LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG
Ministère de la Mobilité
et des Travaux publics

Département de la mobilité
et des transports

SOCIÉTÉ NATIONALE DE
CERTIFICATION ET D'HOMOLOGATION
S.A.

Registre de Commerce: B 27180

L-8070 Bertrange

Référence: e13*2016/1628*2021/1068SYB1/P*0004*02

Annexes: - Rapport technique
- Fiche de renseignements du constructeur

Bertrange, le 07 juin 2022

CERTIFICAT DE RECEPTION UE PAR TYPE
EU TYPE-APPROVAL CERTIFICATE

Communication concernant [1]: / Communication concerning the [1]:

- ~~**la réception UE par type**~~ / ~~EU type-approval~~
- **l'extension de la réception UE par type** / extension of EU type-approval
- ~~**le refus de la réception UE par type**~~ / ~~refusal of EU type-approval~~
- ~~**le retrait de la réception UE par type**~~ / ~~withdrawal of EU type-approval~~

~~**d'un type de moteurs**~~ **/ d'une famille de moteurs [1], en ce qui concerne les émissions de gaz polluants et de particules polluantes conformément au règlement (UE) 2016/1628, modifié en dernier lieu par le règlement (~~délégué~~) [1] 2021/1068 (~~de la Commission~~) [1] (du Parlement européen et du Conseil) [1]**
of an ~~engine type~~ / engine family [1] with regard to gaseous and particulate pollutant emission pursuant to Regulation (EU) 2016/1628, as last amended by (~~Commission Delegated~~) [1] Regulation 2021/1068 [1] (of the European Parliament and of the Council) [1]

Numéro de réception UE par type [3]: EU type-approval number [3]:	e13*2016/1628*2021/1068SYB1/P*0004*02
Motif de l'extension/du refus/du retrait [1]: Reason for extension/refusal/withdrawal [1]:	see: List of modifications, Appendix 0 of test report N° 89-2016/1628-232/22-00

SECTION I
SECTION I

1.1.	**Marque(s) [dénomination(s) commerciale(s) du constructeur]:** Make (trade name(s) of manufacturer):	Loncin
1.2.	**Appellation(s) commerciale(s) (le cas échéant)**: Commercial name(s) (if applicable):	not applicable
1.3.	**Nom et adresse du constructeur:** Company name and address of manufacturer:	Loncin Motor Co., Ltd. No. 99, Hualong Road, Jiulong Industrial Park, Jiulongpo District, Chongqing, 400052, P.R. China
1.4.	**Nom et adresse du représentant agréé du constructeur (s'il y a lieu):** Name and address of manufacturer's authorised representative (if any):	CMD Costruzioni Motori Diesel Spa Nucleo Industriale Valle di Vitalba – 85020 – Atella (Potenza) - Italy

1.5.	**Nom(s) et adresse(s) des usines d'assemblage/de fabrication:** Name(s) and address(es) of assembly/manufacture plant(s):	Loncin Motor Co., Ltd. No. 99, Hualong Road, Jiulong Industrial Park, Jiulongpo District, Chongqing, 400052, P.R. China
1.6.	~~**Désignation du type de moteurs**~~ **/** ~~**désignation de la famille de moteurs**~~ **/ FT [(1)]:** ~~Engine type designation~~ / ~~engine family designation~~ / FT [(1)]:	**1P96F 1P96F** **1P96F LC1P96F** **1P96F 1P91F** **1P96F LC1P91F**
1.7.	**Catégorie et sous-catégorie** ~~**du type de moteurs**~~ **/ de la famille de moteurs [(1)(4)]:** Category and sub-category of the ~~engine type~~ / engine family [(1)(4)]:	NRS-vi-1b
1.8.	**Catégorie de période de durabilité des caractéristiques d'émission:** Emissions durability period category:	~~not applicable~~ / Cat 1 / ~~Cat 2~~ / ~~Cat 3~~ [(1)]
1.9.	**Phase d'émissions:** Emissions stage:	V / ~~SPE~~
1.10.	**Moteur destiné aux fraises à neige [(5)]:** Engine for snow throwers [(5)]:	~~Yes~~ / No [(1)]

SECTION II
SECTION II

1.	**Service technique responsable de la réalisation du ou des essais:** Technical service responsible for carrying out the test(s):	TÜV Rheinland Luxemburg S.à r.l. 2-4, rue Edmond Reuter L-5326 Contern
2.	**Date(s) du/des rapport(s) d'essai:** Date(s) of the test report(s):	30.03.2022
3.	**Numéro(s) du/des rapport(s) d'essai:** Number(s) of the test report(s):	89-2016/1628-232/22-00

SECTION III
SECTION III

Le soussigné certifie, par la présente, l'exactitude de la description, faite par le constructeur dans la fiche de renseignements en annexe, ~~du type de moteurs~~ / de la famille de moteurs (1) décrit(e) ci-dessus, dont un ou plusieurs échantillons représentatifs, choisis par l'autorité compétente en matière de réception, ont été présentés en tant que prototypes, ainsi que l'applicabilité ~~au type de moteurs~~ / à la famille de moteurs (1) des résultats d'essai en annexe.
The undersigned hereby certifies the accuracy of the manufacturer's description in the attached information document of the ~~engine type~~ / engine family (1) described above, for which one or more representative samples, selected by the approval authority, have been submitted as prototypes and that the attached test results apply to the ~~engine type~~/ engine family (1).

1.	**~~Le type de moteurs~~ / la famille de moteurs (1) satisfait / ~~ne satisfait pas~~ (1) aux exigences définies dans le règlement (UE) 2016/1628.** The ~~engine type~~ / engine family (1) meets / ~~does not meet~~ (1) the requirements laid down in Regulation (EU) 2016/1628.	meets
2.	**La réception est ~~accordée~~/étendue/~~refusée~~/~~retirée~~ (1).** The approval is ~~granted~~/extended/~~refused~~/~~withdrawn~~ (1).	~~granted~~/extended/~~refused~~/~~withdrawn~~ (1)
3.	**La réception est accordée conformément à l'article 35 du règlement (UE) 2016/1628 et sa validité expire, dès lors, le jj/mm/aaaa (3).** The approval is granted in accordance with Article 35 of Regulation (EU) 2016/1628 and the validity of the approval is thus limited to dd/mm/yyyy (3).	not applicable
4.	**Restrictions de validité (3)(6):** Restrictions to validity (3)(6):	not applicable
5.	**Dérogations appliquées (3)(6):** Exemptions applied (3)(6):	not applicable
	Lieu: Place:	Bertrange
	Date: Date:	07 juin 2022
	Signature: Signature:	

Pour le Ministre de la Mobilité et des Travaux publics

Alain DISIVISCOUR
Conseiller

Pour la SNCH

Laurent LINDEN
Directeur opérationnel

Pièces jointes:
Attachements:

- **Dossier de réception**.
  Information package.
- **Rapport(s) d'essai.**
  Test report(s).
- **Le cas échéant, nom et spécimen de signature de la ou des personnes habilitées à signer les déclarations de conformité, ainsi qu'indication de leur fonction dans la société.**
  Where applicable, the name(s) and specimen(s) of the signature(s) of the person(s) authorised to sign statement of conformity and a statement of their position in the company.
- **Le cas échéant, spécimen rempli de déclaration de conformité**.
  Where applicable, a completed specimen of a statement of conformity.

N.B.:
Si le présent modèle est utilisé pour la réception UE par type d'un moteur dans le cadre d'une dérogation pour de nouvelles technologies ou de nouveaux concepts, conformément à l'article 35, paragraphe 4, du règlement (UE) 2016/1628, l'intitulé du certificat est le suivant: «CERTIFICAT DE RÉCEPTION UE PAR TYPE PROVISOIRE, VALABLE UNIQUEMENT SUR LE TERRITOIRE DE LA/DU …» [7].
NB:
If this model is used for EU type-approval of an engine as an exemption for new technologies or new concepts, pursuant to Article 35(4) of Regulation (EU) 2016/1628, the heading of the certificate shall read "PROVISIONAL EU TYPE-APPROVAL CERTIFICATE VALID ONLY ON THE TERRITORY OF …" [7].

ADDENDUM
ADDENDUM

PARTIE A — CARACTÉRISTIQUES ~~DU TYPE DE MOTEURS~~ / DE LA FAMILLE DE MOTEURS (1)
PART A — CHARACTERISTICS OF THE ~~ENGINE TYPE~~ / ENGINE FAMILY (1)

2.	**Paramètres de conception communs ~~du type de moteurs~~ / de la famille de moteurs (1)** Common design parameters of the ~~engine type~~ / engine family (1)	
2.1.	**Cycle de combustion:** Combustion Cycle:	four stroke cycle / ~~two-stroke cycle~~ / ~~rotary~~/~~other~~ (1)
2.2.	**Modes d'allumage:** Ignition Type:	~~Compression ignition~~ / spark ignition (1)
2.3.1.	**Disposition des cylindres dans le bloc:** Position of the cylinders in the block:	~~V~~ / ~~in-line~~ / ~~radial~~ / other (describe) (1): single
2.6.	**Moyen principal de refroidissement:** Main Cooling medium:	Air / ~~Water~~ / ~~Oil~~ (1)
2.7.	**Mode d'aspiration de l'air:** Method of air aspiration:	naturally aspirated / ~~pressure charged~~ / ~~pressure charged with charge cooler~~ (1)
2.8.1.	**Type(s) de carburant:** Fuel Type(s):	~~Diesel (non-road gas-oil)~~ / ~~Ethanol for dedicated compression ignition engines (ED95)~~ / Petrol (E10) / ~~Ethanol (E85)~~ / ~~(Natural gas/Biomethane)~~ / ~~Liquid Petroleum Gas (LPG)~~ (1)
2.8.1.1.	**Sous-type de carburant (uniquement gaz naturel/biométhane):** Sub Fuel type (Natural gas/Biomethane only):	~~Universal fuel - high calorific fuel (H-gas) and low calorific fuel (L-gas)~~ / ~~Restricted fuel high calorific fuel (H-gas)~~ / ~~Restricted fuel low calorific fuel (L-gas)~~ / ~~Fuel specific (LNG)~~ (1)
2.8.2.	**Alimentation en carburant:** Fuelling arrangement:	Liquid-fuel only / ~~Gaseous-fuel only~~ / ~~Dual-fuel type 1A~~ / ~~Dual-fuel type 1B~~ / ~~Dual-fuel type 2A~~ / ~~Dual-fuel type 2B~~ / ~~Dual-fuel type 3B~~ (1)
2.8.3.	**Liste des autres carburants pouvant être utilisés par le moteur déclarés par le constructeur conformément à l'annexe I, point 1, du règlement délégué (UE) 2017/654 (indiquer la référence à une norme ou à des spécifications reconnues):** List of additional fuels compatible with use by the engine declared by the manufacturer in accordance with point 1 of Annex I to Delegated Regulation (EU) 2017/654 (provide reference to recognised standard or specification):	not applicable
2.8.4.	**Lubrifiant ajouté au carburant:** Lubricant added to fuel:	~~Yes~~ / No (1)
2.8.5.	**Système d'alimentation en carburant:** Fuel supply type:	~~Pump (high pressure) line and injector~~ / ~~in-line pump or distributor pump~~ / ~~Unit injector~~ / ~~Common~~ ~~rail~~ / Carburettor / ~~port injector~~ / ~~direct injector~~/ ~~Mixing unit~~ / ~~other (specify)~~ (1)
2.9.	**Systèmes de gestion du moteur:** Engine management systems:	Mechanical / ~~electronic control strategy~~ (1)

2.10.	**Dispositifs divers:** Miscellaneous devices:	~~Yes~~ / No (1)
2.10.1.	**Système de recyclage des gaz d'échappement (EGR):** Exhaust gas recirculation (EGR):	~~Yes~~ / No (1)
2.10.2.	**Injection d'eau:** Water injection:	~~Yes~~ / No (1)
2.10.3.	**Injection d'air:** Air injection:	~~Yes~~ / No (1)
2.10.4.	**Autres (préciser):** Others (specify):	not applicable
2.11.	**Système de post-traitement des gaz d'échappement:** Exhaust after-treatment system:	~~Yes~~ / No (1)
2.11.1.	**Catalyseur d'oxydation:** Oxidation catalyst:	~~Yes~~ / No (1)
2.11.2.	**Système réducteur de NO_x avec réduction sélective des NO_x (adjonction d'un agent réducteur):** $DeNO_x$ system with selective reduction of NO_x (addition of reducing agent):	~~Yes~~ / No (1)
2.11.3.	**Autre système réducteur de NO_x:** Other $DeNO_x$ systems:	~~Yes~~ / No (1)
2.11.4.	**Catalyseur à trois voies combinant oxydation et réduction des émissions de NO_x:** Three-way catalyst combining oxidation and NO_x reduction:	~~Yes~~ / No (1)
2.11.5.	**Système de post-traitement des particules avec régénération passive:** Particulate after-treatment system with passive regeneration:	~~Yes~~ / No (1)
2.11.6.	**Système de post-traitement des particules avec régénération active:** Particulate after-treatment system with active regeneration:	~~Yes~~ / No (1)
2.11.7.	**Autres systèmes de post-traitement des particules:** Other particulate after-treatment systems:	~~Yes~~ / No (1)
2.11.8.	**Autres dispositifs de post-traitement (préciser):** Other after-treatment devices (specify):	not applicable
2.11.9.	**Autres dispositifs ou caractéristiques qui ont une forte incidence sur le niveau des émissions (préciser):** Other devices or features that have a strong influence on emissions (specify):	not applicable

3. Caractéristiques principales du ou des types de moteurs
Essential characteristics of the engine type(s)

Item Number	Item Description	Parent Engine / ~~Engine type~~	Engine types within the family (if applicable)		
3.1.1.	Engine Type Designation:	1P96F	LC1P96F	1P91F	LC1P91F
3.1.2.	Engine type designation shown on engine mark: Yes / No (1)	Yes	Yes	Yes	Yes
3.1.3.	Location of the manufacturer's statutory marking:	enclosure of the engine	enclosure of the engine	enclosure of the engine	enclosure of the engine
3.2.1.	Declared rated speed (rpm)	3580	3580	3580	3580
3.2.1.2.	Declared rated net Power (kW):	11,5	11,5	11,0	11,0
3.2.2.	Maximum power speed (rpm):	3580	3580	3580	3580
3.2.2.2.	Maximum net power (kW):	11,5	11,5	11,0	11,0
3.2.3.	Declared maximum torque speed (rpm):	2800	2800	2800	2800
3.2.3.2.	Declared maximum torque (Nm):	36,0	36,0	33,2	33,2
3.6.3.	Number of Cylinders:	1	1	1	1
3.6.4.	Engine total swept volume (cm^3):	608	608	546	546
3.8.5.	Device for recycling crankcase gases: Yes / No (1)	Yes	Yes	Yes	Yes
3.11.3.12.	Consumable reagent: Yes / No (1)	No	No	No	No
3.11.3.12.1.	Type and concentration of reagent needed for catalytic action:	not applicable	not applicable	not applicable	not applicable
3.11.3.13.	NO_x sensor(s): Yes / No (1)	No	No	No	No
3.11.3.14.	Oxygen sensor: Yes / No (1)	No	No	No	No
3.11.4.7.	Fuel borne catalyst (FBC): Yes / No (1)	No	No	No	No

Particular conditions to be respected in the installation of the engine on non-road mobile machinery:

3.8.1.1.	Maximum allowable intake depression at 100 % engine speed and at 100 % load (kPa) with clean air cleaner:	0,6	0,6	0,6	0,6
3.8.3.2.	Maximum charge air cooler outlet temperature at 100 % speed and 100 % load (deg. C):	not applicable	not applicable	not applicable	not applicable
3.8.3.3.	Maximum allowable pressure drop across charge cooler at 100 % engine speed and at 100 % load (kPa) (if applicable):	not applicable	not applicable	not applicable	not applicable
3.9.3.	Maximum permissible exhaust gas backpressure at 100 % engine speed and at 100 % load (kPa):	9,8	9,8	9,8	9,8
3.9.3.1.	Location of measurement:	exhaust port nearby	exhaust port nearby	exhaust port nearby	exhaust port nearby
3.11.1.2.	Maximum temperature drop from exhaust system or turbine outlet to first exhaust after-treatment system (deg. C) if stated:	not applicable	not applicable	not applicable	not applicable
3.11.1.2.1.	Test conditions for measurement:	not applicable	not applicable	not applicable	not applicable

PARTIE B — RESULTATS DES ESSAIS
PART B — TEST RESULTS

3.8. **Le constructeur a l'intention d'utiliser le signal UCE du couple pour la surveillance en service:**
Manufacturer intends to use ECU torque signal for in-service monitoring: ~~Yes~~ / No [1]

3.8.1. **Couple mesuré au dynamomètre supérieur ou égal à 0,93 × couple UCE:**
Dynamometer torque greater than or equal to 0,93 × ECU torque: ~~Yes~~ / No [1]

3.8.2. **Facteur de correction du couple UCE si le couple mesuré au dynamomètre est inférieur à 0,93 × couple UCE:**
ECU torque correction factor in case that dynamometer torque less than 0,93 × ECU torque:

11.1. **Résultats relatifs aux émissions sur le cycle**
Cycle emissions results

Emissions	CO (g/kWh)	HC (g/kWh)	NO_x (g/kWh)	$HC+NO_x$ (g/kWh)	PM (g/kWh)	PN #/kWh	Test Cycle [8]
NRSC final result with DF	494,62	---	---	5,71	---	---	G1
NRTC Final test result with DF	---	---	---	---	---	---	---

11.2. **Résultat concernant le CO_2:**
CO_2 result: 707,39 g/kWh

11.3. **Valeurs de référence de la surveillance en service [9]:**
In service monitoring reference values [9]: not applicable

11.3.1. **Travail de référence (kWh):**
Reference work (kWh): not applicable

11.3.2. **Masse de CO_2 de référence (g):**
Reference CO_2 mass (g): not applicable

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(1) Biffer les options non utilisées ou n'indiquer que la ou les options retenues.
Strike out the unused options, or only show the used option(s).

(2) Indiquer uniquement la dernière modification dans le cas d'une modification portant sur un ou plusieurs articles du règlement (UE) 2016/1628, en fonction de la modification appliquée pour la réception UE par type.
Indicate only the latest amendment in case of an amendment of one or more Articles of Regulation (EU) 2016/1628, according to the amendment applied for the EU type-approval.

(3) Supprimer cette indication si elle n'a pas lieu d'être.
Delete this entry when not applicable.

(4) Indiquer l'option appropriée pour la catégorie et la sous-catégorie conformément au point 1.7 de la fiche de renseignements figurant dans la partie A de l'appendice 3 de l'annexe I.
Indicate the applicable option for the category and sub-category in accordance with entry 1.7 of the information document set out in Part A of Appendix 3 to Annex I,

(5) Indiquer si la réception s'applique à une famille de moteurs de catégorie NRS (<19 kW) constituée exclusivement de types de moteurs destinés aux fraises à neige.
Indicate whether the approval is for NRS (<19 kW) engine family consisting exclusively of engine type for snow throwers.

(6) Applicable uniquement pour la réception UE par type d'un type de moteurs ou d'une famille de moteurs bénéficiant d'une dérogation pour de nouvelles technologies ou de nouveaux concepts, conformément à l'article 35 du règlement (UE) 2016/1628.
Applicable only for EU type-approval of an engine type or an engine family as an exemption for new technologies or new concepts, pursuant to Article 35 of Regulation 2016/1628.

(7) Indiquer l'Etat membre.
Indicate the Member State.

(8) Indiquer le cycle d'essai conformément à la cinquième colonne des tableaux figurant à l'annexe IV du règlement (UE) 2016/1628.
Indicate the test cycle in accordance with the fifth column of the Tables set out in Annex IV to Regulation (EU) 2016/1628.

(9) Applicable uniquement aux moteurs des sous-catégories NRE-v-5 et NRE-v-6 soumis à l'essai NRTC.
Only applicable to engines of sub-categories NRE-v-5 and NRE-v-6 tested on NRTC.

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Registre de Commerce: B 27180

L-8070 Bertrange

Référence: e13*2016/1628*2021/1068SYB1/P*0004*02

Annexes: - Rapport technique
- Fiche de renseignements du constructeur

Bertrange, le 07 juin 2022

INDEX DU DOSSIER DE RECEPTION
INDEX TO TYPE-APPROVAL REPORT

	Numéro de réception: Approval number:	e13*2016/1628*2021/1068SYB1/P*0004*02
	Révision: Revision:	00
	Marque de fabrique: *Trade name or mark:*	*Loncin*
	FT: *FT:*	***1P96F 1P96F*** ***1P96F LC1P96F*** ***1P96F 1P91F*** ***1P96F LC1P91F***
1.	**Procès-verbal d'essai:** Test report:	Nº 89-2016/1628-232/22-00
	- Test report: - List of modifications: - Technical information:	Page(s) 1 to 10; Appendix 0 - Page(s) 11; Appendix L - Page(s) 1 to 6.
2.	**Dossier du constructeur:** Report of the manufacturer:	Nº 2016/1628-1P96F-02
	- Manufacturer's information document: - Attachments to the information document:	Page(s) 1 to 18; see: Index of attachments, page(s) 1.
3.	**Autres documents annexés:** Other documents annexed:	not applicable
4.	**Date de délivrance de la réception initiale:** Date of issue of initial type approval:	28.09.2017
5.	**Date de la dernière délivrance de pages révisées:** Date of last issue of revised pages:	not applicable
6.	**Date de la dernière délivrance d'une réception révisée:** Date of last extension:	07.06.2022

Manufacturer : Loncin Motor Co., Ltd.
Engine family designation : 1P96F
Parent engine type designation: 1P96F

TEST REPORT

according to Regulation of the European Parliament and of the Council

on requirements relating to gaseous and particulate pollutant emission limits and type-approval for internal combustion engines for non-road mobile machinery

(EU) 2016/1628

and

Commission Delegated Regulation (EU) 2017/654 amended by (EU) 2021/1398

Commission Delegated Regulation (EU) 2017/655 amended by (EU) 2018/987

Commission Implementing Regulation (EU) 2017/656 amended by (EU) 2018/988

Commission amending Regulation

(EU) 2021/1068

Approval status		
EU type – approval	:	e13*2016/1628*2016/1628SYB1/P*0004*01

Structure of report:

1. General Information
2. General engine information (test engine)
3. Documentation and information Check list (primary test only)
4. Reference fuel(s) used for test (complete relevant subparagraph(s))
5. Lubricant
6. Engine Speed
7. Engine Power
8. Conditions at test
9. Information concerning the conduct of the NRSC test:
10. Information concerning the conduct of the NRTC test (if applicable):
11. Final emissions results
12. Remarks concerning tested object(s)
13. Appendices
14. Statement of conformity

Manufacturer : Loncin Motor Co., Ltd.
Engine family designation : 1P96F
Parent engine type designation: 1P96F

1.	**General information**		
1.1	Make (trade name of the manufacturer)	:	Loncin
1.2	Commercial name(s) (if applicable)	:	---
1.3	Company name and address of manufacturer	:	Loncin Motor Co., Ltd. No.99 Hualong Road, Jiulong Industrial Park, Jiulongpo District, Chongqing, 400052, P. R. China
1.4	Name of technical service	:	TÜV Rheinland Luxemburg S.à r.l.
1.5	Address of technical service	:	2-4, rue Edmond Reuter L-5326 Contern
1.6.	Location of test	:	Loncin Motor Co., Ltd. No.99 Hualong Road, Jiulong Industrial Park, Jiulongpo District, Chongqing, 400052, P. R. China
1.7	Date of test	:	May 15, 2017
1.8.	Test report number	:	89-2016/1628-232/22-00
1.9.	Information document reference number (if available)	:	2016/1628-1P96F-02
1.10	Test report type:	:	Primary test~~/additional test/supplementary test~~
1.10.1.	Description of the purpose of the test	:	Type approval test
2.	**General engine information (test engine)**		
2.1.	Engine type designation~~/engine family designation/FT~~	:	1P96F 1P96F
2.2.	Engine identification number	:	T4300017010008782
2.3.	Engine Category and subcategory	:	~~NRE-v-1/NRE-v-2/NRE-v-3/NRE-v-4/NRE-v-5/NRE-v-6/NRE-v-7/NRE-c-1/ NRE-c-2/NRE-c-3/NRE-c-4/NRE-c-5/NRE-c-6/NRE-c-7/NRG-v-1/NRG-c-1/NRSh-v-1a/NRSh-v-1b/NRS-vr-1a/ NRS-vr-1b/ NRS-vi-1a/~~NRS-vi-1b~~/NRS-v-2a/NRS-v-2b/NRS-v-3/IWP-v-1/IWP-v-2/IWP-v-3/IWP-v-4/IWP-c-1/ IWP-c-2/IWP-c-3/IWP-c-4/IWA-v-1/IWA-v-2/IWA-v-3/IWA-v-4/IWA-c-1/IWA-c-2/IWA-c-3/IWA-c-4/RLL-v-1/ RLL-C-1/RLR-v-1/RLR-C-1/SMB-v-1/ATS-v-1~~
2.4.	Condition of object(s)	:	new~~, used, pretested~~

2.5.	Worst case selection	:	~~No worst case assessment required (only one variant/version or no variants/versions).~~ ~~There is no worst case selection applicable because all versions mentioned in the information folder are tested.~~ ~~Worst case as representative for the type is selected for dynamic test. (According to the primary criterion of highest fuel delivery per stroke per cylinder at the declared maximum torque speed.)~~ Paperwork extension, please see previous test report(s) for worst case information
2.6.	Remark	:	---
3.	**Documentation and information Check list (primary test only)**		
3.1.	Engine mapping documentation reference	:	See information document No.2016/1628-1P96F-02
3.2	Deterioration factor determination documentation reference	:	See information document No.2016/1628-1P96F-02
3.3.	Infrequent regeneration factors determination documentation reference, where applicable	:	---
3.4.	NOx control diagnostic demonstration documentation reference, where applicable	:	---
3.5.	Particulate control diagnostic demonstration documentation reference, where applicable	:	---
3.6.	For engine types and engine families that use an ECU as part of the emission control system anti-tampering declaration documentation reference	:	---
3.7.	For engine types and engine families that use mechanical devices as part of the emission control system anti- tampering and adjustable parameters declaration and demonstration documentation reference	:	See information document No.2016/1628-1P96F-02
3.8.	Manufacturer intends to use ECU torque signal for in-service monitoring	:	~~Yes/~~No
3.8.1.	dynamometer torque greater than or equal to 0,93 × ECU torque	:	~~Yes/~~No
3.8.2.	ECU torque correction factor in case that dynamometer torque less than 0,93 × ECU torque	:	---
4.	**Reference fuel(s) used for test (complete relevant subparagraph(s))**		
4.1.	*Liquid fuel for spark-ignition engines*		
4.1.1.	Make	:	SBF
4.1.2.	Type	:	E10
4.1.3.	Octane number RON	:	96.1

4.1.4.	Octane number MON	:	85.9
4.1.5.	Ethanol content (%)	:	9.6
4.1.6.	Density at 15 Deg.C (kg/m^3)	:	0.753
4.2.	*Liquid fuel for compression-ignition engines*	:	---
4.2.1.	Make	:	---
4.2.2.	Type	:	---
4.2.3.	Cetane number	:	---
4.2.4.	Fame content (%)	:	---
4.2.5.	Density at 15 Deg.C (kg/m3)	:	---
4.3.	*Gaseous fuel — LPG*	:	---
4.3.1.	Make	:	---
4.3.2.	Type	:	---
4.3.3.	Reference fuel type	:	~~Fuel A/Fuel B~~
4.3.4.	Octane number MON	:	---
4.4.	*Gaseous fuel- Methane/biomethane*	:	---
4.4.1.	Reference fuel type	:	~~GR/G23/G25/G20~~
4.4.2.	Source of reference gas	:	~~specific reference fuel/pipeline gas with admixture~~
4.4.3.	For specific reference fuel		
4.4.3.1.	Make	:	---
4.4.3.2.	Type	:	---
4.4.4.	For pipeline gas with admixture	:	---
4.4.4.1.	Admixture(s)	:	~~Carbon dioxide/Ethane/Methane/Nitrogen/Propane~~
4.4.4.2.	The value of Sλ for the resulting fuel blend	:	---
4.4.4.3.	The Methane Number (MN) of the resulting fuel blend	:	---
4.5.	*Dual fuel engine (in addition to relevant sections above)*	:	---
4.5.1.	Gas energy ratio on test cycle	:	---
5.	**Lubricant**		
5.1.	Make(s)	:	MOBIL
5.2.	Type(s)	:	15W/40

5.3.	SAE viscosity	:	12.5-16.3 mm^2/s
5.4.	Lubricant and fuel are mixed	:	~~Yes~~/No
5.4.1.	Percentage of oil in mixture	:	---
6.	**Engine Speed**		
6.1.	100 % speed (rpm):	:	3580
6.1.1.	100 % speed determined by	:	Declared rated speed/~~Declared maximum test speed (MTS)/Measured MTS~~
6.1.2.	Adjusted MTS if applicable (rpm)	:	---
6.2.	Intermediate speed	:	3043
6.2.1.	Intermediate speed determined by	:	~~Declared intermediate speed/Measured intermediate speed/60 % of 100 % speed/75 % of 100 % speed~~/85 % of 100 % speed
6.3.	Idle speed	:	1800±150
7.	**Engine Power**		
7.1.	Engine driven equipment (if applicable)		

7.1.1. Power absorbed at indicated engine speeds by necessary auxiliaries for engine operation that cannot be fitted for the test (as specified by the manufacturer) to be stated in Table 1:

Table 1 Power absorbed by engine auxiliaries

Auxiliary type and identifying details	Power absorbed at indicated speed (kW) (complete relevant columns)						
	Idle	63%	80%	91%	Inter-mediate	Max. power	100%
---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---
Total ($P_{f,i}$) (kW):	---	---	---	---	---	---	---

7.1.2. Power absorbed at indicated engine speeds by auxiliaries linked with the operation of the non-road mobile machinery that cannot be removed for the test (as specified by the manufacturer) to be stated in Table 2:

Table 2 Power absorbed by non-road mobile machinery auxiliaries

Auxiliary type and identifying details	Power absorbed at indicated speed (kW) (complete relevant columns)						
	Idle	63%	80%	91%	Inter-mediate	Max. power	100%
---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---
Total ($P_{r,i}$) (kW):	---	---	---	---	---	---	---

7.2. Engine net power to be stated in Table 3:

Table 3 Engine net power

Condition	Power setting at indicated engine speed (kW) (complete relevant columns)		
	Intermediate	Max. power	100%
Maximum power measured at specified test speed ($P_{m,i}$) (kW)	10.8	---	---
Total auxiliary power from table 1 ($P_{f,i}$)	---	---	---
Total auxiliary power from table 2 ($P_{r,i}$)	---	---	---
Net engine power (kW) $P_i = P_{m,i} - P_{f,i} + P_{r,i}$	10.8	---	---

8 **Conditions at test**

8.1. f_a within range 0.93 to 1.07 : Yes~~/No~~

8.1.1. If f_a is not within specified range state altitude of test facility and dry atmospheric pressure : ---

8.2. Applicable intake air temperature range : 20 to 30~~/0 to 5(snow throwers only)/ 5 to 15(snowmobiles only)/ 20 to 35(NRE greater than 560 kW only)~~

9. **Information concerning the conduct of the NRSC test**

9.1. Cycle (mark cycle used with X) to be stated in Table 4

Table 4 NRSC test cycle

Cycle	C1	C2	D2	E2	E3	F	G1	G2	G3	H
Discrete mode	---	---	---	---	---	---	X	---	---	---
RMC	---	---	---	---	---	---	---	---	---	---

9.2. Dynamometer setting (kW) to be stated in Table 5

Table 5 Dynamometer setting

% Load at point or % of rated power (as applicable)	Dynamometer setting (kW) at various engine speeds taking account of net engine power (1) from Table 3 (complete relevant columns)					
	Idle	63%	80%	91%	Inter-mediate	100%
5%	---	---	---	---	---	---
10%	---	---	---	---	1.1	---
25%	---	---	---	---	2.7	---
50%	---	---	---	---	5.4	---
75%	---	---	---	---	8.1	---
100%	---	---	---	---	10.8	---

(1) The dynamometer setting shall be determined using the procedure set out in point 7.7.1.3 of Annex VI to Delegated Regulation (EU) 2017/654. The auxiliary power in that point shall be determined using the total values set out in Tables 1 and 2 of this Appendix.

9.3. NRSC Emissions results

9.3.1. Deterioration Factor (DF) : calculated/~~assigned~~

9.3.2. DF values and the cycle weighted emissions results to be stated in Table 6:

Note: In the event that a discrete mode NRSC is run where the K_{ru} or K_{rd} factors have been established for individual modes then a table showing each mode and the applied K_{ru} or K_{rd} should replace the shown table

Table 6 NRSC cycle DF values and weighted emissions results

DF mult/~~add~~	CO	HC	NO_x	$HC+NO_x$	PM	PN
	1.11	---	---	1.04	---	---
Emissions	CO (g/kWh)	HC (g/kWh)	NO_x (g/kWh)	$HC+NO_x$ (g/kWh)	PM (g/kWh)	PN #/kWh
Test result ~~with/~~without regeneration	445.60	---	---	5.49	---	---
k_{ru}/k_{rd} mult/add	---	---	---	---	---	---
test result with IRAF	---	---	---	---	---	---
Final test result with DF	494.62	---	---	5.71	---	---

9.3.3. Cycle weighted CO_2 (g/kWh) : 707.39

9.3.4. Cycle weighted NH_3 (ppm) : ---

9.4. Additional control area test points (if applicable) to be stated in Table 7

Table 7 Additional control area test points

Emissions at test point	Engine Speed	Load (%)	CO (g/kWh)	HC (g/kWh)	NO_x (g/kWh)	$HC+NO_x$ (g/kWh)	PM (g/kWh)	PN n/kWh
Test result 1	---	---	---	---	---	---	---	---
Test result 2	---	---	---	---	---	---	---	---
Test result 3	---	---	---	---	---	---	---	---

9.5. Sampling systems used for the NRSC test

9.5.1. Gaseous emissions : CVS

9.5.2. PM : ---

9.5.2.1 Method : ~~single/multiple filter~~

9.5.3. Particle number : ---

10. **Information concerning the conduct of the transient test (if applicable)**

10.1. Cycle (mark cycle with X) to be stated in Table 8

Table 8 Transient test cycle

NRTC	---
LSI-NRTC	---

10.2. Transient test deterioration factors

10.2.1. Deterioration Factor (DF) : ~~calculated/fixed~~
10.2.2. DF values and the emissions results to be stated in Table 9 or in Table 10
10.3. NRTC emission results : ---

Table 9 DF values and the emissions results for NRTC

DF ~~mult/add~~	CO	HC	NO_x	$HC+NO_x$	PM	PN
	---	---	---	---	---	---
Emissions	CO (g/kWh)	HC (g/kWh)	NO_x (g/kWh)	$HC+NO_x$ (g/kWh)	PM (g/kWh)	PN #/kWh
Cold start	---	---	---	---	---	---
Hot start test result with/without regeneration	---	---	---	---	---	---
Weighted test result	---	---	---	---	---	---
k_{ru}/k_{rd} mult/add	---	---	---	---	---	---
Weighted test result with IRAF	---	---	---	---	---	---
Final test result with DF	---	---	---	---	---	---

10.3.1. Hot cycle CO_2 (g/kWh) : ---

10.3.2. Cycle weighted NH_3 (ppm) : ---

10.3.3. Cycle work for hot start test (kWh) : ---

10.3.4. Cycle CO_2 for hot start test (g) : ---

10.4. LSI-NRTC emission results

Table 10 DF values and the emissions results for NRTC-LSI

DF ~~mult/add~~	CO	HC	NO_x	$HC+NO_x$	PM	PN
	---	---	---	---	---	---
Emissions	CO (g/kWh)	HC (g/kWh)	NO_x (g/kWh)	$HC+NO_x$ (g/kWh)	PM (g/kWh)	PN #/kWh
Test result with/without regeneration	---	---	---	---	---	---
k_{ru}/k_{rd} mult/add	---	---	---	---	---	---
Test result with IRAF	---	---	---	---	---	---
Final test result with DF	---	---	---	---	---	---

10.4.1. Cycle CO_2 (g/kWh) : ---

10.4.2. Cycle average NH_3 (ppm) : ---

10.4.3. Cycle work (kWh) : ---

10.4.4. Cycle CO_2 (g) : ---

10.5. Sampling system used for the transient test : ---

10.5.1. Gaseous emissions : ---

10.5.2. PM : ---

10.5.3. Particle number : ---

11. **Final emissions results**

11.1 Cycle emissions results to be stated in Table 11.

Table 11 Final emissions results

Emissions	CO (g/kWh)	HC (g/kWh)	NO_x (g/kWh)	HC+NO_x (g/kWh)	PM (g/kWh)	PN #/kWh	Test Cycle(1)
NRSC final result with DF (2).	494.62	---	---	5.71	---	---	G1
Final transient test result with DF (3)	---	---	---	---	---	---	---

11.2 CO_2 result (4) (g/kWh) : 707.39

11.3. In service monitoring reference values (5)

11.3.1. Reference work (kWh) (6) : ---

11.3.2. Reference CO_2 mass (g) (7) : ---

	Remark concerning extension	:	~~The vehicle type has been tested according to the modification(s) mentioned in appendix 0.~~ The new parts meet the requirements of the regulation. ~~An actual practical test of the engine was conducted. The value is better than the results of the previous test(s). So the results of the previous test(s) are still valid.~~
11.4	Additional information	:	The results of the test refer exclusively to the object(s) mentioned under section 2.2 of this report.
11.5	Remark	:	---
12.	**Remarks concerning tested object(s)**	:	All version of the type as stated in the information document are covered with the tested version(s) and test object(s) respectively.

13. **Appendices**

Appendix 0	List of modifications
Appendix L	Communication Information folder: 2016/1628-1P96F-02

14. **Statement of conformity**

The section 1.9 mentioned information document and the type described in that comply with the requirements mentioned on page 1. The mentioned test results refer to the vehicle(s)/object(s) described under point 2.1 of this report. With regard to the required level of performance to be achieved, the tested samples were representative for the type to be approved (see section 2.5).

Engineering Center Shanghai, March 30, 2022

Jinbiao Zhang
Expert Technical Service

(1) For NRSC indicate the cycle noted in point 9.1 (Table 4); for transient test indicate cycle noted in point 10.1 (Table 8).

(2) Copy the "Final test result with DF" results from Table 6.

(3) Copy "Final test result with DF" results from Table 9 or 10, as applicable.

(4) For an engine type or engine family that is tested on both the NRSC and a transient cycle, indicate the hot cycle CO_2 emissions values from the NRTC noted in point 10.3.4 or the CO_2 emissions values from the LSI-NRTC noted in point 10.4.4. For an engine only tested on an NRSC indicate the CO_2 emissions values given in that cycle noted in point 9.3.3.

(5) Only applicable to engines of sub-categories NRE-v-5 and NRE-v-6 tested on NRTC.

(6) Indicate the cycle work for hot start test value from the NRTC noted in point 10.3.3.

(7) Indicate the cycle CO_2 for hot start test value from the NRTC noted in point 10.3.4.

List of modifications

Appendix 0

Correction of	:	---
Modification of	:	(EU) 2021/1068 regulation updating Modify the manufacturer's statutory marking type
Addition of	:	New spark plug type HQT-7
Deletion of	:	---

EU TYPE-APPROVAL CERTIFICATE

EU TYPE-APPROVAL CERTIFICATE FOR ~~AN EGINE TYPE~~ OR AN ENGINE FAMILY FOR NON-ROAD MOBILE MACHINERY IN ACCORDANCE WITH REGULATION (EU) 2016/1628

Communication concerning the [1]:

- ~~EU type-approval~~ [1]
- extension of EU type-approval [1]
- ~~refusal of EU type-approval[1]~~
- ~~withdrawal of EU type-approval[1]~~

} of an ~~engine type~~/ engine family[1]

with regard to gaseous and particulate pollutant emission pursuant to Regulation (EU) 2016/1628, as last amended by (Commission Delegated)[1] Regulation (EU) 2021/1068[1] (of the European Parliament and of the Council)[1]

EU type-approval number[3]:	e13*2016/1628*2021/1068SYB1/P*0004*02
Reason for extension~~/refusal/withdrawal~~[1]:	Appendix 0 of test report N° 89-2016/1628-232/22-00

SECTION I

1.1.	Make (trade name(s) of manufacturer):	Loncin
1.2.	Commercial name(s) (if applicable):	not applicable
1.3.	Company name and address of manufacturer:	Loncin Motor Co., Ltd. No.99 Hualong Road, Jiulong Industrial Park, Jiulongpo District, Chongqing, 400052, P. R. China
1.4.	Name and address of manufacturer's authorised representative (if any):	CMD Costruzioni Motori Diesel Spa Nucleo Industriale Valle di Vitalba -85020-Atella (Potenza) –Italy
1.5.	Name(s) and address(es) of ~~assembly~~/manufacture plant(s):	Loncin Motor Co., Ltd. No.99 Hualong Road, Jiulong Industrial Park, Jiulongpo District, Chongqing, 400052, P. R. China
1.6.	~~Engine type designation/engine family designation/~~FT[1]:	1P96F 1P96F (Parent engine), 1P96F LC1P96F, 1P96F 1P91F, 1P96F LC1P91F
1.7.	Category and sub-category of the ~~engine type/~~engine family[1][4]:	NRS-vi-1b
1.8.	Emissions durability period category:	~~Not Applicable/~~Cat 1~~/Cat 2/Cat 3~~[1]
1.9.	Emissions stage:	V~~/ Special Purpose Engine (SPE)~~
1.10.	Engine for snow throwers[5]:	~~Yes/~~No[1]

SECTION II

1.	Technical service responsible for carrying out the test(s):	TÜV Rheinland Luxemburg S.à r.l. 2-4, rue Edmond Reuter L-5326 Contern
2.	Date(s) of the test report(s):	March 30, 2022
3.	Number(s) of the test report(s):	89-2016/1628-232/22-00

SECTION III

The undersigned hereby certifies the accuracy of the manufacturer's description in the attached information document of ~~the engine type/~~engine family[(1)] described above, for which one or more representative samples, selected by the approval authority, have been submitted as prototypes and that the attached test results apply to ~~the engine type~~/engine family[(1)].

1. The ~~engine type~~/engine family[(1)] meets/~~does not meet~~[(1)] the requirements laid down in Regulation (EU) 2016/1628.

2. The approval is ~~granted/~~extended~~/refused/withdrawn~~[(1)]

Place :

Date:

Name and signature (or visual representation of an 'advanced electronic signature' according to Regulation (EU) No 910/2014, including data for verification):

Attachements :
- Information package
- Test report(s)
- Where applicable, the name(s) and specimen(s) of the signature(s) of the person(s) authorised to sign statement of conformity and a statement of their position in the company
- Where applicable, a completed specimen of a statement of conformity

NB:
If this model is used for type-approval of an engine as an exemption for new technologies or new concepts, pursuant to Article 35(4) of Regulation (EU) 2016/1628, the heading of the certificate shall read 'PROVISIONAL EU TYPE-APPROVAL CERTIFICATE VALID ONLY ON THE TERRITORY OF …[(7)]'.

Addendum

EU type-approval number:		e13*2016/1628*2021/1068SYB1/P*0004*02
Part A – Characteristics of the ~~engine type/~~engine family[1]		
2.	Common design parameters of the ~~engine type/~~engine family[1]	
2.1.	Combustion Cycle:	Four stroke cycle~~/Two stroke cycle/Rotary/Other:~~ ….. ~~(describe)~~[1]
2.2.	Ignition Type:	~~Compression ignition/~~Spark ignition[1]
2.3.1.	Position of the cylinders in the block:	~~V/In-line/radial/~~other(describe)[1] : Single
2.6.	Main Cooling medium:	Air~~/Water/Oil~~[1]
2.7.	Method of air aspiration:	Naturally aspirated~~/Pressure charged/Pressure charged with charge cooler~~[1]
2.8.1.	Fuel Type(s):	~~Diesel (non-road gas-oil)/Ethanol for dedicated compression ignition engines (ED95)/~~Petrol (E10)~~/Ethanol (E85)/Natural gas/Biomethane/Liquid Petroleum Gas (LPG)~~[1]
2.8.1.1.	Sub Fuel type (Natural gas/Biomethane only):	~~Universal fuel - high calorific fuel (H-gas) and low calorific fuel (L-gas)/Restricted fuel - high calorific fuel (H-gas)/Restricted fuel - low calorific fuel (L-gas)/Fuel specific (LNG)~~
2.8.2.	Fuelling arrangement:	Liquid-fuel only~~/Gaseous-fuel only/Dual-fuel type 1A/Dual-fuel type 1B/Dual-fuel type 2A/Dual-fuel type 2B/Dual-fuel type 3B~~[1]
2.8.3.	List of additional fuels compatible with use by the engine declared by the manufacturer in accordance with point 1. of Annex I to Regulation (EU) 2017/654 on technical and general requirements (provide reference to recognised standard or specification):	not applicable
2.8.4.	Lubricant added to fuel:	~~Yes/~~No[1]
2.8.5.	Fuel supply type:	~~Pump (high pressure) line and injector/in-line pump or distributor pump/Unit injector/Common rail/~~Carburettor/~~port injector/direct injector/Mixing unit/other(specify)~~ [1]
2.9.	Engine management systems:	Mechanical~~/Electronic control strategy~~[1]
2.10.	Miscellaneous devices	~~Yes/~~No[1]
2.10.1.	Exhaust gas recirculation:	~~Yes/~~No[1]
2.10.2	Water injection:	~~Yes/~~No[1]
2.10.3.	Air injection:	~~Yes/~~No[1]
2.10.4.	Others (specify):	not applicable
2.11.	Exhaust after-treatment system:	~~Yes/~~No[1]
2.11.1.	Oxidation catalyst:	~~Yes/~~No[1]
2.11.2.	DeNOx system with selective reduction of NOx (addition of reducing agent):	~~Yes/~~No[1]
2.11.3.	Other DeNOx systems:	~~Yes/~~No[1]

2.11.4.	Three-way catalyst combining oxidation and NOx reduction:	~~Yes/~~No[1]
2.11.5.	Particulate trap with passive regeneration:	~~Yes/~~No[1]
2.11.6.	Particulate trap with active regeneration:	~~Yes/~~No[1]
2.11.7.	Other particulate traps:	~~Yes/~~No[1]
2.11.8.	Other after-treatment devices (specify):	not applicable
2.11.9.	Other devices or features that have a strong influence on emissions (specify):	not applicable

3. Essential characteristics of the engine type(s)

Item Number	Item Description	Parent Engine / ~~Engine type~~	Engine types within the family (if applicable)		
3.1.1.	Engine Type Designation:	1P96F	LC1P96F	1P91F	LC1P91F
3.1.2.	Engine type designation shown on engine mark:	Yes/~~No~~(1)	Yes/~~No~~(1)	Yes/~~No~~(1)	Yes/~~No~~(1)
3.1.3.	Location of the manufacturer's statutory marking:	Crankcase, and engine enclosure	Crankcase, and engine enclosure	Crankcase, and engine enclosure	Crankcase, and engine enclosure
3.2.1.	Declared rated speed (rpm):	3580	3580	3580	3580
3.2.1.2.	Declared rated net Power (kW):	11,5	11,5	11,0	11,0
3.2.2.	Maximum power speed (rpm):	3580	3580	3580	3580
3.2.2.2.	Maximum net power (kW):	11,5	11,5	11,0	11,0
3.2.3.	Declared maximum torque speed (rpm):	2800	2800	2800	2800
3.2.3.2.	Declared maximum torque (Nm):	36,0	36,0	33,2	33,2
3.6.3.	Number of Cylinders :	1	1	1	1
3.6.4.	Engine total swept volume (cm^3):	608	608	546	546
3.8.5.	Device for recycling crankcase gases:	Yes/~~No~~(1)	Yes/~~No~~(1)	Yes/~~No~~(1)	Yes/~~No~~(1)
3.11.3.12.	Consumable reagent:	~~Yes/~~No(1)	~~Yes/~~No(1)	~~Yes/~~No(1)	~~Yes/~~No(1)
3.11.3.12.1.	Type and concentration of reagent needed for catalytic action:	not applicable	not applicable	not applicable	not applicable
3.11.3.13.	NO_x sensor(s):	~~Yes/~~No(1)	~~Yes/~~No(1)	~~Yes/~~No(1)	~~Yes/~~No(1)
3.11.3.14.	Oxygen sensor:	~~Yes/~~No(1)	~~Yes/~~No(1)	~~Yes/~~No(1)	~~Yes/~~No(1)
3.11.4.7.	Fuel borne catalyst	~~Yes/~~No(1)	~~Yes/~~No(1)	~~Yes/~~No(1)	~~Yes/~~No(1)
Particular conditions to be respected in the installation of the engine on machinery:					
3.8.1.1.	Maximum allowable intake depression at 100% engine speed and at 100% load (kPa) with clean air cleaner:	0,6	0,6	0,6	0,6
3.8.3.2.	Maximum charge air cooler outlet temperature at 100% speed and 100% load (deg. C):	not applicable	not applicable	not applicable	not applicable
3.8.3.3.	Maximum allowable pressure drop across charge cooler at 100% engine speed and at 100% load (kPa) (if applicable):	not applicable	not applicable	not applicable	not applicable
3.9.3.	Maximum permissible exhaust backpressure at 100% engine speed and at 100% load (kPa):	9,8	9,8	9,8	9,8
3.9.3.1.	Location of measurement:	Exhaust port nearby	Exhaust port nearby	Exhaust port nearby	Exhaust port nearby
3.11.1.2	Maximum temperature drop from exhaust or turbine outlet to first after-treatment device (deg. C) if stated:	not applicable	not applicable	not applicable	not applicable
3.11.1.2.1.	Test conditions for measurement:	not applicable	not applicable	not applicable	not applicable

Part B – Test results

3.8. Manufacturer intends to use Electronic Control Unit (ECU) torque signal for in-service monitoring: ~~Yes/~~No[1]

3.8.1. Dynamometer torque greater than or equal to 0.93x Electronic Control Unit (ECU) torque: ~~Yes/~~No[1]

3.8.2. Electronic Control Unit (ECU) torque correction factor in case that dynamometer torque less than 0.93x Electronic Control Unit (ECU) torque: not applicable

11.1. Cycle emissions results

Emissions	CO (g/kWh)	HC (g/kWh)	NO_x (g/kWh)	$HC+NO_x$ (g/kWh)	PM (g/kWh)	PN #/kWh	Test Cycle[8]
NRSC final result with DF	494,62	---	---	5,71	---	---	G1
NRTC Final test result with DF	---	---	---	---	---	---	---

11.2. CO_2 result(g/kWh): 707,39

11.3. In service monitoring reference values [9]:

11.3.1. Reference work (kWh): not applicable

11.3.2. Reference CO_2 mass (g): not applicable

---

(1) Strike out the unused options, or only show the used option(s).
(2) Indicate only the latest amendment in case of an amendment of one or more Articles of Regulation (EU) 2016/1628, according to the amendment applied for the EU type-approval.
(3) Delete this entry when not applicable.
(4) Indicate the applicable option for the category and sub-category in accordance with entry 1.7. of the information document set out in Part A of Appendix 3 to Annex I.
(5) Indicate whether the approval is for a NRS (<19 kW) engine family consisting exclusively of engine types for snow throwers.
(6) Applicable only for type-approval of an engine type or an engine family as an exemption for new technologies or new concepts, pursuant to Article 35 of Regulation (EU) 2016/1628.
(7) Indicate the Member State.
(8) Indicate the test cycle in accordance with the fifth column of the Tables set out in Annex IV to Regulation (EU) 2016/1628.
(9) Only applicable to engines of sub-categories NRE-v-5 and NRE-v-6 tested on NRTC.

Contents

Modification/Correction/Addition/Deletion

Declaration by manufacturer on compliance with Regulation (EU) 2016/1628

The undersigned (full name and position): Wan Huang / Manager

Hereby declares that the following ~~engine type/~~engine family complies in all respects with the requirements of Regulation (EU) 2016/1628 of the European Parliament and of the Council, Commission Delegated Regulation (EU) 2017/654 (amended by (EU) 2018/989), Commission Delegated Regulation (EU) 2017/655 (amended by (EU) 2018/987) and Commission Implementing Regulation (EU) 2017/656 (amended by (EU) 2018/988) and does not use any defeat strategy.

All emission control strategies comply, where applicable, with the requirements for Base Emission Control Strategy (BECS) and Auxiliary Emission Control Strategy (AECS) set-out in section 2 of Annex IV to Delegated Regulation (EU) 2017/654 (amended by (EU) 2018/989), and have been disclosed in accordance with that Annex and with Annex I to Implementing Regulation (EU) 2017/656 (amended by (EU) 2018/988).

1.1.	Make (trade name(s) of manufacturer):	Loncin
1.2.	Commercial name(s) (if applicable):	Not applicable
1.3.	Company name and address of manufacturer:	Loncin Motor Co., Ltd. No.99 Hualong Road, Jiulong Industrial Park, Jiulongpo District, Chongqing, 400052, P. R. China
1.4.	Name and address of manufacturer's authorized representative (if any):	CMD Costruzioni Motori Diesel Spa Nucleo Industriale Valle di Vitalba -85020-Atella (Potenza) –Italy
1.6.	~~Engine type designation/ engine family designation/~~ FT:	1P96F 1P96F (Parent engine), 1P96F LC1P96F, 1P96F 1P91F 1P96F LC1P91F

(Place) (Date) Chongqing/ March 29, 2022

Signature (or visual representation of an 'advanced electronic signature' according to Regulation (EU) No 910/2014 of the European Parliament and of the Council (5), including data for verification):

Wan Huang / Manager

Part A

1.	**GENERAL INFORMATION**		
1.1.	Make (trade name(s) of manufacturer)	:	Loncin
1.2.	Commercial name(s) (if applicable)	:	n.a.
1.3.	Company name and address of manufacturer	:	Loncin Motor Co., Ltd. No.99 Hualong Road, Jiulong Industrial Park, Jiulongpo District, Chongqing, 400052, P. R. China
1.4.	Name and address of manufacturer's authorised representative (if any)	:	CMD Costruzioni Motori Diesel Spa Nucleo Industriale Valle di Vitalba - 85020-Atella (Potenza) –Italy
1.5.	Name(s) and address(es) of ~~assembly/~~manufacture plant(s)	:	Loncin Motor Co., Ltd. No.99 Hualong Road, Jiulong Industrial Park, Jiulongpo District, Chongqing, 400052, P. R. China
1.6.	~~Engine type designation/ engine family designation~~ /FT	:	1P96F 1P96F (Parent engine), 1P96F LC1P96F, 1P96F 1P91F 1P96F LC1P91F
1.7.	Category and sub-category of the ~~engine type~~/engine family	:	NRS-vi-1b
1.8.	Emissions durability period category	:	Cat 1 (Consumer products)
1.9.	Emissions stage	:	V
1.10.	In case of NRS <19 kW only, engine family consisting exclusively of engine types for snow throwers	:	No
1.11.	Reference power is	:	Rated net power
1.12.	Primary NRSC test cycle	:	G1
1.12.1.	In case of variable speed IWP category only, Additional propulsion test cycle	:	Not applied
1.12.2.	In case of IWP category only, additional auxiliary NRSC test cycle	:	Not applied
1.13.	Transient test cycle	:	Not applicable
1.14.	Restrictions on use (if applicable)	:	n.a.

Part B

2.	**COMMON DESIGN PARAMETERS OF ENGINE FAMILY(1)**		
2.1.	Combustion Cycle	:	Four stroke cycle
2.2.	Ignition Type	:	Spark ignition
2.3.	Configuration of the cylinders		
2.3.1.	Position of the cylinders in the block	:	Single
2.3.2.	Bore centre to centre dimension (mm)	:	n.a.
2.4.	Combustion chamber type/design		
2.4.1.	Open chamber/divided chamber/other(specify)	:	n.a.
2.4.2.	Valve and porting configuration	:	Refer to drawing No. 1P96F-02 Refer to drawing No. 1P91F-02
2.4.3.	Number of valves per cylinder	:	2
2.5.	Range of swept volume per cylinder (cm^3)	:	546-608
2.6.	Main Cooling medium	:	Air
2.7.	Method of air aspiration	:	Naturally aspirated
2.8.	Fuel		
2.8.1.	Fuel Type	:	Petrol (E10)
2.8.1.1.	Sub Fuel type (Natural gas/Biomethane only)	:	n.a.
2.8.2.	Fuelling arrangement	:	Liquid-fuel only
2.8.3.	List of additional fuels, fuel mixtures or emulsions suitable for use by the engine, as declared by the manufacturer in accordance with point 1.2.3 of Annex I to Delegated Regulation (EU) 2017/654 (provide reference to recognised standard or specification)	:	n.a.
2.8.4.	Lubricant added to fuel	:	No
2.8.4.1.	Specification	:	n.a.
2.8.4.2.	Ratio of fuel to oil	:	n.a.
2.8.5.	Fuel supply type	:	Carburettor
2.9.	Engine management systems	:	Mechanical
2.10.	Miscellaneous devices		
2.10.1.	Exhaust gas recirculation (if yes, complete section 3.10.1. and provide a schematic diagram of the location and order of the devices)	:	No
2.10.2.	Water injection (if yes, complete section 3.10.2.and provide a schematic diagram of the location and order of the devices)	:	No
2.10.3.	Air injection (if yes, complete section 3.10.2.and provide a schematic diagram of the location and order of the devices)	:	No

2.10.4.	H_2 injection (if yes, provide a schematic diagram of the location and order of the devices)	:	No
2.10.5.	Others (specifyandprovide a schematic diagram of the location and order of the devices)	:	No
2.11.	Exhaust after-treatment system (if yes provide a schematic diagram of the location and order of the devices)	:	No
2.11.1.	Oxidation catalyst (if yes, complete section 3.11.2.)	:	No
2.11.2.	$DeNO_x$ system with selective reduction of NO_x (addition of reducing agent) (if yes, complete section 3.11.3.)	:	No
2.11.3.	Other $DeNO_x$ systems (if yes, complete section 3.11.3.)	:	No
2.11.4.	Three-way catalyst combining oxidation and NO_x reduction (if yes, complete section 3.11.3.)	:	No
2.11.5.	Particulate trap with passive regeneration (if yes, complete section 3.11.4.)	:	No
2.11.6.	Particulate trap with active regeneration (if yes, complete section 3.11.4.)	:	No
2.11.7.	Other particulate traps (if yes, complete section 3.11.4.)	:	No
2.11.8.	Other after-treatment devices(specify) (if yes, complete section 3.11.5.)	:	n.a.
2.11.9.	Other devices or features that have a strong influence on emissions (specify)	:	n.a.

Part C

3. ESSENTIAL CHARACTERISTICS OF THE ENGINE TYPE(S)

Item Number	Item Description	Test	Installation	Homologation	Parent engine/ ~~engine type~~	Engine types within the engine family (if applicable)		
						type 2	*type 3*	*type 4*
3.1	**Engine Identification**							
3.1.1.	Engine type designation			X	1P96F	LC1P96F	1P91F	LC1P91F
3.1.2.	Engine type designation shown on engine marking: yes/no			X	Yes	Yes	Yes	Yes
3.1.3.	Location of the statutory marking:			X	Enclosure of the engine	Enclosure of the engine	Enclosure of the engine	Enclosure of the engine
3.1.4.	Method of attachment of the statutory marking:			X	Engraved or adhesive label #	Engraved or adhesive label #	Engraved or adhesive label #	Engraved or adhesive label #
3.1.5.	Drawings of the location of the engine identification number (complete example with dimensions):			X	Refer to drawing No. 1P96F-01	Refer to drawing No. 1P96F-01	Refer to drawing No. 1P96F-01	Refer to drawing No. 1P96F-01
3.2.	**Performance Parameters**							
3.2.1.	Declared rated speed (rpm):	X			3580	3580	3580	3580
3.2.1.1.	Fuel delivery/stroke (mm^3) for diesel engine, fuel flow (g/h) for other engines, at rated net power:			X	4800	4800	4100	4100
3.2.1.2.	Declared rated net power (kW):	X			11.5	11.5	11.0	11.0
3.2.2.	Maximum power speed(rpm):			X	3580	3580	3580	3580
3.2.2.1.	Fuel delivery/stroke (mm^3) for diesel engine, fuel flow (g/h) for other engines, at maximum net power:			X	4800	4800	4100	4100
3.2.2.2.	Maximum net power (kW):	X		X	11.5	11.5	11.0	11.0
3.2.3.	Declared maximum torque speed (rpm):	X			2800	2800	2800	2800
3.2.3.1.	Fuel delivery/stroke (mm^3) for diesel engine, fuel flow (g/h) for other engines, at maximum torque speed:			X	4150	4150	4090	4090
3.2.3.2.	Declared maximum torque (Nm):	X			36.0	36.0	33.2	33.2

Item Number	Item Description	Test	Installation	Homologation	Parent engine/ ~~engine type~~	Engine types within the engine family (if applicable)		
						type 2	*type 3*	*type 4*
3.2.4.	Declared 100% test speed:	X			n.a	n.a	n.a	n.a
3.2.5.	Declared Intermediate test speed:	X			3043	3043	3043	3043
3.2.6.	Idle speed (rpm)	X			1800±150	1800±150	1800±150	1800±150
3.2.7.	Maximum no load speed (rpm):	X			3800±100	3800±100	3800±100	3800±100
3.2.8.	Declared minimum torque (Nm)	X			n.a.	n.a.	n.a.	n.a.
3.3.	**Run-in procedure**							
3.3.1.	Run in time:	X			4 hours	4 hours	4 hours	4 hours
3.3.2.	Run-in cycle:	X			G1	G1	G1	G1
3.4.	**Engine test**							
3.4.1.	Specific fixture required: Yes/No	X			No	No	No	No
3.4.1.1.	Engine fixture for test bench and power transmission shaft system to the dyno rotating system description, photograph and/or drawing:	X			n.a.	n.a.	n.a.	n.a.
3.4.2.	Exhaust mixing chamber permitted by manufacturer: Yes/No	X			No	No	No	No
3.4.2.1.	exhaust mixing chamber description, photograph and/or drawing:	X			n.a.	n.a.	n.a.	n.a.
3.4.3.	Manufacturers chosen NRSC: RMC/Discrete mode	X			Discrete mode	Discrete mode	Discrete mode	Discrete mode
3.4.4.	Additional NRSC: E2/D2/C1	X			n.a.	n.a.	n.a.	n.a.
3.4.5.	Number of pre-conditioning cycles prior to transient test	X			n.a.	n.a.	n.a.	n.a.
3.4.6.	Pre-conditioning for RMC NRSC: Steady-state operation/RMC:	X			n.a.	n.a.	n.a.	n.a.
3.5.	**Lubrication system**							
3.5.1.	Lubricant temperature							
3.5.1.1.	Minimum (deg. C):	X			22	22	22	22
3.5.1.2.	Maximum (deg. C):	X			142	142	142	142
3.6.	**Combustion Cylinder**							

Item Number	Item Description	Test	Installation	Homologation	Parent engine/ ~~engine type~~	Engine types within the engine family (if applicable)		
						type 2	*type 3*	*type 4*
3.6.1.	Bore(mm):			X	96	96	91	91
3.6.2.	Stroke(mm):			X	84	84	84	84
3.6.3.	Number of cylinders:			X	1	1	1	1
3.6.4.	Engine total swept volume (cm^3):			X	608	608	546	546
3.6.5.	Swept volume per cylinder as % of parent engine:			X	100	100	90	90
3.6.6.	Volumetric compression ratio:			X	8.7	8.7	8.7	8.7
3.6.7.	Combustion system description:			X	Spark ignition	Spark ignition	Spark ignition	Spark ignition
3.6.8.	Drawings of combustion chamber and piston crown:			X	Refer to drawing No. 1P96F-02 Refer to drawing No. 1P96F-03 Refer to drawing No. 1P96F-04	Refer to drawing No. 1P96F-02 Refer to drawing No. 1P96F-03 Refer to drawing No. 1P96F-04	Refer to drawing No. 1P91F-02 Refer to drawing No. 1P91F-03 Refer to drawing No. 1P91F-04	Refer to drawing No. 1P91F-02 Refer to drawing No. 1P91F-03 Refer to drawing No. 1P91F-04
3.6.9.	Minimum cross sectional area of inlet and outlet ports (mm^2):			X	Inlet: 750.6 mm^2 Outlet: 543.5 mm^2	Inlet: 750.6 mm^2 Outlet: 543.5 mm^2	Inlet: 750.6 mm^2 Outlet: 543.5 mm^2	Inlet: 750.6 mm^2 Outlet: 543.5 mm^2
3.6.10.	Valve timing							
3.6.10.1.	Maximum lift and angles of opening and closing in relation to dead centre or equivalent data:			X	Refer to drawing No. 1P96F-07	Refer to drawing No. 1P96F-07	Refer to drawing No. 1P96F-07	Refer to drawing No. 1P96F-07
3.6.10.2.	Reference and/or setting range:			X	TDC	TDC	TDC	TDC
3.6.10.3.	Variable valve timing system: Yes/No			X	No	No	No	No
3.6.10.3.1.	Type: continuous/(on/off)			X	n.a.	n.a.	n.a.	n.a.
3.6.10.3.2.	Cam phase shift angle:			X	n.a.	n.a.	n.a.	n.a.
3.6.11.	Porting configuration				n.a.	n.a.	n.a.	n.a.
3.6.11.1.	Positon, size and number:			X	n.a.	n.a.	n.a.	n.a.
3.7.	**Cooling system**							
3.7.1.	Liquid cooling				n.a.	n.a.	n.a.	n.a.

Item Number	Item Description	Test	Installation	Homologation	Parent engine/ ~~engine type~~	Engine types within the engine family (if applicable)		
						type 2	*type 3*	*type 4*
3.7.1.1.	Nature of liquid:			X	n.a.	n.a.	n.a.	n.a.
3.7.1.2.	Circulating pumps: Yes/No			X	No	No	No	No
3.7.1.2.1.	type(s):			X	n.a.	n.a.	n.a.	n.a.
3.7.1.2.2.	Drive ratio(s):			X	n.a.	n.a.	n.a.	n.a.
3.7.1.3.	Minimum coolant temperature at outlet (deg. C):	X			n.a.	n.a.	n.a.	n.a.
3.7.1.4.	Maximum coolant temperature at outlet (deg. C):	X			n.a.	n.a.	n.a.	n.a.
3.7.2.	Air cooling							
3.7.2.1.	fan: Yes/No			X	Yes	Yes	Yes	Yes
3.7.2.1.1.	type(s):			X	T430	T430	T430	T430
3.7.2.1.2.	Drive ratio(s):			X	1	1	1	1
3.7.2.2.	Maximum temperature at reference point (deg. C):			X	270	270	270	270
3.7.2.2.1.	Reference point location			X	Spark plug washer	Spark plug washer	Spark plug washer	Spark plug washer
3.8.	**Aspiration**							
3.8.1.	Maximum allowable intake depression at 100% engine speed and at 100% load (kPa)	X	X					
3.8.1.1.	With clean air cleaner:	X	X		0.6	0.6	0.6	0.6
3.8.1.2.	With dirty air cleaner:	X	X		0.6	0.6	0.6	0.6
3.8.1.3.	Location, of measurement:	X	X		Air inlet nearby	Air inlet nearby	Air inlet nearby	Air inlet nearby
3.8.2.	Pressure charger(s): Yes/No			X	No	No	No	No
3.8.2.1.	Type(s):			X	n.a.	n.a.	n.a.	n.a.
3.8.2.2.	Description and schematic diagram of the system (e.g. maximum charge pressure,waste gate, VGT, Twin turbo, etc.):			X	n.a.	n.a.	n.a.	n.a.
3.8.3.	Charge air cooler: Yes/No	X	X		No	No	No	No
3.8.3.1.	Type: air-air/air-water/other(specify)		X		n.a.	n.a.	n.a.	n.a.

Item Number	Item Description	Test	Installation	Homologation	Parent engine/ ~~engine type~~	Engine types within the engine family (if applicable)		
						type 2	*type 3*	*type 4*
3.8.3.2.	Maximum charge air cooler outlet temperature at 100% speed and 100% load (deg. C):	X	X		n.a.	n.a.	n.a.	n.a.
3.8.3.4.	Maximum allowable pressure drop across charge cooler at 100% engine speed and at 100% load (kPa):	X	X		n.a.	n.a.	n.a.	n.a.
3.8.4.	Intake throttle valve: Yes/No			X	No	No	No	No
3.8.5.	Device for recycling crankcase gases: Yes/No			X	Yes	Yes	Yes	Yes
3.8.5.1.	If yes, description and drawings:			X	Refer to drawing No. 1P96F-06	Refer to drawing No. 1P96F-06	Refer to drawing No. 1P96F-06	Refer to drawing No. 1P96F-06
3.8.5.2.	If no, compliance with paragraph 6.10 of Annex VI to Commission Delegated Regulation (EU) 2016/654 on technical and general requirements: Yes/No	X			n.a.	n.a.	n.a.	n.a.
3.8.6.	Inlet path							
3.8.6.1.	Description of inlet path, (with drawings, photographs and/or part numbers):			X	Refer to drawing No. 1P96F-10	Refer to drawing No. 1P96F-10	Refer to drawing No. 1P96F-10	Refer to drawing No. 1P96F-10
3.8.7.	Air filter			X				
3.8.7.1.	Type:			X	T430	T430	T430	T430
3.8.8.	Intake air-silencer							
3.8.8.1.	Type:			X	n.a.	n.a.	n.a.	n.a.
3.9.	**Exhaust system**							
3.9.1.	Description of the exhaust system (with drawings, photos and/or part numbers as required):			X	Refer to drawing No. 1P96F-09	Refer to drawing No. 1P96F-09	Refer to drawing No. 1P96F-09	Refer to drawing No. 1P96F-09
3.9.2.	Maximum exhaust temperature (deg. C):	X			780	780	780	780
3.9.3.	Maximum permissible exhaust backpressure at 100% engine speed and at 100% load (kPa):	X	X		9.8	9.8	9.8	9.8
3.9.3.1.	Location of measurement:	X	X		Exhaust port nearby	Exhaust port nearby	Exhaust port nearby	Exhaust port nearby

Item Number	Item Description	Test	Installation	Homologation	Parent engine/ ~~engine type~~	Engine types within the engine family (if applicable)		
						type 2	*type 3*	*type 4*
3.9.4.	Exhaust backpressure at loading level specified by manufacturer for variable restriction after-treatment at start of test (kPa):	X			n.a.	n.a.	n.a.	n.a.
3.9.4.1.	Location and speed/load conditions:	X			n.a.	n.a.	n.a.	n.a.
3.9.5.	Exhaust throttle valve: Yes/No			X	No	No	No	No
3.10.	**Miscellaneous devices**							
3.10.1.	Exhaust gas recirculation							
3.10.1.1.	Characteristics: cooled/uncooled, high pressure/low pressure/other (specify):			X	n.a.	n.a.	n.a.	n.a.
3.10.2.	Water injection							
3.10.2.1.	Operation principle:			X	n.a.	n.a.	n.a.	n.a.
3.10.3.	H_2 injection	X			n.a.	n.a.	n.a.	n.a.
3.11.	**Exhaust after-treatment system**				n.a.	n.a.	n.a.	n.a.
3.11.1.	Location		X		n.a.	n.a.	n.a.	n.a.
3.11.1.1.	Place(s) and maximum/minimum distance(s) from engine to first after-treatment device:		X		n.a.	n.a.	n.a.	n.a.
3.11.1.2.	Maximum temperature drop from exhaust or turbine outlet to first after-treatment device (deg. C) if stated:	X	X		n.a.	n.a.	n.a.	n.a.
3.11.1.2.1.	Test conditions for measurement:	X	X		n.a.	n.a.	n.a.	n.a.
3.11.1.3.	Minimum temperature at inlet to first after-treatment device (deg. C), if stated:	X	X		n.a.	n.a.	n.a.	n.a.
3.11.2.	Oxidation catalyst							
3.11.2.1.	Number of catalytic converters and elements:			X	n.a.	n.a.	n.a.	n.a.
3.11.2.2.	Dimensions and volume of the catalytic converter(s):			X	n.a.	n.a.	n.a.	n.a.
3.11.2.3.	Total charge of precious metals:			X	n.a.	n.a.	n.a.	n.a.
3.11.2.4.	Relative concentration of each compound:			X	n.a.	n.a.	n.a.	n.a.

Item Number	Item Description	Test	Installation	Homologation	Parent engine/ ~~engine type~~	Engine types within the engine family (if applicable)		
						type 2	*type 3*	*type 4*
3.11.2.5.	Substrate (structure and material):			X	n.a.	n.a.	n.a.	n.a.
3.11.2.6.	Cell density:			X	n.a.	n.a.	n.a.	n.a.
3.11.2.7.	Type of casing for the catalytic converter(s):			X	n.a.	n.a.	n.a.	n.a.
3.11.3.	Catalytic exhaust gas after treatment system for NO_x or three way catalyst							
3.11.3.1.	Type:			X	n.a.	n.a.	n.a.	n.a.
3.11.3.2.	Number of catalytic converters and elements:			X	n.a.	n.a.	n.a.	n.a.
3.11.3.3.	Type of catalytic action:			X	n.a.	n.a.	n.a.	n.a.
3.11.3.4.	Dimensions and volume of the catalytic converter(s):			X	n.a.	n.a.	n.a.	n.a.
3.11.3.5.	Total charge of precious metals:			X	n.a.	n.a.	n.a.	n.a.
3.11.3.6.	Relative concentration of each compound:			X	n.a.	n.a.	n.a.	n.a.
3.11.3.7.	Substrate (structure and material):			X	n.a.	n.a.	n.a.	n.a.
3.11.3.8.	Cell density:			X	n.a.	n.a.	n.a.	n.a.
3.11.3.9.	Type of casing for the catalytic converter(s):			X	n.a.	n.a.	n.a.	n.a.
3.11.3.10.	Method of regeneration:	X		X	n.a.	n.a.	n.a.	n.a.
3.11.3.10.1.	Infrequent regeneration: Yes/No:	X			No	No	No	No
3.11.3.11.	Normal operating temperature range (deg. C):	X	X		n.a.	n.a.	n.a.	n.a.
3.11.3.12.	Consumable reagent: Yes/No			X	No	No	No	No
3.11.3.12.1.	Type and concentration of reagent needed for catalytic action:			X	n.a.	n.a.	n.a.	n.a.
3.11.3.12.2.	Lowest concentration of the active ingredient present in the reagent that does not activate warning system (CD_{min}) (%vol):			X	n.a.	n.a.	n.a.	n.a.
3.11.3.12.3.	Normal operational temperature range of reagent:		X		n.a.	n.a.	n.a.	n.a.
3.11.3.12.4.	International standard:		X	X	n.a.	n.a.	n.a.	n.a.
3.11.3.13.	NO_x sensor(s): Yes/No			X	No	No	No	No
3.11.3.13.1.	Type:			X	n.a.	n.a.	n.a.	n.a.

Item Number	Item Description	Test	Installation	Homologation	Parent engine/ ~~engine type~~	Engine types within the engine family (if applicable)		
						type 2	*type 3*	*type 4*
3.11.3.13.2.	Location(s)			X	n.a.	n.a.	n.a.	n.a.
3.11.3.14.	Oxygen sensor(s): Yes/No			X	No	No	No	No
3.11.3.14.1.	Type:			X	n.a.	n.a.	n.a.	n.a.
3.11.3.14.2.	Location(s):			X	n.a.	n.a.	n.a.	n.a.
3.11.4.	Particulate trap							
3.11.4.1.	Type of filtration: through flow/partial flow/wall flow/other (specify)			X	n.a.	n.a.	n.a.	n.a.
3.11.4.2.	Type:			X	n.a.	n.a.	n.a.	n.a.
3.11.4.3.	Dimensions and capacity of the particulate trap:			X	n.a.	n.a.	n.a.	n.a.
3.11.4.4.	Location place(s) and maximum and minimum distance(s) from engine:		X		n.a.	n.a.	n.a.	n.a.
3.11.4.5.	Method or system of regeneration, description and/or drawing:			X	n.a.	n.a.	n.a.	n.a.
3.11.4.5.1.	Infrequent regeneration: Yes/No			X	No	No	No	No
3.11.4.5.2.	Minimum exhaust gas temperature for initiating regeneration procedure (deg. C):			X	n.a.	n.a.	n.a.	n.a.
3.11.4.6.	Catalytic coating: Yes/No			X	No	No	No	No
3.11.4.6.1.	Type of catalytic action:			X	n.a.	n.a.	n.a.	n.a.
3.11.4.7.	Fuel borne catalyst (FBC): Yes/No			X	No	No	No	No
3.11.4.8.	Normal operating temperature range (deg. C):			X	n.a.	n.a.	n.a.	n.a.
3.11.4.9.	Normal operating pressure range (kPa)			X	n.a.	n.a.	n.a.	n.a.
3.11.4.10.	Storage capacity soot/ash [g]:			X	n.a.	n.a.	n.a.	n.a.
3.11.4.11.	Oxygen sensor(s): Yes/No			X	No	No	No	No
3.11.4.11.1.	Type:			X	n.a.	n.a.	n.a.	n.a.
3.11.4.11.2.	Location(s):			X	n.a.	n.a.	n.a.	n.a.
3.11.5.	Other systems							

Item Number	Item Description	Test	Installation	Homologation	Parent engine/ ~~engine type~~	Engine types within the engine family (if applicable)		
						type 2	*type 3*	*type 4*
3.11.5.1.	Description and operation:			X	n.a.	n.a.	n.a.	n.a.
3.11.6.	Infrequent Regeneration							
3.11.6.1.	Number of cycles with regeneration	X			n.a.	n.a.	n.a.	n.a.
3.11.6.2.	Number of cycles without regeneration	X			n.a.	n.a.	n.a.	n.a.
3.12.	**Fuel feed for diesel or, where applicable, dual fuel engines**							
3.12.1.	Feed pump							
3.12.1.1.	Pressure (kPa) or characteristic diagram:			X	n.a.	n.a.	n.a.	n.a.
3.12.2.	Injection system							
3.12.2.1.	Pump							
3.12.2.1.1.	Type(s):			X	n.a.	n.a.	n.a.	n.a.
3.12.2.1.2.	Rated pump speed (rpm):			X	n.a.	n.a.	n.a.	n.a.
3.12.2.1.3.	mm^3 per stroke or cycle at full injection at rated pump speed:			X	n.a.	n.a.	n.a.	n.a.
3.12.2.1.4.	Torque peak pump speed (rpm):			X	n.a.	n.a.	n.a.	n.a.
3.12.2.1.5.	mm^3 per stroke or cycle at full injection at torque peak pump speed			X	n.a.	n.a.	n.a.	n.a.
3.12.2.1.6.	Characteristic diagram:			X	n.a.	n.a.	n.a.	n.a.
3.12.2.1.7.	Method used: on engine/on pump bench			X	n.a.	n.a.	n.a.	n.a.
3.12.2.2.	Injection timing							
3.12.2.2.1.	Injection timing curve:			X	n.a.	n.a.	n.a.	n.a.
3.12.2.2.2.	Static Timing:			X	n.a.	n.a.	n.a.	n.a.
3.12.2.3.	Injection piping							
3.12.2.3.1.	Length(s) (mm):			X	n.a.	n.a.	n.a.	n.a.
3.12.2.3.2.	Internal diameter (mm):			X	n.a.	n.a.	n.a.	n.a.
3.12.2.4.	Common rail: Yes/No			X	No	No	No	No
3.12.2.4.1.	Type:			X	n.a.	n.a.	n.a.	n.a.

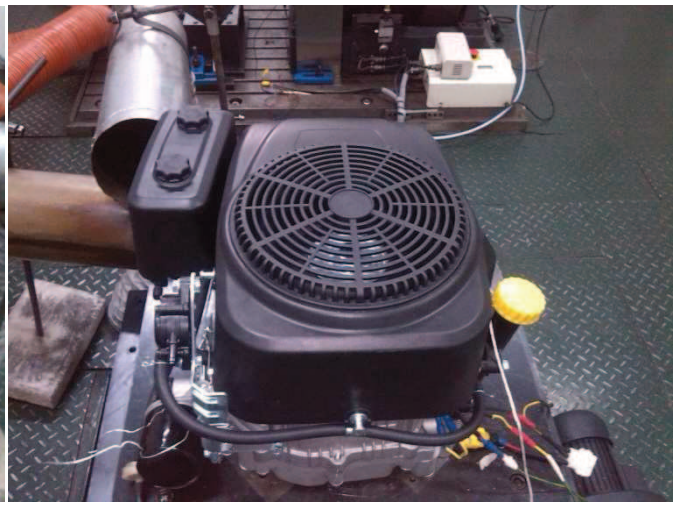
Item Number	Item Description	Test	Installation	Homologation	Parent engine/ ~~engine type~~	Engine types within the engine family (if applicable)		
						type 2	*type 3*	*type 4*
3.12.3.	Injector(s)							
3.12.3.1.	Type(s):			X	n.a.	n.a.	n.a.	n.a.
3.12.3.2.	Opening pressure (kPa):			X	n.a.	n.a.	n.a.	n.a.
3.12.4.	Electronic control unit (ECU): Yes/No			X	No	No	No	No
3.12.4.1.	Type(s):			X	n.a.	n.a.	n.a.	n.a.
3.12.4.2.	Software calibration number(s):			X	n.a.	n.a.	n.a.	n.a.
3.12.4.3.	Communication standard(s) for access to data stream information:ISO 27145 with ISO 15765-4 (CAN-based)/ISO 27145 with ISO 13400 (TCP/IP-based)/SAE J1939-73	X		X	n.a.	n.a.	n.a.	n.a.
3.12.5.	Governor							
3.12.5.1.	Type(s):			X	n.a.	n.a.	n.a.	n.a.
3.12.5.2.	Speed at which cut-off starts under full load:			X	n.a.	n.a.	n.a.	n.a.
3.12.5.3.	Maximum no-load speed:			X	n.a.	n.a.	n.a.	n.a.
3.12.5.4.	Idle speed:			X	n.a.	n.a.	n.a.	n.a.
3.12.6.	Cold-start system: Yes/No			X	No	No	No	No
3.12.6.1.	Type(s):			X	n.a.	n.a.	n.a.	n.a.
3.12.6.2.	Description:			X	n.a.	n.a.	n.a.	n.a.
3.12.7.	Fuel temperature at the inlet to the fuel injection pump							
3.12.7.1.	Minimum (deg. C):	X			n.a.	n.a.	n.a.	n.a.
3.12.7.2.	Maximum (deg. C):	X			n.a.	n.a.	n.a.	n.a.
3.13.	**Fuel feed for liquid fuel spark ignition engine**							
3.13.1.	Carburettor							
3.13.1.1.	Type(s):			X	T430, 1P96F	T430, 1P96F	T420, 1P91F	T420, 1P91F
3.13.2.	Port fuel injection:				n.a.	n.a.	n.a.	n.a.
3.13.2.1.	single-point / multi-point			X	n.a.	n.a.	n.a.	n.a.

Item Number	Item Description	Test	Installation	Homologation	Parent engine/ ~~engine type~~	Engine types within the engine family (if applicable)		
						type 2	*type 3*	*type 4*
3.13.2.2.	Type(s):			X	n.a.	n.a.	n.a.	n.a.
3.13.3.	Direct injection:				n.a.	n.a.	n.a.	n.a.
3.13.3.1.	Type(s):			X	n.a.	n.a.	n.a.	n.a.
3.13.4.	Fuel temperature at location specified by manufacturer							
3.13.4.1.	Location:	X			Carburettor cup	Carburettor cup	Carburettor cup	Carburetto rcup
3.13.4.2.	Minimum (deg. C)	X			30	30	30	30
3.13.4.3.	Maximum (deg. C)	X			38	38	38	38
3.14.	**Fuel feed for gaseous fuel engines or where applicable, dual fuel engines (in the case of systems laid out in a different manner, supply equivalent information)**							
3.14.1.	Fuel: LPG /NG-H/NG-L /NG-HL/LNG/Fuel specific LNG	X		X	n.a.	n.a.	n.a.	n.a.
3.14.2.	Pressure regulator(s)/vaporiser(s)							
3.14.2.1.	Type(s)			X	n.a.	n.a.	n.a.	n.a.
3.14.2.2.	Number of pressure reduction stages			X	n.a.	n.a.	n.a.	n.a.
3.14.2.3.	Pressure in final stage minimum and maximum. (kPa)			X	n.a.	n.a.	n.a.	n.a.
3.14.2.4.	Number of main adjustment points:			X	n.a.	n.a.	n.a.	n.a.
3.14.2.5.	Number of idle adjustment points:			X	n.a.	n.a.	n.a.	n.a.
3.14.3.	Fuelling system: mixing unit/gas injection/liquid injection/direct injection			X	n.a.	n.a.	n.a.	n.a.
3.14.3.1.	Mixture strength regulation							
3.14.3.1.1.	System description and/or diagram and drawings:			X	n.a.	n.a.	n.a.	n.a.
3.14.4.	Mixing unit							
3.14.4.1.	Number:			X	n.a.	n.a.	n.a.	n.a.
3.14.4.2.	Type(s):			X	n.a.	n.a.	n.a.	n.a.
3.14.4.3.	Location:			X	n.a.	n.a.	n.a.	n.a.

Item Number	Item Description	Test	Installation	Homologation	Parent engine/ ~~engine type~~	Engine types within the engine family (if applicable)		
						type 2	*type 3*	*type 4*
3.14.4.4.	Adjustment possibilities:			X	n.a.	n.a.	n.a.	n.a.
3.14.5.	Inlet manifold injection							
3.14.5.1.	Injection: single-point/multi-point			X	n.a.	n.a.	n.a.	n.a.
3.14.5.2.	Injection: continuous/simultaneously timed/ sequentially timed			X	n.a.	n.a.	n.a.	n.a.
3.14.5.3.	Injection equipment							
3.14.5.3.1.	Type(s):			X	n.a.	n.a.	n.a.	n.a.
3.14.5.3.2.	Adjustment possibilities:			X	n.a.	n.a.	n.a.	n.a.
3.14.5.4.	Supply pump							
3.14.5.4.1.	Type(s):			X	n.a.	n.a.	n.a.	n.a.
3.14.5.5.	Injector(s)							
3.14.5.5.1.	Type(s):			X	n.a.	n.a.	n.a.	n.a.
3.14.6.	Direct injection							
3.14.6.1.	Injection pump/pressure regulator			X	n.a.	n.a.	n.a.	n.a.
3.14.6.1.1.	Type(s):			X	n.a.	n.a.	n.a.	n.a.
3.14.6.1.2.	Injection timing (specify):			X	n.a.	n.a.	n.a.	n.a.
3.14.6.2.	Injector(s)							
3.14.6.2.1.	Type(s):			X	n.a.	n.a.	n.a.	n.a.
3.14.6.2.2.	Opening pressure or characteristic diagram :			X	n.a.	n.a.	n.a.	n.a.
3.14.7.	Electronic Control Unit (ECU)							
3.14.7.1.	Type(s):			X	n.a.	n.a.	n.a.	n.a.
3.14.7.2.	Adjustment possibilities:			X	n.a.	n.a.	n.a.	n.a.
3.14.7.3.	Software calibration number(s):			X	n.a.	n.a.	n.a.	n.a.
3.14.8.	Approvals of engines for several fuel compositions							
3.14.8.1.	Self-adaptive feature: Yes/No	X	X	X	n.a.	n.a.	n.a.	n.a.

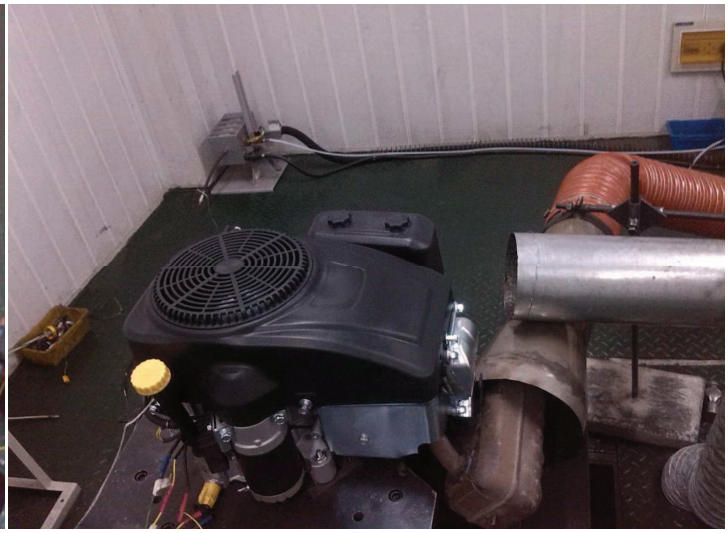
Item Number	Item Description	Test	Installation	Homologation	Parent engine/ ~~engine type~~	Engine types within the engine family (if applicable)		
						type 2	*type 3*	*type 4*
3.14.8.2.	Calibration for a specific gas composition: NG-H/NG-L/NG-HL/ LNG/Fuel specific LNG	X	X	X	n.a.	n.a.	n.a.	n.a.
3.14.8.3.	Transformation for a specific gas composition: NG-HT/NG-LT/NG-HLT	X	X	X	n.a.	n.a.	n.a.	n.a.
3.14.9.	Fuel temperature pressure regulator final stage							
3.14.9.1.	Minimum (deg. C):	X			n.a.	n.a.	n.a.	n.a.
3.14.9.2.	Maximum (deg. C):	X			n.a.	n.a.	n.a.	n.a.
3.15.	**Ignition system**							
3.15.1.	Ignition coil(s)							
3.15.1.1.	Type(s):			X	T430, 1P96F	T430, 1P96F	T430, 1P96F	T430, 1P96F
3.15.1.2.	Number:			X	1	1	1	1
3.15.2.	Spark plug(s)							
3.15.2.1.	Type(s):			X	F7TC, F7RTC, N9YC, RN9YC, BP6ES, BRP6ES HQT-7 #	F7TC, F7RTC, N9YC, RN9YC, BP6ES, BRP6ES HQT-7 #	F7TC, F7RTC, N9YC, RN9YC, BP6ES, BRP6ES HQT-7 #	F7TC, F7RTC, N9YC, RN9YC, BP6ES, BRP6ES HQT-7 #
3.15.2.2.	Gap setting:			X	0.7-0.8mm	0.7-0.8mm	0.7-0.8mm	0.7-0.8mm
3.15.3.	Magneto			X				
3.15.3.1.	Type(s):			X	T430	T430	T430	T430
3.15.4.	Ignition timing control: Yes/No			X	Yes	Yes	Yes	Yes
3.15.4.1.	Static advance with respect to top dead centre (crank angle degrees):			X	28	28	28	28
3.15.4.2.	Advance curve or map:			X	Refer to drawing No. 1P96F-08	Refer to drawing No. 1P96F-08	Refer to drawing No. 1P96F-08	Refer to drawing No. 1P96F-08
3.15.4.3.	Electronic control: Yes/No			X	No	No	No	No

Front view



Left side view

Rear view



Top view

ENGINE TYPE	1P96F/LC1P96F/1P91F/LC1P91F
PHOTOGRAPHS OF THE PARENT ENGINE	
PHOTOGRAPH NO.	Photo-01

LONCIN 1P91F/1P96F
EU 546/608 cc STAGE V
e13 SYB1/P V-0004

or

LONCIN 1P91F/1P96F
EU 546/608 cc STAGE V
e13*2016/1628*2021/1068SYB1/P*0004

"ENGINE CODE" + "YYMM" + "SERIAL NUMBER"

Note: date of manufacture, YY-year, MM-month

Or----------

LONCIN + "ENGINE TYPE or FAMILY"
+ "ENGINE CODE" + "YYMM" + "SERIAL NUMBER"
+ "e13*2016/1628*2021/1068SYB1/P*0004"

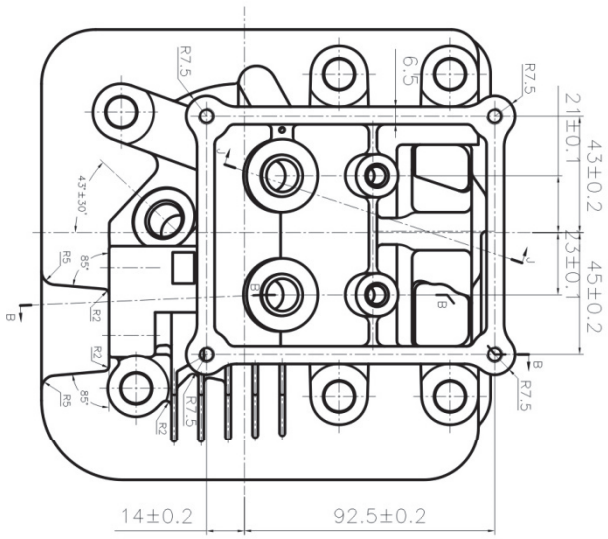
Note: date of manufacture, YY-year, MM-month

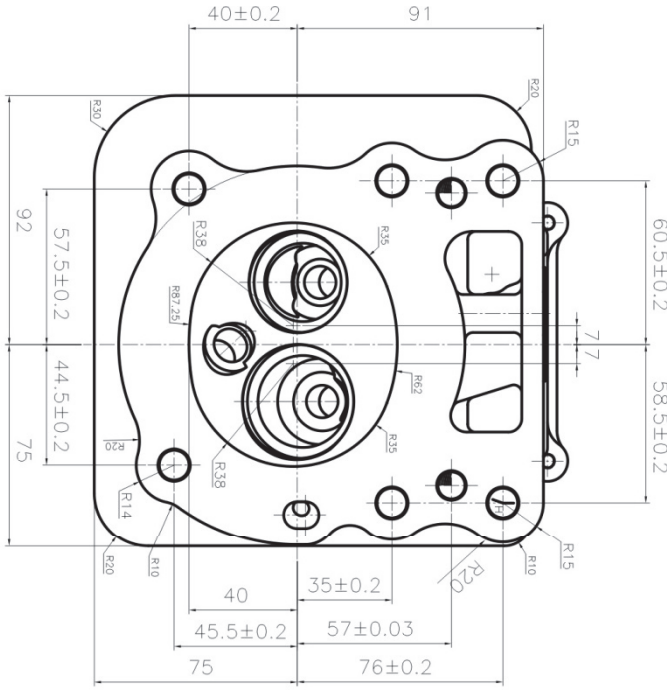
or

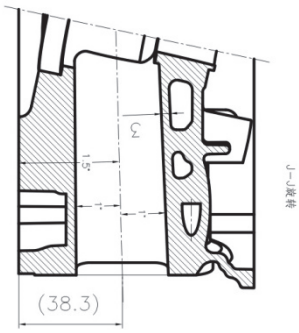
LONCIN + "ENGINE TYPE or FAMILY"
+ "ENGINE CODE" + "YYMM" + "SERIAL NUMBER"
+ "e13 SYB1/P V-0004"

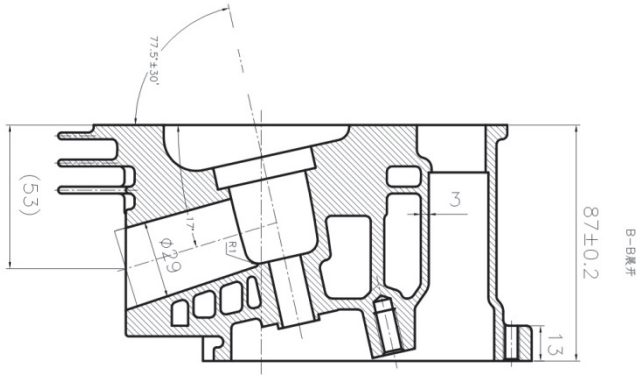
Note: date of manufacture, YY-year, MM-month

ENGINE TYPE	1P96F/LC1P96F/1P91F/LC1P91F
POSITION OF ENGINE NO. AND EU APPROVAL NO.	
DRAWING NO.	1P96F-01 #

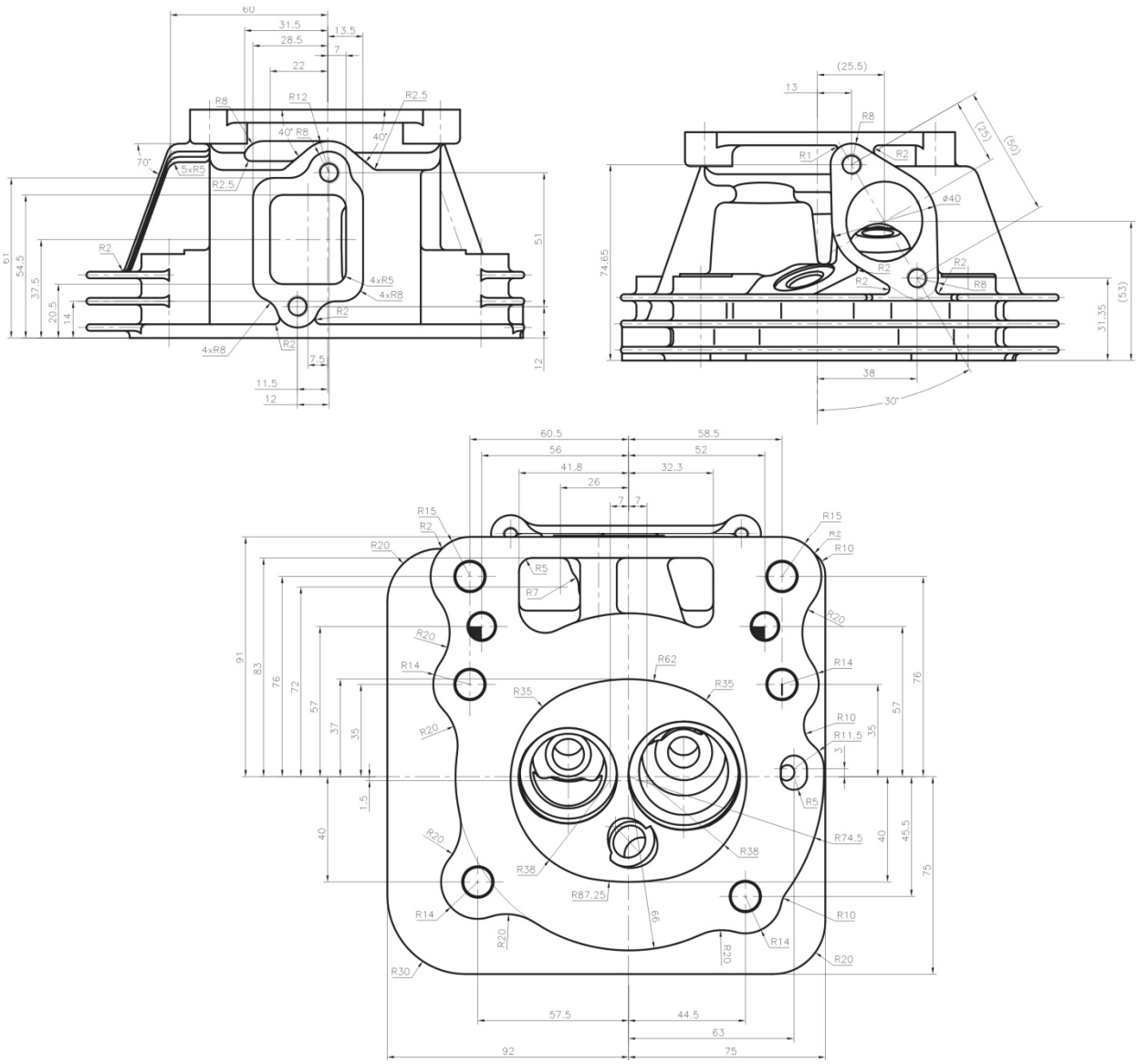








ENGINE TYPE	1P96F/LC1P96F
CYLINDER HEADER	
DRAWING NO.	1P96F-02



ENGINE TYPE	1P91F/LC1P91F
CYLINDER HEADER	
DRAWING NO.	1P91F-02

e13*2016/1628*2021/1068SYB1/P*0004*02
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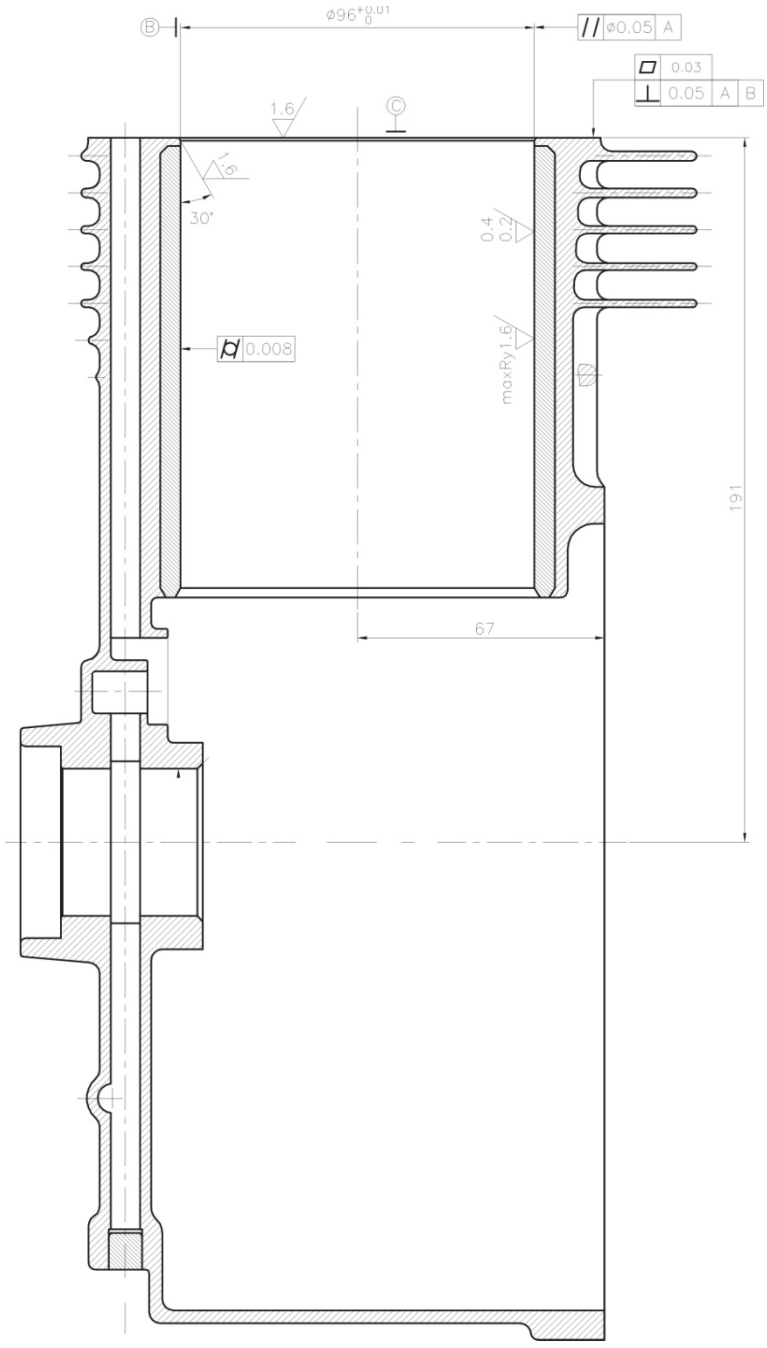
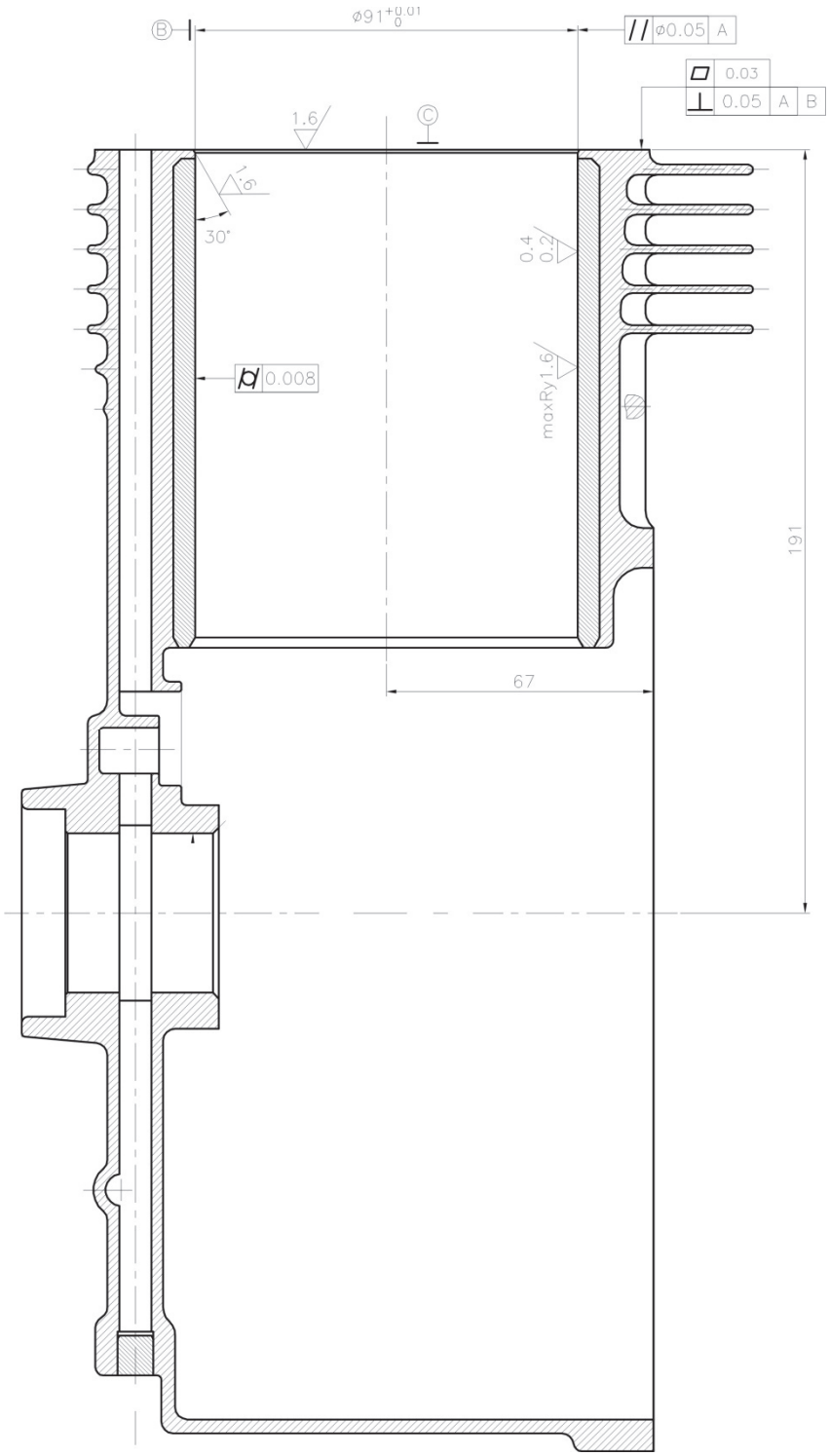
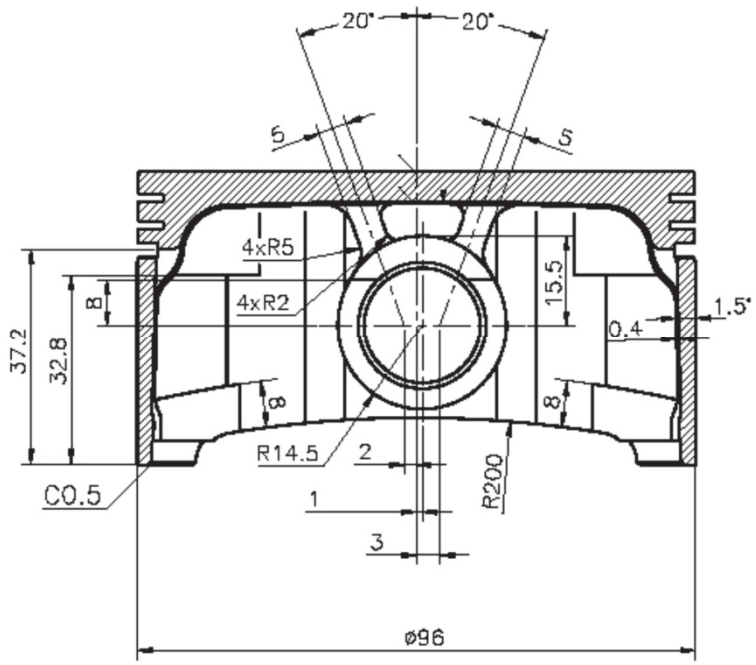


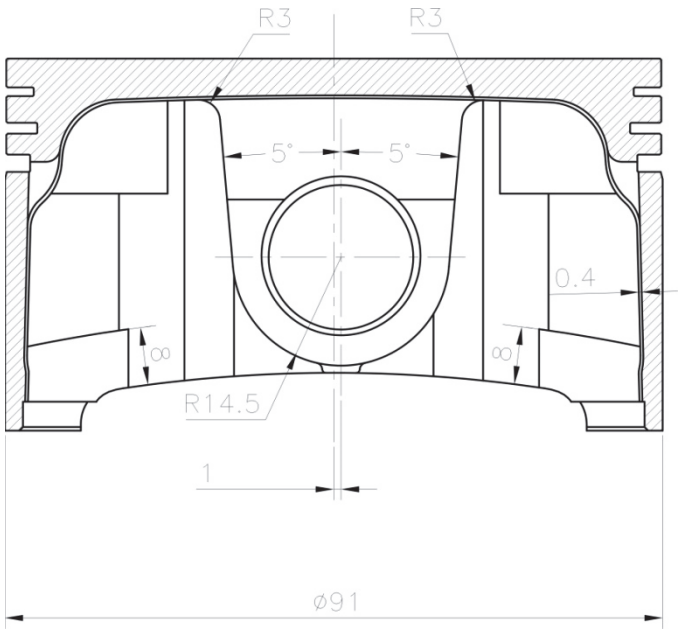
ENGINE TYPE	1P96F/LC1P96F
CYLINDER	
DRAWING NO.	1P96F-03



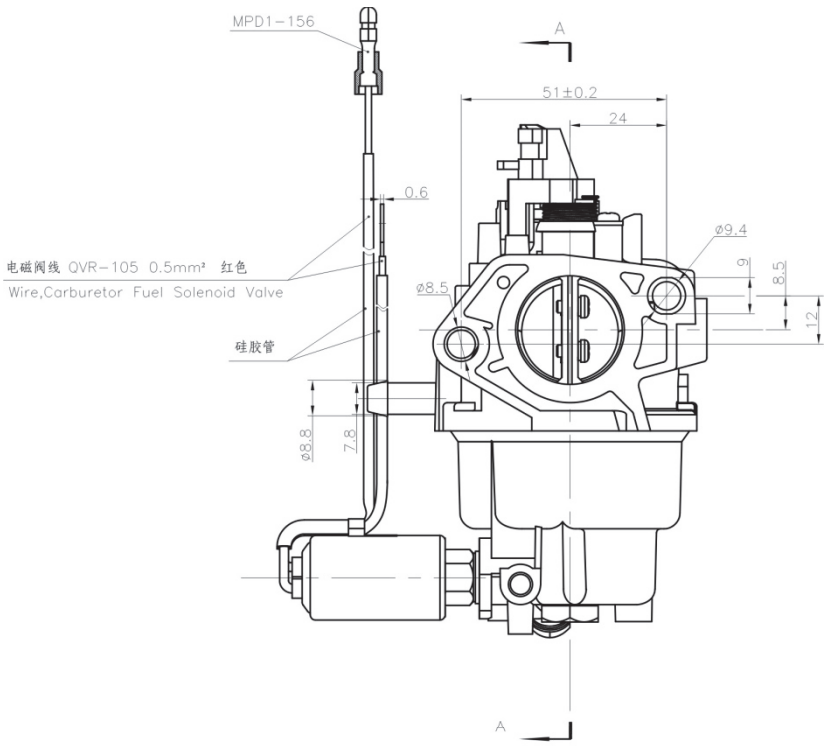
ENGINE TYPE	1P91F/LC1P91F
CYLINDER	
DRAWING NO.	1P91F-03

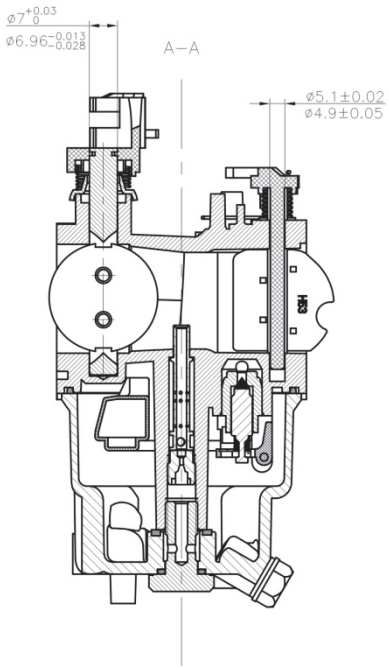


ENGINE TYPE	1P96F/LC1P96F
PISTON	
DRAWING NO.	1P96F-04



ENGINE TYPE	1P91F/LC1P91F
PISTON	
DRAWING NO.	1P91F-04





ENGINE TYPE	1P96F/LC1P96F/1P91F/ LC1P91F
CARBURETOR	
DRAWING NO.	1P96F-05

e13*2016/1628*2021/1068SYB1/P*0004*02
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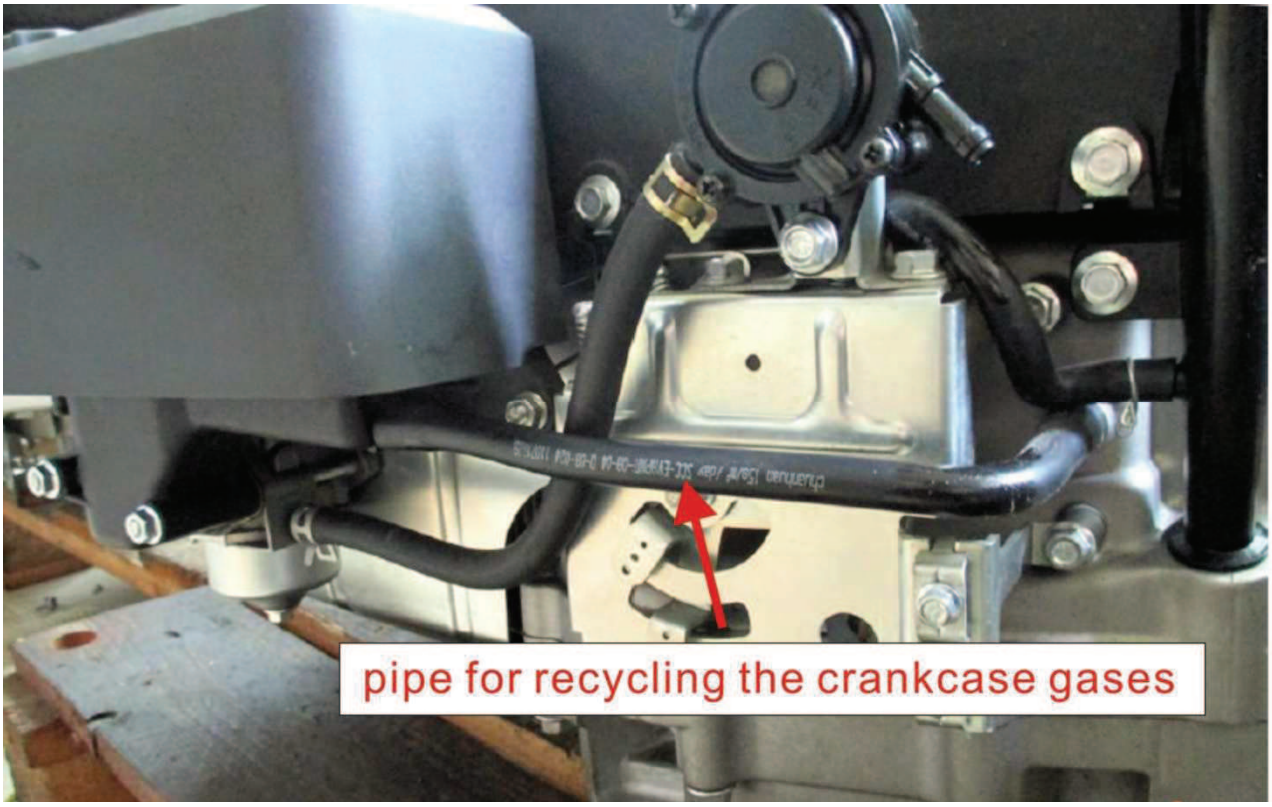
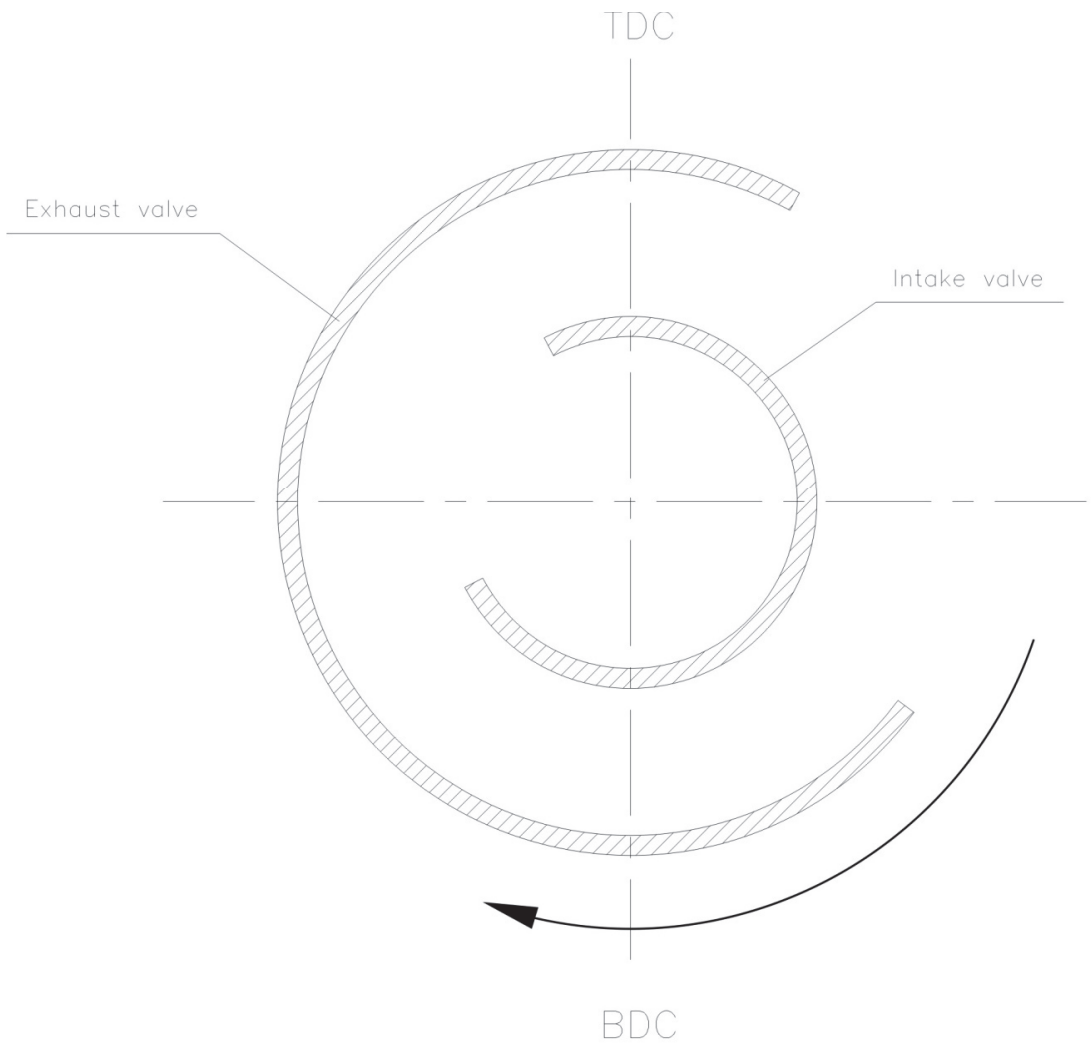


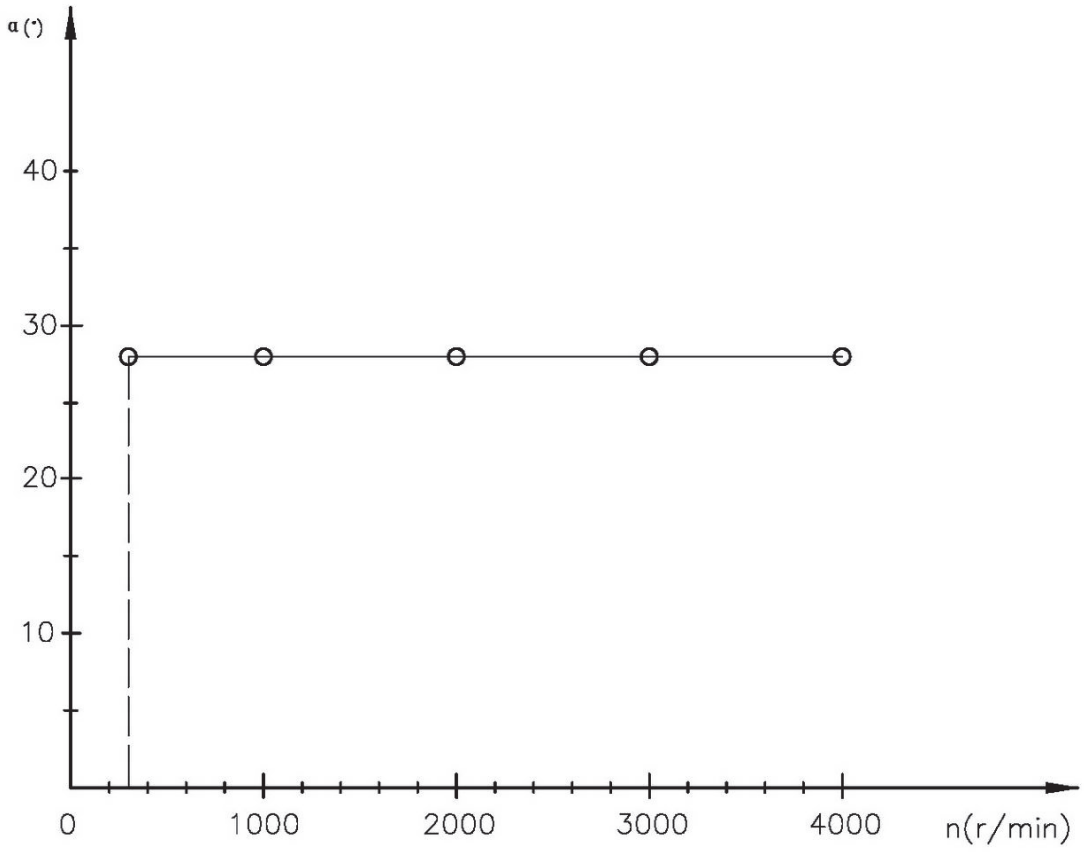
Remark: Through the pipe, the crankcase gases go into the air filter, and finally the gases burn in the combustion chamber.

ENGINE TYPE	1P96F/LC1P96F/1P91F/ LC1P91F
DEVICE FOR RECYCLING CRANKCASE GASES	
DRAWING NO.	1P96F-06

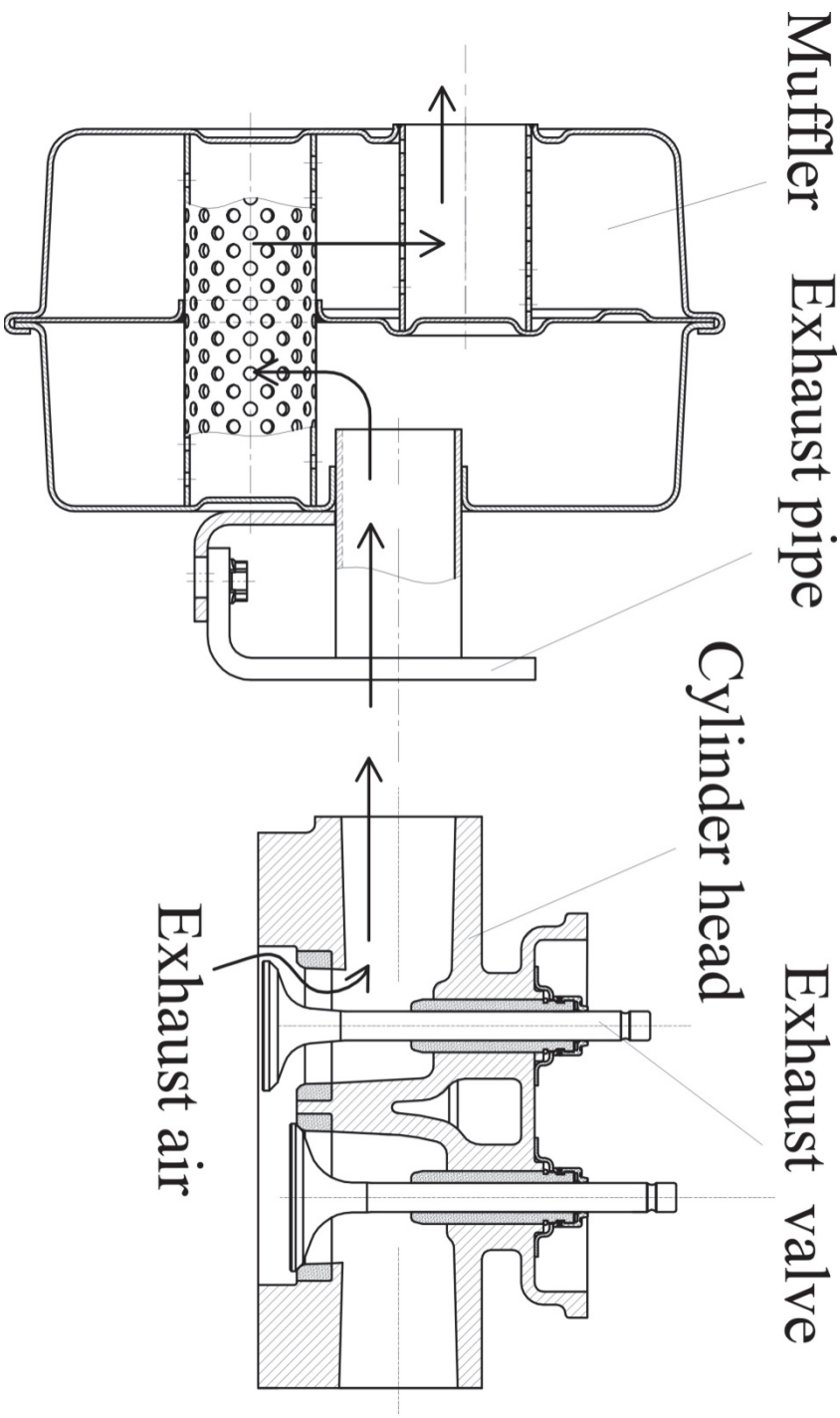


MAX IN. VALVE LIFT 6.590	BTDC 32°	ATDC 27°	MAX exh. VALVE LIFT 6.070
	ABDC 51°	BBDC 46°	

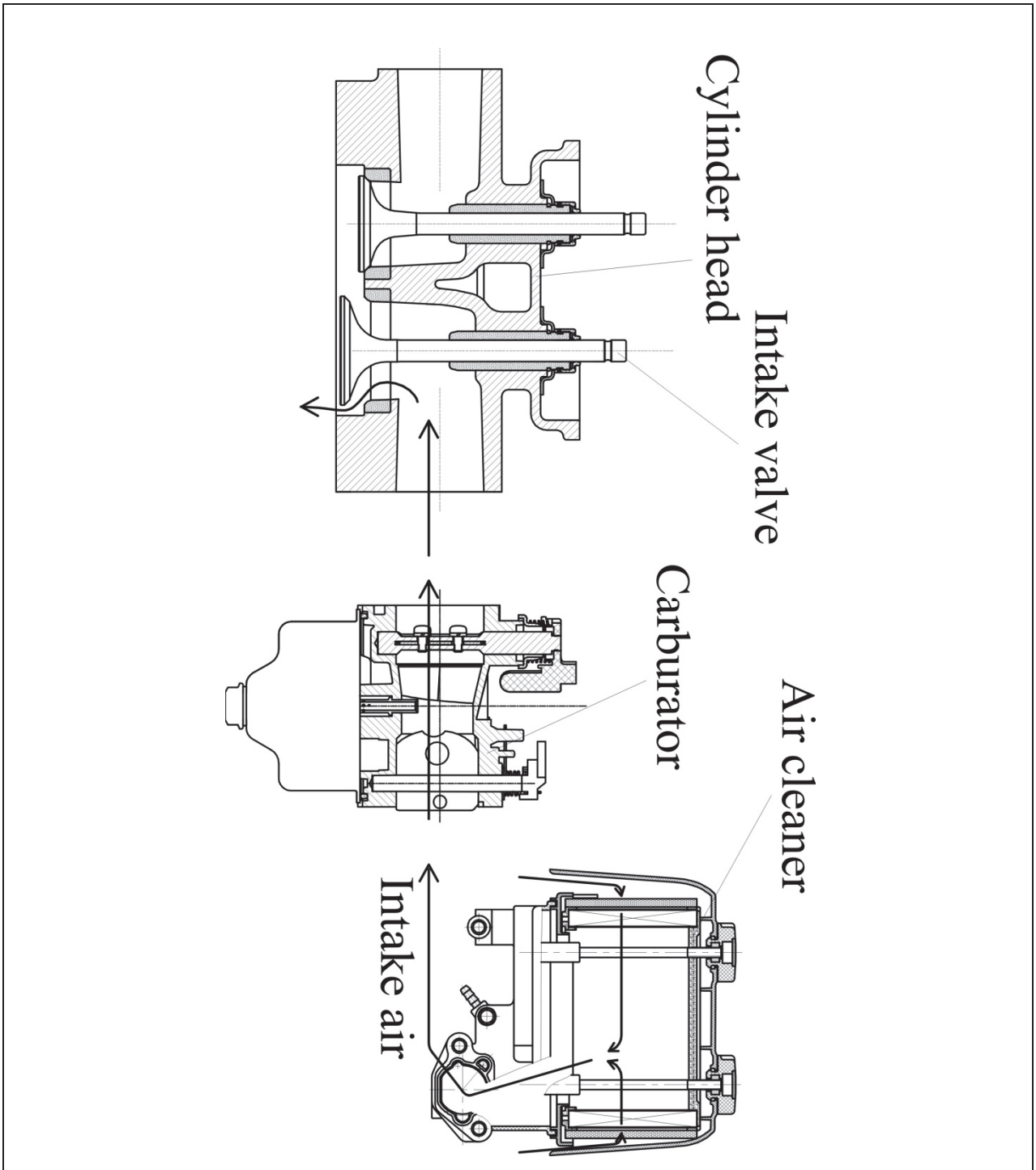
ENGINE TYPE	1P96F/LC1P96F/1P91F/ LC1P91F
TIMING DIAGRAM	
DRAWING NO.	1P96F-07



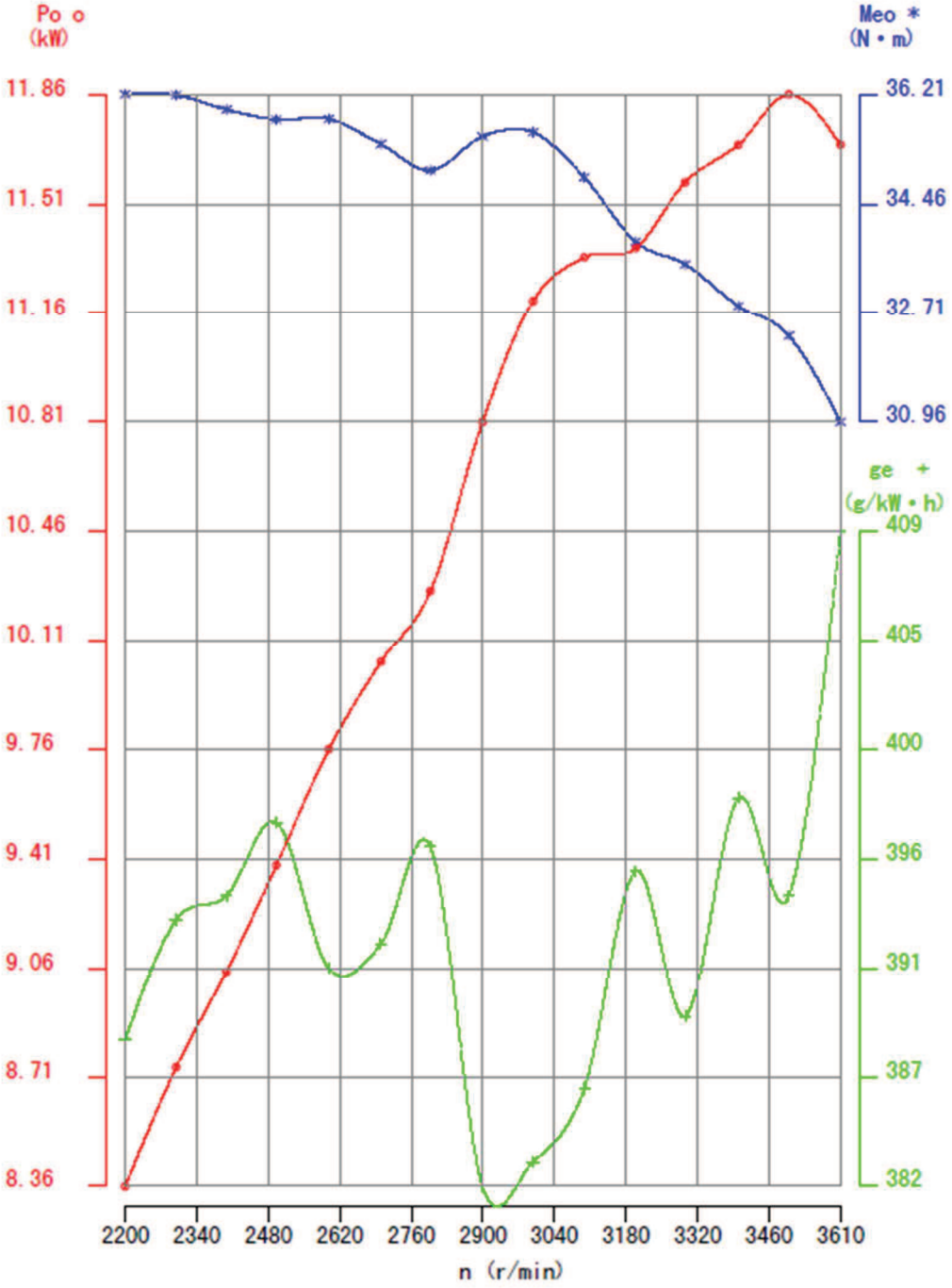
ENGINE TYPE	1P96F/LC1P96F/1P91F/ LC1P91F
IGNITION ADVANCE CURVE	
DRAWING NO.	1P96F-08



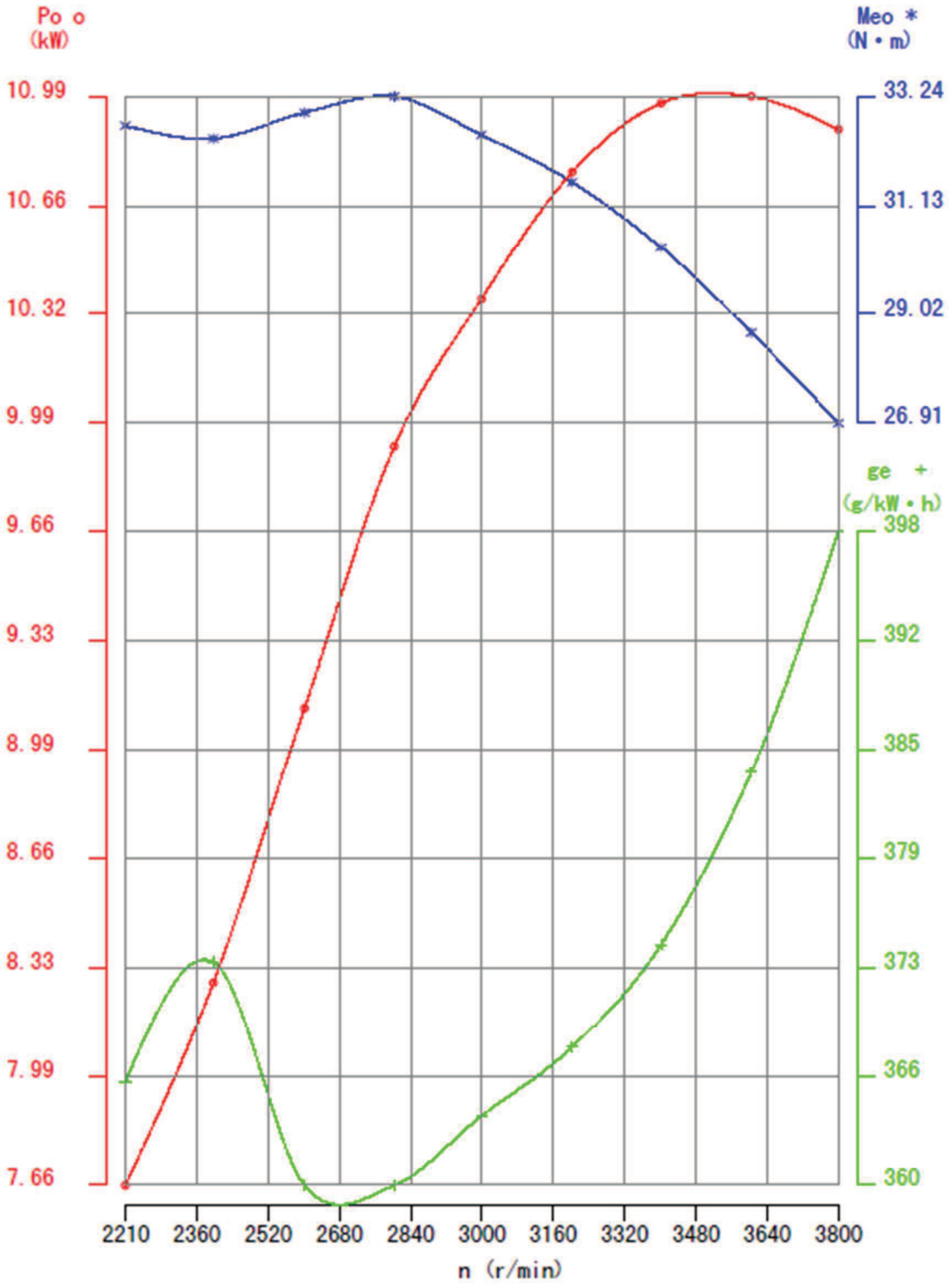
ENGINE TYPE	1P96F/LC1P96F/1P91F/ LC1P91F
EXHAUST SYSTEM	
DRAWING NO.	1P96F-09



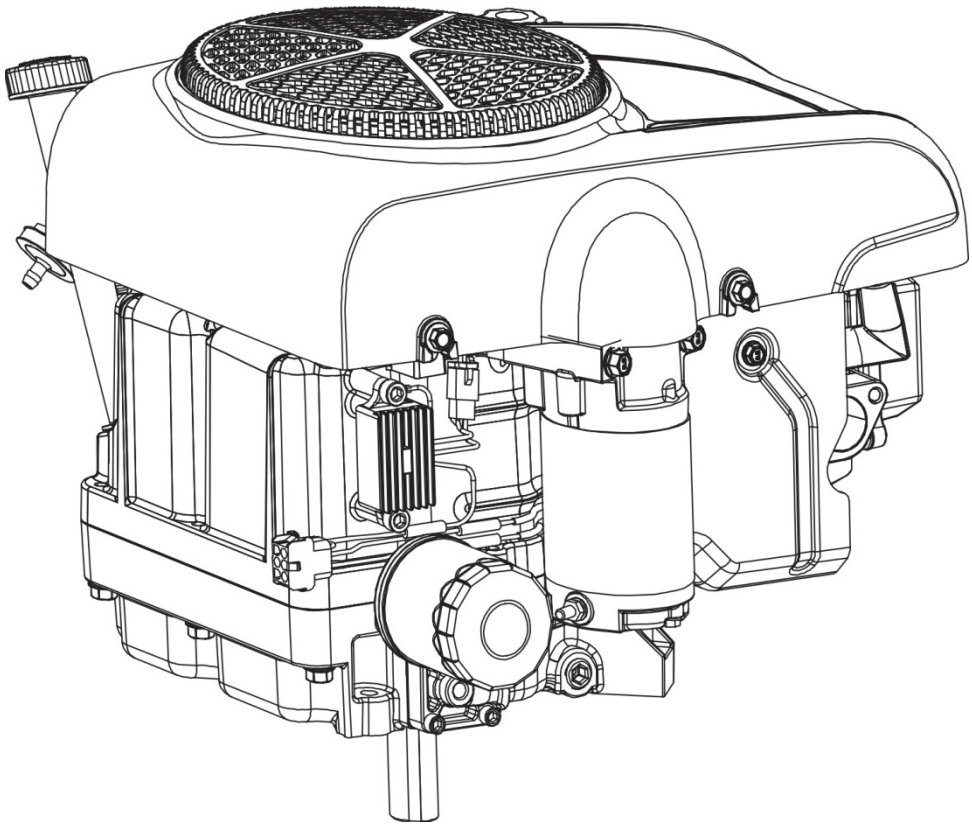
ENGINE TYPE	1P96F/LC1P96F/1P91F/ LC1P91F
INLET PATH	
DRAWING NO.	1P96F-10



ENGINE TYPE	1P96F/LC1P96F
ENGINE MAPPING	
DRAWING NO.	1P96F-11



ENGINE TYPE	1P91F/LC1P91F
ENGINE MAPPING	
DRAWING NO.	1P91F-11



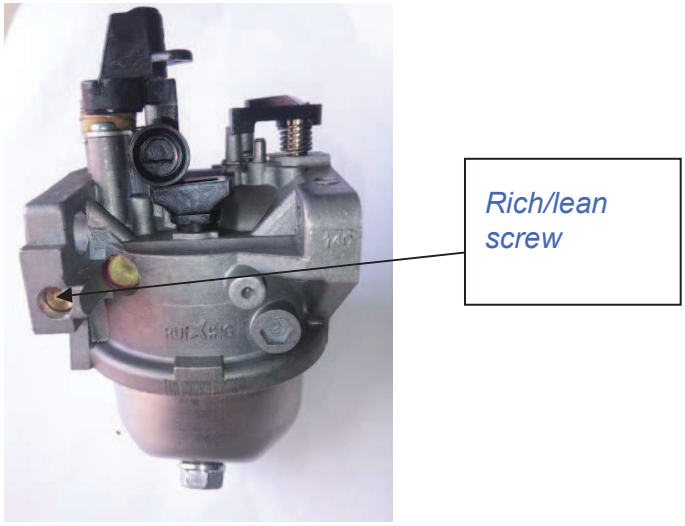
ENGINE TYPE	1P96F/LC1P96F/1P91F/LC1P91F
THE STRUCTURE OF ENGINES	
DRAWING NO.	1P96F-12

Declaration by manufacturer on prevention of tampering

The undersigned (full name and position): Wan Huang / Manager

Hereby declares that the emission control strategies of the following ~~engine type/~~engine family fitted are designed in such a way as to prevent tampering to the extent possible, as referred to in Article 18(4) of Regulation (EU) 2016/1628 of the European Parliament and of the Council and Annex X of Commission Implementing Regulation (EU) 2017/656 (amended by (EU) 2018/988).

1.1.	Maker (trade name(s) of manufacturer):	Loncin
1.2.	Commercial name(s) (if applicable):	Not applicable
1.3.	Company name and address of manufacturer:	Loncin Motor Co., Ltd. No.99 Hualong Road, Jiulong Industrial Park, Jiulongpo District, Chongqing, 400052, P. R. China
1.4.	Name and address of manufacturer's authorized representative (if any):	CMD Costruzioni Motori Diesel Spa Nucleo Industriale Valle di Vitalba -85020-Atella (Potenza) –Italy
1.6.	~~Engine type designation/ engine family designation/~~ FT:	1P96F 1P96F (Parent engine), 1P96F LC1P96F, 1P96F 1P91F 1P96F LC1P91F
	Technical details:	For rich/lean screw, after being adjusted, break the screw head. The screw cannot be adjusted anymore



(Place) (Date) Chongqing/ March 29, 2022

Signature:

Wan Huang/ Manager

Statement considering emission durability test

To whom it may concern,

We, Loncin Motor Co., Ltd., hereby declare that the emission durability parameters are as below for the small gasoline engine family designation 1P96F.

Engine family designation	1P96F	
Specification of machinery to be propelled by the engine	Riding Mower	
EDP category (hours)	Category 1, 250 hours	
DF (deterioration factor)	CO	1.11
	$HC+NO_x$	1.04

This statement refers exclusively to the emission durability report.

Sincerely yours

Mr. Wan Huang / Manager

Date: March 29, 2022

Make : **Loncin**

Name and address of the manufacturer : **Loncin Motor Co., Ltd.**
No.99 Hualong Road, Jiulong Industrial Park,
Jiulongpo District, Chongqing, 400052, P. R. China

EMISSION DURABILITY TEST REPORT

according to Regulation of the European Parliament and of the Council

on requirements relating to gaseous and particulate pollutant emission limits and type-approval for internal combustion engines for non-road mobile machinery

(EU) 2016/1628

and

Commission Delegated Regulation (EU) 2017/654 amended by (EU) 2021/1398
Commission Delegated Regulation (EU) 2017/655 amended by (EU) 2018/987
Commission Implementing Regulation (EU) 2017/656 amended by (EU) 2018/988

Commission amending Regulation

(EU) 2021/1068

0. General information

0.1	Make (trade name of the manufacturer)	:	Loncin
0.2	Engine family designation	:	1P96F
	Parent engine type designation	:	1P96F
0.3	Category and sub-category of engine	:	NRS-vi-1b
0.4	Name and address of the manufacturer	:	Loncin Motor Co., Ltd. No.99 Hualong Road, Jiulong Industrial Park, Jiulongpo District, Chongqing, 400052, P. R. China
0.5	Specification of machinery to be propelled by the engine	:	Riding Mower

1. Test information

1.1	Test object(s)		
	identification number	:	T4300017010008782
	version	:	--
1.2	Test date	:	15.05.2017 –13.07.2017
1.3	Test site	:	Loncin Motor Co., Ltd. No.99 Hualong Road, Jiulong Industrial Park, Jiulongpo District, Chongqing, 400052, P. R. China
1.4	Test facilities	:	The test equipment used was in compliance with the requirements of the directive.

1.5	Information concerning the conduct of the test(s)		
1.5.1	Reference fuel used for test		E10
1.5.1.1	Octane number		
	Ron	:	96.1
	Mon	:	85.9
1.5.1.2	State percentage of oil in mixture when lubricant and petrol are mixed as in the case of two stroke engines	:	--
1.5.1.3	Density of petrol for four-stroke engines and petrol/~~oil mixture for two-stroke engines~~	:	0.753 g/cm^3
1.5.2	Lubricant		
1.5.2.1	Make(s)	:	MOBIL
1.5.2.2	Type(s)	:	15W/40
1.5.3	Emission durability test cycle	:	G1
1.6	Engine performance		
1.6.1	Engine speeds		
	Idle [min^{-1}]	:	1800
	Intermediate [min^{-1}]	:	---
	Rated [min^{-1}]	:	3580
1.6.2	Rated power [kW]	:	11.5
1.7	Emission durability test		
1.7.1	Emission durability period [h]	:	250
1.7.2	Engine's maintenance rules during the emission durability test	:	Refer to appendix 1
1.7.3	The rule of emission durability test	:	Refer to appendix 2
1.7.4	Emission durability test record	:	Refer to appendix 3

2 Test result

Item	HC （g/kWh）	CO （g/kWh）	NOx （g/kWh）	HC+NOx （g/kWh）	CO_2 （g/kWh）
Emission test result （0 hour）	3.83	445.60	1.66	5.49	707.39
Emission test result (250 hours）	---	494.62	---	5.71	---
DF value	---	1.11	---	1.04	---

3 Appendixes

1 Engine’s maintenance rules during the emission durability test

2 The rule of emission durability test

3 Emission durability test record

Engine's maintenance rules during the emission durability test **Appendix 1**

Item	Time	Remark
Air cleaner	Checked every 50h Changed if necessary	
Spark plug(s)	Checked every 100h Changed if necessary	
Normal inspection	Any time	

The rule of emission durability test **Appendix 2**

Mode	Load (%)	Engine speed (min^{-1})	Torque (N.m)	Time ratio (%)	Time (min)
1	0	3300	0.12	5	12
2	10	3140	3.4	6	16
3	25	3120	8.3	30	72
4	50	3100	16.5	29	68
5	75	3060	25.1	20	48
6	100	3020	33.0	10	24
Each emission durability cycle is 4 hours					

Emission durability test record **Appendix 3**

Date	Record time	Engine speed r/min	Actual torque N.m	Actual engine power kW	Temperature of spark plug washer ℃	Ambient temperature ℃	Air pressure kPa	Relative humidity (%)	Time (h)
2017.6.26	10:00	3297	3	1.04	184.6	27.3	97.5	47	0
	12:00	3028	30.54	9.68	179.3	27.6	97.5	47	2
	14:00	3330	3.33	1.16	196.2	28.9	97.6	46	4
	16:00	3219	14.97	5.05	184.3	29.2	97.5	44	6
	18:00	3286	7.86	2.7	202.5	30.2	97.6	45	8
	20:00	3276	7.84	2.69	196.7	32.3	97.6	46	10
	22:00	3328	3.31	1.15	225.3	33	97.5	44	12
2017.6.27	0:00	3216	14.95	5.03	180.6	33	97.3	45	14
	2:00	3026	30.57	9.69	206.4	33.5	97.4	45	16
	4:00	3288	7.85	2.7	203.8	32.8	97.4	45	18
	6:00	3317	3.34	1.16	184.6	32.8	97.2	45	20
	8:00	3263	7.94	2.71	224.3	32.6	97.2	48	22
	10:00	3344	2.7	0.95	196.4	32	97.6	46	24
	12:00	3318	3.07	1.07	184.2	31.5	97.5	46	26
	14:00	3253	7.9	2.69	206.3	30.5	97.2	47	28
	16:00	3345	2.68	0.94	196.7	30	97.4	46	30
	18:00	3253	7.9	2.69	222.6	30	97.6	44	32
	20:00	3319	2.65	0.92	206.3	29.6	97.8	47	34
	22:00	3296	2.99	1.03	196.5	28.9	97.1	45	36
	0:00	3026	30.52	9.67	224.3	29.2	97	45	38

2017.06.28	2:00	3329	3.32	1.16	184.6	29.2	97.6	48	40
	4:00	3216	14.96	5.04	179.3	28.4	97.5	46	42
	6:00	3288	7.85	2.7	196.2	28.1	97.5	46	44
	8:00	3326	3.29	1.15	184.3	28.8	97.6	47	46
	10:00	3270	7.96	2.73	202.5	28.9	97.5	47	48
	12:00	3188	15.15	5.06	196.7	29.1	97.6	46	50
	14:00	3161	1.95	0.65	225.3	30.1	97.6	46	52
	16:00	3260	7.89	2.69	180.6	30.4	97.5	47	54
	18:00	3216	14.97	5.04	206.4	30.5	97.3	47	56
	20:00	3328	3.27	1.14	203.8	31	97.4	47	58
	22:00	3192	14.97	5	184.6	31.6	97.4	48	60
2017.06.29	0:00	3327	3.29	1.15	224.3	31.6	97.2	48	62
	2:00	3270	7.97	2.73	196.4	32	97.2	48	64
	4:00	3187	15.19	5.07	197.4	31.5	97.6	48	66
	6:00	3160	1.94	0.64	204.3	31.6	97.5	46	68
	8:00	3210	14.97	5.03	184.3	31.6	97	44	70
	10:00	3321	7.77	2.7	197.2	30.6	97.3	46	72
	12:00	3100	22.76	7.39	184.2	31	97	44	74
	14:00	3165	1.92	0.64	193.8	31	97.5	45	76
	16:00	3292	7.87	2.71	195.4	30.6	97.5	46	78
	18:00	2873	32.31	9.72	206.1	28.9	97.1	45	80
	20:00	3222	14.92	5.03	194.8	29.3	97.1	46	82
	22:00	2919	32.02	9.79	196.3	28.7	97.2	44	84
	0:00	3294	7.86	2.71	188.3	27.9	97	45	86
	2:00	3101	22.75	7.39	187.6	28.2	97.1	46	88

2017.6.30	4:00	3227	3.29	1.11	187.2	27.6	97.1	47	90
	6:00	3211	14.97	5.03	183.6	27.3	97.1	47	92
	8:00	2877	32.32	9.74	195.8	27.6	97.1	46	94
	10:00	3120	22.71	7.42	206.3	28.9	97.4	44	96
	12:00	3209	15.03	5.05	195.7	29.2	97.5	45	98
	14:00	2872	32.31	9.67	206.4	30.2	97.2	46	100
	16:00	3334	3.46	1.2	186.3	32.3	97.5	44	102
	18:00	3284	7.77	2.68	184.9	33	97.3	45	104
	20:00	3257	15.49	5.01	196.8	33	97.2	45	106
	22:00	3141	22.39	7.37	184.6	33.5	97.6	45	108
2017.07.01	0:00	3331	3.45	1.21	226.7	32.8	97.8	45	110
	2:00	3282	7.76	2.68	194.9	32.8	97.6	42	112
	4:00	3249	15.46	5.02	187.2	32.6	97.5	45	114
	6:00	3117	22.61	7.33	206.4	32	97.1	45	116
	8:00	3319	3.44	1.22	184.3	31.5	97.3	45	118
	10:00	3142	22.38	7.37	197.4	31.6	97.1	43	120
	12:00	3249	15.52	5	187.5	29	97.3	45	122
	14:00	3337	3.51	1.21	193.9	29.4	97.3	45	124
2017.07.02	17:00	3356	1.73	0.6	198.2	29.6	97.1	45	125
	19:00	3219	15.07	5.06	184.2	29.4	96.9	43	127
	21:00	3111	22.73	7.35	206.1	29.3	97	45	129
	23:00	3270	7.88	2.7	194.8	28.9	97.2	45	131
	1:00	3240	15.24	5.02	184.7	28	97.1	45	133
	3:00	3335	3.52	1.22	206.3	28.6	96.9	46	135
	17:00	3318	1.65	0.57	227.1	28.1	97.1	42	135

	19:00	3087	22.9	7.37	184.5	28.5	97.1	45	137
	21:00	3256	15.48	5.01	186.5	29.6	97.1	45	139
	23:00	3251	14.85	5.07	182.9	29.4	97.1	45	141
2017.07.03	1:00	3320	1.66	0.55	197.1	30.5	97.1	45	143
	3:00	3262	15.25	5.02	204.8	31.3	97.1	44	145
	5:00	3335	3.51	1.21	206.3	32.4	97.1	44	147
	7:00	3110	7.86	7.34	184.2	32	97.1	45	149
	9:00	3361	2.83	0.98	197.4	32	97.4	45	151
	11:00	3336	3.6	1.23	185.6	32.6	97.1	45	153
	13:00	3150	22.72	7.29	206.9	32	97.2	46	155
	15:00	3260	15.3	5.04	195.8	33.5	97.2	45	157
	17:00	3187	15.02	4.97	196.2	33	97.1	46	159
	19:00	2873	32.33	9.7	224.3	32.6	97.1	45	161
	21:00	3120	22.71	7.39	204.9	32.8	97.3	45	163
	23:00	3209	15.01	5.15	197.2	32.5	97.2	45	165
2017.07.04	1:00	3270	7.96	2.72	196.3	31.9	97.3	44	167
	3:00	3120	22.7	7.38	225.8	31.8	97.2	45	169
	5:00	3209	14.97	5.01	204.1	31.4	97	44	171
	7:00	2873	32.31	9.67	185.6	30.8	97.1	43	173
	9:00	3118	22.69	7.36	206.3	30	97.1	43	175
	11:00	3209	15.23	5.17	185.4	30	97.1	46	177
	13:00	3316	1.63	0.52	227.1	30.5	97.2	45	179
	15:00	3195	15.15	5.08	196.5	30	97.1	42	181
	17:00	3329	3.14	1.07	186.2	29.9	97.2	46	183
	19:00	3165	1.95	0.63	223.9	29.6	97.2	46	185

	21:00	3270	7.95	2.72	185.2	29.4	97.2	45	187
	23:00	3209	15.02	5.05	183.9	29.3	97	46	189
2017.07.05	1:00	3120	22.71	7.38	205.4	30.5	97.1	45	191
	3:00	3163	1.93	0.61	184.3	31	97.2	43	193
	5:00	3271	7.96	2.73	182.6	31.6	97	45	195
	7:00	2877	32.34	9.71	186.7	31.4	97	45	197
	9:00	3271	7.94	2.71	185.9	32	97.1	44	199
	11:00	3089	22.88	7.4	195.8	32	97.1	43	201
	13:00	3299	7.89	2.7	184.9	32.6	97	43	203
	15:00	3275	7.98	2.72	224.3	32	97	43	205
	17:00	3122	22.75	7.38	185.4	32	96.8	43	207
	19:00	3316	1.6	0.51	184.2	31.8	96.8	45	209
	21:00	3120	22.7	7.39	196.3	32.6	97.2	42	211
	23:00	3163	1.91	0.61	187.2	32.4	97.5	42	213
2017.07.06	1:00	3341	1.88	0.65	204.6	31.5	97.1	42	215
	3:00	3270	7.93	2.7	225.8	31.9	97	43	217
	5:00	3090	22.87	7.51	186	31.9	97.1	45	219
	7:00	3162	1.92	0.62	194.5	32	96.9	45	221
	9:00	3271	7.94	2.75	206.3	31.8	96.9	42	223
	11:00	3221	14.9	5.03	182.4	31.8	97.2	45	225
	13:00	3092	22.88	7.46	206.2	29.6	97	42	227
	15:00	3165	1.98	0.63	205.4	29.4	97	42	229
	17:00	3088	23.01	7.42	194.9	30.5	97	46	231
	19:00	3270	7.93	2.75	185.3	30.9	97.2	46	233
	21:00	3273	7.96	2.72	182	31.6	97.2	45	235

	23:00	3223	14.8	5.01	225.7	31.5	97.8	43	237
	18:00	3327	3.04	1.06	188.6	32.8	97.5	48	237
	20:00	2877	32.31	9.73	199.1	33.5	97.2	42	239
	22:00	3121	22.7	7.42	224.3	33.5	97	42	241
2017.07.07	0:00	3209	15.01	5.04	194.5	31.5	97.2	45	243
	2:00	3120	22.7	7.42	206.3	31.9	97	42	245
	4:00	2873	32.31	9.72	182.4	31.9	97	42	247
	6:00	3329	3.14	1.09	206.2	32	97	46	249
	7:00	3341	7.95	2.78	205.4	31.8	97.2	46	250

Huang Wan/Manager

REVISION(S)

HISTORY

Rev. Date	Rev. No.	Description	Page No.
18.11.2019	01	Modify the location of the manufacturer's statutory marking to enclosure of the engine	6
		Modify the method of attachment of the statutory marking to adhesive label or engraved	6
		Correct the maximum no load speed to 3800±100 rpm	7
		Add name and address of manufacturer's authorized representative	2, 3, 36
30.03.2022		Add new spark plug type HQT-7	18
		Modify the manufacturer's statutory marking type	21