TM 9-4910-677-14&P

TECHNICAL MANUAL

OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL INCLUDING REPAIR PARTS LIST

FOR

TESTER, INTERNAL COMBUSTION ENGINE MODEL 27-12 (CENTURY TOOL COMPANY, INC.) (NSN 4910-00-255-8673)

HEADQUARTERS, DEPARTMENT OF THE ARMY

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Technical Manual
No. 9-4910-677-14&P

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DEPARTMENT OF THE ARMY
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REPORTING OF ERRORS

You can help improve this manual by recommending improvements using, DA Form 2028 (Recommended Changes to Publications and Blank Forms) or DA Form 2028-2 located in the back of this manual. Mail your form direct to Commander, US Army Armament Materiel Readiness Command, ATTN: DRSAR-MAS, Rock Island, IL 61299. A reply will be furnished direct to you.

NOTE

This manual is published for the purpose of identifying an authorized commercial manual for the use of the personnel to whom this tester is issued.

Manufactured by: CENTURY TOOL COMPANY, INC.
Hilton Street
Easton, PA 18042

Procured under Contract No: DAAA09-76-C-6699

This technical manual is an authentication of the manufacturers' commercial literature and does not conform with the format and content specified in AR 310-3, Military Publications. This technical manual does, however, contain available information that is essential to the operation and maintenance of the equipment.

INSTRUCTIONS FOR REQUISITIONING PARTS NOT IDENTIFIED BY NSN

When requisitioning parts not identified by **National Stock Number, it is mandatory** that the following information be furnished the supply officer:

1. Manufacturer's Federal Supply Code number. (82078)
2. Manufacturer's model number for end item. (27-12)
3. Nomenclature exactly as listed herein.
4. If DD Form 1348 is used, fill in all blocks except 4, 5, 6, and remarks field in accordance with AR 725-50.
5. Complete form as follows:
   a. In blocks 4, 5, and 6 list manufacturer's Federal Supply Code number. (82078)
   b. Complete remarks field as follows:

      Noun: (nomenclature for repair part).

      For: (NSN for end item "4910-255-8673").

      Mfr: (of end item "Century Tool Co.").

      Model: (of end item "27-12").

82078 Model No 27-12

TESTER, INTERNAL COMBUSTION ENGINE

MODEL NO. 27-12

Connect the vacuum gauge hose to the intake manifold. On many engines there is a plug in the intake manifold which can be removed. If this is the case, remove the plug, screw the proper fitting in its place and connect the hose to it. On engines which do not have plugs, remove the windshield wiper hose, and connect the vacuum gauge hose in its place. However, if there is a vacuum booster pump on the engine, disconnect the pump and connect the vacuum gauge hose to the intake manifold where the booster pump was disconnected from it.

The vacuum gauge is an accurate means of adjusting ignition timing. With the motor at a fast idle, advance the ignition timing so as to get the highest possible steady reading on the vacuum gauge. Now retard so that the needle on the gauge just begins to drop. Now the question of detonation or ping enters the picture. If the cooling system is functioning properly, the spark plugs are not too hot, the combustion chamber is not insulated by a carbon mixture, the carburetor mixture is right, and the mixture from the carburetor has the proper turbulence in the combustion chain. ber, this is the proper timing position. Unfortunately, in many instances, one or more of the above mentioned conditions exist, and we must set the ignition timing to compensate for them. To do this, short out the cylinders by clipping the different leads to the spark plugs until the motor is working on two cylinders. We are now able to duplicate a load tendency of the motor to detonate or ping. Retard the timing till the motor does not ping, and the timing is now set to eliminate detonation.

CYLINDER BALANCE TEST

Pairs of cylinders can be placed under load by shorting out the plugs of the other cylinders after opening the throttle valve and locking it in place. If two cylinders are able to run the engine against the compression of the others, it indicates that the ignition is not missing, that the carburetor high speed and power circuits are working and that compression must be at least in fair condition. Compare the vacuum readings while running on different pairs of cylinders.

On 4 cylinder engines, set the throttle so the engine will run about 900 RPM with all cylinders operating. Then run on the following pairs with the other cylinders grounded out.

Run on cyl. 1 and 4. Run on cyl. 2 and 3

On 6 cylinder engines fix the throttle at about 1000 RPM with all cylinders operating Then run on the following pairs with the remaining cylinders grounded out.

Run on cyl. 1 and 6 Run on cyl. 2 and 5

Run on cyl. 3 and 4

On 8 cylinder- engines fix the throttle at about 1500 RPM running on all cylinders. Then run on the following pairs with the other cylinders grounded out.

Run on cyl. 1 and 8 Run on cyl. 3 and 6

Run on cyl. 2 and 7 Run on cyl. 4 and 5

The manufacturers of V-8 engines use several different methods of numbering the cylinders. To decrease the confusion a lettering system (see illustration) has been developed