

# FI Defense Market Intelligence Reports

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## SUBJECT COVERAGE

Binders currently included in the file are: Binder title (Binder code) AN Equipment (AN) Anti-Submarine Warfare (ASW) Asia, Australia, and Pacific Rim (PR) Civil Aircraft (CA) Command, Control, Communication, and Intelligence (C3I) Defense and Aerospace Companies (AC) Electronic Systems (ES) Electronic Warfare (EW) Gas Turbine Engines (GTE) Latin America and Caribbean (LA) Middle East/Africa (ME) Military Aircraft (MA) Military Vehicles (MV) Missiles (M) NATO/Europe (NE) Ordnance & Munitions (O) Radar (R) Retrofit and Modernization - Airborne (RM) Space Systems (SS) Unmanned Vehicles Forecast (UMV) Warships (W)

## TIPS

### USE FILE 589

to find valuable forecasts of activity in the defense industry

### EXPAND MT= or BN=

to get a complete list of binders included in the database.

### USE /CO or CO=

to search for companies featured prominently in a report.

### USE BC=

to save keystrokes and search for a specific binder by binder code.

## DIALOG FILE DATA

Inclusive Dates: Current

Update Frequency: Biweekly

File Size: 3,821 records as of February 2006

## CONTACT

FI Defense Market Intelligence Reports is provided by Forecast International. Questions concerning file content should be directed to:

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Newtown, CT 06470

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## SAMPLE RECORD

DIALOG(R)File 589:FI DEFENSE MARKET INTELLIGENCE  
 (c) 1997 Forecast Intl. All rts. reserv.  
 00012433  
 PT-91 TWARDY

/TI, TI=

/BN, BN=/MT

Binder: MILITARY VEHICLES

MT=

/DE, RC=

Category: TANKS

PD=, PY=

Pub. Date: MAY 01, 1997

CS=

Source: Forecast International/DMS

LA=

Language: English

WD=

Word Count: 2179

SH=, /TX

TYPE

/DE, TY=

A tank.

SH=, /TX

EXECUTIVE

/TX

The development and initial procurement of the PT-91 is being sponsored by the Poland Ministry of National Defense through the Armed Forces Headquarters.

SH=, /TX

CONTRACTORS

/TX

This tank is broadly based on the Russian T.72 which was designed by the Kartsev design bureau with the design headed by Valeriy Venediktov. The further development and transformation of the T.72 design has been undertaken by the Zaklady Mechaniczne Bumar-Labedy S.A. firm located in Gliwice, Poland. This firm is the prime contractor and manufacturer of this tank. Previously, this firm headed the T.72 license production program.

Licensees. None

SH=, /TX

CURRENT STATUS &amp; OUTLOOK

/TX

The PT-91 is in low-rate initial production with ten tanks presently under extended operational evaluations.

SH=, /TX

QUANTITY

/TX

As of January 1, 1997, a total of 23 PT-91 Twardy tanks had been manufactured.

SH=, /TX

MISSION

/TX

A tank for the projection of power as well as defensive missions.

SH=, /TX

PRICE RANGE

/TX

Our research indicates that the unit price for a serially produced PT-91 tank will be equivalent to 3.404 million 1997 United States dollars.

SH=, /TX

CHARACTERISTICS

/TX

Design Features. The PT-91 tank is an improved version of the T.72M1 tank. The PT-91 features multi-layered composite armor, explosive reactive armor, a three man crew, an automatic loading system for the main armament, laser warning system and a more powerful diesel engine.

Crew. Three: commander, gunner, driver

Armor. The low silhouette hull is fabricated from conventional

SAMPLE RECORD (cont'd)

rolled homogeneous steel with a maximum thickness of 23 centimeters (9.05 inches). The turret is a single piece casting with a maximum thickness of 45 centimeters. The base armor is supplemented by explosive reactive armor. The PT-91 may have a layer of "special" radiation absorbing armor in the hull and (in some cases) turret roof.

**/TX** Dimensions. The following data is for the PT-91 fitted with the explosive reactive armor package; there may be some slight changes in the serially produced tanks. The width is with the armored skirts and the height is without the NSV 12.7 millimeter machine gun.

	SI units	US units
Length	9.67 meters	31.72 feet
Width	3.59 meters	11.78 feet
Height	2.19 meters	7.18 feet
Combat weight	47.97 tonnes	52.87 tons
Fuel capacity	1,000 liters	265.95 gallons

Performance. The automotive performance data are for a metalled road. The PT-91 can ford five meters (15 feet) of water when equipped with a schnorkel.

	SI units	US units
Maximum speed	60 kilometers per hour	37.3 miles per hour
Maximum range	650 kilometers	403.7 statute miles
Step	85 centimeters	2.79 feet
Trench	2.8 meters	9.18 feet
Slope	40%	40%
Gradient	60%	60%
Fording	1.8 meters	5.91 feet

Engine. The PT-91 is fitted with the S-121U liquid cooled V-12 diesel engine rated at 632.4 kilowatts (848 horsepower) at a 38.34 revolution per second (2,300 revolution per minute) engine speed. This four stroke

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**SH=, /TX**  
**/TX**

UPGRADES  
Variants. None at this time.

**SH=, /TX**

BACKGROUND  
The T.72 is the second member of the second generation of Soviet (now Russian) tank development since the 1939-1945 War. This tank, like the T.64, has a somewhat confusing background; for a full description of this background as well as the other details of this tank, we refer the reader to the pertinent report in this section.

**/TX**

DESCRIPTION  
The PT-91 is the most recent manifestation of the T.72 design. In point of fact, this tank is so different from the T.72, it warrants coverage in a separate report. First revealed in early 1993, the PT-91, also called the Twardy, is a product of Zaklady Mechaniczne Bumar-Lebedy. This organization had manufactured the T.72 under license for Poland as well as export for almost a decade.

SAMPLE RECORD (cont'd)

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FUNDING

The development and procurement funding for the PT-91 is being provided by the Poland Ministry of National Defense through the Armed Forces Headquarters.

SH=,TX

CONTRACTING ACTIVITY

/TX

Not available as contractual information is not released.

SH=,TX

TIMETABLE

/TX

This table relates to the development and manufacture of the T.72 only as it relates to the PT-91 Twardy program.

May	1979	Tooling up for license manufacture began in Poland
	1981	First Polish T.72 tanks delivered
Early	1989	Development of Wolf began
Mid	1991	Development of PT-91 began
Early	1995	Operational trials completed
Early	1997	Development and preparations for serial production continues

SH=,TX

EXPORT STATUS

/TX

Export Potential. As Poland is a newcomer to the international tank market that operates under the laws of capitalism, the nation is an unknown factor in that market. While the heritage of the PT-91 Twardy is well known, it should be some time before this tank receives approval on the export market.

Countries. Poland (23)

SH=,TX

FORECAST

/TX

RATIONALE

Despite the receipt of new information on the PT-91, some of the details of this tank are still not known. While the new information has resulted in changes in this report's Technical Data section, information on the fire control suite is still limited. However, our research indicates that the PT-91 Twardy is so different from the T.72 that it can be considered a different tank, warranting a separate report. As so many technical and other details regarding this tank are still not known by us, we are continuing to direct special attention to gathering additional material on the Twardy.

Our latest review of the PT-91 program finds that the new tank is in low-rate production which should soon ramp up to full-scale serial production for the Polish requirement. Poland has a major need to modernize its tank inventory. As the nation still operates almost 900 obsolescent T.55 tanks, the reason for this need is clear. However, due to the recent major geopolitical changes in Europe, plus the Conventional Forces in Europe treaty, the replacement of the T.55 inventory will most likely be nowhere near a one-for-one basis. Eventually, the Polish tank force should be composed of late model T.72 tanks and the PT-91 Twardy. For the present, we are forecasting no export of the Twardy.

TEN-YEAR OUTLOOK

## SAMPLE RECORD (cont'd)

ESTIMATED CALENDAR YEAR PRODUCTION

High Confidence  
Level

Vehicle	(Engine)	thru	96	97	98	99	00	01
ZAKLADY MECHANICZNE	BUMAR-LABE							
PT-91(a)	UNKNOWN		23	14	36	51	67	71
=====								
Total Production			23	14	36	51	67	71

(. . .)

a Production through 1996 includes the initial developmental prototype.

<b>CN=</b>	Country: POLAND
<b>IN=/DE</b>	Industry: AEROSPACE AND DEFENSE
<b>CO=</b>	Companies: ZAKLADY MECHANICZNE BUMAR-LABEDY SA,
<b>/DE,SH=</b>	Sections: EXECUTIVE, CONTRACTORS, CURRENT STATUS & OUTLOOK, QUANTITY, MISSION, PRICE RANGE, CHARACTERISTICS, UPGRADES, BACKGROUND, FUNDING, CONTRACTING ACTIVITY, TIMETABLE, EXPORT STATUS, FORECAST RATIONALE
<b>BC=</b>	Binder Code: MV

## SEARCH OPTIONS

### BASIC INDEX

SEARCH SUFFIX	DISPLAY CODE	FIELD NAME	INDEXING	SELECT EXAMPLES
—	—	All Basic Index Fields	Word	S LASER(W)WARNING(W)SYSTEM
—	—	Basic Document	Word	
/BN	BN	Binder Name <sup>1</sup>	Word	S MILITARY(W)VEHICLES/BN
/CN	CN	Country	Word	S POLAND/CN
/CO	CO	Company Name <sup>1</sup>	Word	S BUMAR(W)LABEDY/CO
/DE	DE	Industry/Descriptors <sup>2</sup>	Word	S CONTRACTING(W)ACTIVITY/DE
/MT	MT	Binder Name <sup>1</sup>	Word	S MILITARY(W)VEHICLES/MT
/TI	TI	Title	Word	S PT(W)91(W)TWARDY/TI
/TX	TX	Text	Word	S COMPUTERIZED(W)FIRE(W)CONTROL/TX

<sup>1</sup> Searchable in the Basic Index and in the Additional Indexes.

<sup>2</sup> Includes Industry Names, Section Headings, Report Categories, and Type.

### ADDITIONAL INDEXES

SEARCH PREFIX	DISPLAY CODE	FIELD NAME	INDEXING	SELECT EXAMPLES
—	AN	DIALOG Accession Number		
BC=	BC	Binder Code	Phrase	S BC=MV
BN=	BN	Binder Name <sup>1</sup>	Phrase	S BN=MILITARY VEHICLES
CN=	CN	Country	Phrase	S CN=POLAND
CO=	CO	Company Name <sup>1</sup>	Phrase	S CO=ZAKLADY MECHANICZNE?
CS=	CS	Corporate Source	Phrase	S CS="FORECAST INTERNATIONAL/DMS"
IN=	IN	Industry	Phrase	S IN="AEROSPACE AND DEFENSE"
LA=	LA	Language	Phrase	S LA=ENGLISH
MT=	MT	Binder Name <sup>1</sup>	Phrase	S MT=MILITARY VEHICLES
PD=	PD	Publication Date	Phrase	S PD=19970501
PY=	PY	Publication Year	Phrase	S PY=1997
RC=	RC	Report Category <sup>2</sup>	Phrase	S RC=TANKS
SH=	SH	Section Heading <sup>2</sup>	Phrase	S SH=PRICE RANGE
TI=	TI	Report Title	Phrase	S TI=PT-91 TWARDY
TY=	TY	Report Type <sup>2</sup>	Word	S TY=TANK
UD=	—	Update	Phrase	S UD=9999
WD=	WD	Word Count	Numeric	S WD=2100

**SPECIAL FEATURES**

For command descriptions, enter HELP LIMIT, HELP SORT, HELP RANK online.

<b>LIMIT</b>	/YYYY -- Publication Year	S S3/1998
<b>SORT</b>	<b>AN, BN, CN, CO, CS, IN, PD, PY, TI, WD</b>	SORT S5/ALL/PY,D PRINT S2/5/ALL/PY,D
<b>RANK</b>	All phrase- and numeric-indexed fields in the Additional Indexes can be ranked.	RANK CO

**PREDEFINED FORMAT OPTIONS**

<b>NO.</b>	<b>DIALOGWEB FORMAT</b>	<b>RECORD CONTENT</b>
1	--	DIALOG Accession Number
2	--	Full Record except Text
3	Medium	Full Record except Text
4	--	Full Record except Text
5	Long	Full Record
6	--	Title, Binder Name, Publication Date, and Word Count
7	--	Bibliographic Citation and Text
8	Short	Title, Binder Name, Publication Date, and Word Count
9	Full	Full Record
K	--	KWIC (Key Word In Context) displays a window of text; may be used alone or with other formats

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<b>TAG</b>	TAG may be used for tagged fields.	TYPE S3/5/ALL TAG
<b>DIRECT RECORD ACCESS</b>	If the accession number of a specific record is known, it can be used to display the record directly.	TYPE 00085603/9 PRINT 00095905/9

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