Institut za mehanizaciju poljoprivrede - Zemun

O.E.C.D. Report No 839
Printed: August 1982

Report on Test in Accordance with O.E.C.D. STANDARD CODE for the Official Testing of Agricultural Tractors



Agricultural tractor TORPEDO TD 45 06

Manufactured by: „TORPEDO"
Rijeka – Yugoslavia

Date of test: January – April 1982

This Bulletin is based on engineering tests in accordance with the O.E.C.D. STANDARD–CODE for the Official Testing of Agricultural Tractors.

It does not contain an evaluation of the performance of the tractor on practical work.

This Report has been aporoved by the O.E.C.D. Co–ordinating Centre (C.E.M.A.G.R.E.F., France) as being in accordance with the O.E.C.D. STANDARD – CODE.

Date of Approval: July 20th 1982

All rights (including the right of translation, reprint and photomehanical copying — also of excerpts) reserved by:
Institut za mehanizaciju poljoprivrede, 11080 Zemun, Post box 41

Printed in Yugoslavia

TABLE OF CONTENTS

	Page
Specification of tractor	1 to 7
Conditions during test	8
Fuel and lubricants used in tests	8
COMPULSORY TESTS	
(1) Main power take-off performance	9 to 12
(2) Drawbar performance on a tarmacadam track	13 and 14
(3) Turning space and turning circle	15
(4) Location of centre of gravity	15
(5) Braking performance	16
(6) Ambient noise, emitted by the tractor	17
(7) Noise at the driver's ear level	17
(8) Power lift and hydraulic pump performance	18 to 21

Tractor manufacturer's name and adress:	"TORPEDO" 51ooo Rijeka, Yugoslavia
Submitted for test by:	The manufacturer
Selected by:	Representatives of IMP
Place of running-in:	Laboratory of IMP
Duration of running-in:	cca 5o hours

SPECIFICATION OF TRACTOR

TRACTOR

Make:	"TORPEDO"
Model:	TD 45 o6
Type:	Standard-unit construction, four wheels, rear wheels driven
Serial N°:	14491

ENGINE

Make:	"TORPEDO"
Model:	F 3 L 912
Type:	Four-stroke, air cooled diesel, direct injection
Serial N°:	824o7
Cylinders:	3, vertical, in-line, bore loo mm, stroke 12o mm, displacement 2826 cm^3, compression ratio 17:1, overhead valves, replaceable liners with cooling ribs
Fuel system:	Piston type feed pump "Rikard Benčić" BV2 HF o8, with hand primer and sediment bowl; "Pobjeda" - Tešanj paper element filter on pressure side of feed pump; fuel tank capacity 7o l; "Rikard Benčić" in-line type BP 23T8-12a,37B II RVF injection pump, serial N° 15584, manufacturer's production setting 51 mm^3 per stroke, 23oo rev/min engine speed and full load, injection timing 28° before T.D.C.; IPM Y DLLA 149 S 394 four holes injector nozzles, injection pressure 172^{+5} bar

Governor:	"Rikard Benčić" RSV 325-1150/283 330 FL, mechanical, all range, incorporated in fuel injection pump, governed range of engine speed 650-245 rev/min, rated engine speed 2300 rev/min
Air cleaner:	Main "Pobjeda" - Tešanj, dry with replaceable paper element; precleaner with felt tube cartridge
Lubrication system:	Forced feed from gear pump with strainer in sump full flow replaceable cartridge; oil capacity 9 l; recommended oil quality acc. to MIL-L-2104 C; oil viscosities: Winter SAE 10W Summer SAE 20W/20 Tropics SAE 30 oil and filter shange intervals up to 200 hours
Cooling system:	Air cooling system; axial air fan, belt driven
Starting system:	Electrical ISKRA solenoid-engaged starter motor AZJ 3505, 12 V, 3 kW; heating coil in intake manifold as aid for cold starting;
Exhaust:	Vertical, above engine bonnet, on the left hand side; conic silencer with 125/70 mm dia, 800 long; mouth showing upwards with 45 mm dia, 2230 mm above ground
Electrical system:	12 Volt, negative earth; ISKRA alternator AAG 0602 14 V 28 A; one lead acid battery with 88 Ah at 20-hours rating

TRANSMISSION

Clutch:	RUEN - Kočani; dry, dual friction disc type double acting clutch mechanically pedal operated, DP 225/225; tractor drive disc dia 225 mm; p.t.o. shaft disc dia 225 mm

Gearbox: Own make; TW 35.2
mechanical with sliding gears, 4 forward and 1 reverse gear and two speed range selector;
N° of speeds (totally):
8 forward
2 reverse

Rear axle and final drive: Own make;
Bevel gear drive with crown wheel and pinion; bevel gear type differential with lock, pedal operated, self disengaging;

Oil capacity: 14 l, gearbox and rear axle

Oil changing period: Every 1500 working hours

Recommended oil qualities: Gearbox and differential:
gear oil SAE 90 acc. to MIL-L-2105
(viscosity for all seasons)

Total ratios and speeds

Gear	Total ratio engine: driving wheel	Nominal travelling speed at rated engine speed km/h	Nominal travelling speed at standard p.t.o. speed 540 rev/min km/h
Forwards speeds			
1 low	292,25:1	1,91	1,73
2 low	218,03:1	2,57	2,32
3 low	142,64:1	3,92	3,54
4 low	100,28:1	5,58	5,04
1 high	66,87:1	8,36	7,55
2 high	49,88:1	11,21	10,13
3 high	32,64:1	17,13	15,47
4 high	22,34:1	25,03	22,61
Reverse speeds			
low	218,03:1	2,57	2,32
high	49,88:1	11,21	10,13

Calculated with the driving wheel rolling radius 645 mm, given in the tyre manufacturer's specification

Power take-off

Main p.t.o.: Semi-independent p.t.o.;
at rear of tractor in the median plane;
driven through the second disc of the double.
acting clutch, mechanically pedal operated;
height above ground 595 mm;
distance from the p.t.o. shaft end to the
rear axle centre:
horizontal 413,5 mm behind
vertical 42 mm below
dimensions 29x34,9x8,7 mm, 6 spines,
acc.to JUS M.L1-6o1, DIN 9611 Form A, ISO 5oo

Proportional p.t.o.: Speed at rated engine speed (23oo rev/min)
598 rev/min; standard p.t.o. speed 54o rev/min
at 2o77 rev/min engine speed;
direction of rotation clockwise, viewed from
tractor rear

Power lift:

Hydraulic system: Own make; K35 Transfermatik System;
Block type hydraulic power lift; position and
draught control and free floating;
one way acting power lift rim;
safety valve on power lift rim set to 21o-26o bar
hydraulic gear pump PPT 3115.475.91, directly
engine driven;
maximum working pressure (opening pressure of
relief valve) 175 bar;
hydraulic oil tank with 1o l capacity;
engine oil SAE 2o acc. to MIL-L-21o4 B;
oil changing intervals every 15oo working hours;
oil filter with the replaceable cartridge;
cartridge's changing interval every 5oo working
hours or yearly;
no external tappings are fitted on the tested
tractor

Implement linkage: Three point linkage category I (DIN 9674, ISO 73o
power lift operated;
lifting rods adjustable from 55o to 65o mm;

lifting heights above ground:
with short lift rods 41o - 94o mm
with long lift rods 185 - 785 mm
(rear wheel static radius 64o mm)
length of top link adjustable from 57o to 785 mm;
lower links with fixed length 82o mm (projected length in side view with standard frame 817 mm)

Pull attachment

Swinging drawbar: Not tested

Holed bar: Fitted on the clevis of the lower links;
length between the ball joints 68o mm;
thickness of the bar 3o mm;
one hole in the median position and 3 holes on either side in 8o mm steps;
all holes 21 mm diameter;
height above ground adjustable by power lift within the range from 14o to 94o mm continuoslly
distance of centre hole with lower links in horizontal position:

from rear axle:
horizontal 9o5 mm
vertical - 165 mm

from p.t.o. shaft end:
horizontal: 492 mm
vertical - 123 mm

Trailer hitch: Height above ground (mm)

64o	77o	835
575	7o5	77o

distance of the hitch centre
from the rear axle:
horizontal 58o mm
vertical - 65; o; 65; 13o; 195 mm
from the p.t.o. shaft end:
horizontal 166,5 mm
vertical - 23; 42; 1o7; 172; 237 mm
diameter of the coupling pin 32 mm
permissible vertical load loooo N

Steering:	TAM - TORPEDO; Mechanical, worm gear with 24,4:1 ratio; manual control with one arm and one connecting rod;
Brakes:	
Service brake:	Own make; mechanically acting drum and shoe type brake; two drums on driving wheel axis; pedal operated; drum dia 350 mm, shoe width 60mm
Steering brake:	Divided pedals of service brake, for normal use locked together;
Parking brake:	Mechanically acting drum and shoe type brake with drum on gearbox axle; hand lever actuated; drum dia 180 mm, shoe width 30 mm
Wheels:	
Steering wheels:	2 pneumatics in front 7,50-16 AS-FRONT, 6 ply, diagonal type tyre casing; maximum permissible load per tyre 710 daN at 2,5 bar inflation pressure and 30 km/h; track width adjustable from 1320 to 1820 mm in 100 mm steps by extending axle; rims 5,50F x 16
Driving wheels:	2 pneumatics at rear 14,9-28, agricultural, 8 ply, diagonal type tyre casing; maximum permissible load per tyre 1800 daN at 1,7 bar inflation pressure and 30 km/h; Steel wheel discs; track width adjustable from 1320 to 1720 mm in 100 mm steps by turning discs and rims; rims W 12 x 28
Wheel base:	1995 mm
Seat:	238 2801 KZ 1001-54 upholstered seat with back rest; height of driver's platform above ground 705 mm; height of unloaded seat in front and lowermost position 480 mm above platform; adjustable on inclined plane in longitudinal direction 175 mm in 25 mm steps and simultaneously in the heigh by 80 mm
Number of grease points:	14

Dimensions

Total length: 332o mm with horizontal lower links and without front ballast and ballast carier;

368o mm with horizontal lower links and with front ballast

Maximum width: 2o6o mm with maximum rear track width and without rear ballast

218o mm with 132o mm rear track width and with rear ballast (the rear ballast may be fitted with discs turned for minimum track width only)

Total height: 223o mm to the top of exhaust silencer outlet

Ground clearance: 465 mm below transmission housing

Lighting equipment: Electrical, 12 Volt, negative earth

	Dimension mm	Height above ground of centre mm	Distance from outside edge of tractor to centre mm 1)
Head lamps 2)	Ø 13o	855	67o
Side lamps 3)	9o x 8o	137o	2o5
Rear lamps 4)	9σ x 8o	127o	2o5

1) with rear wheel track width 132o mm
2) unrestricted beam angle of Head lamps in plan view 32°
3) in combination with the direction indicator
4) in combination with the direction indicator and stoplight

Running-time meter: Mechanical, with tachometer combined, driven by camshaft of engine; reference engine speed for one really counted hour 15oo rev/min

TEST CONDITIONS

Weights (as during drawbar tests)

		Without driver	With driver
Without ballast:	front	790 kg	795 kg
	rear	1205 kg	1275 kg
	total	1995 kg	2070 kg
Front ballast:	11 front end weights 22 kg each and weight carrier 34 kg		276 kg
Rear ballast:	12 weights per wheel 39,5 kg each		948 kg
	water in tyres		261 kg
With ballast:	front	1150 kg	1155 kg
	rear	2330 kg	2400 kg
	total	3480 kg	3555 kg

Track setting at front and rear 1320 mm

Fuels and lubricants used in tests

Fuel: INA Diesel - fuel D_2 acc.to JUS B.H 2.412
Specific gravity at 15°C 0,826 kg/l in all tests
Viscosity at 15°C: 5,0 mm^2/S
Cetane number: 55

Engine oil: INA Super S1 SAE 20

Transmission oil: HYPOL SAE 90

Hydraulic oil: INA Super S1 SAE 20

COMPULSORY TESTS

(1) MAIN POWER-TAKE-OFF PERFORMANCE

Date and location of test: 5th March 1982
Institut za mehanizaciju poljoprivrede - Zemun

Type of dynamometer: Hydraulic brake SCHENCK U1-3o

Power kW	Speed engine rev/min	Speed p.t.o rev/min	Fuel consumption hourly l/h	Fuel consumption hourly kg/h	Fuel consumption specific kg/kWh	Specific energy kwh/l
MAXIMUM POWER						
At 2-hour test						
35,88	23oo	598	1o,9o	9,o1	o,251	3,29
At standard p.t.o. speed (54o rev/min)						
34,29	2o77	54o	1o,o9	8,33	o,243	3,4o
At speed recommended by the manufacturer for drawbar work						
35,88	23oo	598	1o,9o	9,o1	o,251	3,29
PART LOADS						
Governor hand lever in position giving maximum power						
(i) 85 % of the torque at maximum power						
31,o4	2351	611	9,42	7,78	o,251	3,29
(ii) unloaded						
o,32	2442	635	2,92	2,41	-	-
(iii) 5o % of the load defined in (i)						
15,89	24o6	625	6,1o	5,o3	o,317	2,6o
(iv) maximum power						
35,88	23oo	598	1o,9o	9,o1	o,251	3,29
(v) 25 % of the load defined in (i)						
8,o5	242o	629	4,35	3,59	o,446	1,85
(vi) 75 % of the load defined in (i)						
23,67	238o	619	7,69	6,35	o,26o	3,o8

INSTITUT ZA MEHANIZACIJU POLJOPRIVREDE

lo.

Power	Speed engine rev/min	Speed p.t.o. rev/min	Fuel consumption hourly l/h	Fuel consumption hourly kg/h	Fuel consumption specific kg/kWh	Specific energy kWh/l
Governor setting giving standard p.t.o. speed at full load						
(i) 85 % of the torque at full load						
29,76	2121	551	8,74	7,22	o,243	3,4o
(ii) unloaded						
o,26	2227	579	2,47	2,o4	-	-
(iii) 5o % of the load defined in (i)						
15,36	2188	569	5,62	4,64	o,3o2	2,73
(iv) full load						
34,29	2o77	54o	lo,o9	8,33	o,243	3,4o
(v) 25 % of the load defined in (i)						
7,7o	22o6	574	3,94	3,26	o,423	1,95
(vi) 75 % of the load defined in (i)						
22,75	2161	562	7,o2	5,8o	o,255	3,24

STANDARD SPECIFIC FUEL CONSUMPTION: o,251; o,318; o,243; o,3o2 kg/kWh

No load, maximum engine speed: 245o rev/min

Equivalent crankshaft torque at maximum power: 14,9o daNm

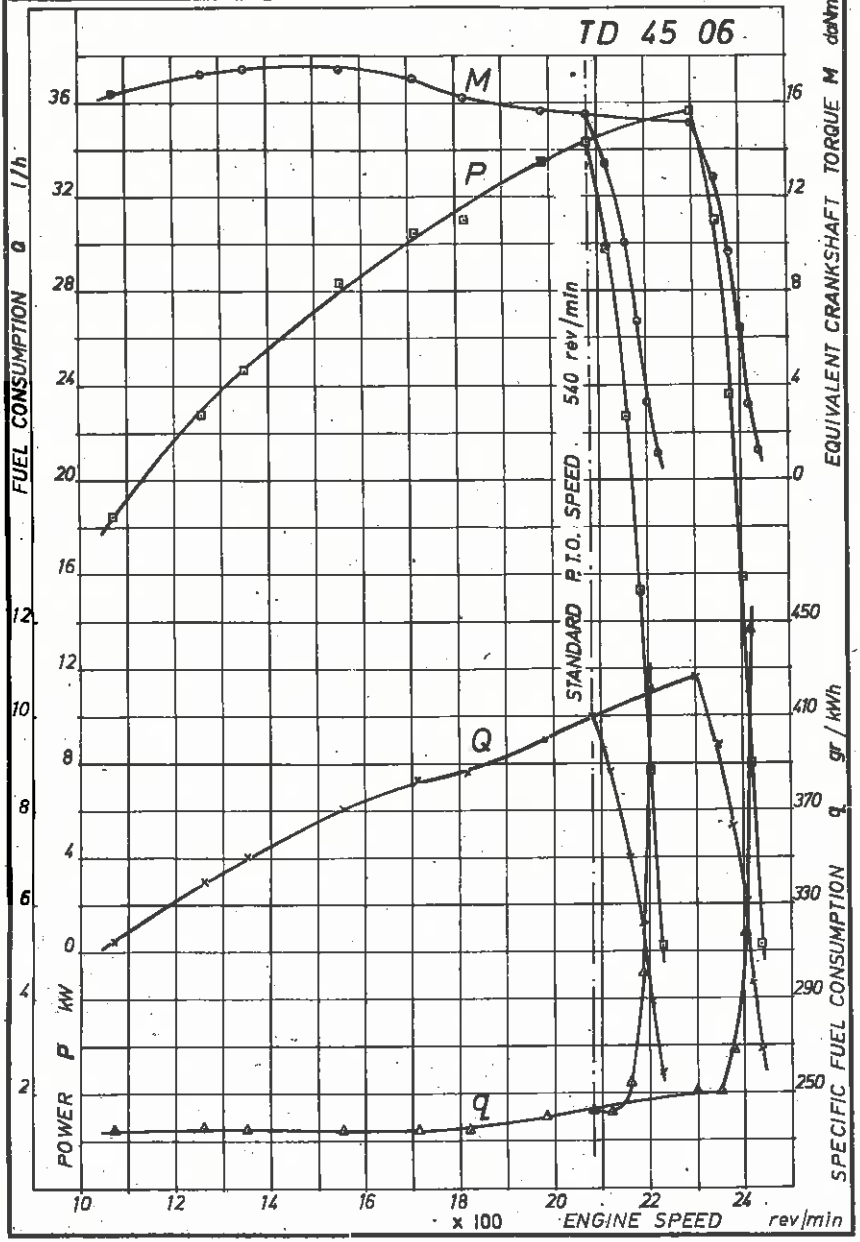
Maximum equivalent crankshaft torque: 17,45 daNm at 1352 - 156o rev/min engine speed

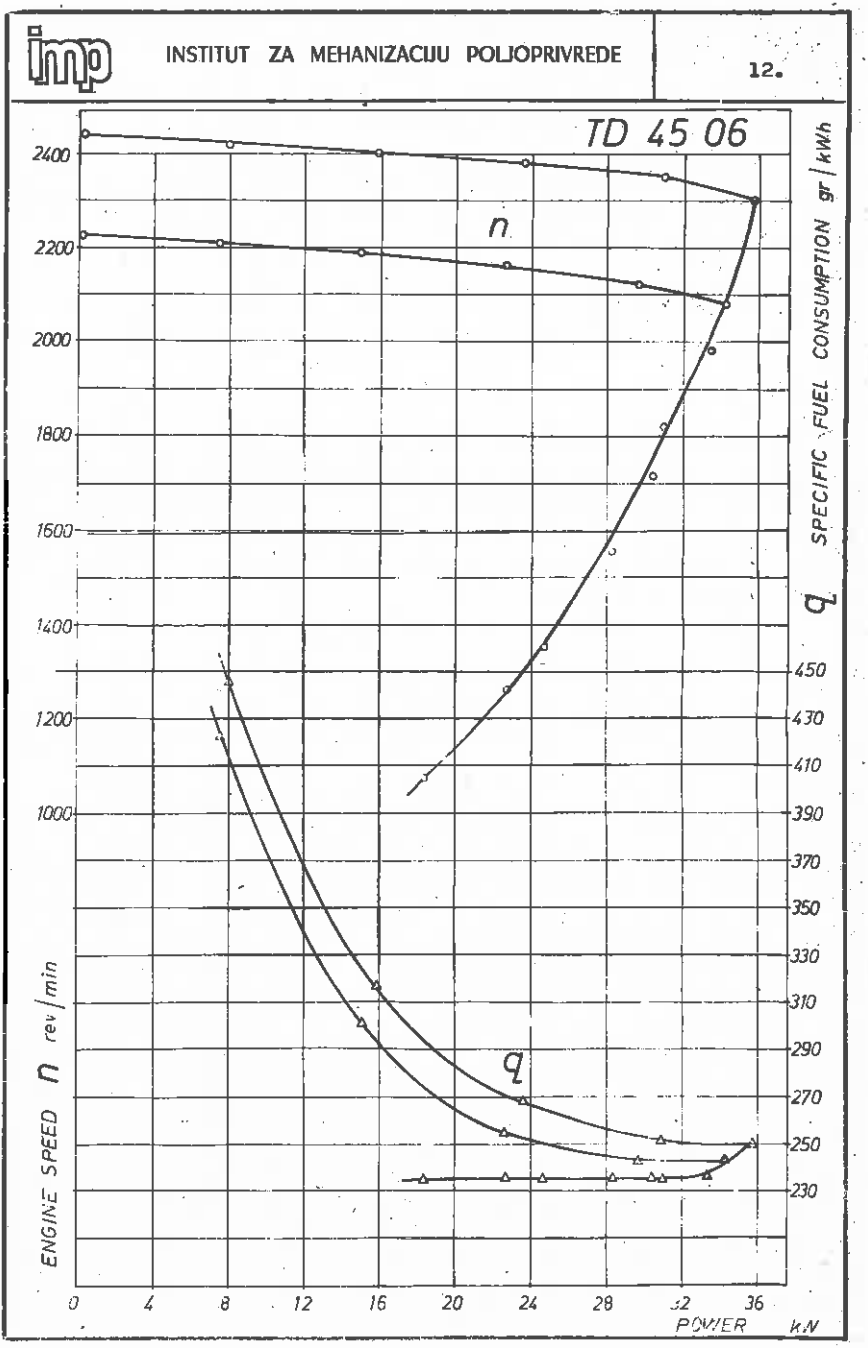
Mean atmospheric conditions

- temperature: 16°C
- pressure: looo5 mbar
- humidity: 76 %

Maximum temperatures

- coolant: -
- engine oil: 93°C
- fuel: 18°C
- air intake: 19°C


TD 45 06
M
P
Q
q
STANDARD P.T.O. SPEED 540 rev/min
FUEL CONSUMPTION G l/h
POWER P kW
EQUIVALENT CRANKSHAFT TORQUE M daNm
SPECIFIC FUEL CONSUMPTION q gr/kWh
ENGINE SPEED x 100 rev/min
36
32
28
24
20
16
12
8
4
0
16
12
8
4
0
450
410
370
330
290
250
10
12
14
16
18
20
22
24


TD 45 06
n
q
ENGINE SPEED n rev/min
SPECIFIC FUEL CONSUMPTION gr/kWh
2400
2200
2000
1800
1600
1400
1200
1000
450
430
410
390
370
350
330
310
290
270
250
230
0
4
8
12
16
20
24
28
32
36
POWER kN

(2) DRAWBAR PERFORMANCE

Date of test: 8th and 15th March 1982

Type of track: Tarmacadam

Note: The drawbar test was started with new, run-in tyres

Gear	Driving speed	Power	Drawbar pull	Engine speed	Slip of wheels	Specific energy	Specific fuel consumpt.	Temperatures Fuel	Co-olant	Engine oil	Atmospheric conditions Tempe-rature	Relative humidity	Pres-sure
-	km/h	kW	daN	rev/min	%	kwh/l	kg/kwh	°C	°C	°C	°C	%	mbar
1	2	3	4	5	6	7	8	9	1o	11	12	13	14
(i) MAXIMUM POWER (unballasted)								height of drawbar above ground 7o5 mm tyre inflation pressure o,9 bar					
3 L	3,44	16,72	175o	2385	15,o	2,27	o,37o	18	-	85	17	74	1oo2
4 L	4,85	23,58	175o	2345	15,o	2,48	o,332	19	-	86	17	74	1oo2
1 H	7,76	29,53	137o	23oo	7,1	2,71	o,3o5	19	-	88	17	74	1oo2
2 H	1o,78	3o,o9	1oo5	23oo	3,9	2,76	o,3oo	19	-	9o	18	71	1oo2
3 H	16,85	29,49	63o	23oo	1,8	2,7o	o,3o6	2o	-	9o	18	71	1oo2
4 H	24,8o	28,24	41o	23oo	1,1	2,58	o,32o	21	-	92	19	68	1oo2

1	2	3	4	5	6	7	8	9	1o	11	12	13	14
	(ii) MAXIMUM POWER (ballasted)							height of drawbar above ground: 575 mm type inflation pressure 1,5 bar					
1 L	1,68	14,o9	3o2o	239o	15,1	2,o9	o,395	16	-	83	17	63	1oo7
2 L	2,24	18,73	3o1o	237o	15,o	2,33	o,355	16	-	85	17	63	1oo7
3 L	3,4o	27,2o	288o	23oo	13,9	2,49	o,332	17	-	88	17	63	1oo7
4 L	5,26	29,o8	199o	23oo	5,9	2,66	o,31o	17	-	9o	17	63	1oo7
1 H	8,1o	29,7o	132o	23oo	3,3	2,72	o,3o4	17	-	92	17	63	1oo7
2 H	11,oo	29,18	955	23oo	2,2	2,67	o,3o9	18	-	94	18	59	1oo7
3 H	16,9o	27,46	585	23oo	1,3	2,51	o,328	19	-	94	18	59	1oo7
4 H	24,8o	24,8o	36o	23oo	1,o	2,27	o,364	18	-	93	18	59	1oo7
	(iii) FIVE-HOUR-TEST at 75 % of drawbar pull at maximum power in 4 L gear												
4 L	5,5o	22,76	149o	236o	3,8	2,67	o,3o9	17	-	89	16	69	1oo1
	(iv) FIVE-HOUR-TEST at drawbar pull corresponding to 15 % wheelslip in test (ii)												
2 L	-	-	3o1o	-	-	-	-	17	-	95	16	69	1oo1

Remark: Five hour test at pull corresponding to 15 % wheelslip (test iv) was carried out with aditional ballast. Therefore results of test for power, wheelslip, driving speed and fuel conumption would not have any practical value.

Total engine oil consumption during ten hours duration of tests (iii) and (iv) was 52 g/h

(3) TURNING SPACE AND TURNING CIRCLE

Wheel equipment front: 7,5o - 16 6 ply
rear: 14,9 - 28 8 ply

Track of wheels front: 132o mm
rear: 132o mm

	Without brakes		With brakes	
	left-hand	right-hand	left-hand	right-hand
	m	m	m	m
Radius of turning space	3,65	3,94	3,4o	3,64
Radius of turning circle	3,54	3,84	3,28	3,53

(4) LOCATION OF CENTRE OF GRAVITY

Height above ground	712 mm
Distance forward from rear axle centre	766 mm
Distance from tractor's median plane	2 mm to the right

(5) BRAKING PERFORMANCE

Date of test: 9th and 12th March 1982

Type of track: Tarmacadam

Mass of tractor with driver (kg)

	front	rear	total
ballasted	1155	2400	3555
unballasted	795	1275	2070

Type 0 (ordinary cold service braking device performance) test

Speed before application of brakes 26 km/h

Ballasted	Braking device control force	daN	20	25	30	35	40
	Mean deceleration	m/s^2	2,08	2,65	3,22	3,96	4,05
Unballasted	Braking device control force	daN	20	25	30	35	-
	Mean deceleration	m/s^2	2,70	3,15	3,70	3,78	-

Type I (fade) test

Speed before application of brakes 26 km/h

Ballasted	Braking device control force	daN	20	25	30	35	40
	Mean deceleration	m/s^2	2,10	2,66	3,20	3,90	4,00
Unballasted	Braking device control force	daN	20	25	30	35	40
	Mean deceleration	m/s^2	2,75	3,20	3,65	3,76	3,80

Maximum deviation of tractor from its original course less than 0,3 m to the left

No abnormal vibrations occured

The brakes were heated by towing the tractor with the braking force about 10 % of the mass at the speed 21 km/h (80 % of the maximum speed)

Parking braking device test

		18 per cent slope		12 per cent slope with trailer of 2,1 tonnes	
		Up	Down	Up	Down
Braking device control force	daN	18	18	22	23

(6) AMBIENT NOISE EMITTED BY THE TRACTOR

Date of test: 25th March 1982
Type of track: Tarmacadam
Type of sound level meter: BRUEL &.KJAER mod.22o9

Results of test

Gear: 4th high
Travelling speed before acceleration: 19,o km/h
Sound level: 9o,2 dB(A)

(7) NOISE AT THE DRIVER'S EAR LEVEL

Date of test: 25th March 1982
Type of track: Tarmacadam
Type of sound level meter: BRUEL &.KJAER mod.22o9

Results of test

Tractor without cab or frame and with vertical exhoust pipe

Gear	Drawbar pull at which tractor develops the maximum sound level	Travelling speed nominal	Travelling speed effective	Sound level
	daN	km/h	km/h	dB(A)
1 L	175o	1,91	1,68	95,9
2 L	175o	2,57	2,2o	97,2
3 L	175o	3,92	2,25	98,2
4 L	17oo	5,58	4,9o	98,8
1 H+)	light load	8,36	8,22	96,4
1 H+)	135o	8,36	7,8o	98,9
2 H	1ooo	11,21	1o,8o	99,5
3 H	6oo	17,13	17,oo	99,8
4 H	light load	25,o3	25,oo	99,6

+)The 1st high gear corresponds to the travelling speed nearest to 7,5 km/h

(8) POWER LIFT AND HYDRAULIC PUMP PERFORMANCE

Date and location of test: 3oth March 1982
Institut za mehanizaciju poljoprivrede - Zemun

Hydraulic fluid:

Make and type: Engine oil INA Super S1
Viscosity: SAE 2o (7,5 mm/S at 98,9°C)
Viscosity index: over 85

Type of linkage lock for transport: hydraulic

Power lift

	Height of lower hitch point above ground in down position mm 1)	Vertical movement mm	Maximum force exerted through full range daN 2)	Corresponding pressure of hydraulic fluid MPa (bar)	Moment about rear axle daNm	Max. tilt angle of mast over range of lift degr.
At hitch points	36o	54o	1395	15,8 (158)	-	-
On the frame	34o	675	115o	15,8 (158)	2o6o	+1o°18` -1° 3o`

1) With the rear wheel static radius 64o mm

2) Calculated with the maximum force exerted through the full range of lower lonks movement and with maximum oil pressure (18,8 MPa) reduced to the 9o % of the relief valve opening pressure

Temperature of hydraulic fluid at start of test 62°C

Hydraulic pump performance

Opening pressure of relief valve: 17,5 MPa (175 bar)

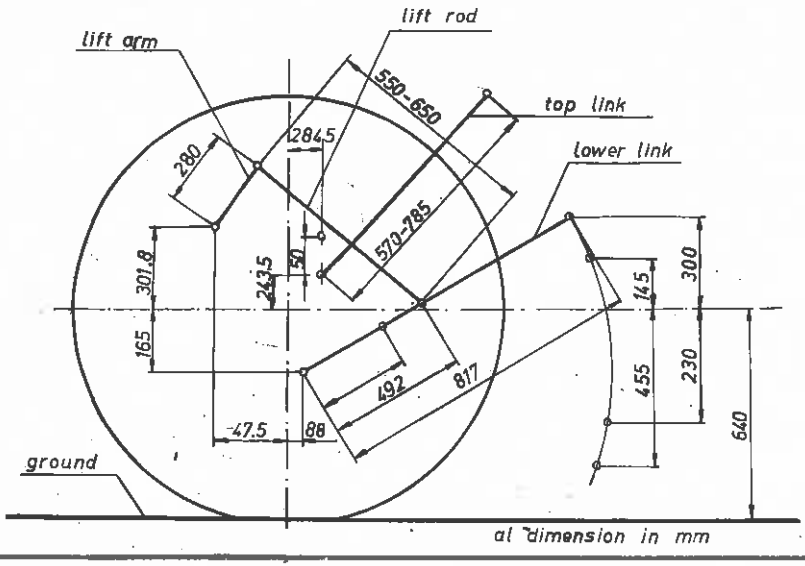
Sustained pressure with relief valve open: 18,8 MPa (188 bar)
(Pump was not stalled)

Pump delivery rate at minimum pressure, the governor control lever being set for maximum power 27,5 l/min

Pump delivery rate at 90 % of relief valve setting, the governor control lever being set for maximum power 25,5 l/min

Hydraulic power at 90 % of relief valve setting: 6,70 kW

Dimensions of linkage geometry
for the table on page



LIFTING FORCES

Lifting heights relative to horizontal lower links

mm	-135	-115	-1oo	0	+1oo	+2oo	+3oo	+4oo	+425	+5oo	+535
		At hitch points									
daN	-	1395	141o	144o	147o	15oo	151o	149o	147o	-	-
		At test frame (61o mm behind lower link hitch points)									
daN	122o	-	126o	131o	132o	129o	125o	122o	-	119o	115o

1° The forces are measured at sustained pressure with the relief valve open (18,8 MPa) and calculated on the pressure 15,8 MPa which corresponds 9o % of relief valve setting (17,5 MPa)

2° The hydraulic fluid temperature during the test was 62°C - 68°C

Linkage geometry when connected to the standard frame

Projected length in side view

lower links	817 mm
lift arms	28o mm
lift rods	58o mm (55o-65o)mm
top link	62o mm (57o-785)mm
Distance of lift rod connection point from pivot point of lower link	492 mm

The following dimensions are given relative to the rear wheel centre line, situated 64o mm above the ground level:

Lower link pivot point	88 mm behind, 165 mm below
Top link pivot point	284,5 mm behind, 243,5 mm above
Lift arm pivot point	47,5 mm forward,3o1,8 mm above
Maximum and minimum height of lower link hitch points	26o mm above, 28o mm below
Height of lower link hitch points when locked in transport position	26o mm above