

# 8840 Windrower

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# DIVISION 1

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# Section 1001

## INTRODUCTION

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## GENERAL INFORMATION

### To Our Customer

We appreciate your confidence in our farm equipment and thank you for your patronage. In preparing this manual, we hope we have furnished you with a valuable tool for operating and maintaining this fine machine. Use this manual as your guide. Practicing the instructions given here will result in many years of dependable service from your machine.

Your Dealer can give you assistance with parts and specially trained personnel to assist you in repair and maintenance. Call your Dealer if you need any assistance or information.

### Introduction

This service manual has been prepared with the latest service information available at the time of publication. Read the service manual carefully before doing any service on this machine. This manual is one of the most important tools available to the service technician.

“Right” and “Left” as used throughout this manual is determined by facing in the direction the machine will travel when in use.

The photos, illustrations, and data used in this manual were current at the time of printing, but due to possible production changes, your machine can vary slightly. The Manufacturer reserves the right to redesign and change the machine as necessary without notification.



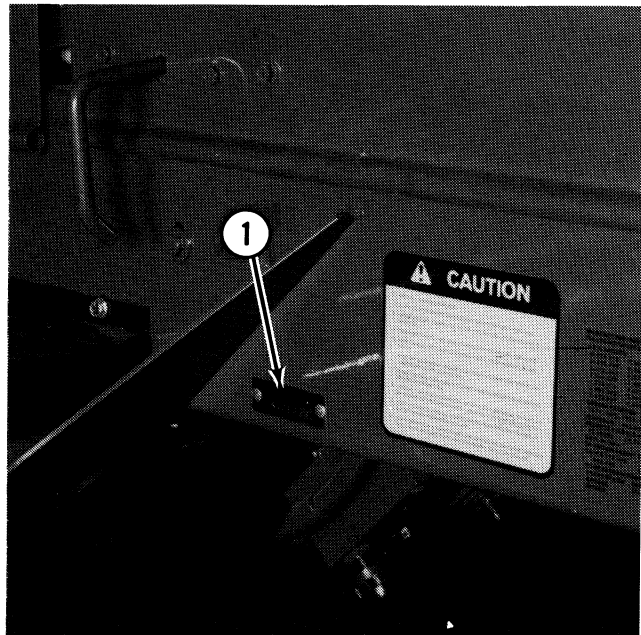
### WARNING:

Some pictures in this manual show the machine with safety shields removed to allow for a better view of the subject of the picture. The machine should never be operated with any of the safety shields removed.

### Serial Number Location

The serial number is important information about the machine. You will need the serial number when ordering some replacement parts.

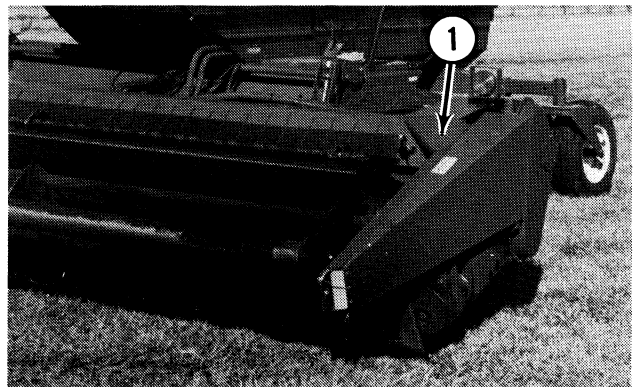
The tractor serial number plate is located on the left side of the tractor mainframe below the operator's platform.



884-87121-1

1. Serial Number Location on Tractor

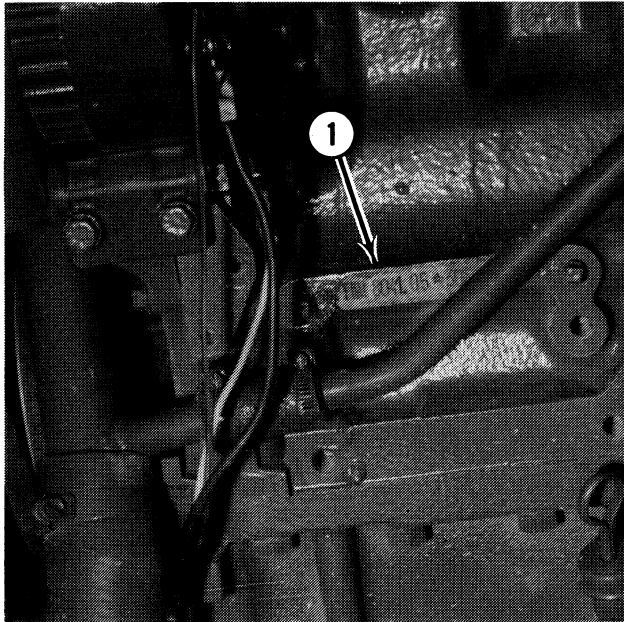
The header serial number plate is located on the left end of the header frame.



84TR-87036-3

1. Serial Number Location on Header

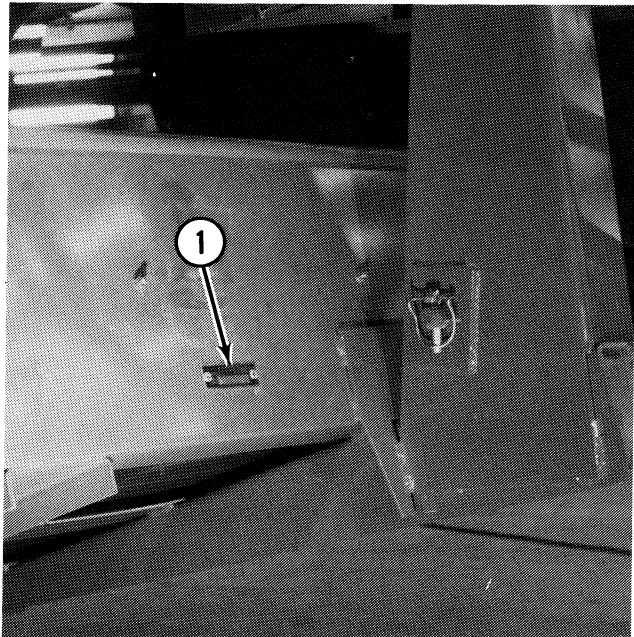
The engine serial number is stamped in the engine block.



*8200-86143-1*

1. Serial Number stamped in Cylinder Block

The serial number plate is for the optional double windrow attachment is located at the right end on the rear frame member.



*DWA-88087-6*

1. Serial Number Location on Double Windrow Attachment

## Replacement Parts

To obtain prompt, efficient service, always remember to give the dealer the following information:

1. Correct part number description.
2. Model number of the machine.
3. Serial number of the machine.

## U.S. and Metric Units

Measurements are given in U.S. units followed by their equivalent in metric units. Hardware sizes are given in inches for U.S. hardware and millimeters for metric hardware.

## Table of Contents

A Table of Contents is in the front of this manual. The Table of Contents shows the divisions and the sections that are in each division. The individual divisions and sections also have a Table of Contents.

## Page Numbers

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# Section 1002

## SAFETY RULES, GENERAL MACHINE SPECIFICATIONS, AND STANDARD TORQUE SPECIFICATIONS

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## SAFETY RULES

The manufacturer of this product is concerned about your safety and is committed to the prevention of accidents. A major factor in prevention of accidents is safe and proper use of the equipment. Be sure you or anyone who does any maintenance or service work on this machine reads and understands this manual prior to doing any maintenance or service work on this machine.



**This Safety Alert Symbol indicates important safety messages in this manual. When you see this symbol, carefully read the message that follows and be alert to the possibility of personal injury or death.**

**Read and understand all operating instructions and precautions before attempting to operate or service the machine.**

**Caution others, especially children, about climbing on the machine or being too close while machine is operating.**

**Emphasize the importance of safety when working around and operating the machine.**

**Always remain seated and have seat belt fastened while operating machine.**

**Make sure all safety shields are in place before operating the machine.**

**Place all control levers in neutral. Engage parking brake control lever, center and lock steering wheel, and shut off engine before:**

- 1. Leaving the operator's seat**
- 2. Refueling**
- 3. Lubricating**
- 4. Cleaning the reel or hay conditioner**
- 5. Adjusting the machine**

**Never stand behind tractor while the header is running.**

**Do not ride on the machine at any time.**

**Never carry riders.**

**Never operate machine at high speeds in crowded places.**

**Never suddenly reverse wheels to stop or backup.**

**Always lower header to ground when parking.**

**Always apply parking brake when parking.**

**Always travel with header as low as possible.**

**Always remove ignition key when parking machine.**

**Always keep hands, feet and clothing away from moving parts. Never wear loose clothing while operating or servicing the machine.**



## **DANGER**

**Before doing any maintenance or service work on the tractor or the header you must:**

- Put all controls in NEUTRAL.**
- Apply the parking brake.**
- Lower the header to the floor.**
- Center and lock the steering wheel.**
- Stop the engine.**
- Make sure all moving parts have stopped.**

**Always apply the parking brake and block the wheels before working on or under the machine.**

**Never check or lubricate chains while machine is running.**

**After lubricating, servicing, or adjusting the machine, make sure all tools and equipment have been removed before operating the machine.**

**Always use a piece of cardboard or wood to search for suspected pressurized hydraulic leaks. NEVER use hands; escaping fluid under pressure can penetrate skin.**

**Never adjust, lubricate, or repair machine with engine running.**

**If the machine is equipped with a double windrow attachment, always turn off the engine and engage the parking brake and neutral lock control before:**

- 1. Leaving the operator's seat.**
- 2. Crawling under the machine to check the draper.**
- 3. Making adjustments to the draper or conveyor.**

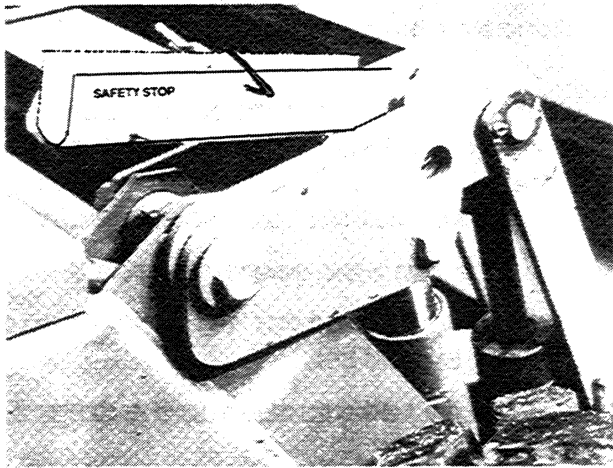
**If the machine is equipped with a double windrow attachment, be aware of the conveyor ground clearance. Avoid excessive speed, especially when transporting over rough or uneven ground.**

**Never remove the cap from a hot radiator; escaping steam and hot fluids can cause personal injury.**

**Always jack on solid support and block tires when raising tractor.**

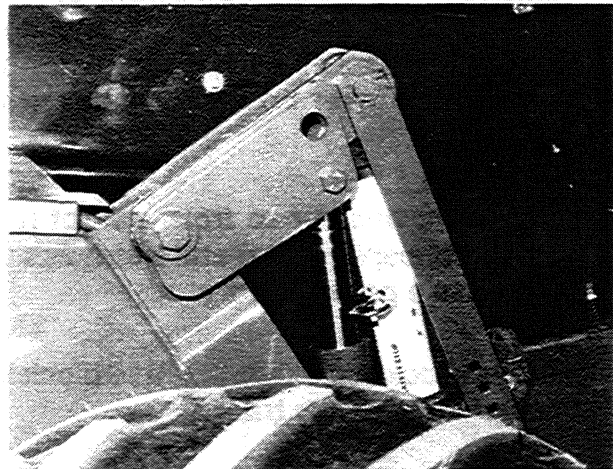
Always install header safety stops at both ends of the header before working on or under the header. See the following photos.

### EARLY PRODUCTION HEADERS



82TR-87001-4

**HEADER SAFETY STOP IN STORAGE POSITION**



82TR-86138-9

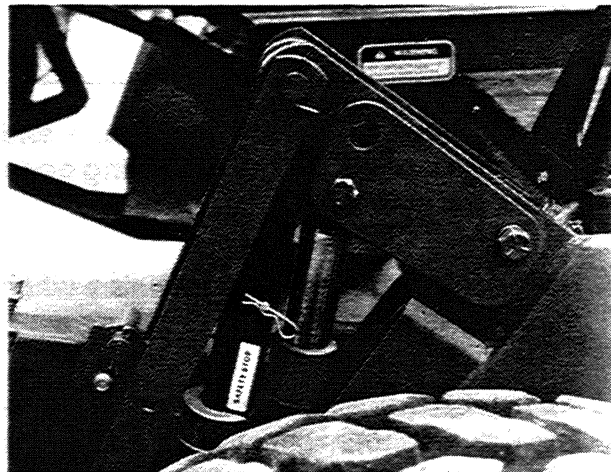
**HEADER SAFETY STOP IN SAFETY POSITION**

### LATE PRODUCTION HEADERS



82TR-88073-3

**HEADER SAFETY STOP IN STORAGE POSITION**



82TR-88073-1

**HEADER SAFETY STOP IN SAFETY POSITION**

**Do not tow or drive machine with header up and safety stops in safety position.**

**BE AWARE** of the transport width and be careful when transporting the machine on narrow roads and across narrow bridges. See General Machine Specifications in this section for overall dimensions.

**Always use ample safety warnings and adequate lights when transporting the machine on public roads. Be sure the SMV emblem is visible. Check with your local law enforcement agencies for specific requirements.**

**Decals with "DANGER", "CAUTION", "WARNING", and other information, appear on the machine for your safety. Read the information carefully.**

**Replace any safety decals that are badly worn or can no longer be read. See Section 1004 for the location of the safety decals.**

# GENERAL MACHINE SPECIFICATIONS

## Tractor

### MACHINE DIMENSIONS

Overall length with auger header	242 IN (6146.8 mm)
Height, top of steering wheel	98 IN (2489.2 mm)
Height, top of cab	121 IN (3073.4 mm)
Overall width (outside of hub to outside of hub)	119.6 IN (3037.8 mm)
Overall width	
21.5L x 16.1 flotation tire	148.5 IN (3695.7 mm)
Wheel base	132 IN (3352.8 mm)
Tread width	127.0 IN (3225.8 mm)
Clearance under walking beam	29 IN (736.6 mm)
Clearance under frame	33.5 IN (850.9 mm)
Weight (approximate)	6750 LBS (3065 kg)
with 14 FT auger header	10 250 LBS (4654 kg)
with 16 FT auger header	10 500 LBS (4767 kg)

### TIRES

Drive wheels	21.5L x 16.1, turf or bar tread
Wheel nuts	5/8-18 threads
Torque	200 LB·FT (271 N·m)
Rear caster wheels	9.5L-15 4-ply implement type rib
Wheel bolts	9/16-18 threads
Torque	110 to 130 LB·FT (149 to 176 N·m)
Tire pressure, all tires	20 psi (138 kPa)

### ENGINE

Case IH, 4T-390 Diesel Engine	
Horsepower	98 at 2300 rpm (r/min)
High Idle	2500 rpm (r/min)
Displacement	238 CU IN (3.9 L)
Engine oil	
Type	Case IH No. 1 Engine Oil, SAE 15W 40, API CE, CDII/CF-4
Capacity	12 U.S. quarts (10.4 L)
Cooling system capacity	22 U.S. quarts (20.8 L)
Cooling fan diameter	20 IN (508 mm)
Fuel tank capacity	50 U.S. gallons (194 L)

### ELECTRICAL SYSTEM

System voltage	12 volts
Grounding	Negative
Battery, minimum cranking capacity at 0°F,	Two 12 V, 450 amp
Alternator	
Make	Robert Bosch
Amps output	65

### DRIVE SYSTEM

Final drive	Roller chain
Primary reduction	No. 50
Final reduction	No. 80
Tandem pump	Vickers Model 19
Ground drive motors	Vickers variable displacement motors

### HYDRAULIC SYSTEM

System capacity	23 U.S. gallons (87 L)
Reservoir capacity	20 U.S. gallons (76 L)
Type of fluid	Engine Oil, SAE 15W 40
	<i>NOTE: The oil specified for the engine can be used in hydraulic system. See Engine oil, Type in this chart for the engine oil specification.</i>

Type of fluid, alternate	Case IH Hy-Tran Plus
	<i>NOTE: Hy-Tran Plus can be added to the factory installed oil, but to get the full benefit of the qualities of Hy-Tran Plus a complete oil replacement is required.</i>

Main system relief pressure .... 5000 psi (34 475 kPa)

### CAB

Cab glass	Tinted, 63 sq ft (5.9 m <sup>2</sup> )
Steering column	5 position tilt
Steering column gauges	Engine coolant temperature gauge, engine oil pressure gauge, digital speedometer
Instrument panel gauges	4 function gauge cluster with audible warning, voltmeter, fuel gauge, flotation pressure gauge, hourmeter

### AIR CONDITIONING

System size	22,000 BTU/hr
Fluid	Freon F-12
Capacity	4 LBS (2 kg)
Compressor	Sankyo SD-508
Displacement	8.4 CU IN (138 cm <sup>3</sup> )

### ACCESSORIES

Lights	4 lights front, square halogen 2 lights rear, square halogen flashers on header and tractor tail light, turn signals
Rear view mirrors, right and left	deluxe
Controls	Shape-coded handles

## Header

<b>Weight</b>	
14 FT Header .....	3500 LBS (1589 kg)
16 FT Header .....	3750 LBS (1703 kg)
<b>Overall Width</b>	
14 FT Header ..	188 IN (4.78 m)
16 FT Header .....	212 IN (5.38 m)
<b>Width of Cut</b>	
14 FT Header .....	168 IN (4.26 m)
16 FT Header .....	192 (4.88 m)
<b>Header Flotation</b> ..... Hydraulic, adjustable from the control console	
<b>Header Lift Relief</b>	
Pressure .....	2000 psi (13 790 kPa)
<b>Header Drive</b> ..... Hydraulic	
Jack Shaft Speed .....	1200 rpm (r/min)
Guard Angle (adjustable) .....	5-11°
Lift Range .....	-3 to +22-1/4 IN (- 76.6 to +565.15 mm)
<b>Sickle</b>	
<b>Speed</b>	
Cycles per minute .....	920
Strokes per minute .....	1840
Stroke .....	3 IN (76 mm)
Minimum Cutting Height .....	1 IN (25 mm)
Drive .....	Timed gearboxes with swaybar
Guard Spacing .....	3 IN (76 mm)
<b>Reel</b>	
Construction .....	all metal bats with cam track actuated tines
Number of Bats .....	5
Drive .....	Belt and chain
Diameter .....	42 IN (1067 mm)
Speed (adjustable) .....	65 to 75 rpm (r/min)
Tines .....	Heavy duty

<b>Augers</b>	
Type .....	dual, opposed rotation
<b>Diameter</b>	
Upper .....	9 IN (228.6 mm)
Lower .....	9 IN (228.6 mm)
<b>Speed</b>	
Upper .....	330 rpm (r/min)
Lower .....	525 rpm (r/min)
Drive Chain Size .....	Sealed No. 50 Roller Chain
<b>Hay Conditioner</b>	
<b>Length</b>	
Upper .....	110 IN (2749 mm)
Lower .....	110 IN (2749 mm)
<b>Diameter</b>	
Upper, Rubber .....	8 IN (203 mm)
Lower, Steel .....	7-3/4 IN (197 mm)
<b>Speed</b>	
Upper .....	920 rpm (r/min)
Lower .....	920 rpm (r/min)
Drive .....	Double No. 60 roller chain running in oil with U-joints to the rolls
Type .....	Engaging Rollers
Material Discharge .....	(adjustable)
	96 IN (2438 mm) maximum swath to a 40 IN (1016 mm) minimum windrow, depending on conditions


## Double Windrow Attachment


Type of Conveyor .....	Draper	Hydraulic Motors .....	gear type
Length .....	105.5IN (2680 mm)	Manufacturer .....	Eaton
Width .....	49IN (1245 mm)	Displacement .....	1.77 CU IN (29.0 cc) per rev
Draper Drive Roller Speed engine		Capacity at	
at 2500 rpm (r/min) .....	1400 rpm (r/min)	3000 rpm(r/min) .....	25.5 gpm (96.5 L/min)
Draper Length .....	200IN (5080 mm)	Rotation .....	either direction
Draper Width .....	44IN (1118 mm)	Deflector Control Valve	
Drive .....	hydraulic	Maximum Pressure .....	3000 psi (20 685 kPa)
Conveyer Drive Pump .....	gear type	Maximum Flow .....	15 gpm (57 L/min)
Manufacture .....	Eaton	Check Valve Type .....	Ball
Displacement .....	1.02 Cu In(16.7cc) per rev	Check Valve Spring .....	5 psi (34 kPa)
Capacity		Relief Valve Setting .....	2000 psi (13 790 kPa)
at 3000 rpm (r/min) .....	12 gpm (45L/min)	Pump Control .....	electric clutch
Rotation from drive end .....	CCW	Deflector .....	Hydraulic cylinder actuated foot pedal control

## STANDARD TORQUE SPECIFICATIONS

### U.S. Standard Hardware

Use the torques in this chart when special torques are not given. These torques apply to fasteners with both UNC and UNF threads as received from suppliers, dry, or when lubricated with engine oil. Not applicable if special graphites, molydisulfide greases, or other extreme pressure lubricants are used.


Grade 5 Bolts, Nuts, and Studs		
		
Size	Pound-Feet (LB·FT)	Newton metres (N·m)
1/4-20	8.4	11
1/4-28	9.7	13
5/16-18	19	24
5/16-24	19	26
3/8-16	31	42
3/8-24	35	47
7/16-14	49	67
7/16-20	55	75
1/2-13	76	105
1/2-20	85	115
9/16-12	110	150
9/16-18	120	165
5/8-11	150	205
5/8-18	170	230
3/4-10	265	360
3/4-16	295	405
7/8-9	430	585
7/8-14	475	640
1-8	645	875
1-12	705	955
1-1/8-7	795	1080
1-1/8-12	890	1210
1-1/4-7	1120	1520
1-1/4-12	1240	1680
1-3/8-6	1470	1990
1-3/8-12	1670	2270
1-1/2-6	1950	2640
1-1/2-12	2190	2970


Grade 8 Bolts, Nuts, and Studs		
		
Size	Pound-Feet (LB·FT)	Newton metres (N·m)
1/4-20	12	16
1/4-28	14	18
5/16-18	25	33
5/16-24	27	37
3/8-16	44	59
3/8-24	49	67
7/16-14	70	95
7/16-20	78	105
1/2-13	105	145
1/2-20	120	165
9/16-12	155	210
9/16-18	170	235
5/8-11	210	285
5/8-18	240	325
3/4-10	375	510
3/4-16	420	570
7/8-9	605	820
7/8-14	670	905
1-8	910	1230
1-12	995	1350
1-1/8-7	1290	1750
1-1/8-12	1440	1960
1-1/4-7	1820	2460
1-1/4-12	2010	2730
1-3/8-6	2380	3230
1-3/8-12	2710	3680
1-1/2-6	3160	4290
1-1/2-12	3560	4820

## Metric Hardware

Use the following torques when special torques are not given.

These values apply to fasteners with coarse threads as received from supplier, plated or unplated, or when lubricated with engine oil. These values do not apply if graphite or molydisulfide grease or oil are used.

Grade 8.8 Bolts, Nuts, and Studs		
		
Size	Pound-Feet (LB·FT)	Newton metres (N·m)
M5 x 0.8	4.8	6
M6 x 1	8	11
M8 x 1.25	19	26
M8 x 1	21	28
M10 x 1.5	39	52
M10 x 0.75	45	61
M12 x 1.75	67	91
M12 x 1.5	70	95
M12 x 1	77	105
M14 x 2	105	145
M14 x 1.25	115	155
M16 x 2	165	225
M16 x 1.5	180	240
M18 x 2.5	230	310
M18 x 1.5	260	350
M20 x 2.5	325	440
M20 x 1.5	480	650
M24 x 3	560	760
M24 x 2	610	830
M30 x 3.5	1120	1510
M30 x 2	1240	1680
M36 x 3.5	1950	2650
M36 x 2	2190	2960

Grade 10.9 Bolts, Nuts, and Studs		
		
Size	Pound-Feet (LB·FT)	Newton metres (N·m)
M5 x 0.8	6.7	9
M6 x 1	11	15
M8 x 1.25	27	36
M8 x 1	29	39
M10 x 1.5	53	72
M10 x 0.75	62	85
M12 x 1.75	93	125
M12 x 1.5	97	130
M12 x 1	105	145
M14 x 2	150	200
M14 x 1.25	160	215
M16 x 2	230	315
M16 x 1.5	245	335
M18 x 2.5	300	405
M18 x 1.5	355	485
M20 x 2.5	450	610
M20 x 1.5	665	900
M24 x 3	780	1050
M24 x 2	845	1150
M30 x 3.5	1550	2100
M30 x 2	1710	2320
M36 x 3.5	2700	3660
M36 x 2	3020	4100



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# Section 1004

## DECALS

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