



AMTEC
Agricultural Machinery Testing and Evaluation Center
1977

ACR 012:2023 CHECKLIST AND REMINDERS FOR THE AMTEC TEST CONDITIONS AND REQUIREMENTS FOR DISC PLOW

■ Application for AMTEC Test

The test applicant shall submit AMTEC-OP-F01 (Agricultural Machinery Test Application Form) together with the following requirements:

- AMTEC-OP-F16 (Waiver for Machine Specifications)
- AMTEC-OP-F18 (Data Privacy Consent Form)

■ Technical Specifications of the Machine

The test applicant shall submit any document/s indicating the specifications of the machine upon application for testing. In case the said document/s are not available, the applicant shall fill out the Machine Specifications Sheet provided by AMTEC upon request.

- Operator's manual with complete specifications as indicated in Annex B of PAES 134:2004
- Brochure
- Machine specifications sheet (shall be filled out upon request and receipt of copy from AMTEC in case the manual or brochure is not available)

■ Preparation and Operation of the Machine

During field performance test, the disc plow shall be ready for operation. The officially designated representative and/or operator of the test applicant shall operate, demonstrate, adjust, repair, and decide on matters related to the operation of the machine. The operator shall be skilled in operating a mechanical rice combine harvester.

■ Running-in of the Machine

A test run shall be conducted prior the official test as to check its condition and make necessary adjustments to the machine according to the recommendation of the test applicant and/or manufacturer. No other adjustments shall be permitted while the official test is on-going.

■ Test Plot

The test applicant shall prepare at least three (3) test plots. Each test plot shall:

- Be rectangular with sides in the ratio of 2:1 as much as possible;
- Be at least 250 m² for animal-drawn;
- Be at least 500 m² for two-wheel tractor-drawn;
- Be at least 1000 m² for four-wheel tractor-drawn;
- Have headland of at least 3 m in length or depending on tractor size; and
- Be dry or wet field depending on the manufacturer.

■ Other Test Necessities

The following shall also be adequately supplied during the conduct of testing:

- Fuel tank filled to full capacity;
- 3 L or sufficient fuel for refilling after each test trial; and
- Tools for machine repair and adjustments

■ Machine Setting

The disc plow shall be tested at the manufacturer's and the following recommended setting during plowing operation:

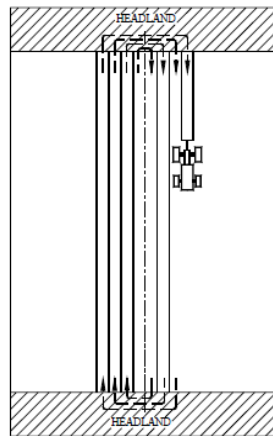
- Forward speed range, kph: 5-6 (for four-wheel tractor-drawn), 3-4 (for two-wheel tractor-drawn), 2-4 (for animal-drawn)
- Depth of cut: _____
- Gear shift setting (for four-wheel tractor-mounted plow): _____
- Operating width, mm: _____



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Recommended Tilling Pattern

For four-wheel tractor-drawn plow, the non-working time should be minimized as much as possible using the headland pattern.



Requirements

AMTEC shall conduct various tests and verification on different performance parameters of the machine including the following requirements as per PAES 121:2001:

Materials of Construction

Item	Requirement as per PAES 121:2001
Frame, scraper, thrust wheel, hitch	<input type="checkbox"/> All shall be made of mild steel.
Spool	<input type="checkbox"/> It shall be made with cast iron.
Hitch pin	<input type="checkbox"/> It shall be made with carbon steel.
Disc blade	<input type="checkbox"/> It shall be made of carbon steel with at least 80% carbon content (AISI 1080) or alloy steel with at least 0.0005% boron content.
Standard	<input type="checkbox"/> It shall be made of high carbon steel.

Construction Requirements

Item		Requirement
Disc plow	Type of disc	Plain or notched
	Number of disc	2-8
	Diameter of discs, mm	560-810
	Working width, mm	500-2000
	Working depth, mm	200-400
	Frame height, mm	650-800
	Disc spacing, mm	500-750
	Weight per disc*, kg	150-250
	Drawbar power requirement per disc, kW	15-20
*It is the total weight of the plow divided by the number of discs		
Disc thickness	Disc diameter, mm	Thickness, mm
	560	4-6
	610	4-6
	660	5-6.5
	710	6.5-7.5
	760	8-10
810	8-12	



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■ Construction Requirements (Cont'n)

	Disc diameter, mm	Concavity, mm
Disc concavity	560	60-92
	610	60-106
	660	69-124
	710	82-140
	760	89-137
	810	104-144

■ Performance Requirements

Criteria	Requirement as per PAES 121:2001
Depth of Cut, mm, maximum	As specified by the manufacturer
Operation	Good quality of work shall be produced such as: (a) Quality of inversion (ease of burying plant residues) and (b) uniformity of soil clods, especially between successive passes.

■ Other Requirements

- Each disc shall be fastened securely to the hub with 4 or 5 plow bolts which are hammered while the nuts are drawn securely.
- The frame shall be rigid and durable.
- The adjustable scrapers shall be set in a way that they not touch the face of the disc to effectively scrape soil.
- Grease points for bearing lubrication shall be provided. Bearings shall be properly aligned and provided with special dirt seals.
- The disc plow hitch shall be compatible with the hydraulic system and the three-point hitch of the tractor specified in PAES 118.
- The plow shall be easy to operate such as: (a) Hitching and unhitching, (b) Depth of cut adjustment, (c) Position change of plow with respect to the line of pull of tractor, (d) Moving the standards laterally on the frame, (e) Maneuvering, (f) Clearing blockage, (g) Changing from transport to work position, and (h) Scraper adjustment.

■ Suspension and Termination of Test

If the test plot does not conform with the recommended quantity and characteristics, AMTEC shall not proceed with the test. Should the test applicant request the conduct of the test despite the non-conformity to the test requirements identified by AMTEC, the applicant shall sign the AMTEC Waiver for Nonconformity to Test Requirements.

- AMTEC-OP-F24 (Waiver for Nonconformity to Test Requirements)

If the machine stops due to breakdown or malfunction during the test run affecting the machine's performance, the test may be suspended. If the plow fails to penetrate the soil or becomes non-functional during test, the test shall be terminated by the test engineers.

■ Other Assistance During Test

1. For field and laboratory tests outside the AMTEC premises, the applicant shall shoulder the transportation expenses (i.e. fuel, toll fees, vehicle rental, plane fare, sea fare, etc.) of the AMTEC Staff assigned for the testing activity.
2. The applicant is requested to assist the AMTEC Staff in looking and/or making arrangements for hotel accommodation and food near the test site.
3. The applicant shall provide drinking water to the AMTEC Staff during the testing activity.
4. The applicant shall provide any form of shed or sunshade (e.g. tent, umbrella, etc.) for the test equipment, samples (if applicable) and AMTEC Staff during the testing activity in the field.
5. The applicant is requested to assist the AMTEC Staff in finding any means to access a safe and convenient restroom near the test site during the testing activity.



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■ Testing Fee

1. The testing fee for disc plow is PhP 7,000.
2. To proceed through AMTEC test, the test applicant shall settle at least 50 % of the testing fee which is non-refundable but transferrable.
3. In cases of additional testing during the field, the test applicant shall immediately submit the required documents and settle at least 50% of the testing fee within 5 working days after the testing proper.
 Additional testing, number of machines: _____
4. Payment/s shall be directed to the following:
 Through UPLB Cashier's Office (8AM to 12PM): AMTEC Trust Fund Code No. 8271632-40A2040101000
 Through Landbank (8:30AM to 3PM): UPLB Trust Fund Account No. 1892100507 or UPLB FI Account No. 1892-1003-29

■ Other Reminders

1. All manufacturers, fabricators, assemblers, and importers (MFAI) shall secure a Certificate of Conformity (CC) from the Bureau of Agricultural and Fisheries Engineering (BAFE) which guarantees that their agricultural and fisheries machinery conforms with PNS/BAFS PABES or other relevant standards identified by BAFE. More information about the application for CC can be found at <http://bafe.da.gov.ph/index.php/certificate-of-conformity-of-manufacturers-fabricators-assemblers-distributors-dealers-importers-and-exporters/>.
2. All MFAI shall employ an Agricultural and Biosystems Engineer (ABE), as mandated by RA 10915 (ABE Law), who shall facilitate all activities and concerns pertinent to AMTEC testing and BAFE requirements. Do you currently have an ABE in your roster of employees? Yes No