TORQUE CONVERTER LOCKING MECHANISM PRELOAD TESTER IN 06.001

CERTIFICATE
OPERATING MANUAL



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WARNING! Do not operate the WELDER without reading the contents of the certificate.

INTRODUCTION

This certificate, combined with the technical description and operating manual, is a document that certifies main parameters and technical characteristics of the stand IN 06.001 (hereinafter called Stand) guaranteed by the manufacturer.

The document also contains the description and mode of functioning of the Stand, operating instructions and other information necessary to ensure the full use of the technical capabilities of this welder.

1 USE

The stand IN 05.001 is designed to accurately measure the pressing force of torque converter lockup clutch, where this device is configured as a sealed unit (closed), and provides an opportunity to set the necessary value of this force during repair. By using all the functionality of the stand, you can quickly and accurately restore lockup part of torque converters with closed clutch.

1.1 Air temperature from +5 to +30 °C;
1.2 Relative humidity 30 to 80%;
1.3 Atmospheric pressure from 84 to 106 kPa;
1.4 Compressed air system shall be equipped with a dehumidifier at a distance of not more than 3 m from the point of connection of the device and have a constant working pressure not less than 7 kg · s / cm 2.

2 SPECIFICATIONS

№	PARAMETER	VALUE
1	Dimensions	450x635x1000
2	Weight not more then, kg	40

* The manufacturer has the right to make design and technical changes that do not involve degradation of equipment functionality.

3 PACKAGE CONTENTS

The package of IN 06.001 includes:

3.1 Stand IN 06.001 – 1 piece.
3.2 Certificate, operating manual. – 1 piece.
3.3 Adapters for piston clamping – 1 piece.
3.4 adapter plates - 2 pieces.
3.5 Hubs for torque converter cover centering - 3 pieces.
3.6 Adapter of the device for welded torque converter load measurement – 1 piece.
3.7 head dynamometer – 2 pieces.

4 FUNCTIONAL DESIGN

The stand (pic. 4.1) structurally consists of a frame structure with air-operated cylinder at the top for clamping adapters (1 - 2 pcs. depending on the version or in addition to order according to customer drawings), simulating welded to the body lockup part.

There is the turntable on the crossbar of the frame, made in the form of a faceplate with holes for torque converter fixation. In the lower part of the frame there is a direct tension indicator. According to its readings you can measure the pressing force of the piston lock. On the right there are: pressing air-operated cylinder lever, blow valve throttle and blow valve itself. The package comes with a device for measuring the pressing force in assembled torque converter and adapters for centering torque converter front cover plug in turntable faceplate.



Pic.4.1 General view of the stand

5 SAFETY PRECAUTIONS

When working with the stand general requirements of the technical operation of electrical equipment and electrical appliances must be complied.

6 MAKEREADY AND WORKING ARRANGEMENTS

Attention! To work with the stand allowed the operator having sufficient knowledge and understanding of the process of this type of work.

6.1 **Makeready.**

The following certificate assumes that a torque converter has been pre-cut (including the lockup part), washed and rebuilt. Friction plate of the lockup must be replaced. Surface of the body and lockup piston must be inspected for wear, conicity or rebuilt and have allowable roughness and plane contact surfaces. Tab springs are without defects, have the same configuration and can provide a sufficient clamping force.

6.2 **Working arrangements.**

6.2.1 Select an adapter with a right diameter hole in accordance with torque converter plug (Pic.6.1).



Pic.6.1

6.2.2 Install the adapter into the faceplate (Pic.6.2).



Pic.6.2

6.2.3 Install the front cover of a torque converter on the turntable (Pic.6.3).



Pic.6.3

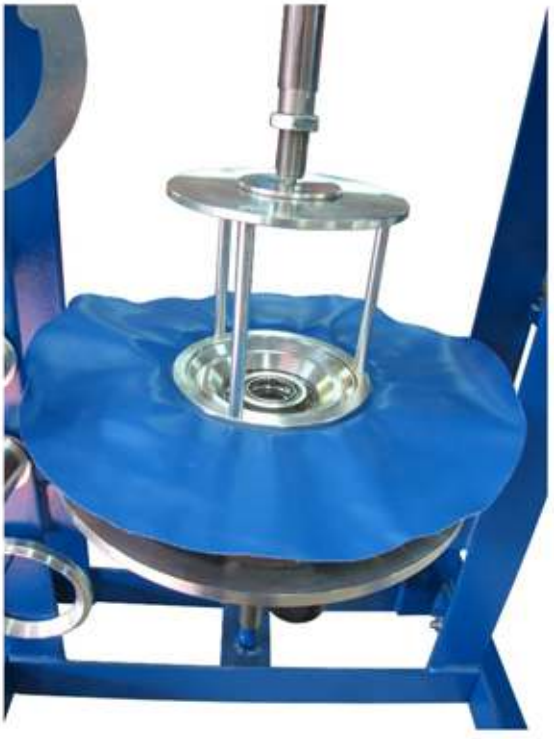
6.2.4 House the friction plate and upper piston (in some cases the friction surfaces should be lubricated with ATF and friction plate saturated with it)

6.2.5 Select clamping adapter for it to enable access for further welding of piston mounting plate to a torque converter body (Pic.6.4).



Pic.6.4

6.2.6 Clamp the piston mounting washer using the air-operated cylinder through an adapter (Pic.6.5).



Pic.6.5

6.2.7 With a screwdriver or a special tool slowly crank a friction plate by a claw to one side, trying not to touch torque converter body. Rotational resistance should be uniform without jerks. Then change the direction of rotation (Pic.6.6).

6.2.8 Take readings of the direct tension indicator at the bottom of the turntable during rotation in both directions (should be the same), compare with the manufacturer's recommended readings (some values are presented in Table 1). If the difference is 10% or more pressing value should be adjusted (usually by grooving of one of contact surfaces).



Pic.6.6

6.2.9 Set the blow valve (used to cool inside cavity and prevents from splash and mud during the welding process) (pic.6.7).





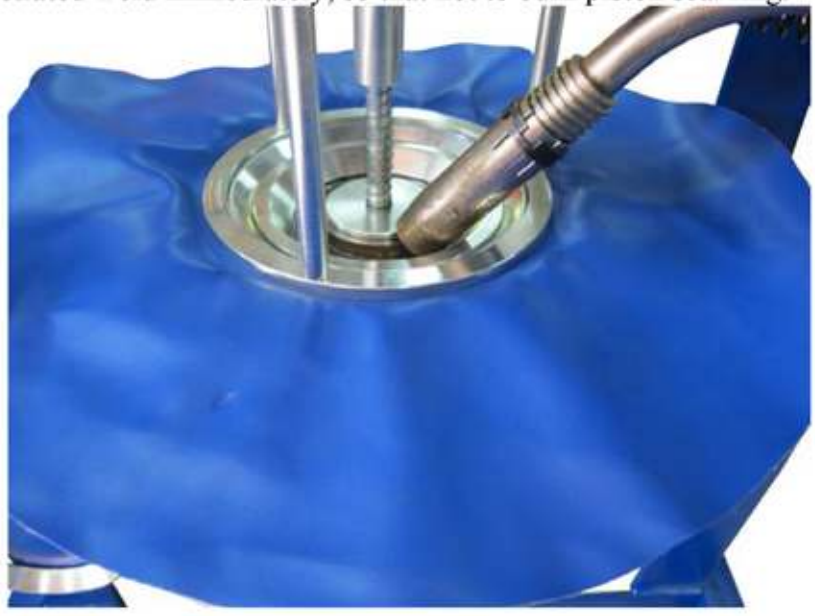
Pic.6.7

6.2.10 Turn on throttle for air supply through the blow valve (pic.6.8).



Pic.6.8

6.2.11 Weld pressure plate to the housing of front torque converter cover. We recommend not making full-penetrated weld immediately, so that not to burn piston seal ring.



Pic.6.9

6.2.12 Close air supply throttle and raise the rod of air-operated cylinder. Remove the blow valve and adapter.

6.2.13 Observing precautions clear the torque converter cover from garbage.

6.2.14 Install and fix a torque converter cover on the turntable.

6.2.15 Check the clamp value after welding (pic.6.10).



Pic.6.10

6.2.16 Continue torque converter assembly. After final welding and testing of all parameters of hub run-out and expansion gap - fill the device with required quantity of ATF and conduct control measurement of lockup clamp, compare the measurements with the table 1.

6.3 In a fully assembled and welded torque converter locking mechanism preload value can be checked using an additional device that is included in the stand's package. To do this:

6.3.1 Fix torque converter body

6.3.2 To avoid damage of inner seal carefully insert the device that simulates gearbox main shaft

6.3.3 Insert direct tension indicator in it

6.3.4 Insert cross lever (a screwdriver, for example) in a hole of indicator

6.3.5 Slowly rotating in both directions, do a preliminary measurement of lockup clamp and check readings with table1.



Pic.6.11

Table 1

TRANSMISSION	NUMBER	CODE	CAR	N·m
6HP19/6HP21	209 304	D72	BMW 2,5	to 9
6HP19	000 044	B95/G77	BMW	8
6HP19	000 014	T84/G96/P72		8-10
6HP19	000 226	B98		8-10
6HP19	000 226	T126		8
6HP19	209 302	Y81/G72	BMW	8-10
6HP19	000 236	Z110	AUDI	7-10
6HP19	000 044	F77/S76/F76	VW Phaeton	8-10
6HP19	000 063	H77	AUDI 3,0i	10
6HP21	000 236	B111		
6HP26	206 702	U74	BMW 7 6,0i	10-12

6HP26	000 149	Q94		10-12
6HP26	206700	V74/Z83/Y73	BMW 3,0D	10
6HP26	000 193	J85		10
6HP26	206 507	L73/L92/L93/L62	BMW 4,4i	10
6HP26	000 030	Y83/N65		10-12
6HP26	000 010	F85/H85	BMW	10
6HP26	000 236	Y85	BMW	10
6HP26	206 500	P73/K93/K92	BMW	10
6HP26	000 149	S94	AUDI	12-13
6HP26	206 700	S77	AUDI	10-12
6HP26	206 700	U92/F66	AUDI	10-12
6HP26	206 508	F93/K63	AUDI	10
6HP26	000 010	Y94	BMW 3,0D 2000г	10-11
6HP28	000 212	P121/V102/J116	BMW	10-12
6HP32	200 208	V94/D92		10-12
6HP32	200 107	C59	BMW 4,0D	11-12
5HP24	157 102	A85/F32	BMW	10
5HP24	182 003	F73	AUDI	13
5HP24	157 100	G29/K31		10
5HP24	157 100	H85/H35	BMW	12
5HP24	157 100	P35	BMW	8-10
5HP30	144 100	R13		9-10

Torque converter according to AT type	load, Nm *
ZF5HP19	7
ZF5HP24	8 – 12
ZF6HP19	8
ZF6HP26/28	10
ZF6HP32	13

* These figures may vary depending on engine displacement and changes made by a manufacturer to the design of torque converter. For vehicles equipped with engines with increased torque it is recommended to increase these values by 10-15%.

7 STORAGE AND SHIPMENT PRECAUTIONS

7.1 Transportation conditions must comply with the terms 5 according to GOST 15150-69 at ambient temperatures from -25 to +55 ° C in compliance with anti-shock and vibration.

7.2 Stand should be transported in closed transport of any kind. Railway wagons, containers, and truck bodies used to transport devices must not have any trace of cement, coal, chemicals, etc.

7.3 The storage must comply with the terms 1 according to GOST 15150-69. There should not be any dust, acid or alkali fumes, corrosive gases and other harmful impurities in the storage that may cause corrosion.

8 WARRANTY

8.1 The manufacturer guarantees compliance of the stand with all the requirements and the technical characteristics specified in this certificate if the relevant conditions of usage, transportation and storage are met.

8.2 The warranty does not apply to:

- product without the certificate, logos or serial number;
- natural wear;
- consumables (oils, lubricants, belts, etc.);
- damage caused by using the product for purposes beyond its purpose;
- paint products
- defects caused by mechanical damage, improper or careless operation;
- damage caused by unauthorized changes to the product design or its components;

8.3 The warranty period of operation of the stand is 12 months from the date of delivery to the Customer.

8.4 Seller diagnoses the cause of a fault on the basis of images or video, provided by the Buyer. If this is not possible, the customer comes to the Seller for warranty inspection and repair of the goods. The Customer shall bear the costs associated with the arrival of a specialist for repair or shipment of defective parts or assemblies.

8.5 The buyer cannot claim compensation for any incidental, indirect or consequential costs, such as lost profits or revenue, other commercial loss, inconvenience caused by equipment failure etc.

8.6 In the case of warranty replacement of parts or assemblies warranty for replacement item is 90 days or until the end of the initial term (12 months from the date of delivery to the Customer) whichever is longer.

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