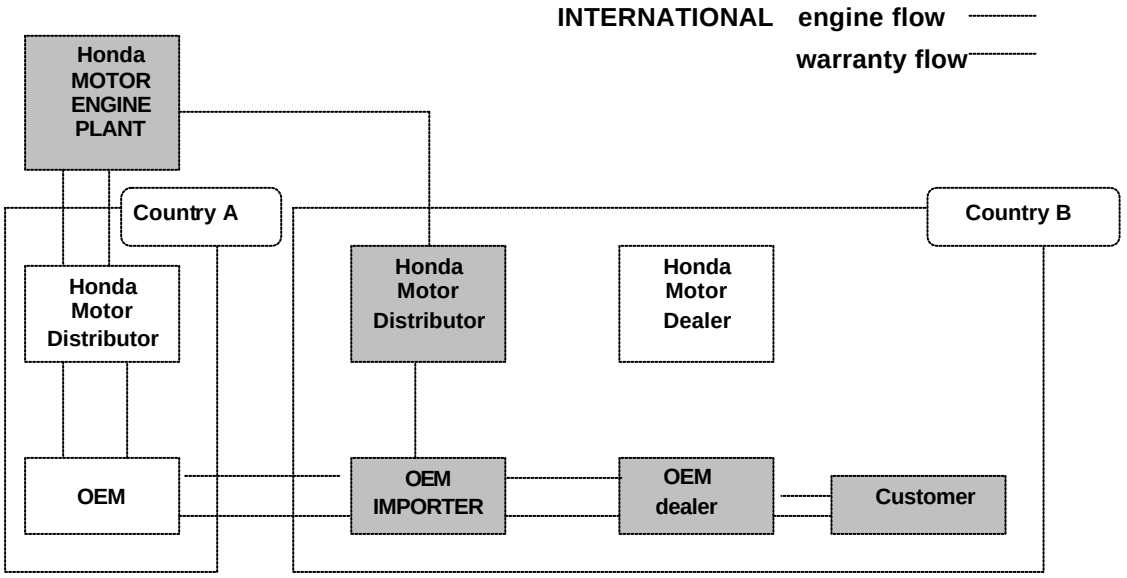
The OEM may provide service to its own products, including the Honda engine, through its own service net.
In such a case, the OEM is expected to ask the Honda distributor to receive warranty claims.

- The warranty claim shall be presented to the Honda distributor in accordance with the warranty conditions decided between the Honda distributor and Honda Motor.
- Claims shall be submitted using the warranty claim currently in use for submission of claims between the Honda distributor and Honda Motor.



INTERNATIONAL

The OEM may provide service to its own products, including the Honda engine, through its own service net.
In such a case, the OEM is expected to ask the Honda distributor of the country that imports the OEM products to receive warranty claims.
More specific, claims are send to the local OEM importer and then send to the Honda distributor of the concerned country. This Honda distributor sends all these claims to Honda Motor.



Preparing warranty claim submissions

While warranty claim reports is primarily documentation for reimbursement of warranty repair charges, the data contained in the reports are also used to monitor product quality in the distributor's market.
In order to organise the data most efficiently, information should be recorded according to the guidelines given below.

- Indicate all repairs and parts used to remedy a problem.

For labour only claims, indicate repair and causal part.

Main problem part	+	Related parts

- When repairs are performed in two or more places on the same product, treat each Item as a separate item and submit separate claims for each.

Transmission oil leak	→	Transmission case packing replaced
Engine oil leak	→	Engine oil seal replaced

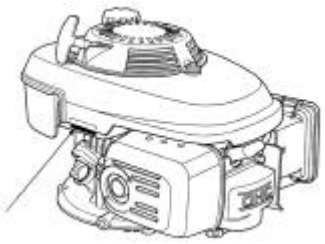
- A symptom code list is provided in this manual. Refer to this code list when preparing warranty claim documentation.

- When there is a request by Honda to carry out a service campaign, the special symptom code provided by Honda regional headquarters for the campaign must be used.

- Engine model code:

Engine number : GJAEA – 1000001
Model code Serial no.

Engine number



5-digit model code
The letter, which comes fifth in the sequence, indicates the producing country.
e.g. GJAE**A**-1000001

letter digit	producing country	plant code
M	Japan	Mss
K	Japan	Kss
A	America	HPE
F	France	HEPE
T	Thailand	TH
N	Indonesia	SHJ
D	India	HSPP
E	Italy	HIA
U	Australia	AUH
C	China	FMH
B	Brazil	HAD
L	Mexico	HDM

How to use the flat rate time (F.R.T.)

This F.R.T. is used to determine the standard labour time allowed for replacement of parts covered by the warranty.
The F.R.T. for those parts that are not listed should be determined from the operation closely related to the replacement of that part.

1. The F.R.T. is based on the following servicing conditions

- A liberal allowance is added to the net servicing time.
- Standard times specified are based on the condition that the necessary servicing tools (listed in the service manual) are available close at hand and the work is performed by a mechanic with normal skill.
- Time required for inspection and operational test following the servicing is included in the F.R.T.
- The F.R.T. for " ● " marked parts are the same as the F.R.T. for the representative part above.
- The F.R.T. shown with (*) includes engine removal and installation.

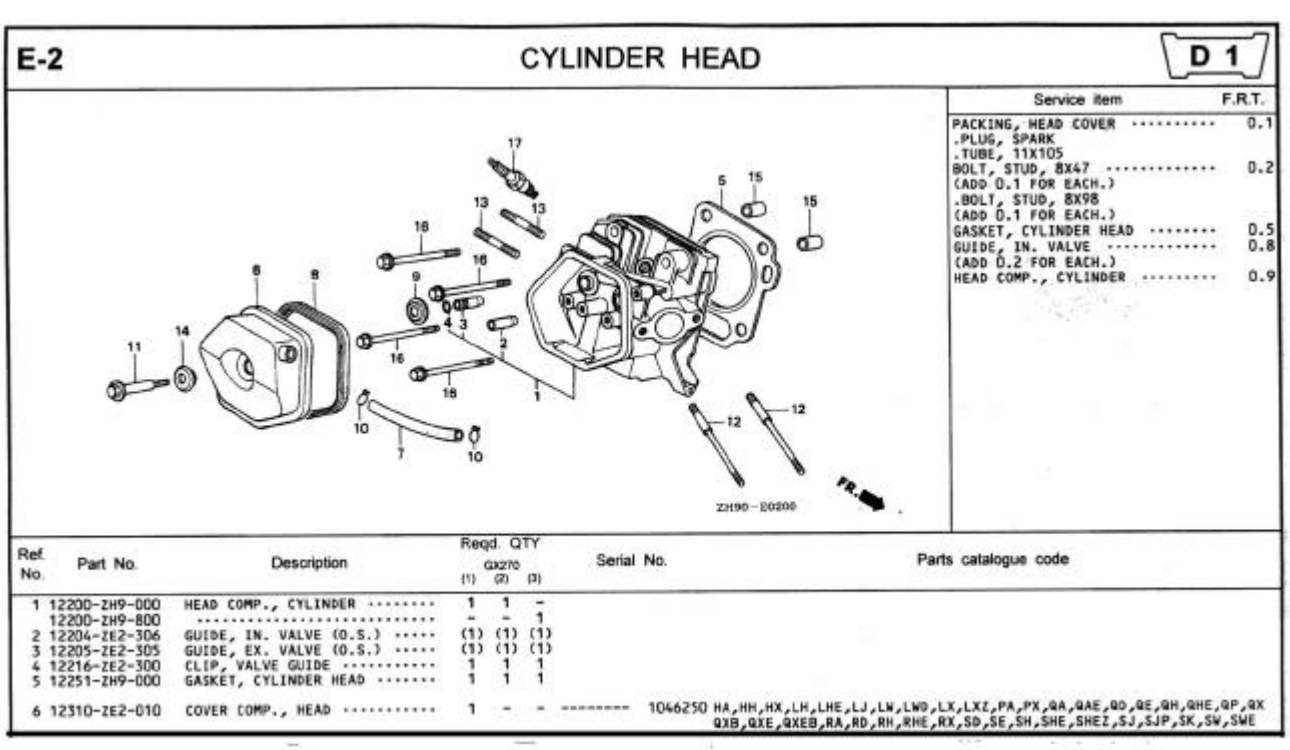
2. Method of computing

The job times are listed in tenth of an hour to simplify computation.

0.1 = 6 minutes
0.3 = 18 minutes
1.2 = 1 hour and 12 minutes

3. Where to find

The F.R.T. is indicated in the parts list on the same page as the related part.
(See sample below).



E-2 CYLINDER HEAD D 1

Service item	F.R.T.
PACKING, HEAD COVER	0.1
.PLUG, SPARK	
.TUBE, 11X105	
BOLT, STUD, 8X47	0.2
(ADD 0.1 FOR EACH.)	
.BOLT, STUD, 8X98	
(ADD 0.1 FOR EACH.)	
GASKET, CYLINDER HEAD	0.5
GUIDE, IN. VALVE	0.8
(ADD 0.2 FOR EACH.)	
HEAD COMP., CYLINDER	0.9

Ref. No.	Part No.	Description	Reqd. QTY GX270 (1)	(2)	(3)	Serial No.	Parts catalogue code
1	12200-ZH9-000	HEAD COMP., CYLINDER	1	1	-		
	12200-ZH9-800	------------------------------	-	-	1		
2	12204-ZE2-306	GUIDE, IN. VALVE (O.S.)	(1)	(1)	(1)		
3	12205-ZE2-305	GUIDE, EX. VALVE (O.S.)	(1)	(1)	(1)		
4	12216-ZE2-300	CLIP, VALVE GUIDE	1	1	1		
5	12251-ZH9-000	GASKET, CYLINDER HEAD	1	1	1		
6	12310-ZE2-010	COVER COMP., HEAD	1	-	-	1046250	HA,HH,HX,LH,LHE,LJ,LN,LWD,LX,LXZ,PA,PX,QA,QAE,QD,QE,QH,QHE,QP,QX QXB,QXE,QXEB,RA,RD,RH,RHE,RX,SD,SE,SH,SHE,SHEZ,SJ,SJP,SK,SW,SWE

4. Computing the F.R.T.

When several jobs are performed at the same time, make the calculation in the following manner.

- Jobs of non duplicated nature

  The F.R.T. for the job is obtained by totalling the F.R.T. for each part replaced.
  Example: replacement of cylinder head gasket and carburettor.

Service item	F.R.T.
Cylinder head gasket	0.1
Carburettor	0.3

  The F.R.T. for the job is: 0.1 + 0.3 = 0.4

- Jobs of duplicated nature

  Take the F.R.T. for the last part to be replaced.
  Example: replacement of piston and cylinder head gasket.

Service item	F.R.T.
Cylinder head gasket	0.1
Piston	1.5

  The F.R.T. for the job is: 1.5

- Jobs of partially related nature

  Total up the F.R.T. for all the parts replaced and then subtracts the F.R.T. for the duplicated operation.
  Example: replacement of valve, piston and cylinder head.

Service item	F.R.T.
Valve	0.5
Piston	1.5
Cylinder head	0.1

  The F.R.T. for the job is: (0.5 + 1.5) – 0.1 = 1.9
  The cylinder head is the duplicated operation.

5. Adjustment and cleaning

Item	Service item	F.R.T.
Adjustment	Tappets	0.3
	Carburettor	0.2
	Governor	0.2
Cleaning	Carburettor	0.6
	Air cleaner	0.2
	Arrester, spark	0.2
	Spark plug	0.1

Warranty cost items

The table below identifies the costs to which Honda warranty applies.

Item	Contents
Replacement parts cost	The cost of parts required for repair is calculated according to the official parts price list valid at the time of purchase of the product (limited to parts replaced for warranty repair purposes).
Labour cost	The labour cost is determined according to the applicable flat rate time multiplied by the applicable hourly labour rate indicated in the Warranty Conditions Sheet.
Parts allowance cost	Cost for compensation of administrative job. Parts allowance cost depends on local warranty conditions.
Lubricant, fluid, consumables cost	As a rule, Honda will not reimburse the distributor for the cost of any lubricants, fluids or consumables. However may reimburse the distributor for costs if replenishment or replacement is indispensable in the course of warranty repair work.

Flat rate times for warranty service

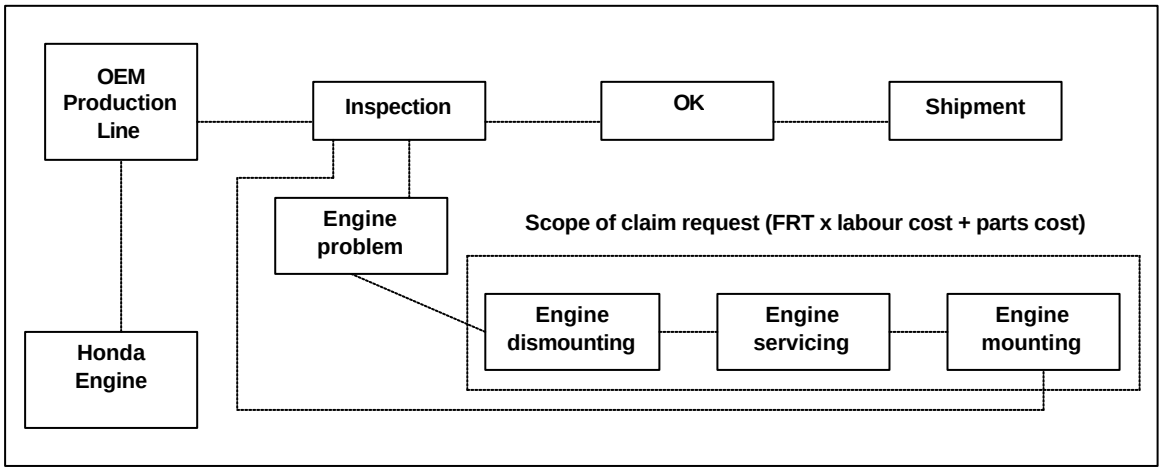
Engine servicing is performed in accordance with flat rate times defined by Honda. It should be noted that the flat rate times do not include the time required to dismount engines from or remount engines onto OEM products.

Special flat rate times compensation

For warranty repairs within the warranty period on Honda engines fitted on OEM products, following flat rate time compensation may be claimed:

Engine removal and replacement flat rate time (R&R time) of 0.7 hours.

R&R time must be described in the warranty claim report to distinguish from other operations.
This special compensation claim cost for OEM products should be converted to F.R.T. and submitted as labour costs.



Warranty exclusions

COMMON

1. Any damage that results from neglect of the periodic maintenance specified by Honda.
2. Any damage that results from repair or maintenance operations by methods other than specified by Honda.
3. Any product which has participated in a racing event, rally or competition.
4. Any damage which results from misuse or use beyond the limitations or the intended purpose specified by Honda, such as overloading, or any damage due to use under abnormal conditions.
5. Any damage that results from the use of non-genuine parts, lubricant or fluid not approved by Honda.
6. Any damage resulting from modification or installation in other products in a way not approved by Honda which has any influence on the function and/or performance of the products.
7. Any damage that results from operation other than specified in the Owner's Manual, either intentionally or by error.
8. Fading or painted surfaces, deterioration of plated surfaces, deterioration of rubber and plastics and oxidation of metal surfaces.
9. Normal phenomena such as noise, vibration or oil seepage which are considered by Honda as not affecting the quality, function or performance of the product.
10. Any damage due to improper storage or transport.
11. Expendable replacement items:
    Replacement parts: spark plugs, fuel strainers, oil filters, air cleaner elements, fuses, gaskets, tubes, belts, etc.
    Petroleum products and others: oil, grease, battery electrolyte, radiator coolant, etc.
12. Periodical maintenance items such as cleaning, inspection and adjustments.
13. Any repair and/or adjustment performed by persons other than a distributor or his authorised dealers, or damage resulting therefrom. As a rule, warranty shall not be applied to repair or adjustment performed by persons other than a distributor or his authorised dealers. However, in case of an unavoidable emergency, repair or adjustment may be carried out by other persons and, when judged by the distributor as being proper, the distributor will be compensated for the cost in accordance with the procedure for a normal warranty claim if the claim is approved by Honda.
14. Any repair and/or adjustment to correct improper or poor quality work previously performed.
15. Incidental expenses incurred in the warranty claim.
    - Additional expenses such as those for transport, communication, hotel and meals, etc. due to the breakdown of the product at a remote location.
    - Any expenses related to personal injury and/or property damage (exclusive for the product itself).
    - Compensation for time loss, commercial losses or rental costs of a substitute product during the period of repair.

16. Any damage which results from unavoidable natural disasters, fire, collision, theft, etc.

17. Any normal wear or deterioration such as that of sliding and/or rotating parts caused under normal operating conditions.
    - Normal wear to pistons, piston rings, cylinders, bearings, etc.

18. Any trouble or damage caused by soot, smoke, chemicals, salt or similar products

ENGINES ONLY

1. Any defect on engines caused by improper installation in other products.
   - Any damage resulting from vibration caused by improper installation.
   - Any defect caused by misuse and/or incorrect matching of the engine and OEM product in which it is installed.

2. Any defect caused by improper maintenance and/or use.
   - Bend or break in the crankshaft caused by external shock.
   - Any defect caused by the use other than specified by Honda.
   - Malfunctioning engine due to the use of improper fuel.
   - Cylinder seizure caused by overheating.

3. The injection nozzle of a diesel engine (including tip), of which the warranty period is one year except for the following countries.
   - In countries where the warranty period for the product granted to the distributor is less than one year, the warranty period so specified shall take precedence.

4. Any cost or damage resulting from overhaul of any sealed units or parts, which Honda instructs, should not be disassembled.
   - Sealing of the governor
   - Sealing of electronic control units
   - Disassembling of the injection pump/nozzle.

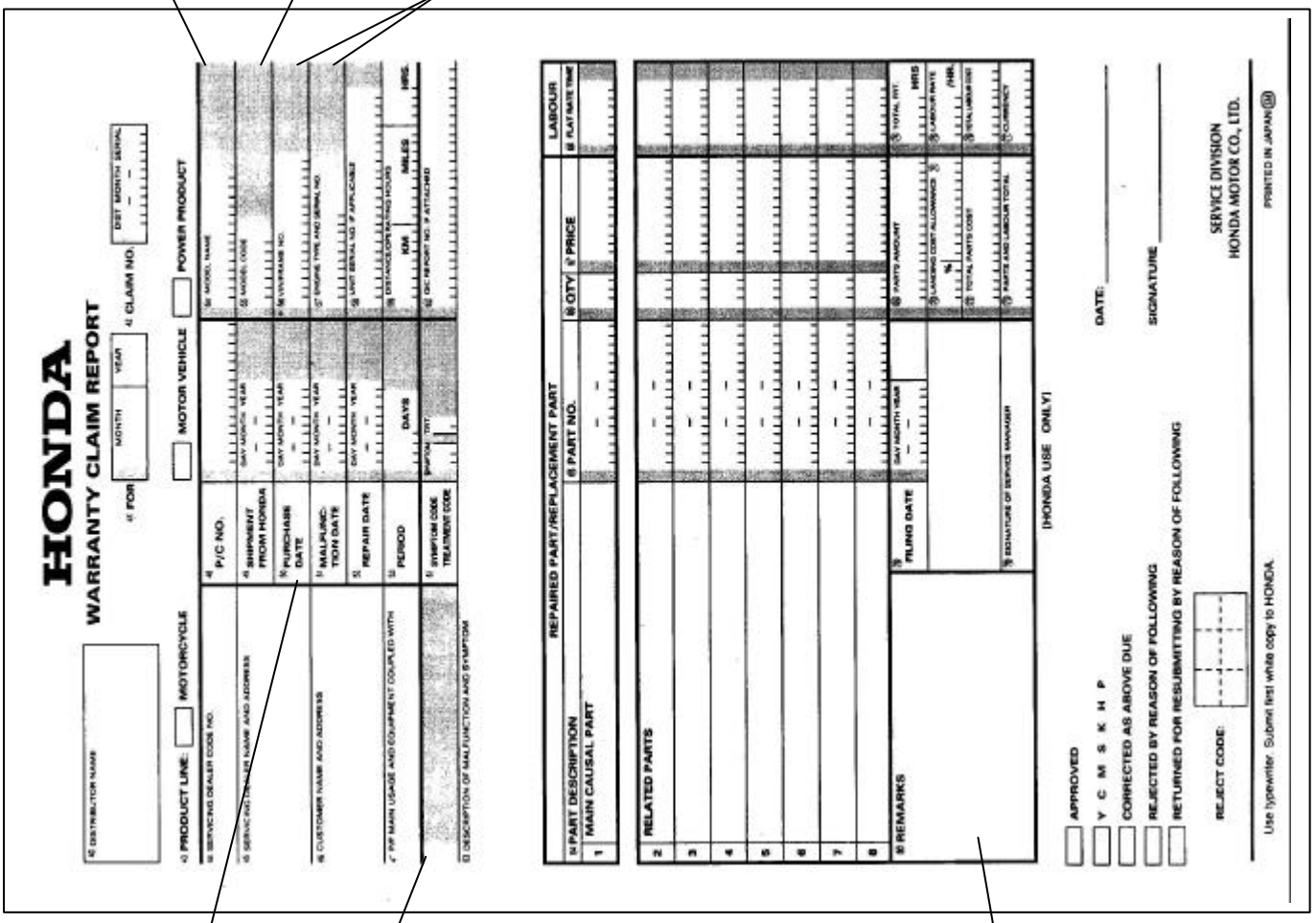
Warranty claim report: paper format

Do not put OEM product name here. Put the model name of the engine.

Use the engine model code that is stamped on the engine crankcase.

Fill in the combination of engine model code and engine serial number.

Submit first, white copy of warranty claim report to Honda.



Purchase date is the same as date on the receipt.

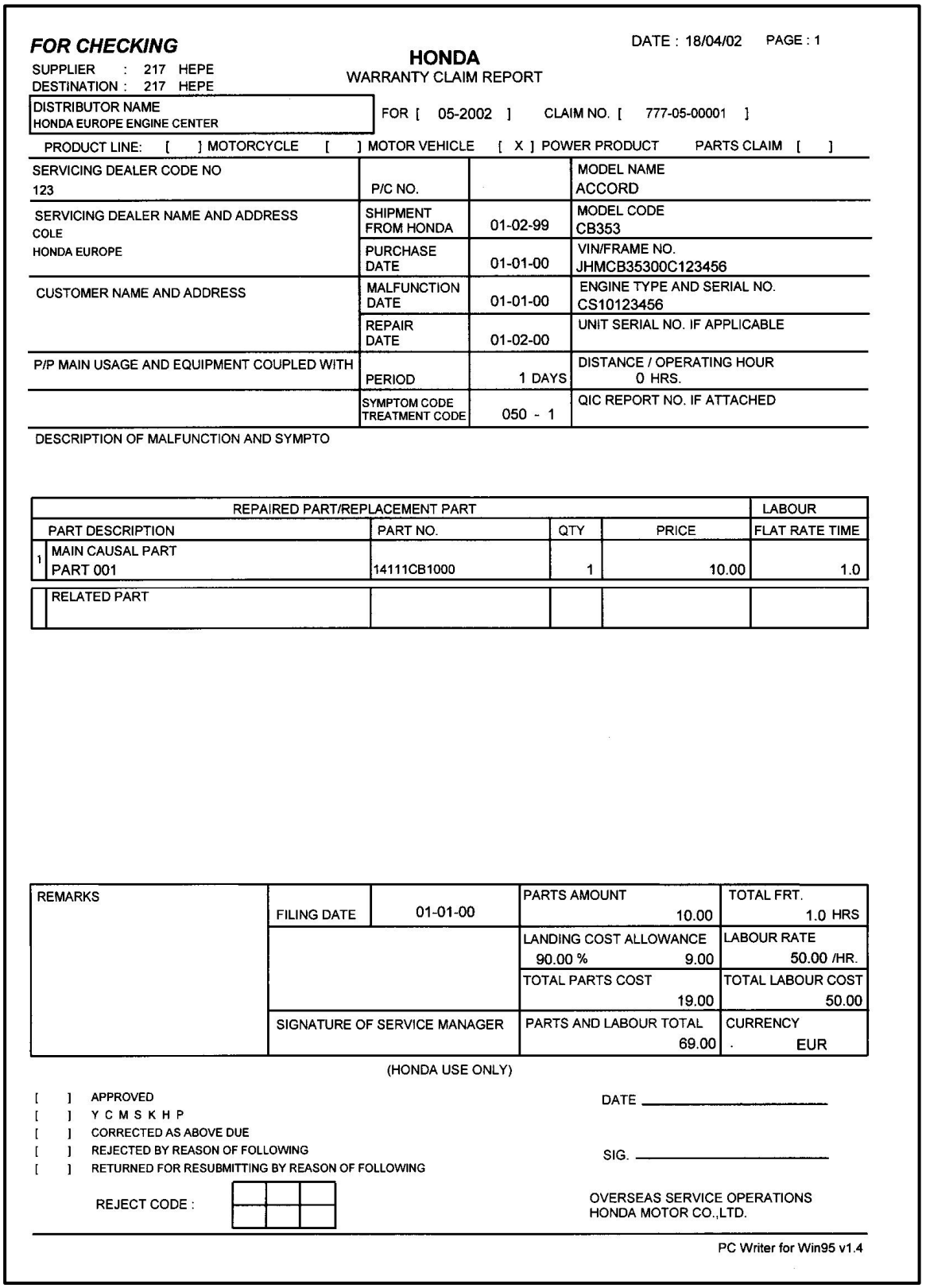
Fill in the following:
OEM product name
OEM company name
Type of equipment

Note here the special flat rate time compensation items:

- engine removal and replacement flat rate time of 0.7 hours
- administrative job flat rate time of 0.5 hours.
- Transportation and/or on-site repair flat rate time of 1 hour.

Warranty claim report: PC Writer for Win95 format

PC Writer for Win95 is the new version of the warranty application software PC Writer, now updated to run on Microsoft Windows 95.
PC Writer for Win95 is provided free of charge by Honda.
Monthly, the warranty claims must be submitted to Honda on floppy disc.



FOR CHECKING

DATE : 18/04/02 PAGE : 1

SUPPLIER : 217 HEPE
DESTINATION : 217 HEPE

HONDA
WARRANTY CLAIM REPORT

DISTRIBUTOR NAME
HONDA EUROPE ENGINE CENTER

FOR [05-2002] CLAIM NO. [777-05-00001]

PRODUCT LINE: [ ] MOTORCYCLE [ ] MOTOR VEHICLE [X] POWER PRODUCT PARTS CLAIM [ ]

SERVICING DEALER CODE NO 123	P/C NO.		MODEL NAME ACCORD
SERVICING DEALER NAME AND ADDRESS COLE HONDA EUROPE	SHIPMENT FROM HONDA	01-02-99	MODEL CODE CB353
	PURCHASE DATE	01-01-00	VIN/FRAME NO. JHMCB35300C123456
CUSTOMER NAME AND ADDRESS	MALFUNCTION DATE	01-01-00	ENGINE TYPE AND SERIAL NO. CS10123456
	REPAIR DATE	01-02-00	UNIT SERIAL NO. IF APPLICABLE
P/P MAIN USAGE AND EQUIPMENT COUPLED WITH	PERIOD	1 DAYS	DISTANCE / OPERATING HOUR 0 HRS.
	SYMPTOM CODE TREATMENT CODE	050 - 1	QIC REPORT NO. IF ATTACHED

DESCRIPTION OF MALFUNCTION AND SYMPTO

	REPAIRED PART/REPLACEMENT PART				LABOUR
	PART DESCRIPTION	PART NO.	QTY	PRICE	FLAT RATE TIME
1	MAIN CAUSAL PART PART 001	14111CB1000	1	10.00	1.0
	RELATED PART				

REMARKS	FILING DATE	01-01-00	PARTS AMOUNT 10.00	TOTAL FRT. 1.0 HRS
			LANDING COST ALLOWANCE 90.00 % 9.00	LABOUR RATE 50.00 /HR.
			TOTAL PARTS COST 19.00	TOTAL LABOUR COST 50.00
	SIGNATURE OF SERVICE MANAGER		PARTS AND LABOUR TOTAL 69.00	CURRENCY EUR

(HONDA USE ONLY)

[ ] APPROVED
[ ] Y C M S K H P
[ ] CORRECTED AS ABOVE DUE
[ ] REJECTED BY REASON OF FOLLOWING
[ ] RETURNED FOR RESUBMITTING BY REASON OF FOLLOWING

REJECT CODE :

DATE _____

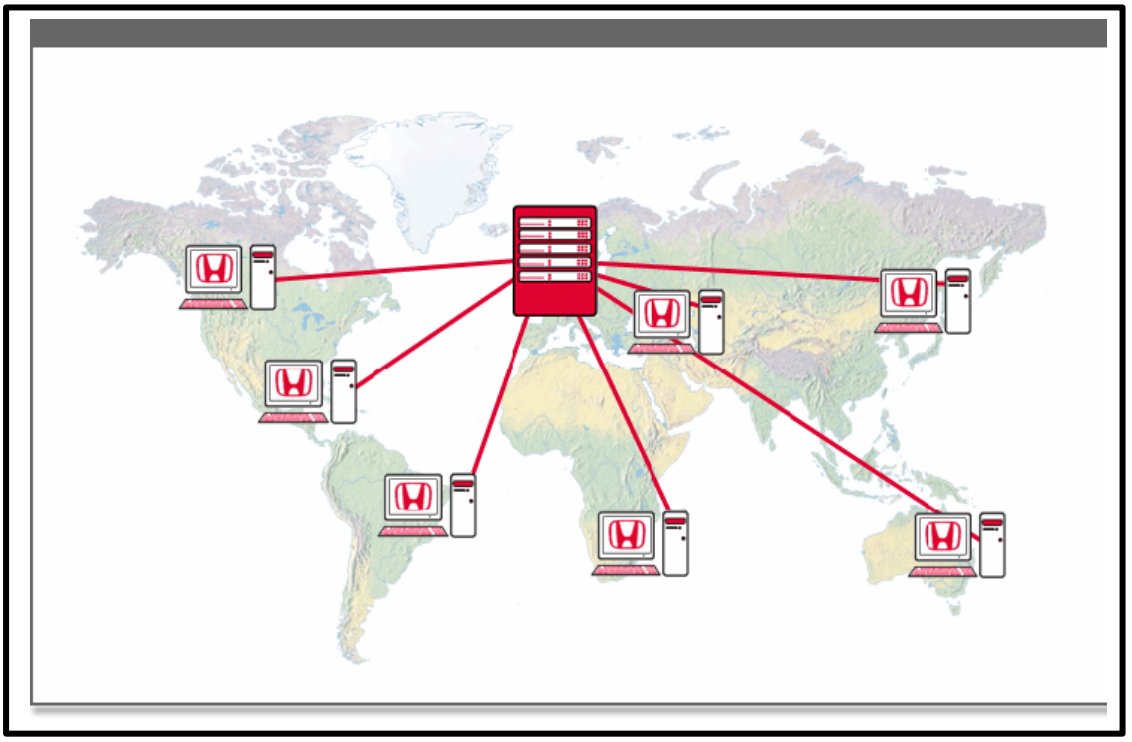
SIG. _____

OVERSEAS SERVICE OPERATIONS
HONDA MOTOR CO.,LTD.

PC Writer for Win95 v1.4

New European Warranty System – N.E.W.S.

Worldwide, Honda companies and factories are connected through Local Area Networks (LAN) with databases stored on a central server.



NEWS is an online warranty system using Web and Mainframe applications; allowing Honda partners to create/access their proper claims without the necessity of specific program installation/set up at their side.
Starting up NEWS warranty program gives quick access to the Honda data server for auto-validation, follow-up and quick reimbursement of the warranty claim.

New European Warranty System – N.E.W.S.

Warranty claim reports made in NEWS, basically require the same data entry as the paper format or PC writer format warranty claim.

News

Claim Details

Claim Number: **Claim Type:** STANDARD WARRANTY **Claim Status:** TO BE COMPLETED

Dealer Number: **Dealer Ref. No** **Originating Dealer:**
/

Authorised Workshop EECB EEC BELGIUM

Vin/Pin:
M.T.O.C:
Engine:
Model Description:

End User: **End User Type:** Please Select --> **Last Service Date:** 16 **Last Service Miles/KM/Hours:** HOURS

Standard Warranty **Extended Warranty**

Start Date:
End Date:
End Miles/KM/Hours:

End Date:
End Miles/KM/Hours:

PE Attachment Code: *
Malfunction Indicator Lamp:
Symptom Description Index: ENGINE
Symptom Description Item: ENGINE PERFORMANCE
Symptom Code: * 09301 ICING
Defect Description Item: Please Select -->
Defect Code: Please Select -->

Fault Description:
*

End User Contention Description:

Date Fault Reported: * 15.12.2005 16
Odometer: * 1 HOURS

HDS Codes:

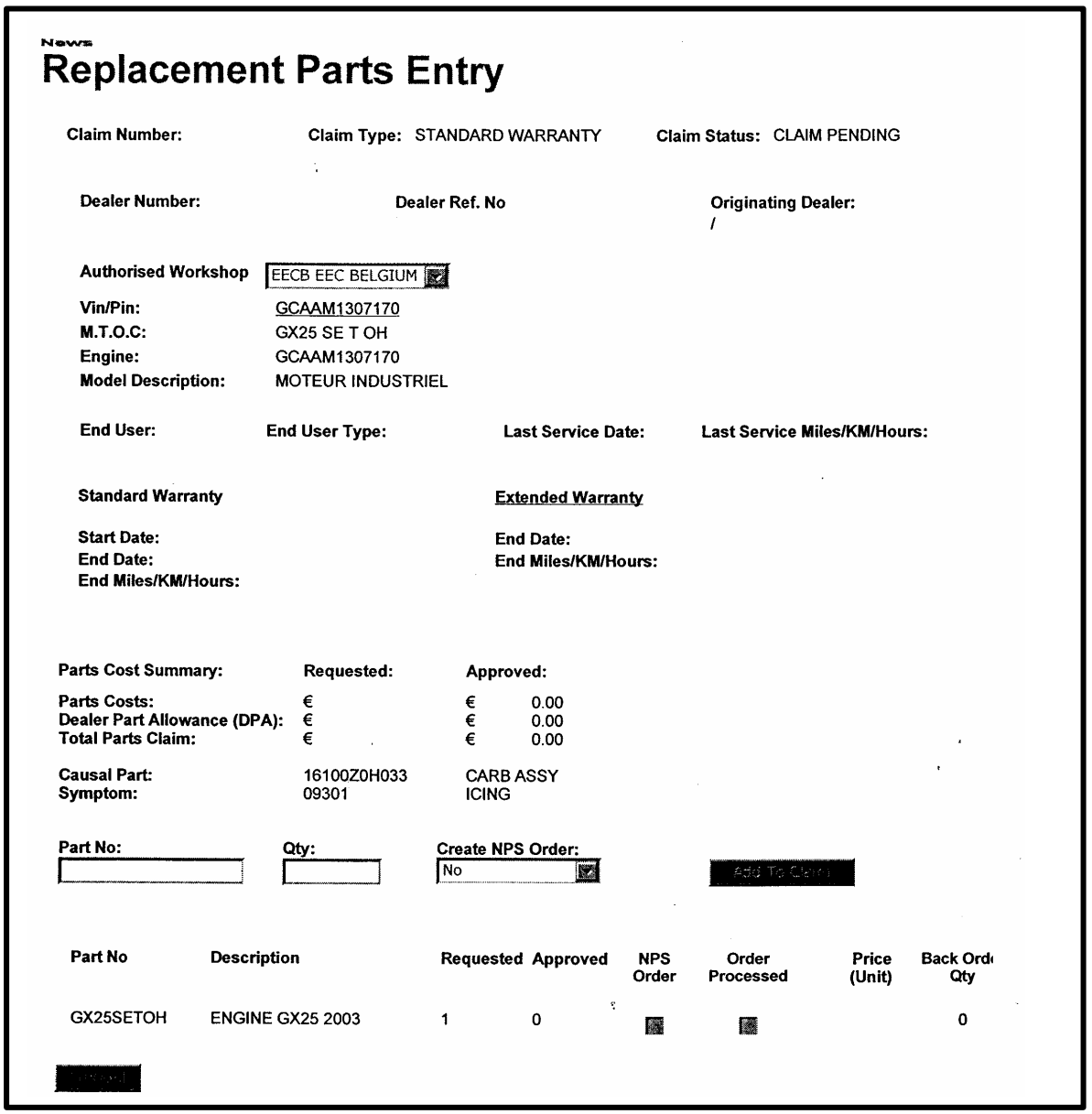
Causal Part Number: * 16100Z0H033
Causal Part Description: CARB ASSY
Treatment: * REPLACEMENT

System FRT: 0.0
Requested FRT: 1.2
Approved FRT: 0.0

Labour Operation? **Replacement Parts?** **Sublet/Extra Costs?**
Special Permission? **Technical Report?** **Attachments?**

Completion Date: 16
Completion Miles/KM/Hours: HOURS

Apart from the standard screen on claim details, the system allows the user to attach a technical report, attach pictures/documents or create a Replacement Parts Entry



News

Replacement Parts Entry

Claim Number: **Claim Type:** STANDARD WARRANTY **Claim Status:** CLAIM PENDING

Dealer Number: **Dealer Ref. No** **Originating Dealer:**
/

Authorised Workshop EECB EEC BELGIUM

Vin/Pin: GCAAM1307170
M.T.O.C: GX25 SE T OH
Engine: GCAAM1307170
Model Description: MOTEUR INDUSTRIEL

End User: **End User Type:** **Last Service Date:** **Last Service Miles/KM/Hours:**

Standard Warranty **Extended Warranty**

Start Date: **End Date:**
End Date: **End Miles/KM/Hours:**
End Miles/KM/Hours:

Parts Cost Summary:	Requested:	Approved:
Parts Costs:	€	€ 0.00
Dealer Part Allowance (DPA):	€	€ 0.00
Total Parts Claim:	€	€ 0.00
Causal Part:	16100Z0H033	CARB ASSY
Symptom:	09301	ICING

Part No: **Qty:** **Create NPS Order:** No

Part No	Description	Requested	Approved	NPS Order	Order Processed	Price (Unit)	Back Ord Qty
GX25SETOH	ENGINE GX25 2003	1	0				0

Warranty claim parts collection

Parts removed from a product during warranty repairs (“claim parts”) become the property of Honda.

Storage of claim parts

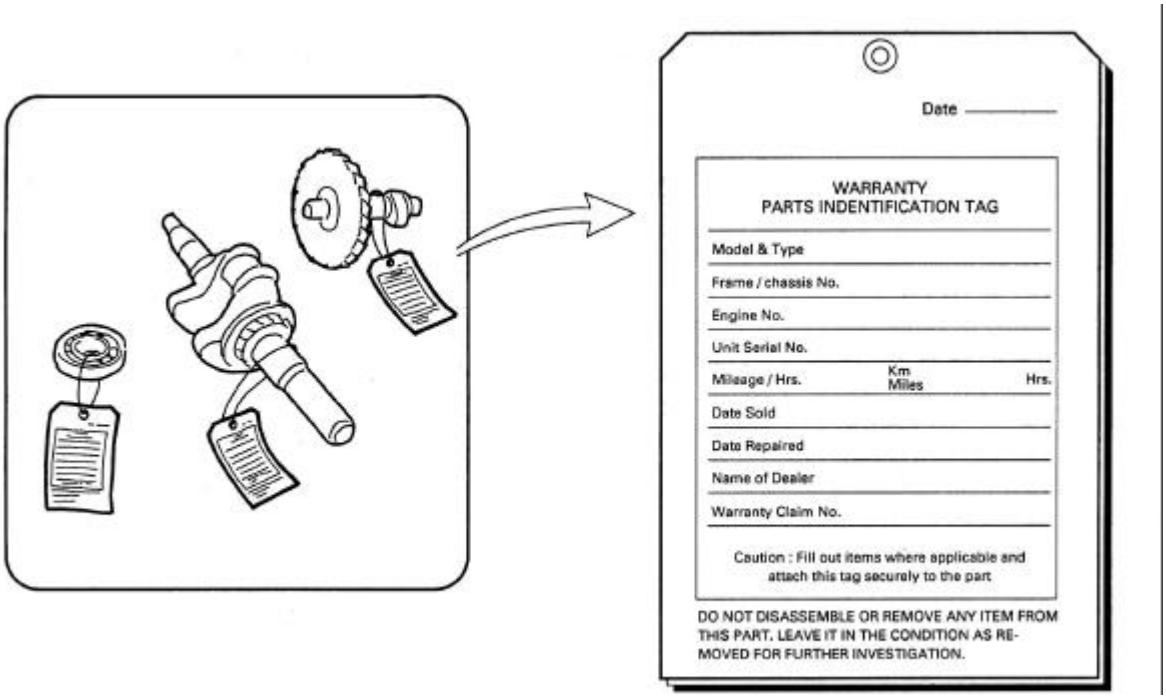
- The parts replaced during warranty repairs have to be retained and must be available for Honda inspection for a period of 120 days.
- Claim parts must be stored in an appropriate place protected from the weather. Since the parts may require examination, part quality must not be allowed to deteriorate during the 120 day storage period.

Shipment of claim parts

Honda may request to dispatch particular Claim Parts for examination and analysis and this shipment request should be immediately complied with.

Freight charges for Claim Parts sent to Honda will be paid by Honda.
All Claim Parts shipments should be on a “collect” basis.

All Claim Parts must be tagged and the appropriate information recorded on the tag.



Disposal of claim parts

Parts may be disposed of 45 days after payment notification.
All parts must be rendered useless prior to disposal to prevent reuse.

Special warranty

Replacement of the engine assembly

If it appears that replacement of the engine assembly would cost less than repair work under warranty, Honda may allow to implement replacement of the engine assembly. Note that this option is available only in countries where the engine model and type to be replaced are handled by the Honda distributor. After allowance, the Honda distributor must submit an OEM Engine Special Warranty Report to Honda.

Compare the total repair cost based on parts replacement and replacement engine

Resubmission of warranty claims

In certain cases, a claim for warranty repair previously performed but not approved by Honda, may be resubmitted.
Claims rejected due to typographical errors, missing information or similar may be resubmitted after correction.
In such cases, the original claim number should be used in the resubmitted claim documentation.
Note: Claims which Honda determines to have exceeded the scope of warranty conditions and claims not falling under the scope of Honda warranty may not be resubmitted.

When resubmitting a claim:

- A new Warranty Claim Report form must be used
- Current application month and year must be inputted
- Use the original claim number

Claims will be rejected by Honda if the period of time from the day the customer claim is received by the dealer until the applicable warranty claim reaches Honda exceeds 180 days.

Processing a claim after the warranty period expires

As a general rule, expenses for claims that occur after expiration of the warranty period stipulated in the warranty conditions are borne by the Honda distributor. Expenses related to repeat problems that can be traced to manufacturing will be borne by Honda, even if the problem occurs after the warranty period has expired.

Procedure for handling claims after the warranty period has expired.

- The distributor should apply for processing using the standard Warranty Claim Report. Included: reason for request, number of cases, amount.

- After reviewing the request, Honda contacts the distributor to pass on its decision. The following information is included in the request approval.
  - month from which invoicing can be accepted
  - applicable models
  - parts name and numbers
  - symptoms
  - period (for how long after warranty expiration date invoicing will be accepted)

Whenever Honda discovers a pattern of trouble that can be tracked back to manufacturing, Honda will contact the distributor and pass on the appropriate technical information even if there is no request from the distributor.

Symptom code list

Code	Description
00101	Deformed
00301	Stretched
00401	Distorted
00501	Abnormal wear (tire)
00502	Abnormal wear (brake pad/shoe)
00503	Wear (other than tire, brake pad / shoe)
00604	Dirt inclusion
00701	Perforation (other than body surface)
00702	Perforation (painted body surface)
00801	Corrosion (other than painted body surface)
00802	Corrosion of painted body surface
00901	Color change (other than painted body surface)
01001	Poorly plated, plating peeling off
01101	Permanent set-in fatigue
01201	Not working properly or at all
01301	Lens fogged
01302	Glass opacity deteriorated
01501	Welt
01701	Hairline fracture
01702	Cracked
01801	Broken
01802	Tire puncture, burst
01901	Scratched
01903	Stone chipping
02101	Torn or split
02201	Scorched or fused
02202	Smoldering
02501	Open seam
02502	Poorly glued (separated)
02601	Wire cut
02602	Cut
02603	Belt cut
02701	Mandated emission limits exceeded
02702	Mandated noise limits exceeded
02801	Stripped thread
02901	Reset failure
03101	Gear engagement difficult or impossible
03202	Vehicle does not move forward
03203	PGM-FI (MIL) lamp lit
03205	Check or indicator lamp lit (except PGM-FI(MIL))
03206	Engine races when driving
03210	Poor wire movement
03211	Stuck
03212	Abnormal sound (excluding audio system)
03214	Erroneous operation
03215	Erroneous display

Code	Description
03216	Excessive effect
03217	Not operating
03218	Erratic movement
03219	Unable to control midway
03220	Not operating properly
03221	Clutch does not disengage
03222	Driver feedback poor
03223	Resistance felt when operating
03224	Operation too light
03225	Operation too heavy
03226	Cannot be loosened
03227	Does not illuminate
03228	Cannot be extinguished
03229	Excessive AT in gear shift shock
03230	Improper speed change
03231	No sound (audio system excluded)
03232	Sound cannot be stopped (audio system excluded)
03233	Improper return
03235	Difficult/impossible to engage reverse gear
03236	Excessive shift shock when starting
03237	Excessive AT N to D shift shock
03238	No up / down shift
03239	Uncontrollable acceleration
03240	Sudden acceleration
03243	Clutch does not engage
03244	Jerky when driving
03285	Cavitation (outboard engine)
03301	Gear disengagement hard or impossible
03401	Clutch slip, premature clutch plate wear
03501	Clutch judder
03502	Steering judder
03503	Brake judder
03504	Judder when starting
03505	Judder when changing speed
03602	Brakes pull to one side
03603	Wheel imbalance
03701	Gear slip
03801	Overflow
03901	Reading incorrect
03902	Meter reading incorrect
04001	Meter pointer unstable
04201	Abnormal sound
04202	Excessively loud operating sound
04205	Squeak
04206	Excessively loud exhaust sound
04208	Hammering sound

Code	Description
04209	Chattering sound
04210	Muffled sound
04211	Humming
04212	Brake squeal
04213	Abnormal sound during brake application (excluding brake squeal)
04215	Engine races when driving
04216	Abnormal sound when accelerating/decelerating
04217	Abnormal sound at constant speed
04218	Abnormal sound when stopped
04221	Generator noise affects audio sounds/TV screen etc.
04501	Abnormal vibration
04502	Steering wheel shimmy
04504	Abnormal vibration while driving
04505	Abnormal vibration when stopped
04902	Excessive play
04903	Excessive parking brake freeplay
04904	Excessive pedal reserve
04905	Insufficient or no play
04906	Insufficient lever stroke (parking brake, etc.)
04907	Insufficient pedal stroke
05101	Oil leak
05102	Grease leak
05108	Oil oozing out
05109	Grease oozing out
05202	Air leakage from wheel/tire
05203	Damper gas leakage
05301	Brake drag
05302	Improper return
05501	Vibration (steering wheel, tire)
05604	Wind noise
05701	Detached
05801	Fluid clouding
05901	Radiator coolant leakage
05911	Light fixture water entry
06001	Fuel leakage
06002	Air entry when window closed
06003	Exhaust gas leakage
06005	Gasoline odor
06006	Offensive odor (excluding gasoline)
06007	Fuel oozing out
06101	Loose bolt, nut, screw
06201	Loose (poorly fitted)
06401	Short circuit
06404	Fuse burned out
06501	Overcharging

Code	Description
06701	Battery dead due to charging system malfunction
06702	Battery undercharged (Charging lamp ON)
07001	Battery dead due to dead cell or other inherent problem
07002	Battery cell faulty or deteriorated
07301	Height difference
07302	Excessive clearance
07303	Insufficient clearance
07304	Uneven clearance
07401	Steering wheel spoke angle improper
07402	Ground clearance uneven
07403	Interference
07801	Part(s) missing
07901	Cannot be unlocked
07902	Cannot be opened or opens improperly
08001	Incorrect assembly
08101	Stained
08102	Paint spot
08201	Not lockable
08202	Cannot be closed or closes improperly
08301	Paint blistering
08401	Color differenc e
08402	Floating
08505	Loss of gloss
08506	Fading
08507	Discoloration
08601	Peeling off
08602	Tread separation (brake pad / shoe and tire)
08701	Runs
08801	Sanding marks visible
08802	Poor hiding
08803	Unpainted
08804	Cissing, cratering
08805	Orange peel
08806	Pinhole
08901	Engine lacking power in all speed ranges
08902	Engine lacking power in high speed range
08903	Engine lacking power in mid speed range
08904	Engine lacking power in low speed range
09001	Engine start failure (starter operative)
09002	Hard starting when engine cold
09003	Hard starting when engine warm

Code	Description
09004	Starter malfunction (sufficient battery charge)
09101	Idle speed too high
09102	Idle speed too low
09103	Unstable idling
09104	Engine overcooling
09105	Engine overheating
09106	Engine backfire
09107	Misfire
09108	Engine run-on (dieseling)
09109	Engine speed decreases
09110	Engine speed cannot be decreased
09111	Engine speed cannot be increased
09112	Engine speed increases suddenly
09113	Cold surge
09114	Hot surge
09115	Engine hunting in low and mid speed ranges
09116	Engine hunting in high speed range
09117	Engine knock
09118	Engine hunting when vehicle stopped while in gear
09201	Acceleration abnormality
09202	Engine hesitation when accelerating
09203	Engine hesitation when starting
09301	Icing
09302	Engine stalls but can be restarted
09303	Engine stall when starting
09304	Engine stalls while driving
09306	Engine stalls when engaging clutch at start
09401	Excessive engine oil consumption
09501	Smoking
09601	Excessive fuel consumption
09701	Steering wander
09702	Driving instability
09703	Steering unstable
09770	Steering pulls to right
09771	Steering pulls to left
09950	User cannot perform maintenance
09999	For phenomena other than those stipulated.