AFX8010 REPAIR MANUAL COMPLETE CONTENTS

The following pages are the collation of the contents pages from each section and chapter of the AFX8010 Repair manual. Complete Repair part # 87543035.

The sections used through out all Case IH product Repair manuals may not be used for each product. Each Repair manual will be made up of one or several books. Each book will be labeled as to which sections are in the overall Repair manual and which sections are in each book.

The sections listed above are the sections utilized for the AFX8010 Combines.

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PRECAUTIONARY STATEMENTS

PERSONAL SAFETY

Throughout this manual and on machine decals, you will find precautionary statements ("**DANGER**", "**WARNING**", and "**CAUTION**") followed by specific instructions. These precautions are intended for the personal safety of you and those working with you. Please take the time to read them.

⚠ DANGER ⚠

This word "DANGER" indicates an immediate hazardous situation that, if not avoided, will result in death or serious injury. The color associated with Danger is RED.

⚠ WARNING ⚠

This word "WARNING" indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury. The color associated with Warning is ORANGE.

⚠ CAUTION ⚠

This word "CAUTION" indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices. The color associated with Caution is YELLOW.

FAILURE TO FOLLOW THE "DANGER", "WARNING", AND "CAUTION" INSTRUCTIONS MAY RESULT IN SERIOUS BODILY INJURY OR DEATH.

MACHINE SAFETY

The precautionary statement ("**IMPORTANT**") is followed by specific instructions. This statement is intended for machine safety.

IMPORTANT: *The word "IMPORTANT" is used to inform the reader of something he needs to know to prevent minor machine damage if a certain procedure is not followed.*

INFORMATION

NOTE: *Instructions used to identify and present supplementary information.*

SAFETY REQUIREMENTS FOR FLUID POWER SYSTEMS AND COMPONENTS - HYDRAULICS (EUROPEAN STANDARD PR EM 982)

Flexible hose assemblies must not be constructed from hoses which have been previously used as part of a hose assembly.

Do not weld hydraulic piping.

When flexible hoses or piping are damaged, replace them immediately.

It is forbidden to modify a hydraulic accumulator by machining, welding or any other means.

Before removing hydraulic accumulators for servicing, the liquid pressure in the accumulators must be reduced to zero.

Pressure check on hydraulic accumulators shall be carried out by method recommended by the accumulator manufacturer.

Care must be taken not to exceed the maximum allowable pressure of the accumulator. After any check or adjustment there must be no leakage of gas.

ACCIDENT PREVENTION

Most accidents or injuries that occur in workshops are the result of a non compliance to simple and fundamental safety regulations. For this reason, IN MOST CASES THESE ACCIDENTS CAN BE AVOIDED by foreseeing possible causes and consequently acting with the necessary caution and care.

Accidents may occur with all types of machines, regardless of how well the machine in question was designed and built.

A careful and informed service technician is the best guarantee against accidents.

Decisive awareness of the most basic safety rule is normally sufficient to avoid many serious accident

⚠ DANGER ⚠

Shut down the machine, remove key, be sure all moving parts have stopped and all pressure in the systems is relieved before cleaning, adjusting or lubricating the equipment.

SAFETY RULES

General Guidelines

- Carefully follow specified repair and maintenance procedures.
- Do not wear rings, wrist watches, jewelry, unbuttoned or loose articles of clothing such as: ties, torn clothing, scarves, open jackets or shirts with open zips which may remain entangled in moving parts. It is advised to wear approved safety clothing. For example: non-slip footwear, gloves, safety goggles, helmets, etc.
- Do not carry out repair operations with someone sitting in the driver's seat, unless the person is a trained technician who is assisting with the operation in question.
- Do not operate the machine or use any of the implements from different positions, other than the driver's seat.
- Do not carry out operations on the machine with the engine running, unless specifically indicated.
- Stop the engine and bleed off residual hydraulic pressure before removing components, caps, valves, covers or etc.
- All repair and maintenance operations must be carried out using extreme care and attention.
- Service steps and platforms used in the workshop or elsewhere should be built according to standard accident prevention regulations.
- Disconnect the Power Take Off (PTO) from the machine, and label all controls to indicate that the machine is being serviced. Any parts that are to be raised must be locked in position.
- Brakes are inoperative when manually released for repair or maintenance purposes. Use blocks or similar devices to control the machine in these conditions.
- Only use specified towing points for towing the machine. Connect parts carefully. Make sure that all pins and/or locks are secured in position before applying traction. Never remain near the towing bars, cables or chains that are operating under load.
- When loading or unloading the machine from the trailer (or other means of transport), select a flat area capable of sustaining the trailer or truck wheels. Firmly secure the machine to the truck or trailer and lock the wheels in the position used by the carrier.

- Electric heaters, battery-chargers and similar equipment must be powered only by auxiliary power supplies with efficient ground insulation to avoid electrical shock hazards.
- Always use suitable hoisting or lifting devices when raising or moving heavy parts.
- Take extra care if bystanders are present.
- Never use gasoline, diesel oil or other inflammable liquids as cleaning agents. Use non-flammable, non toxic commercially available solvents.
- Wear safety goggles with side guards when cleaning parts with compressed air.
- Reduce tire air pressure according to the local regulations in force.
- Do not run the engine in confined spaces without suitable ventilation.
- Never use open flames for lighting when working on the machine or checking for leaks.
- All movements must be carried out carefully when working under, on or near the machine. Wear protective equipment: helmets, goggles and special footwear.
- When carrying out checks with the engine running, request the assistance of an operator in the driver's seat. The operator must maintain visual contact with the service technician at all times.
- If operating outside the workshop, position the machine on a flat surface and lock in position. If working on a slope, lock the machine in position. Move to a flat area as soon as is safely possible.
- Damaged or bent chains or cables are unreliable. Do not use them for lifting or towing. Always use suitable protective gloves when handling chains or cables.
- Chains should always be safely secured. Make sure that the hitch-up point is capable of sustaining the load in question. Keep the area near the hitch-up point, chains or cables free of all bystanders.
- Maintenance and repair operations must be carried out in a CLEAN and DRY area. Eliminate any water or oil spillage immediately.
- Do not create piles of oil or grease-soaked rags as they represent a serious fire hazard. Always store rags in a closed metal container.
- Before engaging the machine, make sure that there are no persons within the machine or implement range of action.
- Empty your pockets of all objects that may fall accidentally unobserved into the machine inner compartments.
- In the presence of protruding metal parts, use protective goggles or goggles with side guards, helmets, special footwear and gloves.
- When welding, use protective safety devices: tinted safety goggles, helmets, special overalls, gloves and footwear. All persons present in the area where welding is taking place must wear tinted goggles. NEVER LOOK DIRECTLY AT THE WELDING ARC WITHOUT SUITABLE EYE PROTECTION.
- If welding in close proximity to a computer module, then the battery should be disconnected to cut the power, and also the module should be removed from the machine.
- Metal cables tend to fray with repeated use. Always use suitable protective devices (gloves, goggles, etc.) when handling cables.
- Handle all parts carefully. Do not put your hands or fingers between moving parts. Wear suitable safety clothing - safety goggles, gloves and shoes.

Machine Start Up

- Never run the engine in confined spaces that are not equipped with adequate ventilation for exhaust gas extraction.
- Never place the head, body, limbs, feet, hands or fingers near rotating and moving parts.

Hydraulic Systems

- A liquid leaking from a tiny hole may be almost invisible but, at the same time, be powerful enough to penetrate the skin. Therefore, NEVER USE HANDS TO CHECK FOR LEAKS but use a piece of cardboard or wood for this purpose. If any liquid penetrates skin tissue, call for medical aid immediately. Failure to treat this condition with correct medical procedure may result in serious infection or death.
- In order to check the pressure in the system use suitable instruments.

Wheels and Tires

- Make sure that the tires are correctly inflated at the pressure specified by the manufacturer. Periodically check the rims and tires for damage.
- Stand away from (at the side of) the tire when checking inflation pressure.
- Do not use parts of recovered wheels as incorrect welding brazing or heating may weaken and eventually cause damage to the wheel.
- Never cut or weld a rim mounted with an inflated tire.
- To remove the wheels, lock all wheels. After having raised the machine, position supports underneath, according to regulations in force.
- Deflate the tire before removing any objects that may be jammed in the tire tread.
- Never inflate tires using inflammable gases, as this may result in explosions and injury to bystanders.

Removal and Install

- Lift and handle all heavy parts using suitable hoisting equipment. Make sure that parts are sustained by appropriate hooks and slings. Use the hoisting eyebolts for lifting operations. Extra care should be taken if persons are present near the load to be lifted.
- Handle all parts carefully. Do not put your hands or fingers between parts. Wear suitable safety clothing – safety goggles, gloves and shoes.
- Avoid twisting chains or metal cables. Always wear safety gloves when handling cables or chains.

MINIMUM HARDWARE TIGHTENING TORQUES

IN NEWTON-METERS (FOOT POUNDS) FOR NORMAL ASSEMBLY APPLICATIONS

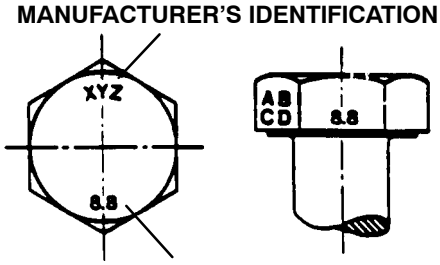
METRIC NON-FLANGED HARDWARE AND LOCKNUTS

NOMINAL SIZE	CLASS 5.8		CLASS 8.8		CLASS 10.9		LOCKNUT CL.8 W/CL8.8 BOLT
	UNPLATED	PLATED W/ZnCr	UNPLATED	PLATED W/ZnCr	UNPLATED	PLATED W/ZnCr	
M4	1.7 (15)*	2.2 (19)*	2.6 (23)*	3.4 (30)*	3.7 (33)*	4.8 (42)*	2.3 (20)*
M6	5.8 (51)*	7.6 (67)*	8.9 (79)*	12 (102)*	13 (115)*	17 (150)*	7.8 (69)*
M8	14 (124)*	18 (159)*	22 (195)*	28 (248)*	31 (274)*	40 (354)*	19 (169)*
M10	28 (21)	36 (27)	43 (32)	56 (41)	61 (45)	79 (58)	38 (28)
M12	49 (36)	63 (46)	75 (55)	97 (72)	107 (79)	138 (102)	66 (49)
M16	121 (89)	158 (117)	186 (137)	240 (177)	266 (196)	344 (254)	164 (121)
M20	237 (175)	307 (226)	375 (277)	485 (358)	519 (383)	671 (495)	330 (243)
M24	411 (303)	531 (392)	648 (478)	839 (619)	897 (662)	1160 (855)	572 (422)

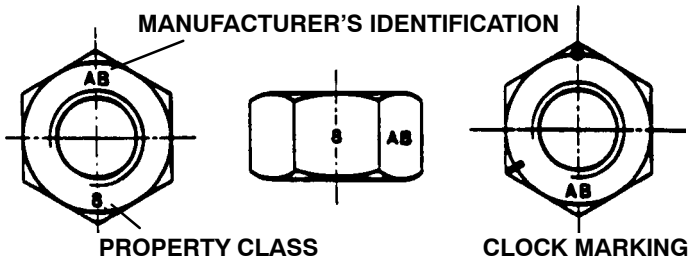
NOTE: Torque values shown with * are inch pounds.

IDENTIFICATION

HEX CAP SCREW AND CARRIAGE BOLTS CLASSES 5.6 AND UP



HEX NUTS AND LOCKNUTS CLASSES 05 AND UP



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MINIMUM HARDWARE TIGHTENING TORQUES

IN NEWTON-METERS (FOOT POUNDS) FOR NORMAL ASSEMBLY APPLICATIONS

INCH NON-FLANGED HARDWARE AND LOCKNUTS

NOMINAL SIZE	SAE GRADE 2		SAE GRADE 5		SAE GRADE 8		LOCKNUTS		NOMINAL SIZE
	UNPLATED or PLATED SILVER	PLATED W/ZnCr GOLD	UNPLATED or PLATED SILVER	PLATED W/ZnCr GOLD	UNPLATED or PLATED SILVER	PLATED W/ZnCr GOLD	GR.B w/GR5 BOLT	GR.C w/GR8 BOLT	
1/4	6.2 (55)*	8.1 (72)*	9.7 (86)*	13 (112)*	14 (121)*	18 (157)*	8.5 (75)*	12.2 (109)*	1/4
5/16	13 (115)*	17 (149)*	20 (178)*	26 (229)*	28 (250)*	37 (324)*	17.5 (155)*	25 (220)*	5/16
3/8	23 (17)	30 (22)	35 (26)	46 (34)	50 (37)	65 (48)	31 (23)	44 (33)	3/8
7/16	37 (27)	47 (35)	57 (42)	73 (54)	80 (59)	104 (77)	50 (37)	71 (53)	7/16
1/2	57 (42)	73 (54)	87 (64)	113 (83)	123 (91)	159 (117)	76 (56)	108 (80)	1/2
9/16	81 (60)	104 (77)	125 (92)	163 (120)	176 (130)	229 (169)	111 (82)	156 (115)	9/16
5/8	112 (83)	145 (107)	174 (128)	224 (165)	244 (180)	316 (233)	153 (113)	215 (159)	5/8
3/4	198 (146)	256 (189)	306 (226)	397 (293)	432 (319)	560 (413)	271 (200)	383 (282)	3/4
7/8	193 (142)	248 (183)	495 (365)	641 (473)	698 (515)	904 (667)	437 (323)	617 (455)	7/8
1	289 (213)	373 (275)	742 (547)	960 (708)	1048 (773)	1356 (1000)	654 (483)	924 (681)	1

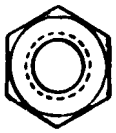
NOTE: Torque values shown with * are inch pounds.

IDENTIFICATION
CAP SCREWS AND CARRIAGE BOLTS

SAE GRADE 2

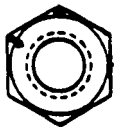
SAE GRADE 5

SAE GRADE 8



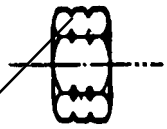
REGULAR NUTS

SAE GRADE 5 HEX NUTS



SAE GRADE 8 HEX NUTS

LOCKNUTS



GRADE IDENTIFICATION

GRADE A NO NOTCHES

GRADE B ONE CIRCUMFERENTIAL NOTCH

GRADE C TWO CIRCUMFERENTIAL NOTCHES

GRADE IDENTIFICATION

GRADE A NO MARKS

GRADE B THREE MARKS

GRADE C SIX MARKS

MARKS NEED NOT BE LOCATED AT CORNERS

GRADE A NO MARK
GRADE B LETTER B
GRADE C LETTER C

GRADE IDENTIFICATION

86529681 REV F 5.2

DEFINITIONS

1. Break Away Torque – Torque measured in the direction of tightening, the moment before the bolt/nut starts to turn.
2. Clamping Force – Force equal to the tension in the fastener that clamps the parts together.
3. Stabilized Torque – Torque measured on a joint that has had a settling time after fastener installation, and the torque is measured in the direction of tightening, the moment after the bolt/nut begins to turn.
4. Proof Load – Safe test load for fasteners, approximately 10% below the yield load.
5. Torque – Force on the wrench handle times the handle length.
6. Torque and Turn – Bolting method utilizing a torque sufficient to close the joint, followed by rotation of a specific angle to obtain the desired bolt stretch.
7. Torque to Yield – Bolting method that tightens the joint until 0.2% yield is detected. Generally requires a computer monitored tightening tool.
8. Target Torque – Torque specified by engineering, generally nominal torque.
9. Ultimate Load – Load when bolt failure occurs.
10. Yield Load – Load when 0.2% deformation occurs.

NOTE: *Metric cap screws and nuts are identified by the grade number stamped on the head of the cap screw or on the surface of the nuts. U.S. customary cap screws are identified by radial lines stamped on the head of the cap screw.*

NOTE: *Tightening the joint to the proper torque will keep it leak free, and prevent it from damaging the hose or fitting.*

NOTE: *Fasteners should be replaced with the same or higher grade. If higher grade fasteners are used, these should only be tightened to the strength of the original. When replacing cap screws, always use a cap screw of the same measurement and strength as the cap screw being replaced.*

NOTE: *Make sure the fasteners threads are clean, and that thread engagement is started. This will prevent them from failing when being tightened. Assure that joints that utilize threaded fasteners are properly tightened, and that they remain tight during the period of their intended usage.*

NOTE: *Tighten plastic insert or crimped steel-type lock nuts to approximately 50 % of their torque, applied to the nut, not the bolt head. Tighten toothed or serrated type lock nuts to their full torque value.*

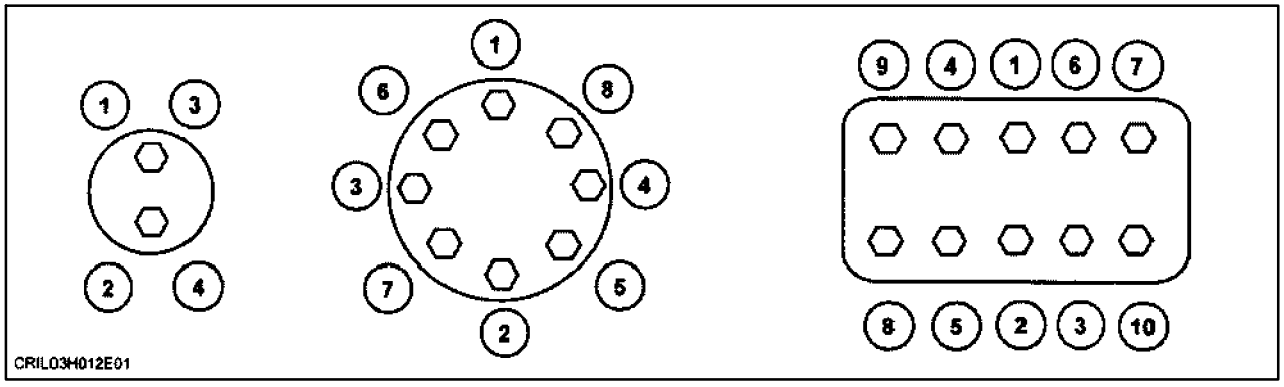
NOTE: *Always use the torque values listed in the supplied charts in this section when values are not supplied in a procedure.*

NOTE: *DO NOT use these torque values when values are given in a specified procedure.*

NOTE: *Reuse of fasteners. Fasteners that have been tightened above yield point during assembly should not be reused after disassembly. They have been permanently deformed and the elastic range has been shifted closer to the ultimate tensile point.*

NOTE: *Torque and Turn is a recommended procedure for manufacturing and service when sophisticated tools are not available, especially for large diameter fasteners.*

NOTE: *Large diameter fasteners, unless specifically stated, should be tightened in sequence using the related torque chart below, at a low torque that is sufficient until the joint is closed. Each bolt is then rotated 90 degrees in sequence. Each bolt is then rotated another 90 degrees in sequence. The result is a clamp load above the yield point. This procedure results in a consistent clamp load. The fasteners should not be reused after disassembly.*



NOTE: *Shown above is the suggested initial torque tightening sequences for general applications, tighten in sequence from item 1 through to the last item of hardware.*

HYDRAULIC HOSES AND TUBES

Always replace hoses and tubes with damaged cone ends or the end connections.

When installing a new hose, loosely connect each end and make sure the hose fits its desired location, without kinking or twisting, before tightening the connection. Tighten non-swivel end of hose first if applicable. Tighten the hose clamps enough to hold the hose without chafing but not so tight as to crush the ends.

Keep the hoses and tubes clear of moving parts and replace any hoses and fittings that have moved from their original positions over time. A hose with a chafed outer cover will allow moisture to get into the system. Concealed corrosion of the wire reinforcement will then occur along the hose length and result in hose failure. Ballooning of the hose indicates internal leakage as the hose deteriorates. This condition can rapidly lead to hose failure.

Kinked, crushed, stretched or damaged hoses generally suffer internal structural damage that restricts fluid flow, reduces performance and ultimately causes the hose to fail.

Do not allow free moving, unsupported hoses or tubes to touch each other or related working surfaces. This causes chafing and reduces line life.

National Pipe Thread (NPT) Fittings

Before installing and tightening pipe fittings, clean the threads with a cleaning solvent or Loctite® Brand cleaner. Apply the appropriate Loctite® Brand sealant to all fittings including stainless steel, unless as otherwise stated. Generally Loctite® Brand 567 can be used for all fittings including stainless steel. Loctite® Brand 565 is used for most metal fittings. For high filtration/zero contamination systems use Loctite® Brand 545.

NPT Pipe Fitting Torque Chart

Thread Size	Torque (Maximum)
1/8 – 27	13 N·m (10 ft-lb)
1/4 – 18	16 N·m (12 ft-lb)
3/8 – 18	22 N·m (16 ft-lb)
1/2 – 14	41 N·m (30 ft-lb)
3/4 – 14	54 N·m (40 ft-lb)

Pipe Fitting

Nom. SAE Dash Size	Thread Size	TFFT (Turns For Finger Tight)
-2	1/8 – 27	2.0 – 3.0
-3	1/8 – 27	2.0 – 3.0
-4	1/8 – 27	2.0 – 3.0
-5	1/8 – 27	2.0 – 3.0
-6	1/4 – 18	1.5 – 3.0
-8	3/8 – 18	2.0 – 3.0
-10	1/2 – 14	2.0 – 3.0
-12	3/4 – 14	2.0 – 3.0
-14	3/4 – 14	2.0 – 3.0
-16	1 – 11-1/2	1.5 – 2.5
-20	1-1/4 – 11-1/2	1.5 – 2.5
-24	1-1/2 – 11-1/2	1.5 – 2.5
-32	2 – 11-1/2	1.5 – 2.5

Apply sealant/lubricant to male pipe threads. The first two threads should be left uncovered to avoid system contamination. Screw pipe fitting into female pipe port to the finger tight position. Wrench tighten fitting to the appropriate turns from finger tight (TFFT) shown in table above, making sure the tube end of an elbow or tee fitting is aligned to receive incoming tube or hose fitting.

Installation of Adjustable Fittings in Straight Thread O Ring Bosses

1. Lubricate the O ring by coating it with light oil or petroleum jelly. Install the O ring in the groove adjacent to the metal backup washer which is assembled at the extreme end of the groove.
2. Install the fitting into the SAE straight thread boss until the metal backup washer contacts the face of the boss.

NOTE: *Do not over tighten and distort the metal backup washer.*

3. Position the fitting by turning out (counter clockwise) up to a maximum of one turn. Holding the pad of the fitting with a wrench, tighten the locknut and washer against the face of the boss.

HYDRAULIC O-RING FACE SEAL (ORFS)

Using Port Thread Tables 1 & 2

The “Into Steel” torque values listed are intended for steel connectors into steel ports. This combination will give a minimum port pressure rating of 21 MPa (3046 psi). See individual port specification for maximum pressure rating of the port. The ”Into Aluminum” torque values listed are intended for steel connects into aluminum ports with a maximum system pressure of 21 MPa (3046 psi). Due to issues like manifold integrity and impulse frequency, connections into ports larger than M33 or -16 with a pressure greater than 14 MPa (2030 psi) should have application specific testing.

When hose ends or connectors are made of materials other than steel, different torque values may be required.

Table 1: METRIC PORT THREAD (Port Connector to ORFS Connector)

			Assembly Torque	
Thread Size	**Nominal Tube OD**	**Wrench Size**	**Into Steel**	**Into Aluminum**
	mm	**mm**	**mm**	**mm**
M10x1	5	14	20-22	12-14
M12x1.5	6	17	35-39	21-23
M14x1.5	8	19	45-50	27-30
M16x1.5	10	22	55-61	33-36
M18x1.5	12	24	70-77	42-46
M22x1.5	16	27	100-110	60-66
M27x2	20	32	170-187	102-112
M30x2	22	36	215-235	129-141
M33x2	25	41	310-341	186-205
M42x2	32	50	330-363	198-218
M48x2	38	55	420-462	252-277
M60x2	50	65	500-550	300-330

The above Table uses SAE J2244-2/ISO 6149-2 metric straight thread o-ring port connector recommended torque levels for use with SAE J1453/ISO 8434-3 ORFS connectors.

Table 2: INCH PORT THREAD (Port Connector to ORFS Connector)

			Wrench Size		Assembly Torque	
Thread Size	**SAE DASH Size**	**Nominal Tube OD**	**Non-adjustable**	**Adjustable (w/locknut)**	**Into Steel**	**Into Aluminum**
		inch	**inch**	**inch**	**N·m**	**N·m**
3/8-24	-3	3/16	1/2	9/16	10-12	5-7
7/16-20	-4	1/4	9/16	5/8	20-22	9-15
1/2-20	-5	5/16	5/8	11/16	25-28	14-18
9/16-18	-6	3/8	11/16	3/4	33-35	23-34
3/4-16	-8	1/2	7/8	15/16	68-78	34-54
7/8-14	-10	5/8	1	1-1/16	98-110	41-75
1-1/16-12	-12	3/4	1-1/4	1-5/16	170-183	75-108
1-3/16-12	-14	7/8	1-3/8	1-1/2	215-245	108-129
1-5/16-12	-16	1	1-1/2	1-5/8	270-300	115-163
1-5/8-12	-20	1-1/4	1-7/8	1-7/8	285-380	163-224
1-7/8-12	-24	1-1/2	2-1/8	2-1/8	370-490	183-258

The above Table uses SAE J1926-2 inch straight thread o-ring port connector recommended torque levels for use with SAE J1453/ISO 8434-3 ORFS connectors.

O Ring Face Seal (ORFS) Fittings

Observe the following procedures when repairing O ring face seal connections:

1. Release the fittings and separate the hose or tube assembly, then remove and discard the O ring seal from the fitting.
2. Prior to installation, dip a new O ring seal into clean hydraulic fluid or coat with petroleum jelly. Install the o ring into the fitting.
3. Install the new hose or tube and tighten the fitting finger tight while holding the assembly to keep it from turning.
4. Use two suitable wrenches and tighten the fitting tot he proper torque based on the chart below.

Table 3: O RING FACE SEAL (ORFS) CONNECTIONS

Metric		English				
Nominal Tube OD	**Tube Nut Size**	**Nominal Tube OD**	**DASH Size**	**Tube Nut Size**	**Thread**	**Assembly Torque**
mm	**mm**	**inch**		**inch**		**N·m**
6 and 8	17	1/4	-4	11/16	9/16-18	14-16(1)
10	22	3/8	-6	13/16	11/16-16	24-27 (1)
12	24	1/2	-8	15/16	13/16-16	43-47 (1)
16	30	5/8	-10	1-1/8	1-14	60-68
20	36	3/4	-12	1-3/8	1-3/16-12	90-95
25	41	1	-16	1-5/8	1-7/16-12	125-135
30	50	1-1/4	-20	1-7/8	1-11/16-12	170-190
38	60	1-1/2	-24	2-1/4	2-12	200-225

(1) Torque level shown is for maximum pressure rating of **.42 MPa (6092 psi).** The above Table uses SAE J1453/ISO 8434-3 o ring face seal connectors recommended torque levels for O Ring Face Seal (ORFS) tube assemblies, hose assemblies, and connectors.

SPLIT FLANGE MOUNTING BOLTS

Size	Newton meters	in-lb	ft-lb
5/16 - 18	20 to 27	180 to 240	
3/8 - 16	27 to 34	240 to 300	
7/16-14	47 to 61	420 to 540	
1/2 - 13	74 to 88		55 to 65
5/8 - 11	190 to 203		140 to 150

O RING BOSS END FITTING OR LOCK NUT

Nom. SAE Dash Size	Thread Size	Newton meters	in-lb	ft-lb
-6	9/16-18	48 to 54	432 to 480	
-8	3/4 - 16	70 to 78	612 to 684	
-10	7/8 - 14	102 to 114		75 to 84
-12	1-1/16-12	142 to 160		105 to 117
-16	1-5/16-12	237 to 254		175 to 187

37° DEGREE FLARE FITTING (STEEL HYDRAULIC FITTINGS)

Nom. SAE Dash Size	Tube OD/Hose ID		Thread Size	Newton meters	in-lb	ft-lb
-2			5/16 - 24	8 to 9	72 to 84	
-3			3/8 - 24	11 to 12	96 to 108	
-4	6.4 mm	1/4 inch	7/16 - 20	14 to 16	120 to 144	
-5	7.9 mm	5/16 inch	1/2-20	18 to 21	156 to 192	
-6	9.5 mm	3/8 inch	9/16 - 18	27 to 33	240 to 300	
-8	12.7 mm	1/2 inch	3/4-16	46-56	408 to 504	
-10	15.9 mm	5/8 inch	7/8 - 14	77 to 85	684 to 756	
-12	19.0 mm	3/4 inch	1-1/16-12	107 to 119		79 to 88
-14	22.2 mm	7/8 inch	1-3/16 -12	127 to 140		94 to 103
-16	25.4 mm	1.0 inch	1-5/16-12	131 to 156		97 to 117
-20	31.8mm	1-1/4inch	1-5/8-12	197 to 223		145 to 165
-24	38.1 mm	1-1/2 inch	1-7/8 - 12	312 to 338		230 to 250

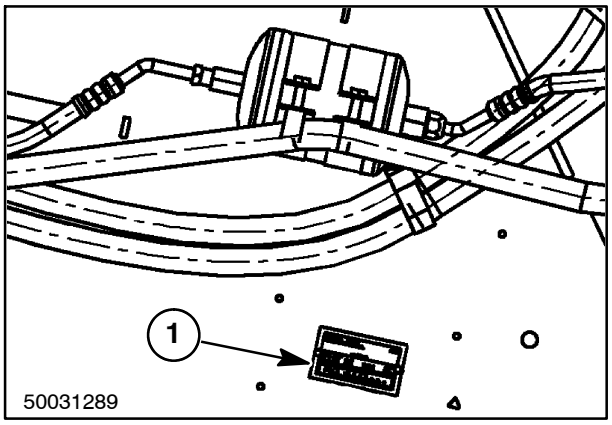
37° DEGREE FITTINGS

TUBE NUTS FOR 37° DEGREE FLARED FITTINGS								O RING BOSS PLUGS ADJUSTABLE FITTING LOCKNUTS, SWIVEL JIC-37 SEATS			
				TORQUE				TORQUE			
Size	Tubing OD		Thread Size	Newton Meters		Foot Pounds		Newton Meters		Foot Pounds	
	mm	in.		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
4	6.4	1/4	7/16-20	12	16	9	12	8	14	6	10
5	7.9	5/16	1/2-20	16	20	12	15	14	20	10	15
6	9.5	3/8	9/16-18	29	33	21	24	20	27	15	20
8	12.7	1/2	3/4-18	47	54	35	40	34	41	25	30
10	15.9	5/8	7/8-14	72	79	53	53	47	54	35	40
12	19.1	3/4	1-1/16-12	104	111	77	82	81	95	60	70
14	22.2	7/8	1-3/16-12	122	136	90	100	95	109	70	80
16	25.4	1	1-5/16-12	149	163	110	120	108	122	80	90
20	31.8	1-1/4	1-5/8-12	190	204	140	150	129	158	95	115
24	38.1	1-1/2	1-7/8-12	217	237	160	175	163	190	120	140
32	50.8	2	2-1/2-12	305	325	225	240	339	407	250	300

These torques are not recommended for tubes of **12.7 mm (0.5 in)** OD and larger with wall thickness of **0.8899 mm (0.035 in)** or less. The torque is specified for **0.8899 mm (0.035 in)** wall tubes on each application individually. Before installing and torquing 37° degree flared fittings, clean the face of the flare and threads with a cleaning solvent or Loctite® Brand cleaner, and apply hydraulic sealant Loctite® Brand 569 to the 37° degree flare and the threads. Install fitting, and torque to specified torque, loosen fitting and re-torque to specifications.

PRODUCT IDENTIFICATION

The product identification number of the combine, the engine and the attachments (heads) can be found at the following locations:



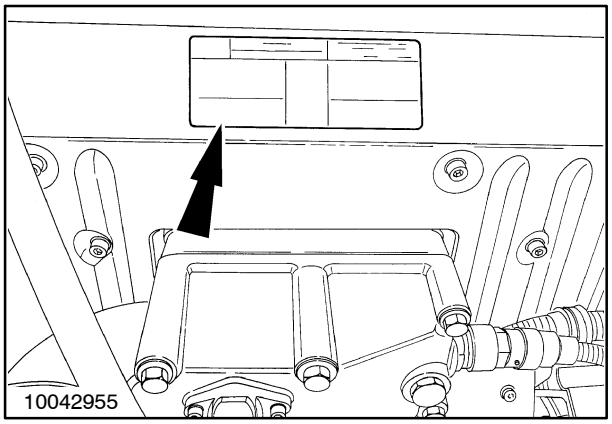
1

Base Unit

The combine PIN plate, 1, is located below the right side platform, on the side of the platform support.

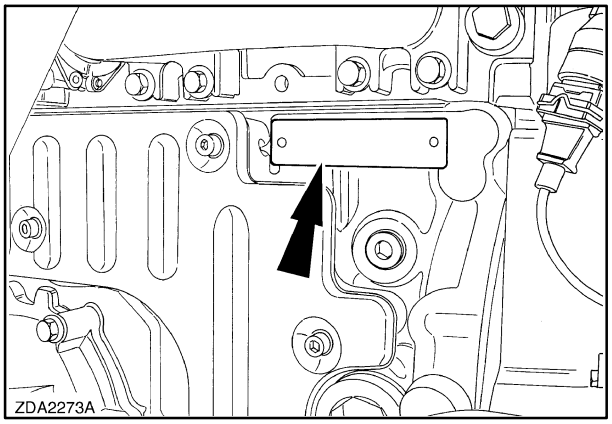
Engine -10.3L

On a plate positioned on top of the rocker cover.



2

On a plate located on the side of the engine block.



3

AFX SPECIFICATIONS

	AFX8010
HEADER	
Grain Header	
Grain Header, 2010	20,25, 30 ft
Grain Header, 2010R	20, 25 ft
Flex Header	
Flex header, 2020	up to 30 ft
Corn Header	
Corn Header, 2400	8R, 12R
Other Headers	
Windrow Pickup, 2016	14, 16 ft
Rigid Draper Header, 2042	30, 36 ft
Rigid Draper Header, 2052	21, 25, 30, 36 ft
Flex Draper Header, 2062	30, 36 ft
FEEDER	
Number of Chains	4
Chain type	557 HD
Number of Slats	22 with rock trap / 26 less rock trap
Rocktrap / Non-Rocktrap	
Slat type	Roll Formed Serrated
Driveline, variable	Gearbox and Shaft-CVT
Feeder Clutch	Radial Pin
Header Lift cylinders, dia.	75 mm (3.0 in)
Reverser System	Hydraulic
Stone Trap (Opt.)	Beater/Sump
THRESHING	
Threshing Drive	
Drive Type	Gearbox and Shaft-CVT
Rotor Speed Range	220 to 1180 rpm
Speed Control	Electronic
Rotor	
Rotor Diameter	762 mm (30 in)
Rotor Length	2612 mm
Length of auger section	497 mm
Length of threshing section	886 mm
Length of separation section	886 mm
Length of discharge section	305 mm

	AFX8010
Rotor, Standard	
Number of raspbars	64
High Alloy	No
Number Spiked Rasp Bars	8
Number Helical Separator Bars	2
Rotor, Rice	
Number of raspbars	74
Spiked, High Alloy	Yes
Number Helical Separator Bars	2
Rotor, Extended Wear	
Number of raspbars	64
High Alloy	Yes
Number Straight Separator Bars	4
Number Helical Separator Bars	2
Rotor Modules	
Number of separating sections	4
Number of threshing sections	4
Clearance Range	120 mm (4.7 in)
Wrap Angle	180°
Separation Concept	Centrifugal force
Small Wire Threshing Module	
Number of bars	14
Number of wires	36
Wire Diameter	4.76 mm
Distance between wires	6.1 mm
Large Wire Threshing Module	
Number of bars	14
Number of wires	15 / LSW (large skip wire) 6
Wire Diameter	6.35 mm
Distance between wires	18.4 mm
Slotted Threshing Module	
Slot length	50 mm
Slot width	25 mm
% Open Area	35
Round Bar Threshing Module	
Number of bars	18
Bar diameter	16 mm
Distance between bars	16 mm
Smooth Threshing Module	
Discharge Beater	
Type	3 Blade
Speed	780 rpm
Width	1285 mm
Diameter	454 mm

	AFX8010
Beater Concave	
Grate Width	1367 mm
Wrap Angle	50 degrees
Grate Type	perforated sheet
Number of perforations	312 (39 rows of 8)
Opening size	15 mm x 40 mm
Setting	Spring loaded
Drive	3HB belt
CLEANING SHOE	
Frame Width	1580 mm
Cleaning Shoe Type	Self leveling
Drive	1HC belt
Standard Speed	310 rpm

Upper Shaker Shoe	**Standard**	**With Enhanced Cleaning**
Horizontal Stroke	45 mm (1-3/4 in)	56 mm (2.2 in)
Throwing Angle, front	27 degrees	36 degrees
Throwing Angle, rear	27 degrees	36 degrees
Grain Pan width	1580 mm (62-3/16 in)	1580 mm (62-3/16 in)
Grain Pan length	1570 mm (81.8″)	1650 mm (65 in)
Grain Pan + rake surface	2.733 sq. m (4236 sq-in)	2.178 sq. m (3376 sq-in)
Pre-sieve width	1580 mm (62-3/16 in)	1580 mm (62-3/16 in)
Pre-sieve length	901 mm (35-1/2 in)	901 mm (35-1/2 in)
Pre-sieve area (with rake)	1.424 sq. m (2207 sq-in)	1.424 sq. m (2207 sq-in)
Upper sieve width	2 x 790 mm (2 x 31 in)	2 x 790 mm (2 x 31 in)
Upper sieve length	1445 mm (56-7/8 in)	1445 mm (56-7/8 in)
Upper sieve area	2.284 sq. m (3540 sq-in)	2.284 sq. m (3540 sq-in)
Upper sieve grate surface	0.237 sq. m (367 sq-in)	0.237 sq. m (367 sq-in)
Upper sieve wire finger surface	0.253 sq. m (392 sq-in)	0.253 sq. m (392 sq-in)
Lower Shaker Shoe		
Horizontal Stroke	40 mm (1-1/2 in)	45 mm (1-3/4 in)
Throwing Angle	15 degrees	15 degrees
Lower sieve length	1445 mm (56-7/8 in)	1445 mm (56-7/8 in)
Lower sieve width	2 x 790 mm (2 x 31 in)	2 x 790 mm (2 x 31 in)
Lower sieve area	2.284 sq. m (3540 sq-in)	2.284 sq. m (3540 sq-in)
Total sieve area under wind control	6.25 sq. m (9687 sq-in)	6.25 sq. m (9687 sq-in)
CLEANING FAN		
Type	Cross-Flow	Cross-Flow
Drive	Hydraulic	Hydraulic
Fan speed range	300 rpm to 1150 rpm	200 rpm to 1150 rpm
Speed Control	Closed loop	Electrohydraulic
Number of blades	40	40

	AFX8010
RETURN SYSTEM	
Tailings Return Type	Triple Impellor Crop Processor
Cross auger speed	560 rpm
Bottom impellor speed	560 rpm
Middle impellor speed	510 rpm
Top impellor speed	700 rpm
GRAIN TANK, UNLOAD	
Central filling, folding bubbler	Std
Grain tank capacity	11630 liters (330 US bu)
In-cab control of grain tank covers	not available
Unloading concept	Over the top unloading
Unloading tube length, standard	5.5 m (18 ft)
Unloading tube length w/extension	6.4 m (21 ft)
ENGINE	
Type	Case IH 10.3L
Gross Power (ISO TR14396)	298 kW (400 hp)
Governor	Electronic
Rated Speed	2100 rpm
Low idle speed	1000 rpm
High idle speed	2100 rpm
Cylinder displacement	10.3L (639 cu-in)
Crankcase capacity(w/filters)	32 liters (8.5 US gals.)
Battery	2 x 12V - 950 CCA
Alternator type	185 Ampere (12 volt)
Fuel tank	1000 liters (264 US gals.)
STRAW CHOPPER & SPREADER	
Straw chopper (Opt)	Integral
Rotor type	2-row helix
Number of knives-Standard cut	28
Number of counterknives-Standard cut	21
Number of knives-Fine cut	56
Number of counterknives-Fine cut	42
Speed	780 rpm (LO) or 2800 rpm (HI)
Shift method	Sliding collar
Chaff spreader type	Vertical, twin disc
Chaff spreader drive	Hydraulic
HYDRAULIC SYSTEM	
Reservoir capacity	57 liters (15 US gals.)
Pump type	Closed center load sensing
Pump capacity	0 - 148 l/min (0 - 39 US gpm)
Maximum pressure	207 bar (3000 psi)
Steering Valve	
Maximum pressure	186 bar (2700 psi)

	AFX8010
HYDROSTATIC SYSTEM	
Pump capacity (cc/rev)	130
Motor capacity (cc/rev)	130
Maximum pressure, forward	420 bar (6090 psi)
Maximum pressure, rearward	420 bar (6090 psi)
CAB	
Cab type	Std/Deluxe opt.
Operator Seat	Air Ride
Instructional Seat	Padded
Air conditioning	Manual/ATC w/ Deluxe
Heating	Std
Power adjust and heated mirrors	opt.
Wipers	Dual
Windshield Washer	opt.
TRACTION	
Transmission	4 speed hydrostatic
Oil capacity	19 liters (5 US gals.)
Differential	20/61
Differential Lock	opt.
Steering axle	Adjustable
Powered Rear Axle type	Cam lobe swivel motor steerable wheel drives
BRAKES	
Services brakes type	Manual dual caliper disc
Park brake type	Spring applied, hydraulically released
FINAL DRIVES	
Type	Planetary
Ratio	1/13.09
WEIGHT (approximate)	16488 kg (36,350 lbs)

Wheel Hardware Torque				
Torque	**Minimum**		**Maximum**	
	N·m	**ft-lb**	**N·m**	**ft-lb**
Traction Wheel Hardware Torque	710	525	790	580
Steering Wheel Nut Torque (HDASA)	410	302	492	363
Steering Wheel Bolt Torque (PRA)	550	406	610	450

NOTE: *Check wheel hardware torque after one hour of operation, then after 10 hours of operation for one week and thereafter on a weekly basis.*

SECTION 10 - ENGINE

Chapter 1 - Air Intake System

CONTENTS

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