

D155AX-5 Bulldozers



Chapter 1 : Introduction

Environment

Low Fuel Consumption

SA6D140 + Common Rail

Increased torque converter efficiency

(Improvement of the vane)

Reduced P/L pump loss (80+100 → 50+32+71 cc/rev)

Optimized HSS pump size (104.5→71cc/rev)

Lowered fan revolution rate (1,296→1,200rpm)

Reduce Noise Level (at environmental)

Hydrostatic driven engine cooling fan, (△ 3dB)

Operator Comfort

New wide operator's cab for medium sized bulldozers
(Common for D65 thru D155)

Palm Command Control System

Low noise (Noise level at the operator's ear) (△5dB)

Improved riding characteristics (Cab damper mount)

Large capacity air conditioner

Improved pressurization

Easy Maintenance

New monitoring panel Indicating unified claim codes and
Indicating changing intervals for filters

Easy Cleaning Cores with Hydraulic driven Fan



Others

Electronic control system

Transmission pre-setting function

Automatic shift-down

KOMTRAX Step 2 (Option)

Important points in this minor change

- Low fuel consumption
 - Maintaining the "SA6D140 + Common Rail" feature
 - Increased torque converter efficiency (Improvement of the vane)
 - Reduced P/L pump loss
 - Optimized HSS pump size
 - Lowered fan revolution rate (1,296 → 1,200rpm)
 - Others
 - More parts compatible with other machine models (Operator's cab, floor, control levers, air conditioner, etc.)
- Fuel efficiency exceeds that of the D8R Series II by 3%.

Concept unification with neighboring models

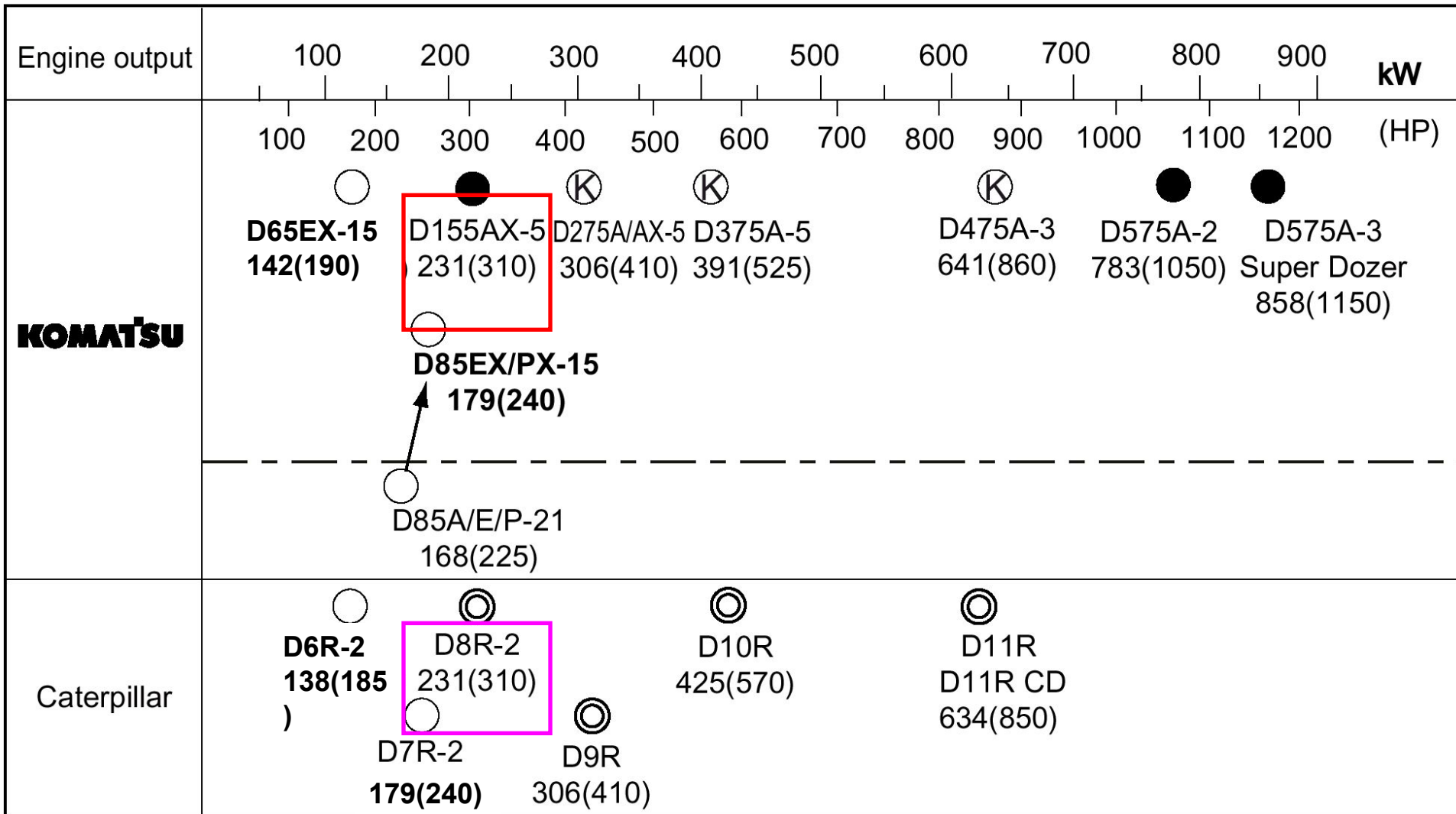
- Environment
 - Low noise (Environmental noise)
Adoption of a hydraulic drive fan, etc. ($\Delta 3\text{dB}$)
- Riding characteristics
 - New wide operator's cab for medium sized bulldozers (Common for D65 thru D155)
 - Adoption of a new steering method (PCCS control)
 - Low noise (Noise level at the operator's ear) ($\Delta 5\text{dB}$)
 - Improved riding characteristics (Cab damper mount)
 - Large capacity air conditioner
 - Improved pressurization
- Serviceability
 - New monitoring panel
Indicating unified claim codes and indicating changing intervals for filters
 - Improved cooling circuit cleaning capacity using a hydraulic drive fan
- Basic performance
 - Electronic control
 - Transmission pre-setting function
 - Automatic shift-down
 - KOMTRAX Step 2 (Option)



Product Line Comparison



Legend: ○ Rigid ⊗ K-Bogie ● X-Bogie ⊙ Bogie suspension



Engine

SA6D140E-3

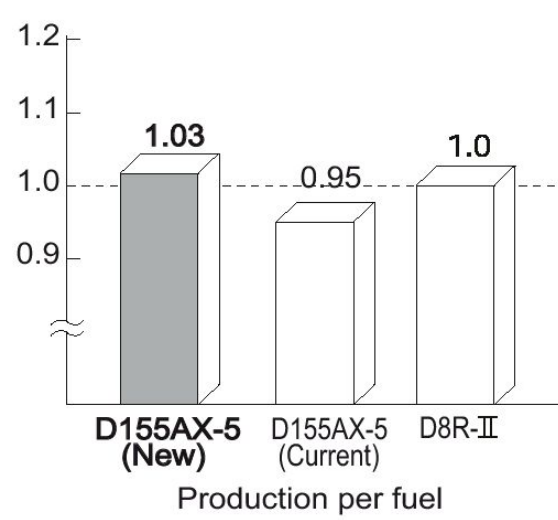
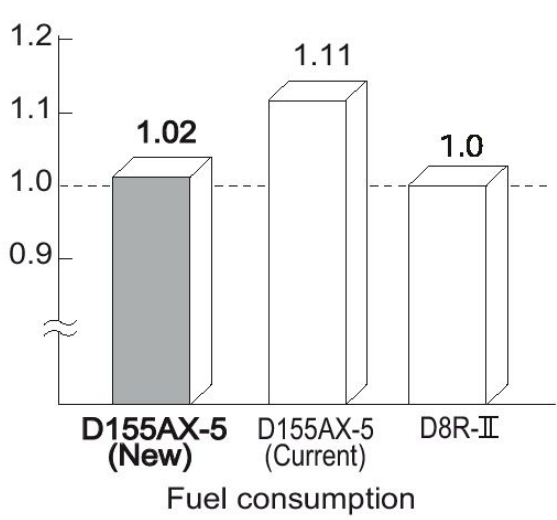
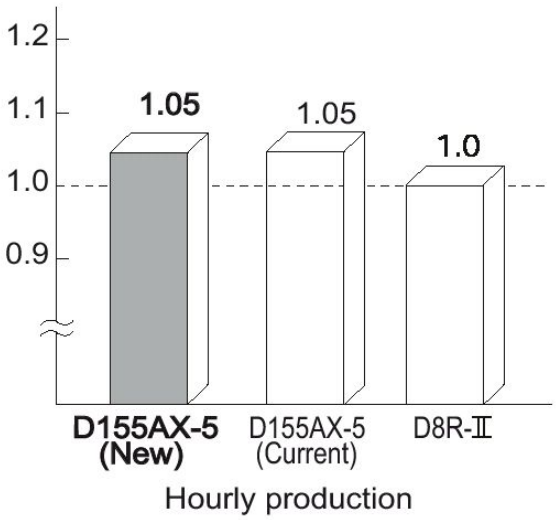
SA6D140E-3

D3406E-TA

	D155AX-5 B	D155AX-5 A	D8R
Engine	Meets Tier 2 emissions regulations	Meets Tier 1 emissions regulations	Meets Tier 2 emissions regulations
Fan drive	★ Hydraulic	Mechanical	Mechanical
Power train	Modular design	Modular design	Modular design
Transmission	★ Planetary gear type with ECMV	Planetary gear type	Planetary gear type
Steering	HSS	HSS	Differential steer/Clutch & brake
Steering control	PCCS, Single-lever	PPC, Single-lever	FTC/Tiller
Undercarriage	Low drive	Low drive	High drive
Hydraulic control	PPC	PPC	Hydraulically assisted
Cab mount	★ Cab damper mount	Viscous mount	Rubber mount
Monitor	★ With self-diagnostic function and maintenance mode	Conventional monitor	With self-diagnostic function

Item		Manufacturer Model	KOMATSU		CATERPILLAR	
			D155AX-5 (New)	D155AX-5 (Current)	D8R-II	
COMPARATIVE SPECIFICATIONS	ENGINE	FLYWHEEL HORSEPOWER [Ⓜ]				
		ISO 9249 / SAE J1349 Gross	HP(KW)/rpm	332(248)/1900	338(252)/1900	338(252)/2000
		Net	HP(KW)/rpm	310(231)/1900	310(231)/1900	310(231)/2000
		MODEL	-	SA6D140E-3	SA6D140E-3	D3406E-TA
		OPERATING WEIGHT	kg(lb)	38800(85,540)	37800(83,330)	37875(83,500)
		BLADE CAPACITY(SAE)	m ³ (yd ³)	8.8(11.5)	8.8(11.5)	8.7(11)
		LENGTH OF TRACK ON GROUND	mm(ft.in)	3210(10'6")	3210(10'6")	3206(10'6")
		TRACK GAUGE	mm(ft.in)	2100(6'11")	2100(6'11")	2082(6'10")
	POWER LINE	-	* T/C+T/M+HSS	* T/C+T/M+HSS	* T/C+T/M+D/S	
	RIPPING AND DOZING PRODUCTION	m ³ /h	1.05	1.05	1.0	
Riding characteristics		NOISE LEVEL AT OPERATOR'S EARS	dB(A)	77	82	79
		AMBIENT NOISE LEVEL AT 15m (16.4yd)	dB(A)	77.0	79.5	81.5
		VIBRATION LEVEL, INDEPENDENT TRAVEL (F3/R3)	VL(dB)	98	98	D8R: Not measured yet / D8N:100
		MOUNT METHOD	-	CAB DAMPER MOUNT	VISCOUS MOUNT	RUBBER MOUNT
		FAN DRIVE METHOD	-	HYDRAULIC (VARIABLE)	BELT (DIRECT)	BELT (DIRECT)
		OPERATOR'S CAB	-	MEDIUM SIZE WIDE CAB	BXX CAB [Ⓜ] SMALL SIZE [Ⓜ]	-
Driving and operability		TRAVEL CONTROL LEVER	-	PCCS [Ⓜ] ELECTRIC [Ⓜ]	FULL MONO LEVER (ELECTRIC / MECHANICAL)	MONO LEVER (ELECTRIC / HYDRAULIC)
		PRESET TRAVEL SPEED/AUTO-SHIFT DOWN FUNCTION	-	STD	NOT EQUIPPED	STD
Serviceability		MONITOR WITH TROUBLE SHOOTING FUNCTION	-	STD	STD	STD
0&0 COST		ENGINE OIL AND FILTER CHANGING INTERVALS	h	500	500	250

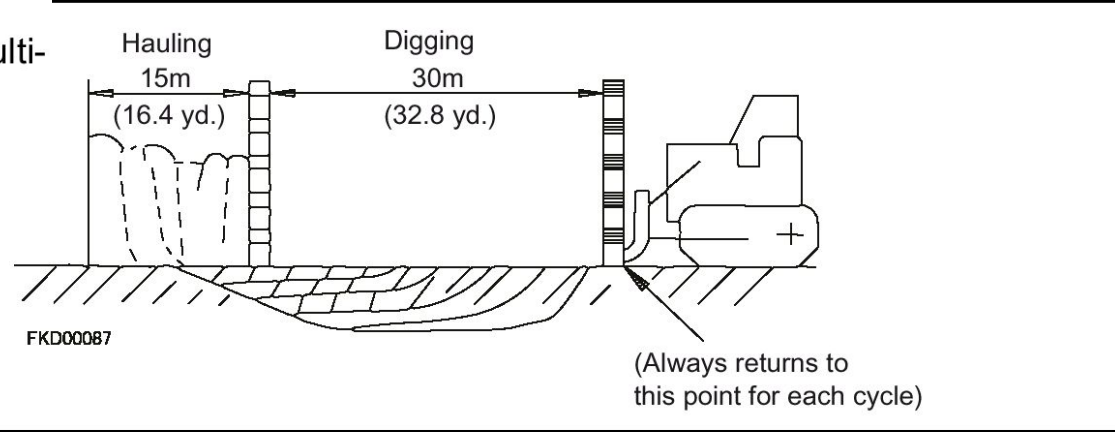
Dozing Production



★ Test conditions

Machine specifications : semi-U dozer with multi-shank ripper, ROPS and cab.

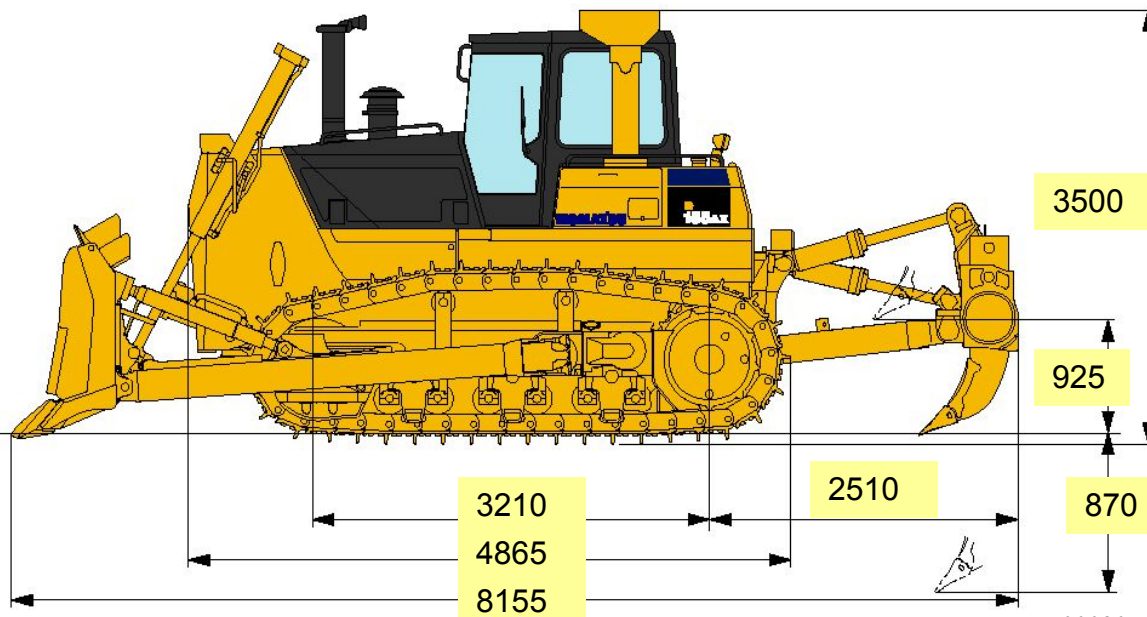
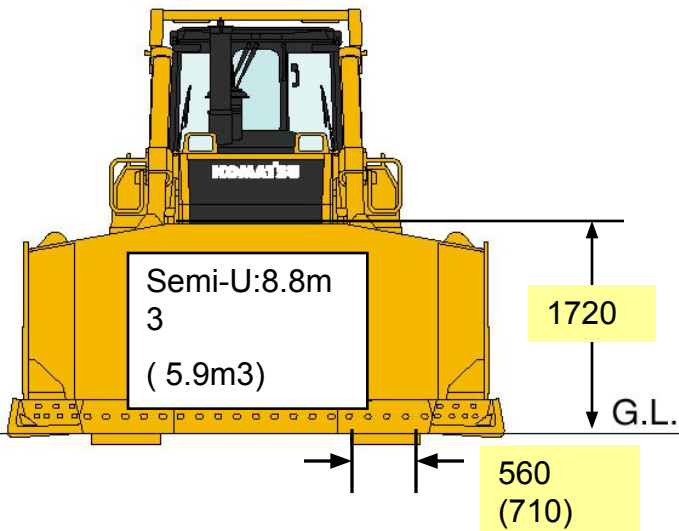
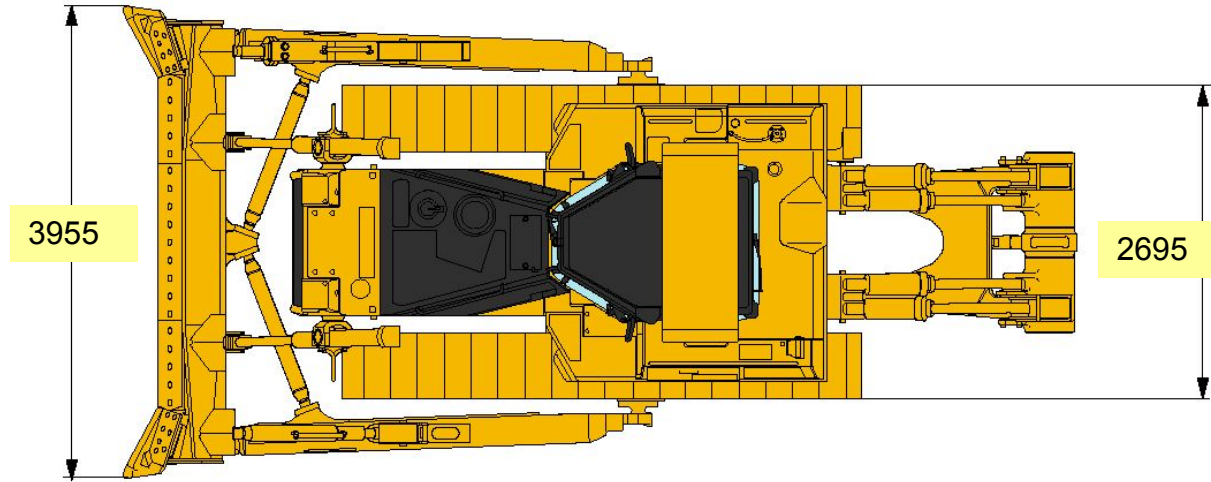
Test area



Digging width	Blade width
Number of dozing passes	10 passes
Method for measuring production	Measurement of depth x digging width at 2 m intervals
Fuel	Diesel fuel
Method for measuring fuel consumption	Simple fuel gauge
Type of soil	Sandy soil mixed with gravel
Speed range used	Digging: F1, Hauling: F2, Return: R3

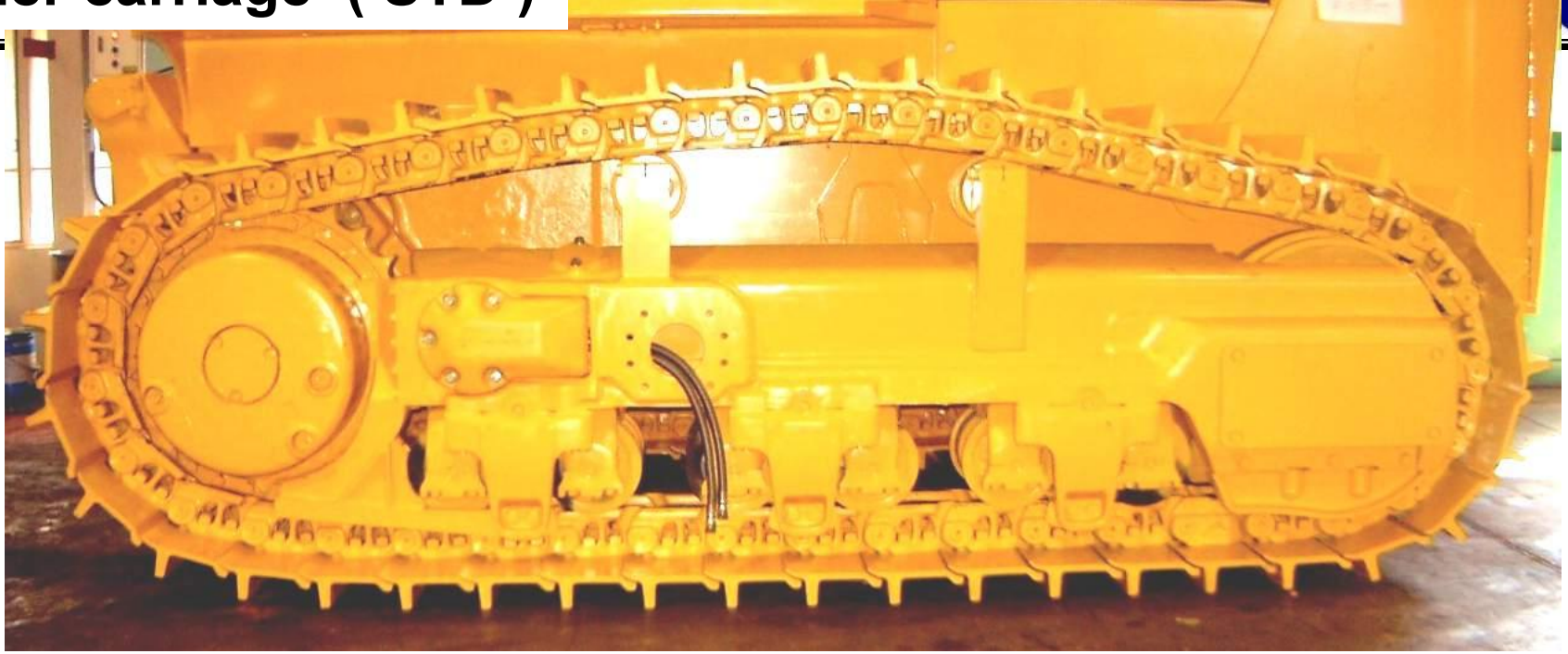
Dimension of D155AX-5B

KOMATSU Units: mm

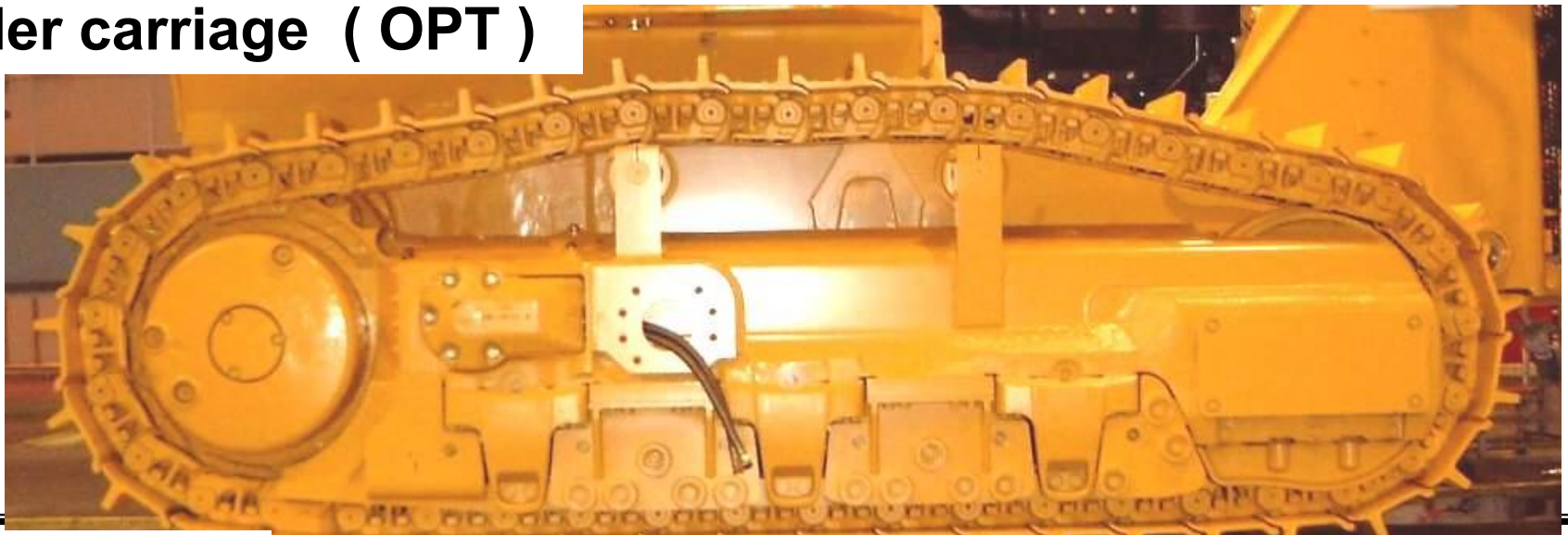


Ground clearance: 485 mm 1' 7"

Under carriage (STD)



Under carriage (OPT)



Full roller guard

HSS (Hydrostatic Steering System) No 1

- The Hydrostatic Steering system (HSS) is powered by an independent hydraulic pump with engine power transmitted to both tracks without power interruption. When the machine turns, the outside track moves faster and inside slower.

Clutch & Brake

Clutch & Brake model turn by deactivating the clutch on one side.

Effective applications

1. Dozing while turning:

As fast as dozing in a straight line.

2. Leveling:

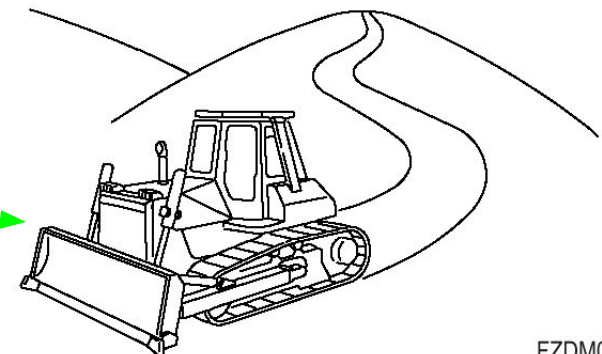
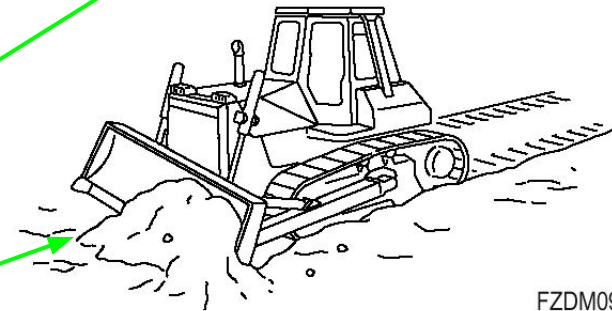
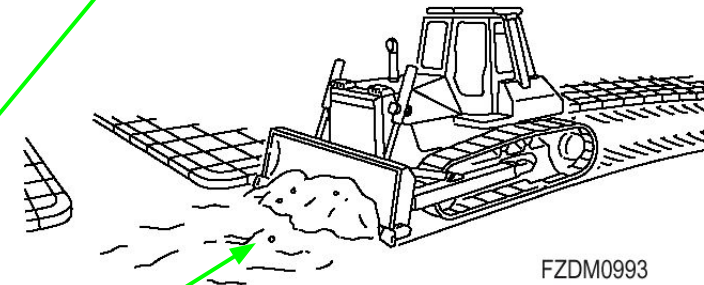
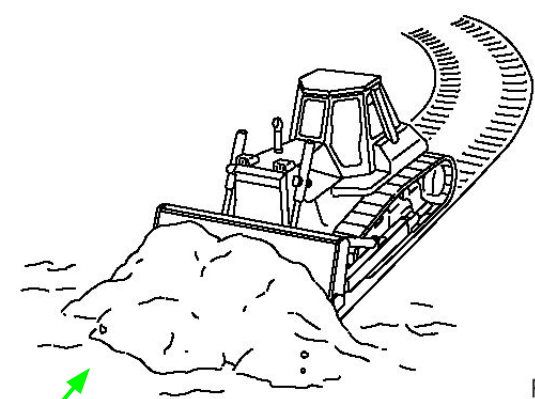
Leaves minimum tracks on soft ground.

3. Side cutting:

Easy to hold a straight line.

4. Work on steep slopes:

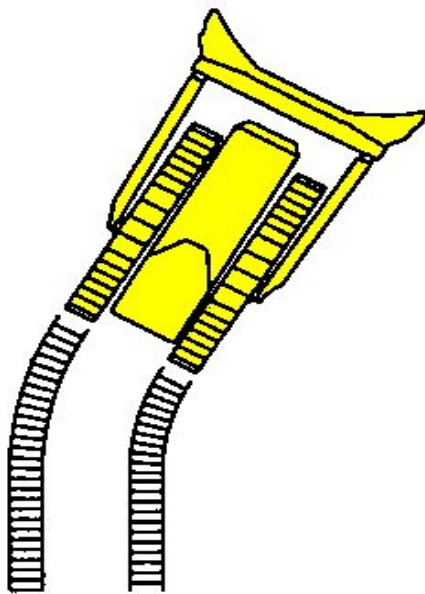
Machine moves in direction that lever is pushed.



HSS (Hydrostatic Steering System) No 2

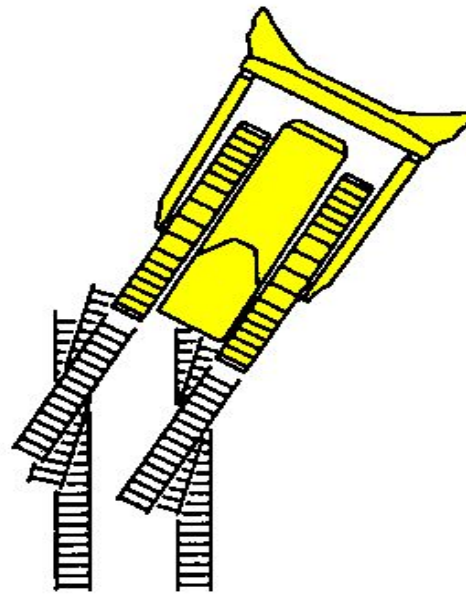
HSS and Cl & Br Comparison

	HSS	Cl & Br
Pivot turn	Not possible	Possible
Counter rotation	Possible	Not possible



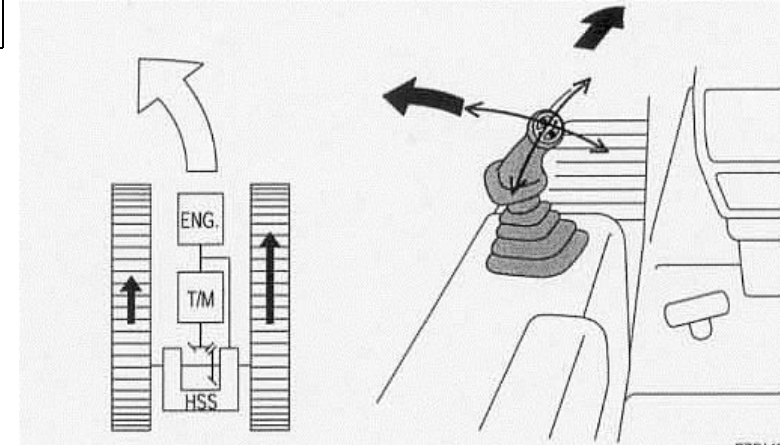
Smooth

HSS

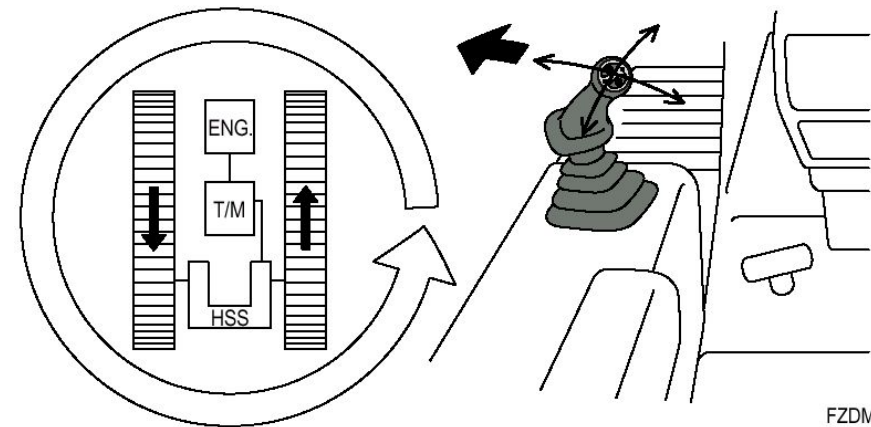


Rough

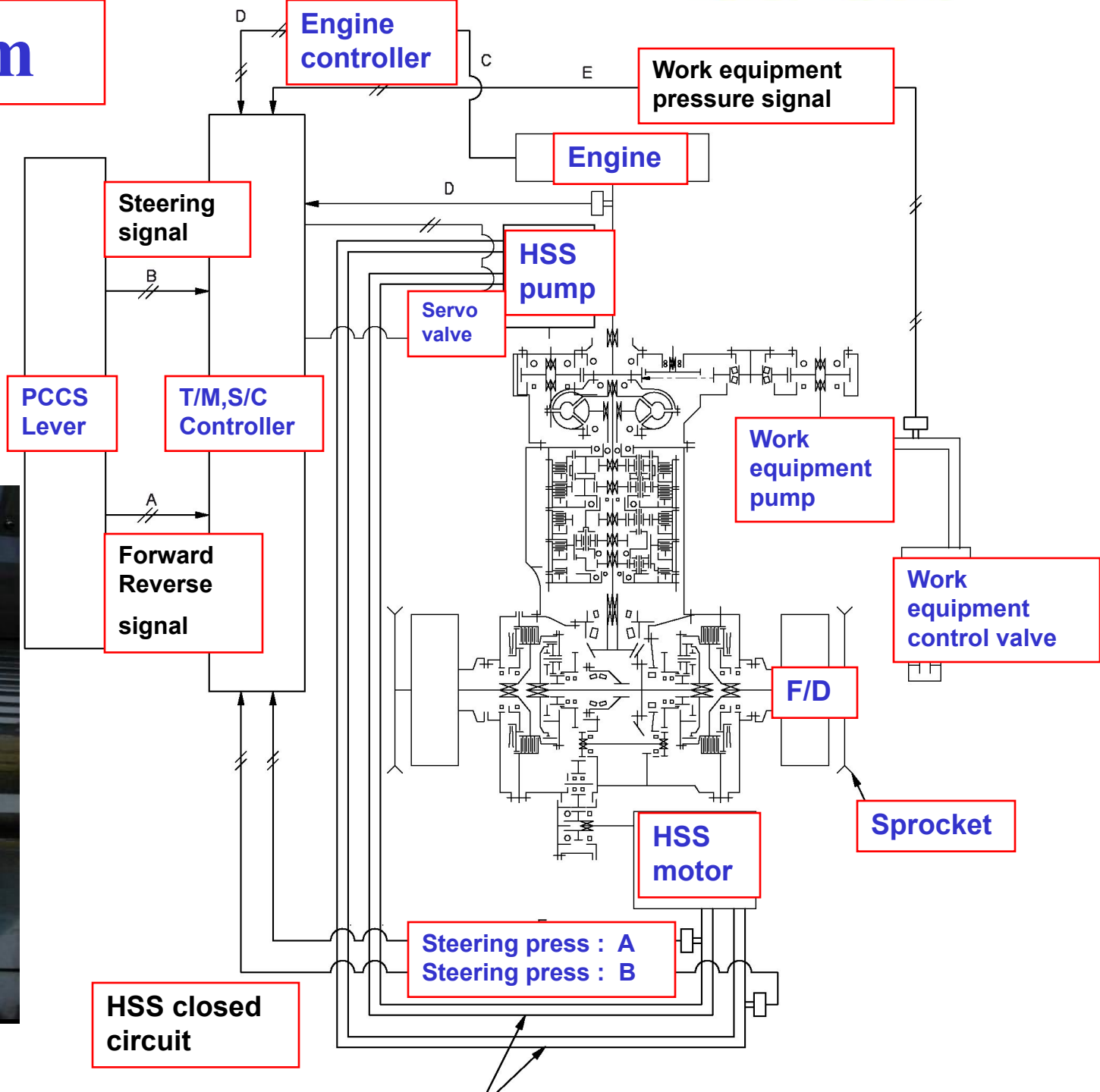
Cl&Br



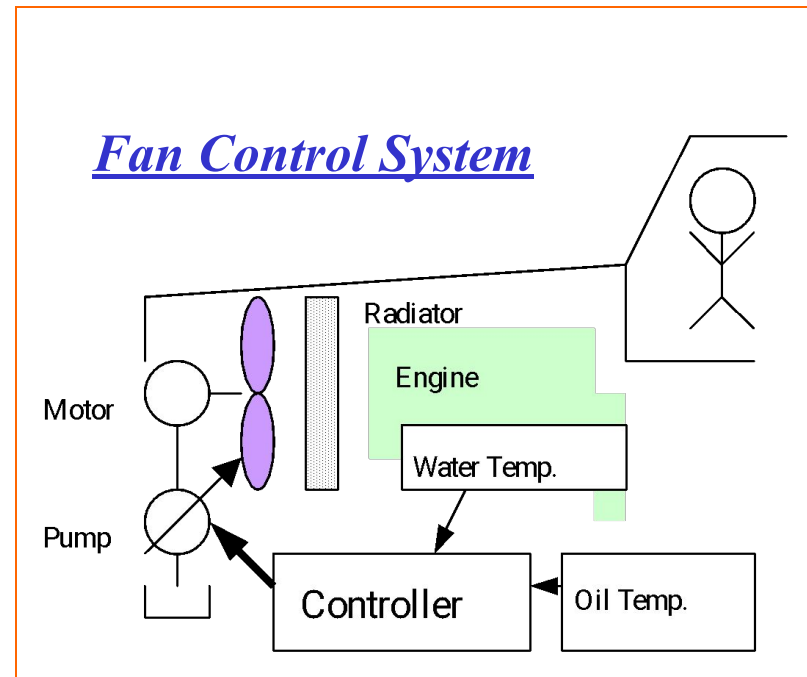
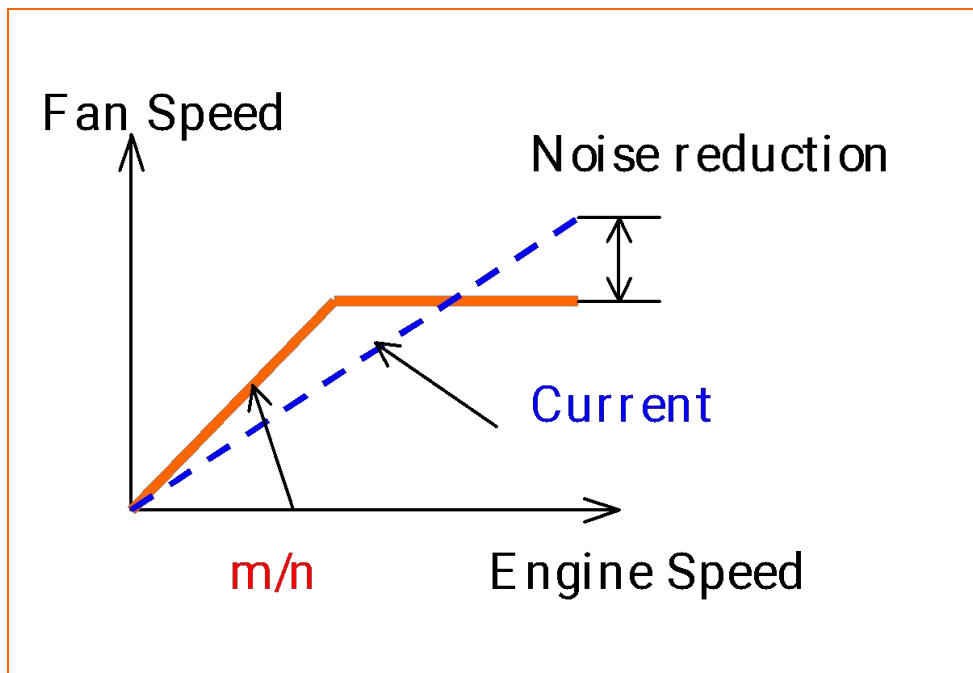
[When Using Counter-Rotation]



HSS System



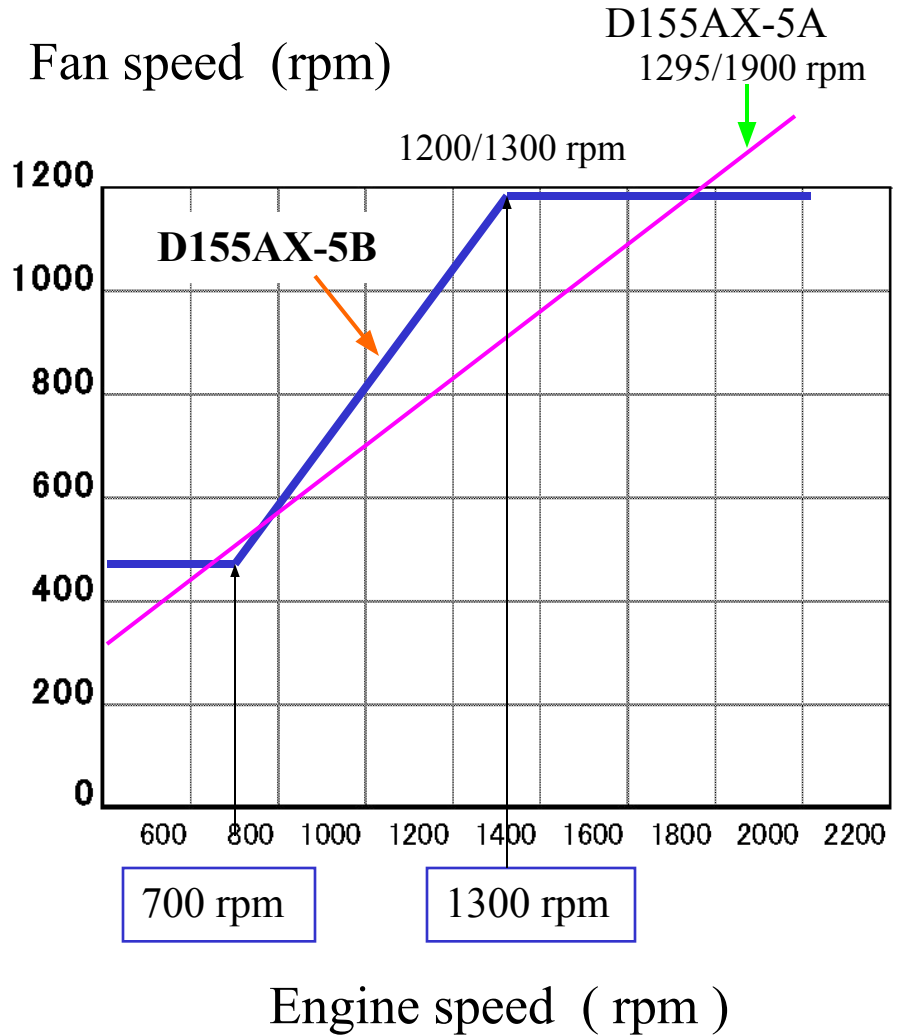
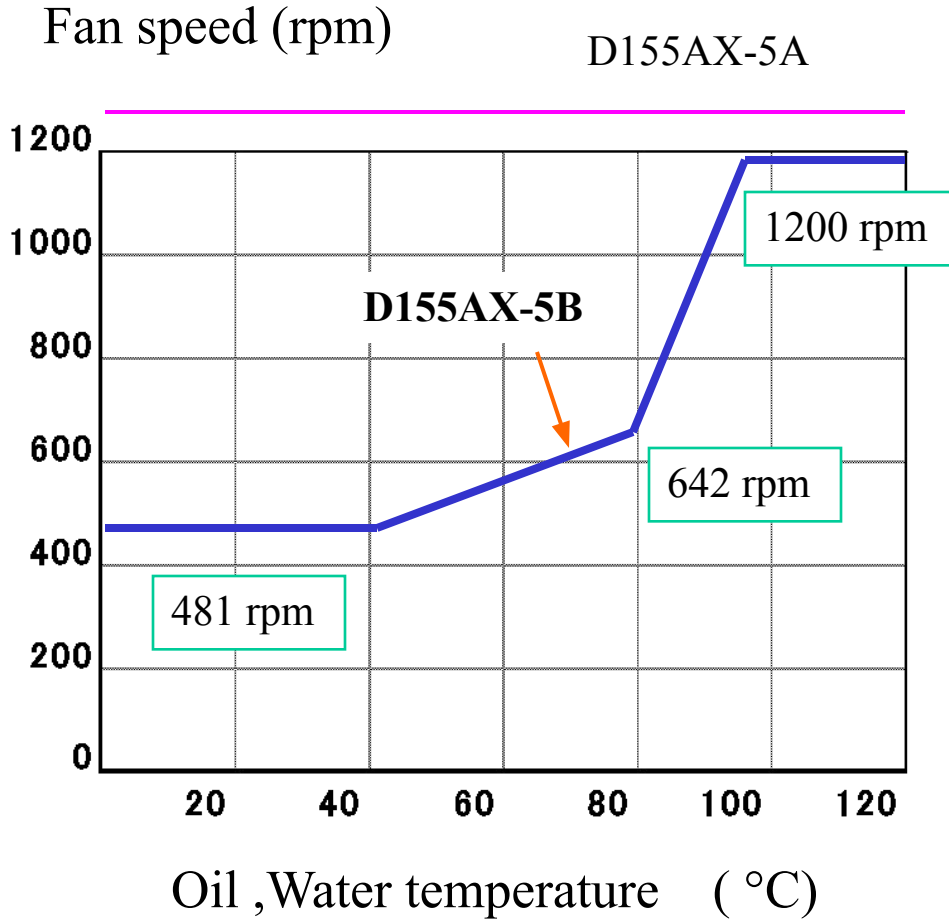
Item	Model	KOMATSU		CAT
		D155AX-5(New)	D155AX-5(Current)	D8R-II
Noise level at operator's ears	dB(A)	77	82	79
Ambient noise level at 15 m (16.4yd)		77.0	79.5	81.5



D155AX-5B

FAN CONTROL MAP

— Water temp' : 95 °C
— P/L Oil temp' : 108 °C
— Hyd Oil temp' : 95 °C

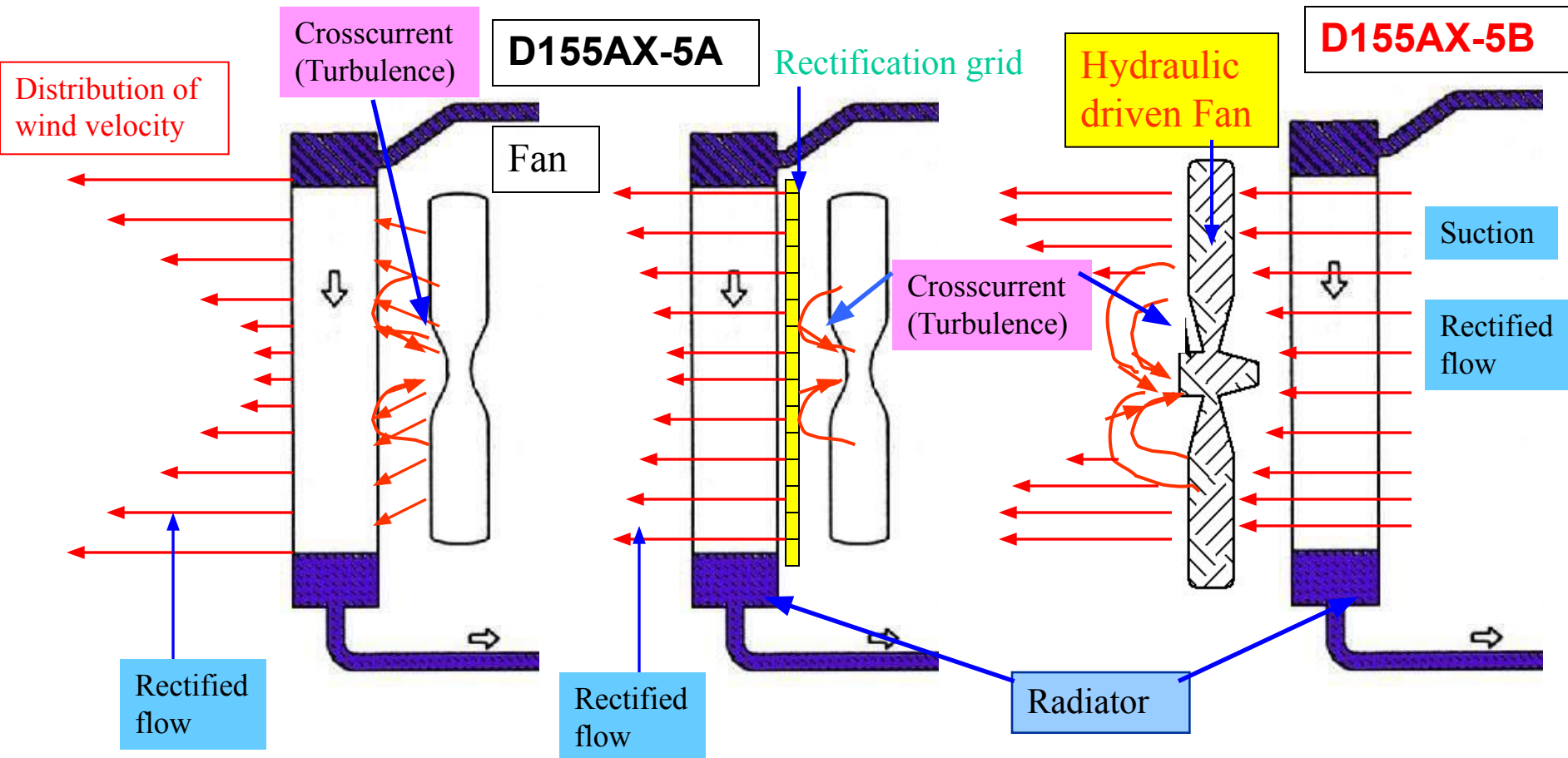


P/L oil temp' × 108/125 =

The advantage of the hydraulic driven fan

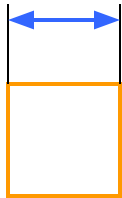
1. Reduced loss of horse power (When ambient temperature is low)
2. Reversing of fan can be easily done (easier to clean radiator)
3. Serviceability is improved (No need to change fan belt)

The reason for rectification grid becoming unnecessary in dusty area

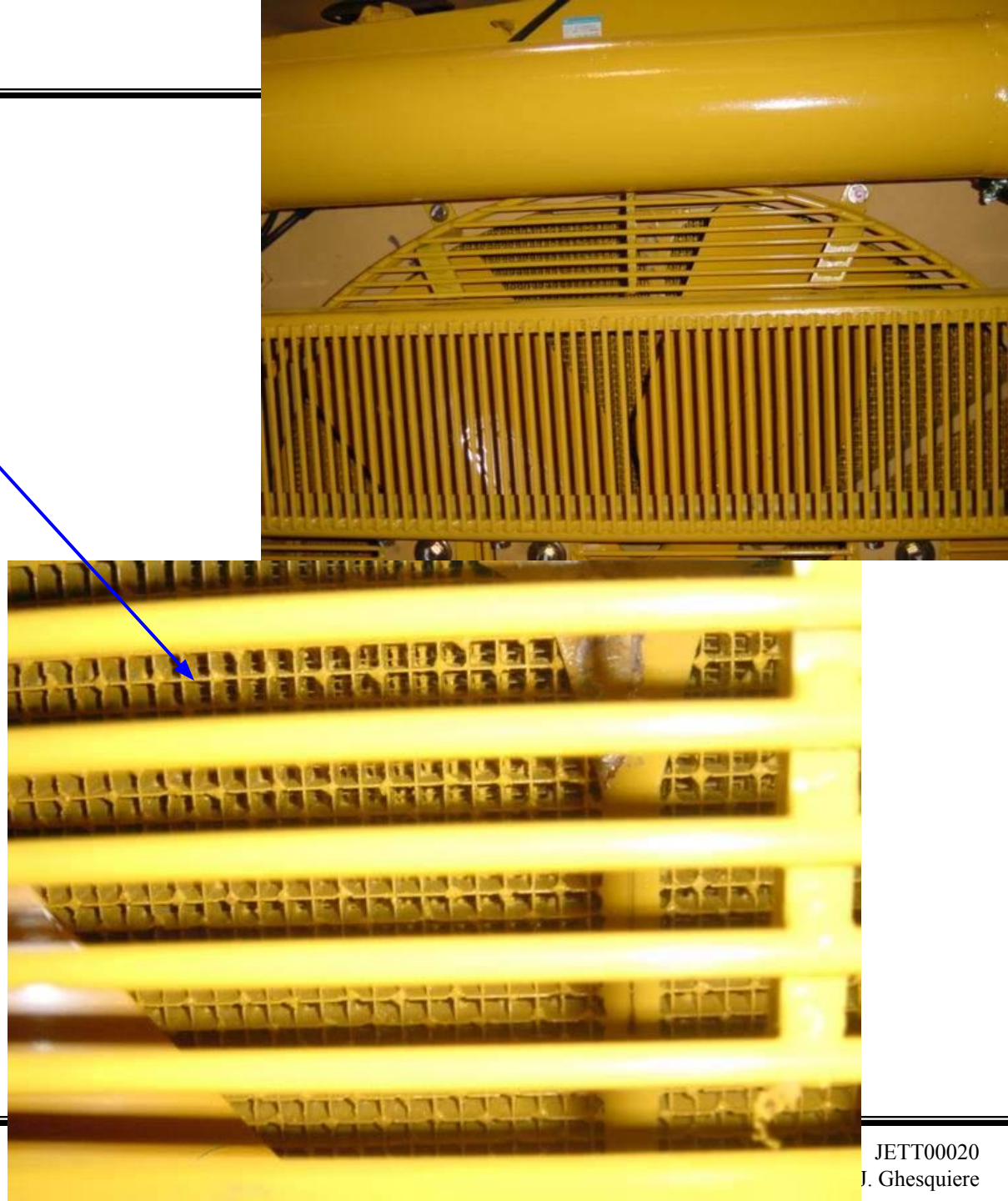


Rectification grid

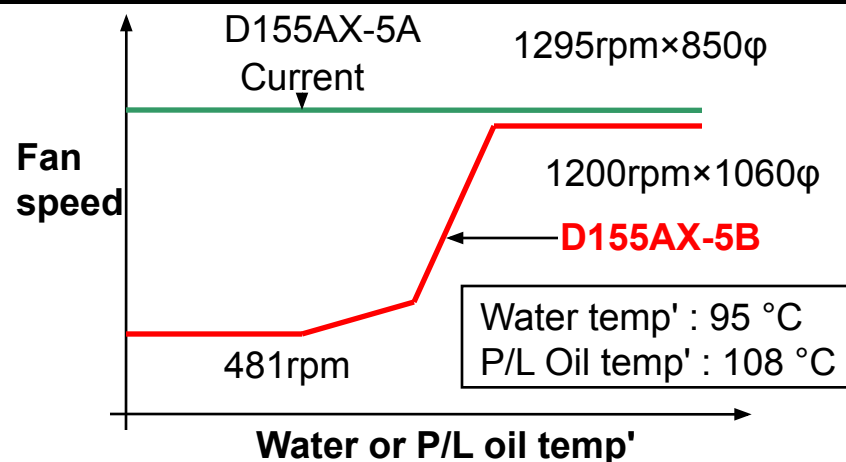
10 mm



Example



FAN SELECTOR SWITCH

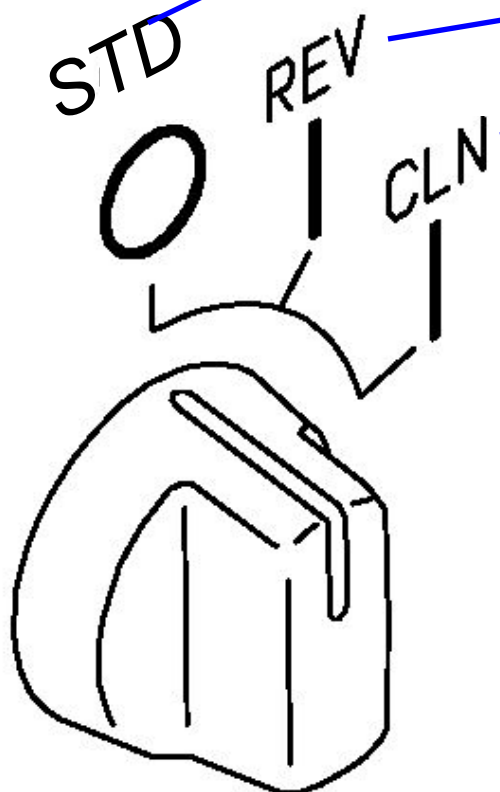


For cold weather condition (The fan rotates in reverse.)

When cleaning the radiator fins, reverse the rotation of the fan and change the direction of the air flow, Set the fan selector switch to the CLN position and start the engine.

The fan rotates at 100 rpm speed in reverse and cleans the fins.

The fan selector switch cannot be operated when the engine is running



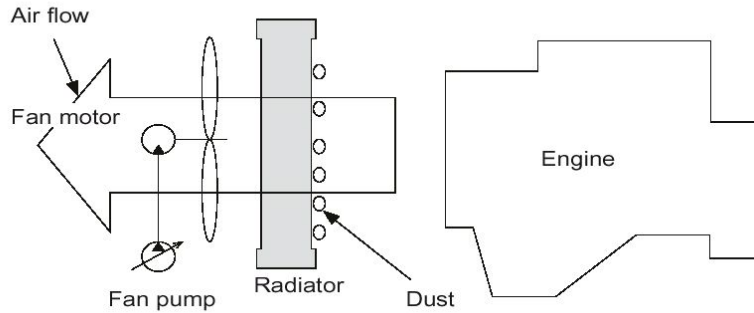
If dirt is caught in the radiator fins, blow with compressed air or steam to clean.

Reversible radiator fan

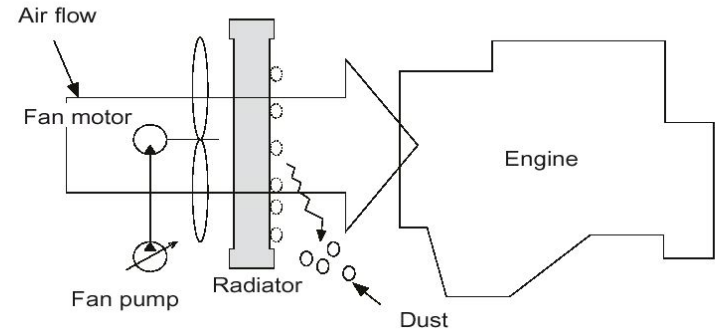
- ★ The engine fan is driven hydraulically. It can be operated in reverse with the reverse switch in the operator's cab to blow off the dirt from the rear

side of the radiator. Consequently, the cleaning interval of the cores can be greatly increased.

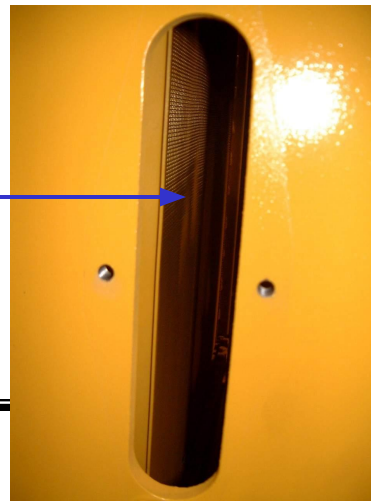
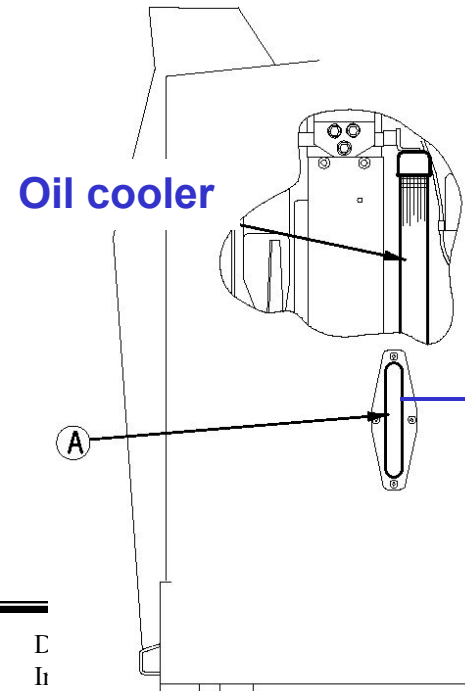
Usual operation



Cleaning operation(Reverse rotation)



The fan selector switch cannot be operated when the engine is running



Cab Concept with Palm Command Control System



**Palm Command
Steering &
Transmission
Control Lever**

**Electronic
Monitor with
Self-Diagnostic
Function**

**Electronic
Throttle Dial**

Blade Lever

Swivels with Seat

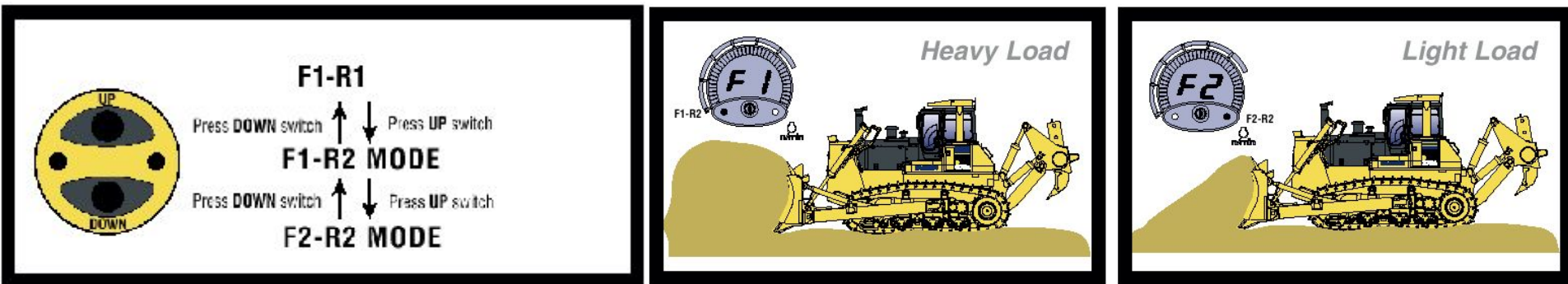
Ripper Lever

Arm Rest

Operator Seat

PCCS (Palm Command Control System)

- **Preset Travel Speed Selection Function**
 - Three preset patterns: F1-R1, F1-R2, F2-R2
 - Moving joystick forward/rearward selects speed automatically
 - Reduces cycle time & fatigue



- **Auto-shift Down Function**
 - Controller monitors engine speed, travel gear, travel speed
 - When load applied & speed reduced, automatically shifts down to optimum gear speed to achieve more effective fuel consumption
 - Comfortable operation and highly efficient production

The auto-shift down function does not work when the brake pedal is used.

F2 → F1 (R1)

(R2)



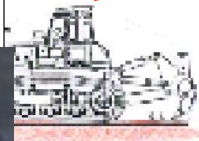
ON

Auto shift down switch

[Example

NO SHIFT UP FUNCTION

~~× F2 → F1~~



F1 ← F2

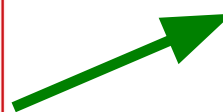


NO SHIFT UP FUNCTION

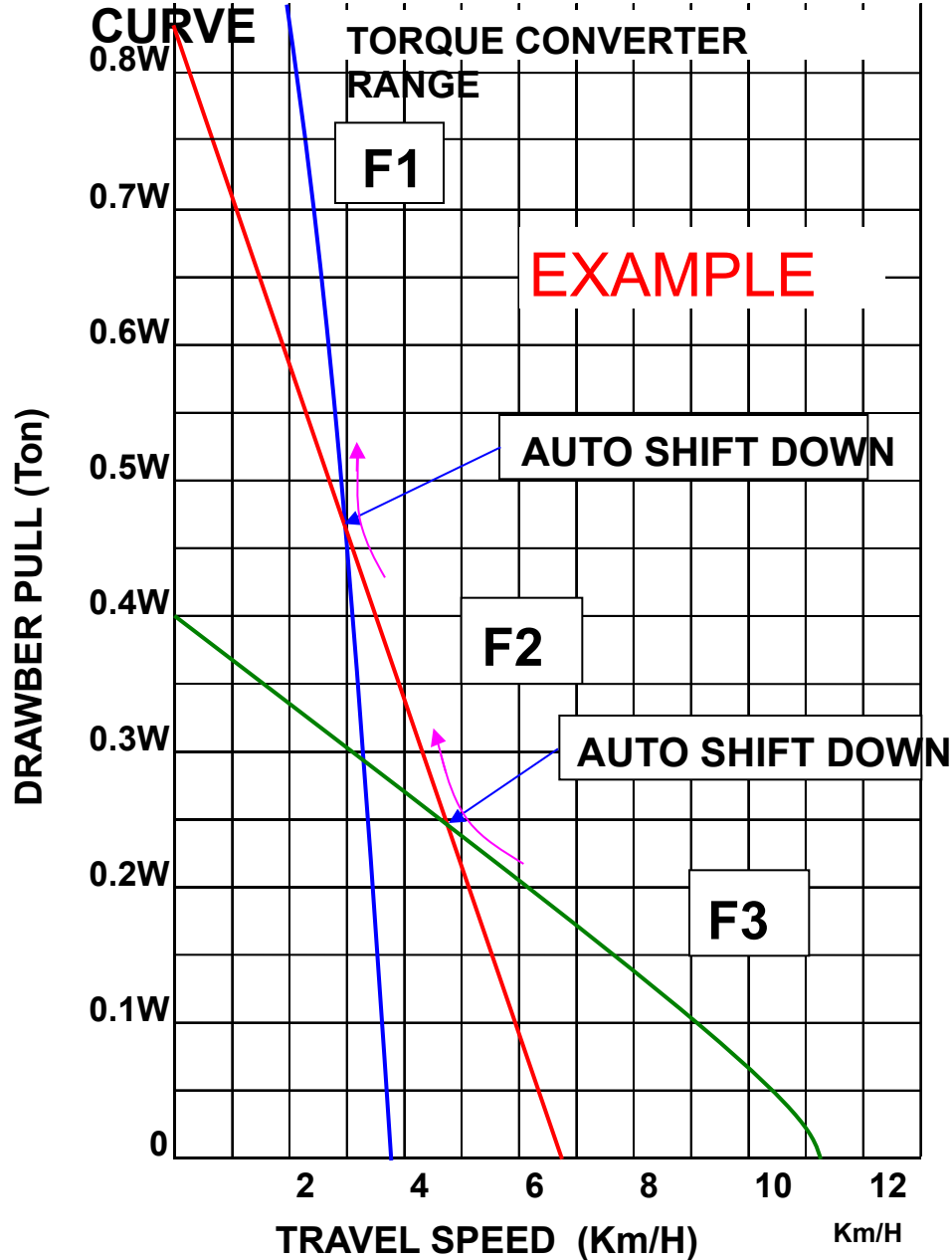
~~R1 → R2 ×~~

R2

R1



D155AX-5B DRAWBAR PULL POWER PERFORMANCE



$$P_s = \frac{F \times V}{270}$$