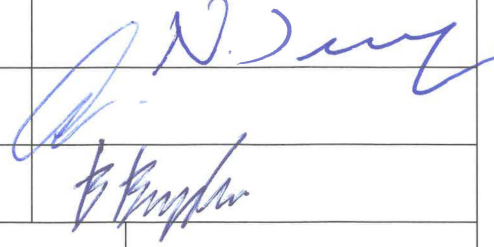
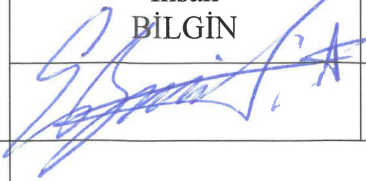
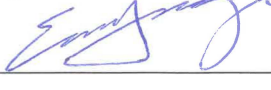


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T.Ş. 250.267

TECHNICAL SPECIFICATION FOR  
MAINTENANCE & OVERHAULING OF  
TURBOCHARGERS USED DE33000 TYPE  
LOCOMOTIVE DIESEL ENGINES

|                                |                                                                                     |                                                                                       |                                                                                       |
|--------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Engine Factory Mng.            | Nurten DEROĞLU                                                                      |  |                                                                                       |
| Tractive Stocks Division Mng.  | Tuba N. EROĞLU                                                                      |                                                                                       |                                                                                       |
| Incoming Control Division Mng. | Şükrü Baha BAYDIR                                                                   |                                                                                       |                                                                                       |
| Prepared by                    | İhsan BİLGİN                                                                        | Emre AYAZ                                                                             | Muhammet ŞANLI                                                                        |
|                                |  |   |  |
| Date of Issue                  | 02.07.2013                                                                          |                                                                                       |                                                                                       |

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| Revision |            |                                                                                                                                                                                                                        |                  |
|----------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| Rev      | Date       | Description                                                                                                                                                                                                            | Rev. Made by     |
| A        | 17.12.2015 | Arranged according to the articles numbered 26539 and 26608.                                                                                                                                                           | Tuba N. EROĞLU   |
| B        | 10.01.2017 | Article 8 updated.                                                                                                                                                                                                     | Tuba N. EROĞLU   |
| C        |            |                                                                                                                                                                                                                        |                  |
| D        | 06.07.2021 | - Without changing the content of the technical specification, TULOMSAŞ expressions were changed to TÜRASAS and the cover was prepared again.<br>- The Admissions Commission and the Control Organization are defined. | Emre AYAZ        |
| E        | 06.10.2023 | Articles 3.8,4.4 and 7.1 are updated                                                                                                                                                                                   | Serdar SÜLÜŞOĞLU |
| F        | 05.09.2024 | Article 8.5 updated.                                                                                                                                                                                                   | Serdar SÜLÜŞOĞLU |
| G        | 11.04.2025 | Article 4.3 updated according to the articles numbered 311113.                                                                                                                                                         | Serdar SÜLÜŞOĞLU |
| H        | 27.02.2026 | In accordance with Letter No. 409691 issued by the Motor Factory, Clause 4.3 has been removed, and Clauses 6.1 and 8.4 have been revised                                                                               | Muhammet ŞANLI   |
|          |            |                                                                                                                                                                                                                        |                  |
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## 1. SCOPE

This technical specification covers the general requirements, inspection subjects, warranty issues and other demands concerning the 768.000 km maintenance, repairing, overhauling and renewing of the turbo chargers used for DE 33000 type Locomotive's diesel engine "GM16-645E3C" repaired, maintained and overhauled and at TÜRASAS (Turkey Locomotive and Engine Industry Inc.).

## 2. DEFINITIONS

In this specification; **TÜRASAS** shall mean "Turkey Locomotive and Engine Industry Inc."; **FIRM** shall mean the bidder companies; **FACTORY** shall mean the workshop; **WORK** shall mean the 768.000 km maintenance, repairing and renewing, overhauling of the turbo chargers (hereafter shall be called "TURBO") used for DE 33000 type Locomotive's diesel engine "GM16-645E3C"; **CONTRACTOR** shall mean the company to perform the Work after the tender.

## 3. GENERAL CONDITIONS

**3.1.** The property of the documents given to the firms by TÜRASAS shall belong to TÜRASAS and shall not be used for other purposes except the work and shall not be given to third parties.

**3.2.1.** Domestic Bidders will receive the turbochargers from the TÜRASAS Eskişehir Regional Directorate Engine Factory Directorate in return for a report, and after the maintenance, repair, revision and renewal of the turbos they have received, they will be delivered to the TÜRASAS Eskişehir Reception Branch Directorate with a report. However, this report does not mean the acceptance of the work. In addition, an acceptance report will be issued by the TÜRASAS Eskişehir Regional Directorate Control Organization. *(The Control Organization will be composed of Engine Assembly Workshop Supervisor and Engine Quality Control Supervisor.)*

**3.2.2.** Foreign bidders shall receive the turbo chargers against signed proceedings at the customs or port of the country in which the turbo chargers are "repaired, maintained, overhauled and renewed. The repaired, maintained, overhauled and renewed turbo chargers shall be delivered at the customs or port of the country or Turkish Customs or ports.

Bidders shall submit the information on the delivering or receiving ports or customs of the turbochargers in their bids. Delivering the turbo chargers at ports or customs shall not be interpreted as the work has been

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accepted. In addition, an Acceptance Report will be prepared by the TÜRASAS Eskişehir Regional Directorate Control Organization. *(The Control Organization will consist of Engine Factory Manufacturing Branch Manager, Engine Factory Technical Office Branch Manager, Engine Factory Quality Control Production Branch Manager and Engine Factory Manager.)*

**3.3.** The Contractor shall be responsible for all damages caused due to turbo charger defaults or defects during the function tests of diesel engine and/or after the engines are assembled on locomotives during the warranty period.

**3.4.** The Contractor shall be responsible for loading–unloading and transportation of the work per the bid. The Contractor shall insurance all of the turbo chargers for any type of accidents may happen to the work.

**3.5.** The fulfilling period of the work shall be defined by bidders. The period shall start on the day when the turbo chargers are delivered.

**3.6. (For domestic receiving)** The bidder shall define the receiving duration of the turbo chargers for domestic receiving place in the proposal from TÜRASAS. (receiving duration starts from the date when the contractor is informed about the result of tender). But in any cases this period shall not be more than 5 working days. The delivery report shall be signed by the contractor during the receiving period.

**3.7. (For domestic bids)** Should the contractor does not receive the turbo chargers in the defined period starting from the date of informing to contractor and/or does not delivery the turbos in defined period for domestic bids, the contractor shall be responsible for any damages on the turbo chargers. TÜRASAS shall reserve the rights of indemnify from the contractor.

**3.8. (For domestic bids)** All deliveries shall be between 08:00 am and 16:00 pm for domestic bids. As an exception, the deliveries beyond these hours shall be upon having a prior written permission from TÜRASAS. The Contractor shall be responsible for any damages that may happen to the turbo chargers beyond the mentioned hours during the delivery without prior written permission and TÜRASAS shall not be obliged to accept the components. In any case, the delivery period of the turbos will not exceed 60 days from the delivery to TÜRASAS. In case of delays due to reasons beyond one's control, the Contractor may request a time extension of not more than 15 days in writing.

**3.9. (For foreign bids)** TÜRASAS shall deliver the turbo chargers to the defined customs / port for foreign bidders. Foreign contractors shall fulfil the Work in defined period and deliver them to TÜRASAS via the defined customs / port. For delays that may occur due to reasons beyond one's control, the Contractor may request a time extension of not more than 15 days by giving prior written notice.

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3.10. The unmentioned other requirements in this document shall be explained in the administrative specifications.

#### 4. TECHNICAL SPECIFICATIONS

4.1. The maintaining and overhauling of the turbo chargers shall be fulfilled according to MI 275 and technical documents by the turbo charger manufacturer. Provided that the firms use another document(s) except MI 275, the said document(s) shall be viewed and approved by TÜRASAS.

4.2. In case of any possible problems during performing the Work, the Contractor shall contact with TÜRASAS to sort them out.

4.3. This clause has been removed.

4.4. Turbos stocked for maintenance at TÜRASAS Engine Factory will be divided into groups according to their damage and repair status as severely damaged, moderately damaged and only maintenance (overhaul) (undamaged). Contractors will examine the turbos in stock, determine the damage and overhaul status together with the Engine Factory authorities and record them in a report according to the turbo serial numbers. Turbos for which no damage status assessment has been made will not be delivered to the contractor.

**Severely Damaged Turbo:** Turbos with multiple damages to the turbo clutch, main body, impeller, main shaft (rotor), planetary gear group, and partially or completely restricted movement.

**Moderately Damaged Turbo:** Turbos with damages to one of the turbo clutch, main body, impeller, main shaft (rotor), planetary gear group, and the damage can be repaired by replacing a single part.

**Turbo to be Overhauled (Revision):** Turbos with no external damage, no movement difficulties, but have completed their maintenance mileage.

Taking this into consideration, three separate unit prices will be offered for severely damaged, moderately damaged and to be overhauled (revisioned).

4.5. The completed turbochargers shall be delivered to TÜRASAS with a document given by the factory where the turbochargers were repaired, maintained, overhauled and renewed and showing the date of the process.

#### 5. PACKAGING

5.1. The turbochargers to be delivered to TÜRASAS shall be in wooden cases. The cases shall be convenient to be lifted by a fork-lift.

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5.2. The turbochargers in bubble backs in cardboard wrapping, which complies with the international transportation requirements and INCOTERMS for foreign bidders, shall be placed into the cases.

5.3. The components shall be placed in a manner that they will not move and not be damaged during transportation. All necessary precautions shall be taken.

5.4. There shall be label on each case containing manufacturer name, brand data order number and the serial number of the delivered turbo.

## 6. INSPECTIONS, CONTROL AND ACCEPTANCE

6.1. The assembly sheets, balancing reports, dimensional inspection reports, and non-destructive testing (NDT) documents of the turbos delivered to TÜRASAŞ Eskişehir Bölge Müdürlüğü shall be subject to review. Turbos not submitted together with the required quality control documentation shall not be accepted.

6.2. All of the turbochargers shall be inspected visually 100 % by the Inspection Department to check any damages.

6.3. Should there are no unconformities after inspection of documents and visually inspection of the components, the turbo chargers shall be preliminary accepted.

6.4. The delivered turbochargers shall functionally be tested on Locomotive Test Unit and on locomotive then they will be tested functionally the road test. The turbochargers with damages or non-functional components shall be changed in scope of the agreement. All transportation expenses shall belong to the Contractor.

Should there be extra workmanship, the expenses for workmanship shall be paid by the Contractor.

## 7. BIDDING

7.1. Companies shall take into consideration Article 4.4 in their bids and submit bids for the work subject to the tender, based on three separate unit prices for heavy damage, moderate damage and revision.

7.2. Three separate unit prices, total price, delivery location and delivery time for each maintenance group (for heavy damage, moderate damage and revision) shall be specified in the bids.

7.3. The Contractor shall submit bids for all specified work items. The bids of bidders who do not submit bids for any of the heavy and moderate damage work groups and revision groups shall be deemed invalid.

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## 8. DOCUMENTS FROM FIRMS

**8.1.** The bidders shall provide the latest and current AAR Certificate of the factory, if the work will be performed abroad.

**8.2.** If the bidder is an authorized representative, the quality document of the factory shall be submitted.

The Work shall be fulfilled at the factory.

Since a written confirmation certificate is not presented by TÜRKAK for “AAR” accreditation shall not be requested.

**8.3.** The bidders, who will performed the job at own local factory, shall provide the latest and current Quality System Certificate related to work.

**8.4.** The bidders shall perform the maintenance, repair, overhaul, and refurbishment of the turbos in accordance with MI 275. The turbos delivered in compliance with the inspection criteria specified in MI 275 shall be examined by the inspection authority

**8.5.** Bidders shall deliver a document showing that the factory, which will maintenance, repair, overhaul and renew the turbochargers, has maintained, repaired, overhauled and renewed of locomotive turbochargers in the last five (5) years. Bidding companies shall provide a document indicating that the Factory, which will perform the maintenance, repair, overhaul and renewal of the Turbos, has performed the maintenance, repair, overhaul and renewal of GM type locomotive turbos and/or a document indicating that it produces the materials used in turbo overhaul and repair in the last 5 years.

**8.6.** Should the bidder receive the turbochargers from TÜRASAS and deliver the turbo charger to TÜRASAS and have the Work fulfilled abroad, the bidder shall definitely deliver TÜRASAS a certificate of inspection and other documents that the turbochargers shall be imported and exported.

**8.7.** The bidding company shall state the brand, model and accuracy status information of the existing balancing machine in the workshop where the work is carried out in its bid.

## 9. WARRANTY

The maintained, repaired, overhauled and renewed turbo chargers shall have 2-year-warranty at least after completing the road tests.

### NOTE:

The MI 275 documents can be viewed at TÜRASAS during the bidding stage.

The mentioned document shall be given to the winner firm under the authority of Engine Factory.