

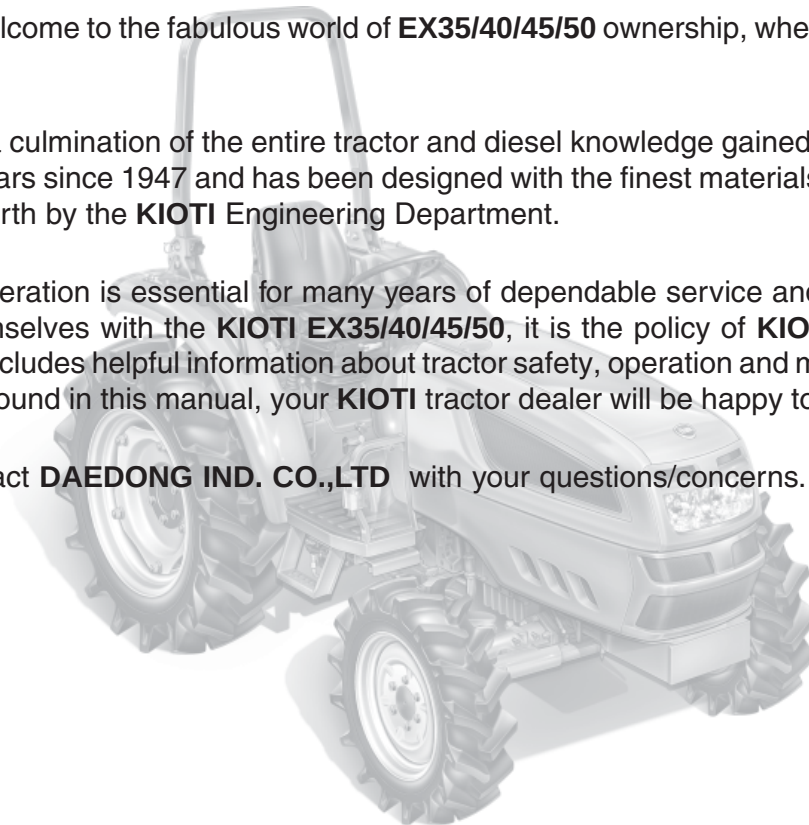
FOREWORD

Congratulations, and welcome to the fabulous world of **EX35/40/45/50** ownership, where serious work is made fun again!

This versatile tractor is a culmination of the entire tractor and diesel knowledge gained by the Daedong Industrial Co.,LTD over the years since 1947 and has been designed with the finest materials and under rigid quality control standards set forth by the **KIOTI** Engineering Department.

Knowledge of tractor operation is essential for many years of dependable service and reliability. To help new owner's familiarize themselves with the **KIOTI EX35/40/45/50**, it is the policy of **KIOTI** tractor to provide an owner's manual which includes helpful information about tractor safety, operation and maintenance. If the information you seek is not found in this manual, your **KIOTI** tractor dealer will be happy to help you.

Please feel free to contact **DAEDONG IND. CO.,LTD** with your questions/concerns.



SAFETY AND VEHICLE DAMAGE WARNING

This manual includes information titled as **WARNING**, **CAUTION**, **IMPORTANT** and **NOTE**. These titles indicate the following:

 WARNING	This indicates that a condition may result in harm, serious injury or death to you or other persons if the warning is not heeded. Follow the advice provided with the warning.
 CAUTION	This indicates that a condition may result in damage to your vehicle or its equipment if the caution is not heeded. Follow the advice provided with the caution.
 IMPORTANT	This mark indicates emphasis on notable characteristics of working procedures, and information about technology for easier operation.
 NOTE	This indicates that interesting or helpful information is being provided.

ABBREVIATION LIST

ABBREVIATIONS	DEFINITIONS
4WD	Four Wheel Drive
API	American Petroleum Institute
ASAE	American Society of Agricultural Engineers, USA
ASTM	American Society of Testing and Materials, USA
fpm	Feet Per Minute
Hi-Mid-Lo	High Speed-Middle Speed-Low Speed
HST	Hydrostatic Transmission
m/s	Meters Per Second
PTO	Power Take Off
RH/LH	Right-hand and Left-hand sides are determined by facing in the direction of forward travel
ROPS	Roll-Over Protective Structures
m ⁻¹ (rpm)	Revolutions Per Minute
S ⁻¹ (r/s)	Revolutions Per Second
SAE	Society of Automotive Engineers, USA
SMV	Slow Moving Vehicle

UNIVERSAL SYMBOLS

Various universal symbols have been used on the instruments and controls of your KIOTI tractor. Below is a list of the universal symbols and their meanings.

	Fuel-Level		Position Control-Lowered Position		Low Range
	Engine Coolant-Temperature		Hazard Warning Lights		Coolant
	Parking Brake		Headlight-Low Beam		Preheat
	Battery Charging Condition		Headlight-High Beam		QT lamp
	Engine Oil-Pressure		Four-Wheel Drive-ON		H:High speed travel light
	Turn Signal		Fast		M:Middle speed travel light
	Power Take-Off Clutch Control-ON Position		Slow		L:Low speed travel light
	Power Take-Off Clutch Control-OFF Position		Creep		Neutral Position
	Differential Lock		High Range		Single brake light
			Middle Range		

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SAFETY PRECAUTIONS

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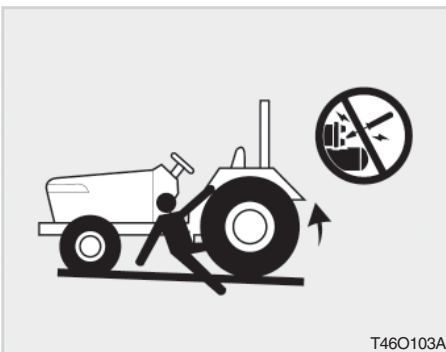
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BEFORE OPERATING THE TRACTOR

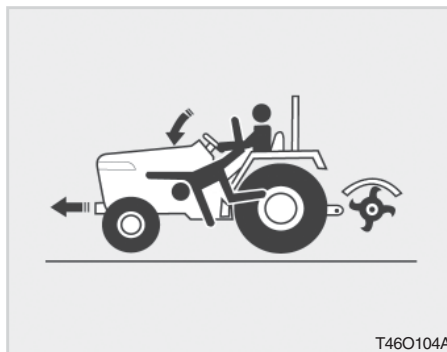
A careful operator is the best operator. Most accidents can be avoided by observing certain precautions. To help prevent accidents, use these safety precautions, and pay attention to the job at hand. If you can prevent an accident, your time will have been well spent.



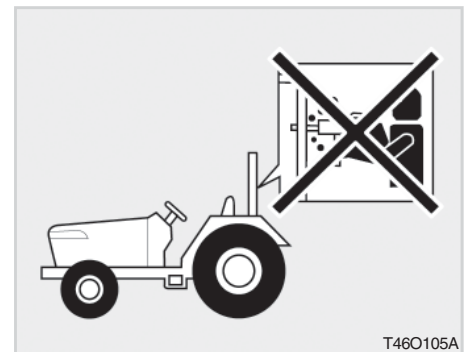
1. It is recommended that you read and understand this entire manual before operation of your new tractor. Failure to do so could result in accidents or injury.
2. Only persons who are properly trained should be allowed to operate the tractor.
3. Read and follow all warning labels and decals affixed to the tractor.
4. Replace any missing or damaged decals as soon as it is practical. A list of decals is shown on page 14~16.
5. Keep safety decals clean of dirt and debris.
6. Watch where you are going at all times so that you are able to avoid obstacles that can cause injury or damage to your tractor.
7. When starting the tractor make sure your path is clear of people to avoid accidents caused by sudden movements.
8. Before making reverse movements with your tractor, you should always check to see that the path is clear.



9. Never operate this tractor or any other agricultural equipment while under the influence of alcohol, drugs or while fatigued.
10. While working in cooperation with other tractors always communicate your intentions.
11. Do not start your tractor by shorting across the starter.



12. Never start the engine while standing on the ground.
13. Only the operator should ride on the tractor unless a passenger seat is installed. Keep bystanders away from the tractor while in operation.
14. When getting on and off the tractor, handholds and step plates should always be used. This will help to prevent accidental slips trips and falls.
15. Be sure to scrape off mud or soil from your shoes before mounting the tractor.



16. All persons using the tractor should have knowledge of its proper operation and should read this manual carefully.
17. Never get off the tractor without setting the parking brake, lowering the implement to the ground and shutting of the tractor.
18. No alterations should be made to your **KIOTI** tractor.



19. Before starting your tractor you should depress the clutch and make sure that all shift levers are in the neutral position and parking brake is applied.

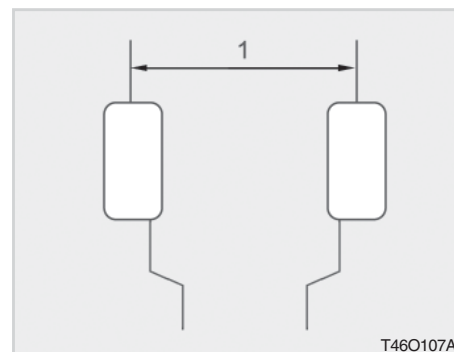
20. For your safety **ROPS** with a seat belt is recommended for all applications.

 NOTE

- Always use seat belt when the tractor is equipped with a **ROPS**. Never use the seat belt when tractor is not equipped with a **ROPS**.

A **ROPS** should never be modified by welding, grinding or cutting, as this can weaken the **ROPS** structure. If any components of the **ROPS** unit is damaged, it must be replaced.

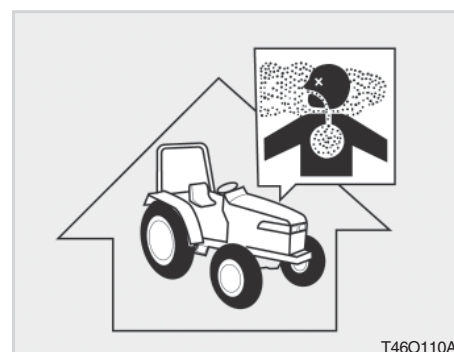
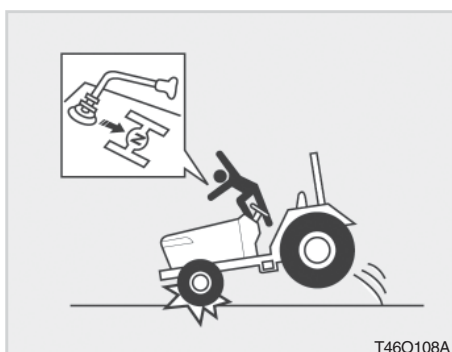
If the **ROPS** unit is removed or loosened for any reason, the parts should be fitted back to their original positions and all bolts should be properly torqued.



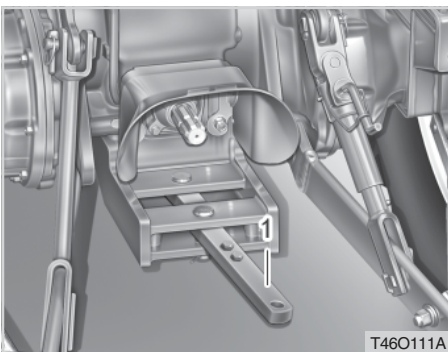
(1) Tread

21. Extra caution should be taken when driving tractors with narrow tread widths. For added stability you should adjust your rear wheel tread width, see page 8-4.

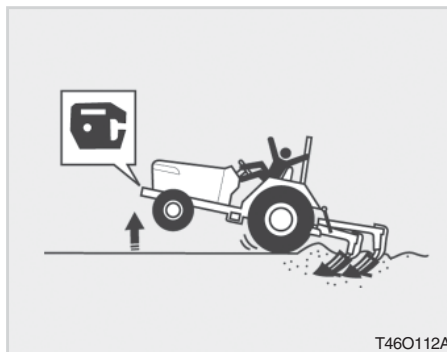
OPERATING THE TRACTOR



1. Avoid accidental contact with gear shift levers while the engine is running. Unexpected tractor movements can result in bodily injury.
2. Do not park your tractor on a steep incline, and remember to shut off the engine and PTO before dismounting the tractor.
3. Do not operate your tractor in an enclosed building without the proper ventilation. Exhaust fumes contain carbon monoxide and may cause serious injury or death.

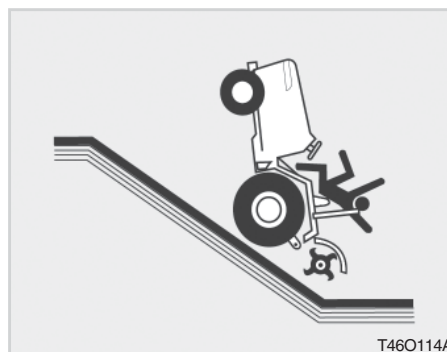


(1) Drawbar

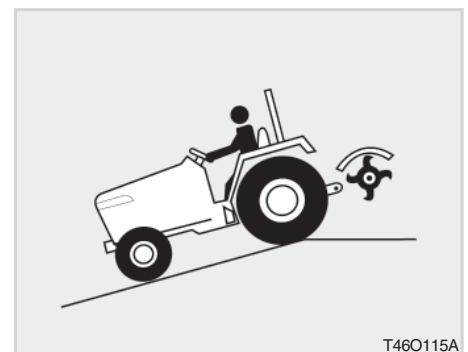


4. Make sure that all pressure lines are tight before starting the tractor.
5. Pull only from the drawbar. Never hitch anything to the axle housing or any other point except the drawbar. Pulling from any other location only increase the risk of serious personal injury or death.
6. If the front of the tractor tends to rise up when heavy implements are attached to the three point hitch, weights should be installed on the tractor. Do not operate the tractor with a light front end.
7. Always use the proper ballast weight on your tractor when using rear implements.
8. Watch front and rear to avoid obstacles at row ends, near trees and around other obstructions.

9. Do not leave equipment in the raised position when the vehicle is stopped or unattended.
10. When using implements or attachments with your tractor you should first read their respective owner's manual. You should always keep their safe operation procedures in mind.
11. You should be familiar with your equipment and its limitations.
12. If abused or used incorrectly your tractor can become dangerous to you and bystanders. Overloading your tractor or using unsafe equipment can also be dangerous and should be avoided. Refer to the "Specifications of Implement Limitation", which outlines the maximum load for safe tractor operation.

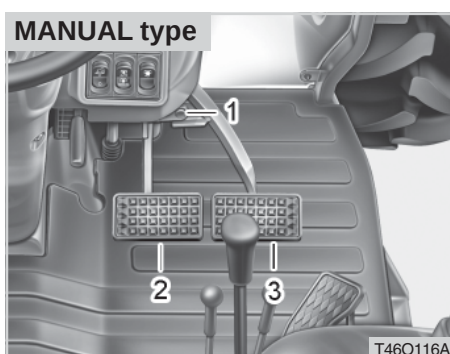


13. Driving forward out of a ditch or steep inclines can cause the tractor to tip over backwards. To avoid this you should back out of these positions. Four wheel drive tractors can give you a false sense of security in the tractor's ability to maneuver out of these positions, so extra caution should be taken.
14. Never try to get on or off a moving tractor.

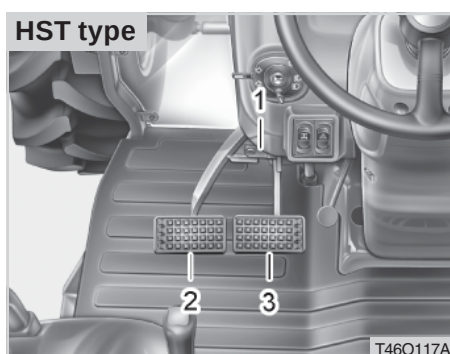


15. When working in groups, always let the others know what you are going to do before you do it.
16. Never "freewheel". Disengaging the clutch or shifting into neutral while descending a slope as this could lead to a loss of control.
17. Do not operate near ditches, holes, embankments, or other terrain features which may collapse under the tractor's weight. The risk of tractor upset is even higher when the ground is loose or wet.

DRIVING THE TRACTOR



(1) Interlock
(2) Brake Pedal (L)
(3) Brake Pedal (R)



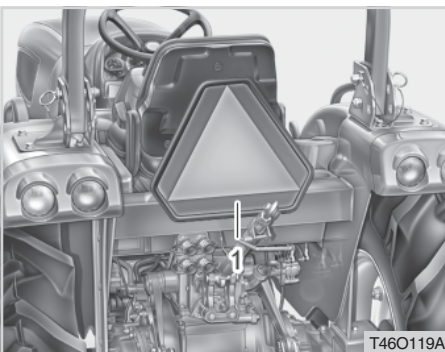
(1) Interlock
(2) Brake Pedal (L)
(3) Brake Pedal (R)



1. Lock the brake pedals together when traveling at road speeds. Brake both wheels simultaneously when making an emergency stop. Uneven braking at road speeds could cause the tractor to tip over.

2. Always slow the tractor before turning. Turning at high speed may tip the tractor over or cause an operator to lose control of the tractor.

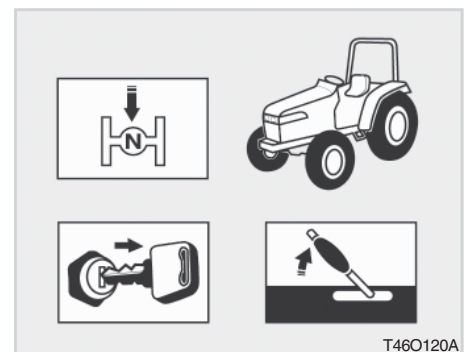
PARKING THE TRACTOR



(1) SMV Emblem

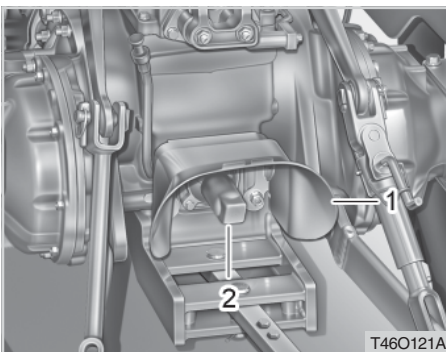
3. Make sure that the Slow Moving Vehicle (SMV) sign is clean and visible. Use hazard lights as required.

4. Observe all local traffic and safety regulations.
5. Turn the headlights on. Dim them when meeting another vehicle.
6. Drive at speeds that allow you to maintain control at all times.
7. Do not apply the differential lock while traveling at road speeds. As the tractor may lose the ability to steer.
8. Avoid sudden movements of the steering wheel as this can cause a loss of control of the tractor. This risk is especially great when traveling at road speeds.
9. Do not operate an implement while the tractor is on the road. Lock the three point hitch in the raised position.
10. When towing other equipment, use a safety chain and place an SMV emblem on it as well.



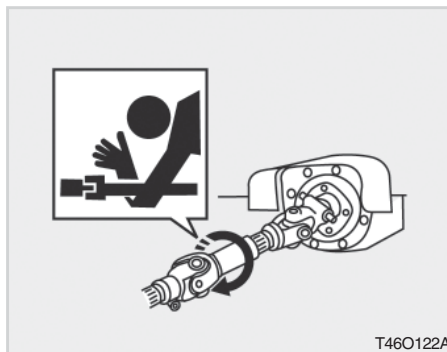
1. Disengage the PTO, lower all implements, place all control levers in the neutral position, set the parking brake, stop the engine and remove the key.

OPERATING THE PTO



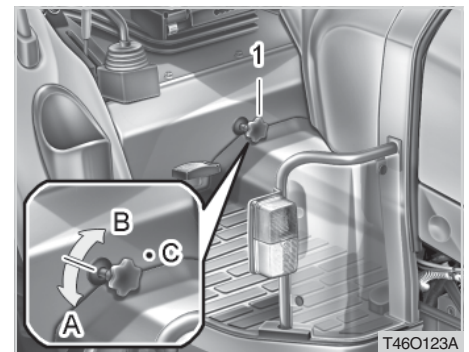
(1) PTO Shield
(2) PTO Shaft Cap

1. Make sure the tractor is completely stopped, gears are in neutral and all moving components have completely stopped before connecting, disconnecting, adjusting, cleaning or servicing any PTO driven equipment.
2. Keep the PTO shield in place at all times. Replace the PTO shaft cap when the shaft is not in use.
3. Before installing or using PTO driven equipment, read the manufacturer's manual and review the safety labels



- attached to the equipment.
4. When operating stationary PTO driven equipment, always apply the tractor parking brake and place chocks behind and in front of the rear wheels. Stay clear of all rotating parts.
5. Do not attach a PTO driven implement if the implement's safety shields are damaged or not in place. Rotating shafts are an entanglement hazard.

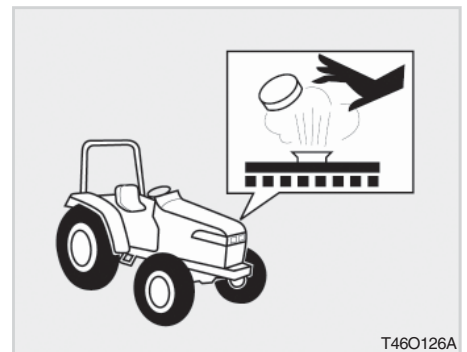
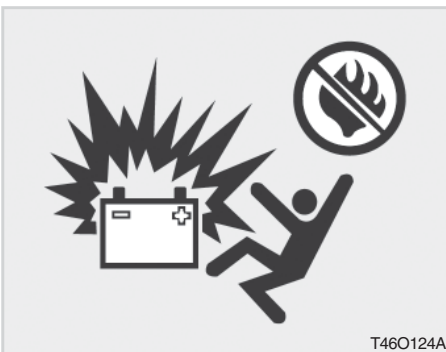
USING 3-POINT HITCH



(1) 3-point hitch lowering speed knob
(A) "FAST" (C) "LOCK"
(B) "SLOW"

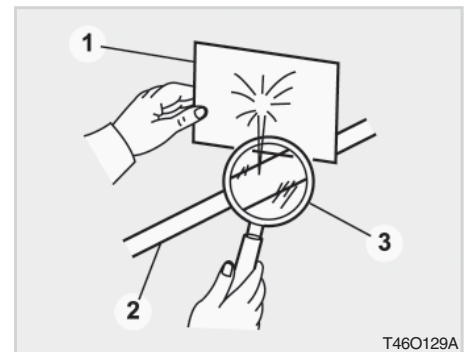
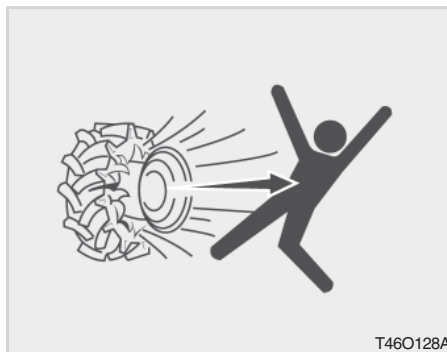
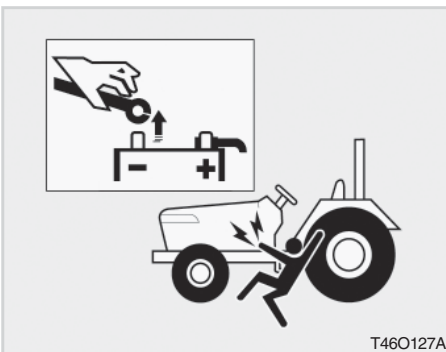
1. Use the 3-point hitch only with equipment designed for 3-point hitch usage.
2. When using a 3-point hitch mounted implement, be sure to install the proper counterbalance weight on the front of the tractor.
3. When transporting on the road, set the implement lowering control in the "LOCK" position to hold the implement in the raised position.

SERVICING THE TRACTOR



In order to service your tractor you must park it on a flat level surface, set the parking brake, place the gear shift lever in neutral and stop the engine.

1. Do not smoke while working around the battery or when refueling your tractor. Keep all sparks and flames away from the battery and fuel tank. The battery presents an explosive hazard because it gives off hydrogen and oxygen... especially when recharging.
2. Allow the tractor time to cool off before servicing any part that may have become hot while the tractor was running.
3. You must always stop the engine before refueling the tractor. Avoid overfilling the tractor or spilling the fuel.
4. Before jump starting a dead battery, read and follow all of the instructions.
5. It is recommended to keep a first aid kit and fire extinguisher handy at all times.
6. Do not remove the radiator cap while the coolant is hot. When cool, slowly rotate the cap to the first stop and allow sufficient time for excess pressure to escape. After all the pressure is released remove the cap completely. If your tractor is equipped with a coolant recovery tank, add coolant there rather than to the radiator.



(1) Cardboard (3) Magnifying Glass
(2) Hydraulic Line

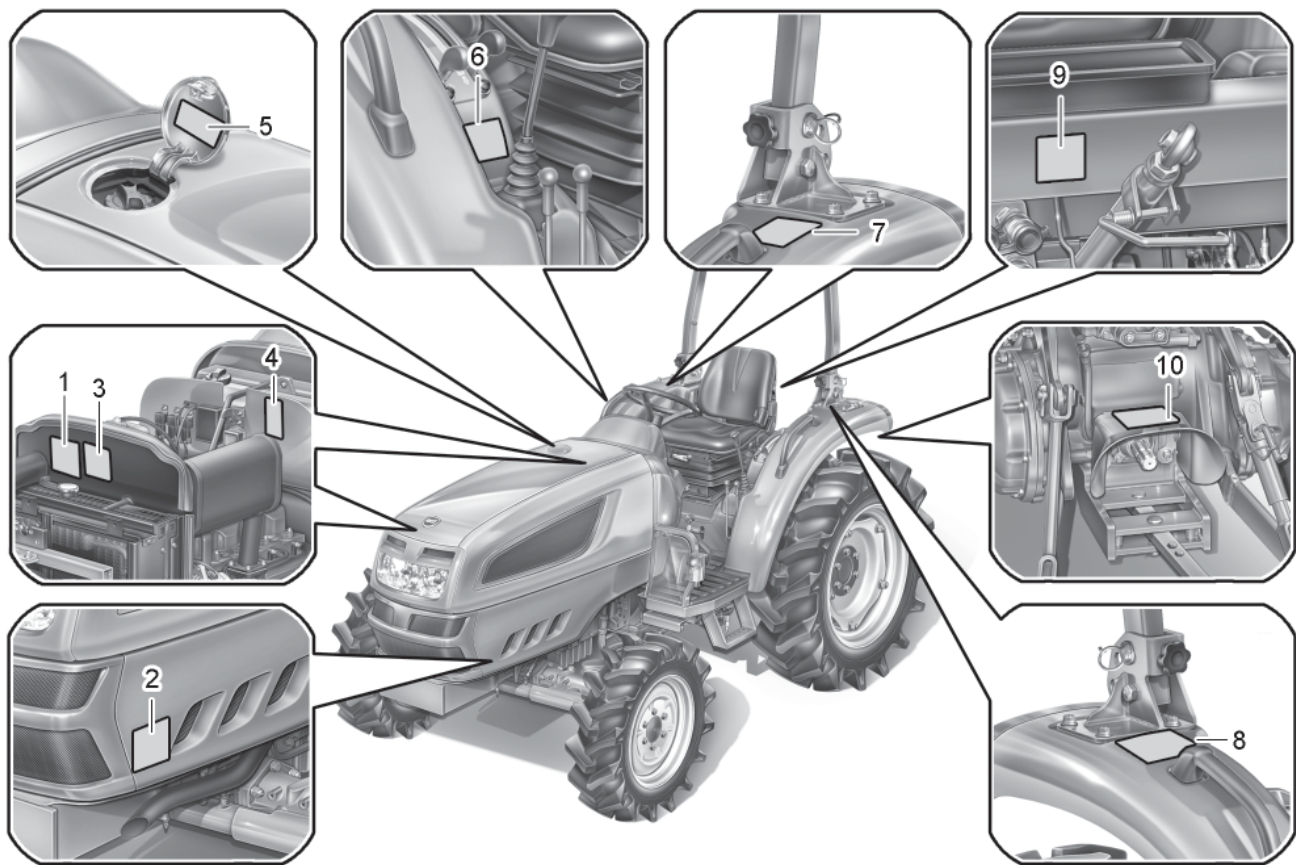
7. When working with your tractors electrical components you must first disconnect the battery cables.
8. To ensure that there are no accidents from sparks you must first disconnect the negative battery cable.
9. Tire mounting should be done by qualified professionals, with the proper equipment.
10. Maintaining correct tire pressure is important for the life of your tires. Do not inflate the tires above the recommended pressure specified in the owner's manual or on the tractor tire.
11. Securely support the tractor when changing wheels or the wheel tread width.
12. Make sure that wheel bolts have been tightened to the specified torque.
13. Escaping hydraulic fluid under pressure has sufficient force to penetrate skin, causing serious personal injury. Be sure to release all residual pressure. Before disconnecting hydraulic lines. Before adding pressure to the hydraulic system, make sure that all connections are tight and that all line, pipes and hoses are free of damage.



14. Fluid escaping from pinholes may be invisible. Do not use hands to search for suspected leaks; Use a piece of cardboard or wood, instead. Use of safety goggles or other eye protection is also highly recommended. If injured by escaping fluid, see a medical doctor at once. This fluid can produce gangrene and/or severe allergic reaction.

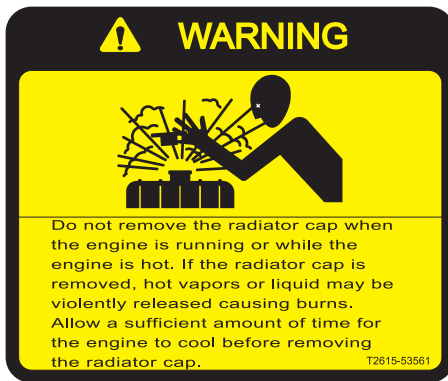
15. Keep environmental pollution in mind. When replacing coolant or oil, dispose of it the right way. Be sure to observe all relevant regulations when you dispose of engine oil, transmission oil, fuel, coolant, filters and battery.

TRACTOR SAFETY LABELS



T46O132A

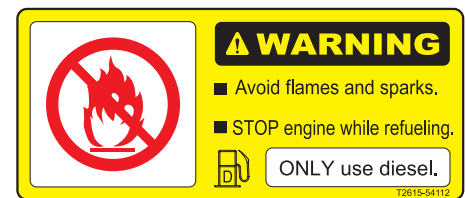
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(3) Part No. : T4625-52351



(5) Part No. : T2615-54112



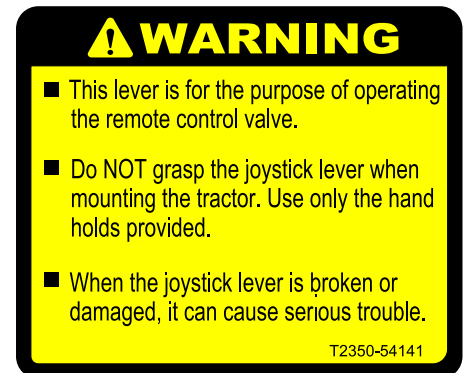
(2) Part No. : T2625-55111



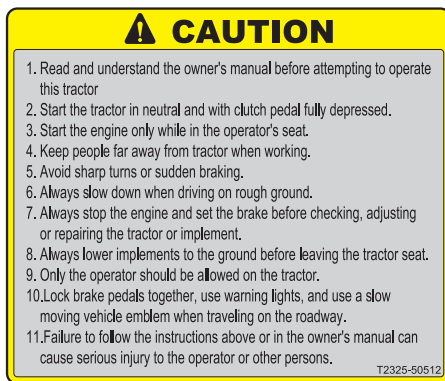
(4) Part No. : T4625-52361



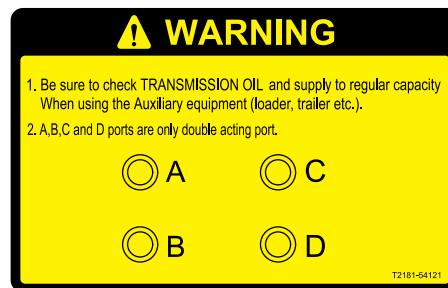
(6) Part No. : T2350-54141



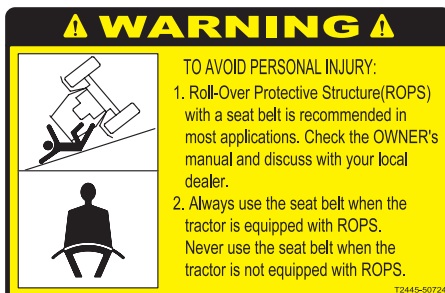
(7) Part No. : T2325-50512



(9) Part No. : T2181-54121



(8) Part No. : T2445-50724



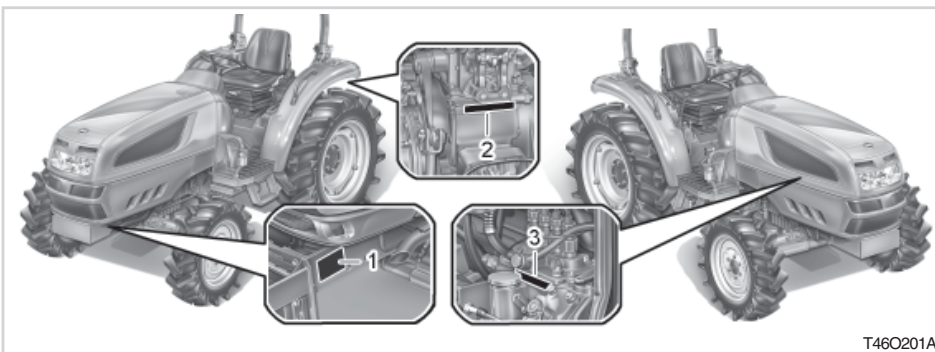
(10) Part No. : T2325-50743



SERVICING OF TRACTOR

SERVICING	2-2
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SERVICING



(1) S/N Identification Plate (2) Transmission Serial Number (3) Engine Serial Number

Your dealer is interested in your new tractor and has the desire to help you get the most value from it. After reading this manual thoroughly, you will find that you can do some of the regular maintenance yourself.

However, when in need of parts, warranty or major service, be sure to see your **KIOTI** dealer. For service, contact the **KIOTI** dealership from which you purchased your tractor or your local authorized **KIOTI** dealer.

When in need of parts, be prepared to give your dealer both the tractor and engine serial numbers.

The tractor serial number is located on the front axle support on the left side of the tractor. The engine serial number is located on the upper side of the engine head cover. The transmission number is located on the rearward of the tractor and the transmission case in the upward of the PTO cover. Locate the serial numbers now and record them in the space provided.

Before using **NON-KIOTI** approved implements or attachments, contact your nearest dealer regarding safety and application.

• S/N Identification No.

• Engine Serial No.

• Transmission Serial No.

• Date of Purchase

To be filled in by purchaser

SPECIFICATIONS

SPECIFICATIONS	3-2
TRAVELING SPEED	3-4
IMPLEMENT LIMITATIONS	3-7

3

3-2 EX35/40/45/50

SPECIFICATIONS
[MODEL: EX35/40/45/50]

Model		EX35		EX40	
		Manual	HST	Manual	HST
Engine	Model	3B183LXM	3B183LXH	4A200LXM	4A200LXH
	Type	3 Cyl., In-line Vertical, Water-cooled 4-cycle diesel engine		4 Cyl., In-line Vertical, Water-cooled 4-cycle diesel engine	
	Displacement cc (cu.in.)	1,826 (111.43)		1,999 (121.98)	
	Gross Engine Power HP (kW)	38 (28.3)		41 (30.5)	
	PTO HP (kW)	28.5 (21.2)	27.0 (20.1)	34.0 (25.3)	32.5 (24.2)
	Rated speed rpm	2,600		2,600	
Capacities	Fuel Tank ℓ (U.S. gals.)	45 (11.9)		45 (11.9)	
	T/M Case ℓ (U.S. gals.)	52 (13.7)	42 (11.1)	52 (13.7)	42 (11.1)
	F/A Case ℓ (U.S. gals.)	7.5 (2.0)		7.5 (2.0)	
Traveling	Clutch	Dry type single stage		Dry type single stage	
	Transmission	F12/R12 [Option:F24/R24] Synchro Shuttle	3 Range HST Hydraulic servo mechanism Twin pedal	F12/R12 [Option:F24/R24] Synchro Shuttle	3 Range HST Hydraulic servo mechanism Twin pedal
	Speed KPH (MPH)	1.4~23.4 (0.8~14.5) [Option:0.16~23.4 (0.1~14.5)]	0~25.8 (0~16.0)	1.4~24.5 (0.9~15.2) [Option:0.17~24.5 (0.11~15.2)]	0~27.0 (0~16.7)
	4-Wheel drive	Button Switch FWD		Button Switch FWD	
	Steering	Hydrostatic Power steering		Hydrostatic Power steering	
	Brake	Wet disk		Wet disk	

[MODEL: EX35/40/45/50]

Model		EX45		EX50	
		Manual	HST	Manual	HST
Engine	Model	4A220LXM	4A220LXH	4B243LXM	4B243LXH
	Type	4 Cyl., In-line Vertical, Water-cooled 4-cycle diesel engine		4 Cyl., In-line Vertical, Water-cooled 4-cycle diesel engine	
	Displacement cc (cu.in.)	2,197 (134.06)		2,435 (148.6)	
	Gross Engine Power HP (kW)	45 (33.5)		50 (37.2)	
	PTO HP (kW)	38.0 (28.3)	36.0 (26.8)	39.5 (29.5)	37.5 (27.9)
	Rated speed rpm	2,600		2,600	
Capacities	Fuel Tank ℓ (U.S. gals.)	45 (11.9)		45 (11.9)	
	T/M Case ℓ (U.S. gals.)	52 (13.7)	42 (11.1)	52 (13.7)	42 (11.1)
	F/A Case ℓ (U.S. gals.)	7.5 (2.0)		7.5 (2.0)	
Traveling	Clutch	Dry type single stage		Dry type single stage	
	Transmission	F12/R12 [Option:F24/R24] Synchro Shuttle	3 Range HST Hydraulic servo mechanism Twin pedal	F12/R12 [Option:F24/R24] Synchro Shuttle	3 Range HST Hydraulic servo mechanism Twin pedal
	Speed KPH (MPH)	1.5~25.8 (0.9~16.0) [Option: 0.18~25.8 (0.1~16.0)]	0~28.5 (0~17.7)	1.5~25.8 (0.9~16.0) [Option: 0.18~25.8 (0.1~16.0)]	0~28.5 (0~17.7)
	4-Wheel drive	Button Switch FWD		Button Switch FWD	
	Steering	Hydrostatic Power steering		Hydrostatic Power steering	
	Brake	Wet disk		Wet disk	

3-4 EX35/40/45/50

[MODEL: EX35/40/45/50]

Model			EX35		EX40	
			Manual	HST	Manual	HST
Standard Tire size	Front	AG	7-16 / 6PR		8-16 / 6PR	
		Turf	27-8.5-15 / 4PR		27-8.5-15 / 4PR	
		Industrial	27-10.5-15 / 6PR		10-16.5 / 6PR	
	Rear	AG	12.4-24 / 6PR		13.6-24 / 6PR	
		Turf	41-14.0-20 / 4PR		41-14.0-20 / 4PR	
		Industrial	43-16-20 / 4PR		14.9-24 / 6PR	
Hydraulic	Hydraulic control		Position,draft and mixed control		Position,draft and mixed control	
	Pump capacity ℓ/min (U.S.gpm)		57.8 (15.2)		63.9 (16.8)	
	Three point hitch		SAE Category I		SAE Category I	
	Lift capacity kg (lbs.)	24” aft. of hitch	1,081 (2,383)		1,131 (2,493)	
		Lift Link Ends	1,172 (2,583)		1,334 (2,940)	
PTO	Rear	Type	Hydrostatic, Independent		Hydrostatic,Independent	
		Shaft size	SAE 1-3/8, 6 Splines		SAE 1-3/8, 6 Splines	
		Speed rpm	540		540	
	Mid (Option)		16/32 Involute spline		16/32 Involute spline	
			2,000		2,000	
Dimensions	Overall length(includes 3P) mm(in.)		3,422 (134.7)		3,505 (138.0)	
	Overall width(minimum tread) mm(in.)		1,552 (61.1)		1,635 (64.4)	
	Overall height(from Top of ROPS) mm(in.)		2,395 (94.3)		2,415 (95.1)	
	Wheel base mm(in.)		1,767 (69.6)		1,880 (74.0)	
	Wheel tread	Front mm(in.)	1,248 (49.1)		1,245 (49.0)	
		Rear mm(in.)	1,221~1,348 (48.1~53.1)		1,290~1,490 (50.8~58.7)	
	Min.ground clearance mm(in.)		320 (12.6)		340 (13.4)	
	Min. turning radius(with brake) m(feet)		2.85 (9.3)		2.91 (9.5)	
Weight(With ROPS) kg (lbs.)		1,667 (3,375)	1,664 (3,338)	1,780 (3,924)	1,745 (3,847)	

[MODEL: EX35/40/45/50]

Model			EX45		EX50	
			Manual	HST	Manual	HST
Standard Tire size	Front	AG	9.5-16 / 6PR		9.5-16 / 6PR	
		Turf	29-12.5-15 / 4PR		29-12.5-15 / 4PR	
		Industrial	12-16.5 / 6PR		12-16.5 / 6PR	
	Rear	AG	13.6-26 / 6PR		13.6-26 / 6PR	
		Turf	21.5L-16.1 / 4PR		21.5L-16.1 / 4PR	
		Industrial	17.5L-24 / 8PR		17.5L-24 / 8PR	
Hydraulic	Hydraulic control		Position,draft and mixed control		Position,draft and mixed control	
	Pump capacity ℓ/min (U.S.gpm)		63.9 (16.8)		63.9 (16.8)	
	Three point hitch		SAE Category I		SAE Category I	
	Lift capacity kg (lbs.)	24” aft. of hitch	1,131 (2,493)		1,131 (2,493)	
		Lift Link Ends	1,334 (2,940)		1,334 (2,940)	
PTO	Rear	Type	Hydrostatic, Independent		Hydrostatic, Independent	
		Shaft size	SAE 1-3/8, 6 Splines		SAE 1-3/8, 6 Splines	
		Speed rpm	540		540	
	Mid (Option)		16/32 Involute spline		16/32 Involute spline	
			2,000		2,000	
Dimensions	Overall length(includes 3P) mm(in.)		3,505 (138.0)		3,505 (138.0)	
	Overall width(minimum tread) mm(in.)		1,646 (64.8)		1,646 (64.8)	
	Overall height(from Top of ROPS) mm(in.)		2,445 (96.3)		2,445 (96.3)	
	Wheel base mm(in.)		1,880 (74.0)		1,880 (74.0)	
	Wheel tread	Front mm(in.)	1,365 (53.7)		1,365 (53.7)	
		Rear mm(in.)	1,305~1,480 (51.4~58.3)		1,305~1,480 (51.4~58.3)	
	Min.ground clearance mm(in.)		370 (14.6)		370 (14.6)	
	Min. turning radius(with brake) m(feet)		3.13 (10.2)		3.13 (10.2)	
Weight(With ROPS) kg (lbs.)		1,792 (3,950)	1,780 (3,924)	1,800 (3,968)	1,785 (3,935)	

TRAVELING SPEED

[MANUAL TRANSMISSION TYPE 12X12]

Km/h(m/h)

Shuttle		Forward			Reverse		
Hi-Low	Main	EX35	EX40	EX45/50	EX35	EX40	EX45/50
Low	1	1.36(0.85)	1.42(0.88)	1.50(0.93)	1.21(0.75)	1.27(0.79)	1.33(0.83)
	2	1.90(1.18)	1.99(1.24)	2.10(1.31)	1.69(1.05)	1.77(1.10)	1.86(1.16)
	3	2.44(1.52)	2.56(1.59)	2.69(1.67)	2.17(1.35)	2.27(1.41)	2.39(1.49)
	4	3.32(2.06)	3.47(2.16)	3.65(2.27)	2.95(1.83)	3.08(1.91)	3.25(2.02)
Mid	1	3.48(2.16)	3.64(2.26)	3.83(2.38)	3.09(1.92)	3.23(2.01)	3.41(2.12)
	2	4.86(3.02)	5.08(3.16)	5.36(3.33)	4.32(2.68)	4.52(2.81)	4.76(2.96)
	3	6.24(3.88)	6.53(4.06)	6.88(4.28)	5.55(3.45)	5.80(3.60)	6.11(3.80)
	4	8.48(5.27)	8.86(5.51)	9.34(5.80)	7.53(4.68)	7.88(4.90)	8.3(5.16)
High	1	9.61(5.97)	10.05(6.25)	10.59(6.58)	8.54(5.31)	8.93(5.55)	9.41(5.85)
	2	13.43(8.35)	14.04(8.72)	14.80(9.20)	11.93(7.41)	12.48(7.76)	13.15(8.17)
	3	17.25(10.72)	18.04(11.21)	19.00(11.81)	15.33(9.53)	16.03(9.96)	16.89(10.50)
	4	23.42(14.55)	24.48(15.21)	25.80(16.03)	20.81(12.94)	21.76(12.94)	22.92(14.24)

[HST TYPE]

Km/h(m/h)

RANGE	Forward			Reverse		
	EX35	EX40	EX45/50	EX35	EX40	EX45/50
Low	6.08(3.78)	6.36(3.95)	6.70(4.16)	6.08(3.78)	6.36(3.95)	6.70(4.16)
Mid	10.49(6.52)	10.97(6.82)	11.56(7.18)	10.49(6.52)	10.97(6.82)	11.56(7.18)
High	25.85(16.06)	27.03(16.80)	28.47(17.69)	25.85(16.06)	27.03(16.80)	28.47(17.69)

[MANUAL TRANSMISSION TYPE 24X24 : OPTIONAL]

Km/h(m/h)

Shuttle			Forward			Reverse		
Creep	Hi-Low	Main	EX35	EX40	EX45/50	EX35	EX40	EX45/50
Low	Low	1	0.16(0.10)	0.17(0.11)	1.18(0.11)	0.14(0.09)	0.15(0.09)	0.16(0.10)
		2	0.23(0.14)	0.23(0.14)	0.25(0.16)	0.20(0.12)	0.21(0.13)	0.22(0.14)
		3	0.29(0.18)	0.30(0.19)	0.32(0.20)	0.26(0.16)	0.27(0.17)	0.28(0.17)
		4	0.39(0.24)	0.41(0.26)	0.43(0.27)	0.35(0.22)	0.36(0.22)	0.38(0.24)
	Mid	1	0.41(0.26)	0.43(0.27)	0.45(0.28)	0.36(0.22)	0.38(0.24)	0.40(0.25)
		2	0.57(0.35)	0.60(0.37)	0.63(0.39)	0.51(0.32)	0.53(0.33)	0.56(0.35)
		3	0.73(0.45)	0.77(0.48)	0.81(0.50)	0.65(0.40)	0.68(0.42)	0.72(0.45)
		4	1.00(0.62)	1.04(0.65)	1.1(0.68)	0.89(0.55)	0.93(0.58)	0.98(0.61)
	High	1	1.13(0.70)	1.18(0.73)	1.24(0.77)	1.00(0.62)	1.05(0.65)	1.11(0.69)
		2	1.58(0.98)	1.65(1.03)	1.74(1.08)	1.40(0.87)	1.47(0.91)	1.55(0.96)
		3	2.03(1.26)	2.12(1.32)	2.23(1.39)	1.80(1.12)	1.88(1.17)	1.99(1.24)
		4	2.75(1.71)	2.88(1.79)	3.03(1.88)	2.45(1.52)	2.56(1.59)	2.69(1.67)

Km/h(m/h)

Shuttle			Forward			Reverse		
Creep	Hi-Low	Main	EX35	EX40	EX45/50	EX35	EX40	EX45/50
High	Low	1	1.36(0.85)	1.42(0.88)	1.50(0.93)	1.21(0.75)	1.27(0.79)	1.33(0.83)
		2	1.90(1.18)	1.99(1.24)	2.10(1.31)	1.69(1.05)	1.77(1.10)	1.86(1.16)
		3	2.44(1.52)	2.56(1.59)	2.69(1.67)	2.17(1.35)	2.27(1.41)	2.39(1.49)
		4	3.32(2.06)	3.47(2.16)	3.65(2.27)	2.95(1.83)	3.08(1.91)	3.25(2.02)
	Mid	1	3.48(2.16)	3.64(2.26)	3.83(2.38)	3.09(1.92)	3.23(2.01)	3.41(2.12)
		2	4.86(3.02)	5.08(3.16)	5.36(3.33)	4.32(2.68)	4.52(2.81)	4.76(2.96)
		3	6.24(3.88)	6.53(4.06)	6.88(4.28)	5.55(3.45)	5.80(3.60)	6.11(3.80)
		4	8.48(5.27)	8.86(5.51)	9.34(5.80)	7.53(4.68)	7.88(4.90)	8.3(5.16)
	High	1	9.61(5.97)	10.05(6.25)	10.59(6.58)	8.54(5.31)	8.93(5.55)	9.41(5.85)
		2	13.43(8.35)	14.04(8.72)	14.80(9.20)	11.93(7.41)	12.48(7.76)	13.15(8.17)
		3	17.25(10.72)	18.04(11.21)	19.00(11.81)	15.33(9.53)	16.03(9.96)	16.89(10.50)
		4	23.42(14.55)	24.48(15.21)	25.80(16.03)	20.81(12.94)	21.76(12.94)	22.92(14.24)

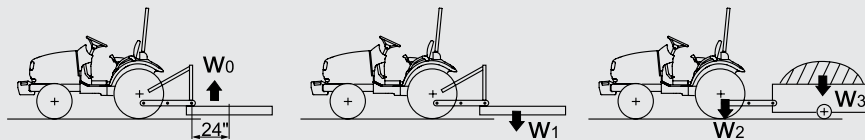
IMPLEMENT LIMITATIONS

This **KIOTI** tractor has been thoroughly tested for proper performance with implements approved by **KIOTI**. Use with implements which are approved by **KIOTI** and which exceed the maximum specifications listed below, or which are otherwise unfit for use with this **KIOTI** tractor may result in malfunctions or failures of the tractor, damage to other property and injury to the operator or others. [Any malfunctions or failures of the tractor resulting from use with improper implements are not covered by the warranty.]

Model \ Item	Tread (max. width)		Lifting Capacity max. loading weight (24 in. aft of hitch)
	Front	Rear	
EX35	1,248 mm (49.1 in)	1,348 mm (53.1 in)	1,081 Kg (2,383 lbs.)
EX40	1,245 mm (49.0 in)	1,490 mm (58.7 in)	1,131 Kg (2,493 lbs.)
EX45/50	1,365 mm (53.7 in)	1,515 mm (59.6 in)	

Model \ Item	Actual figures		Trailer loading weight W_3 Max. capacity
	Implement weight W_1 and / or size	Max. Drawbar Load W_2	
EX35	As in the following list (Shown in the next page)	650 kg (1433.0 lbs.)	3,500 Kg (7716.1 lbs.)
EX40			
EX45/50			

Lifting Capacity max. loading weight The max. allowable load which can be put on the 24 in. aft of hitch : W_0
 Implement weight The implement's weight which can be put on the lower link : W_1
 Max. drawbar load W_2
 Trailer loading weight The max. loading weight for trailer (without trailer's weight) : W_3



T46Q301A

NOTE : Implement size may vary depending on soil types and field conditions.

3-10 EX35/40/45/50

IMPLEMENT	REMARKS	EX35	EX40	EX45/50	REMARKS
Loader	Max. Bucket width mm(in)	1,676 (66)	1,828 (72)	1,828 (72)	
Backhoe with sub frame	Max. Digging depth mm(ft.in)	2,280 (7.48)	2,590 (8.5)	2,590 (8.5)	
Tiller	Max. working width mm(in)	1,650 (65)	1,854 (73)	1,854 (73)	
Box Blade	Max. Cutting width mm(in)	2,133 (84)	2,133 (84)	2,133 (84)	
Rear Blade	Max. Cutting width mm(in)	2,133 (84)	2,133 (84)	2,133 (84)	
Rotary Cutter	Max. Cutting width mm(in)	1,650 (65)	1,854 (73)	1,854 (73)	
Grooming Mower	Max. Cutting width mm(in)	1,828 (72)	1,828 (72)	1,828 (72)	
Aerator	Max. Width mm(in)	1,828 (72)	1,828 (72)	1,828 (72)	
Landscape Rakes	Max. Cutting width mm(in)	2,133 (84)	2,483 (96)	2,483 (96)	

DESCRIPTION OF OPERATING SYSTEM

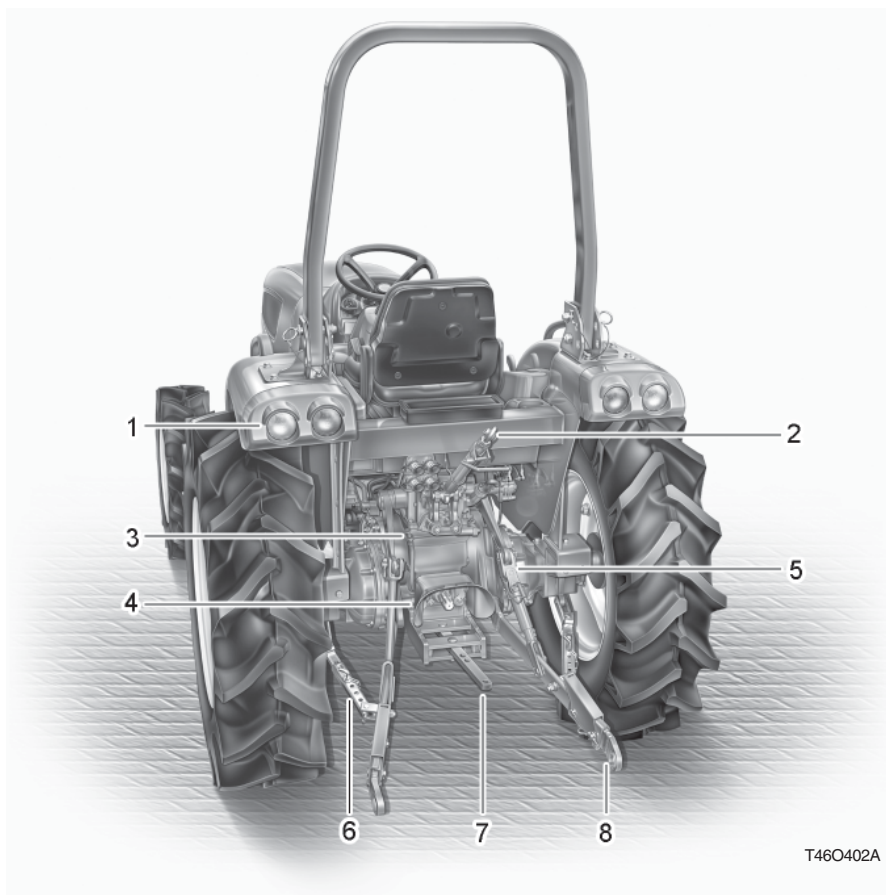
EXTERIOR VIEW	4-2
INSTRUMENT PANEL AND SWITCH	4-4
FOOT AND HAND CONTROLS	4-5

4

EXTERIOR VIEW



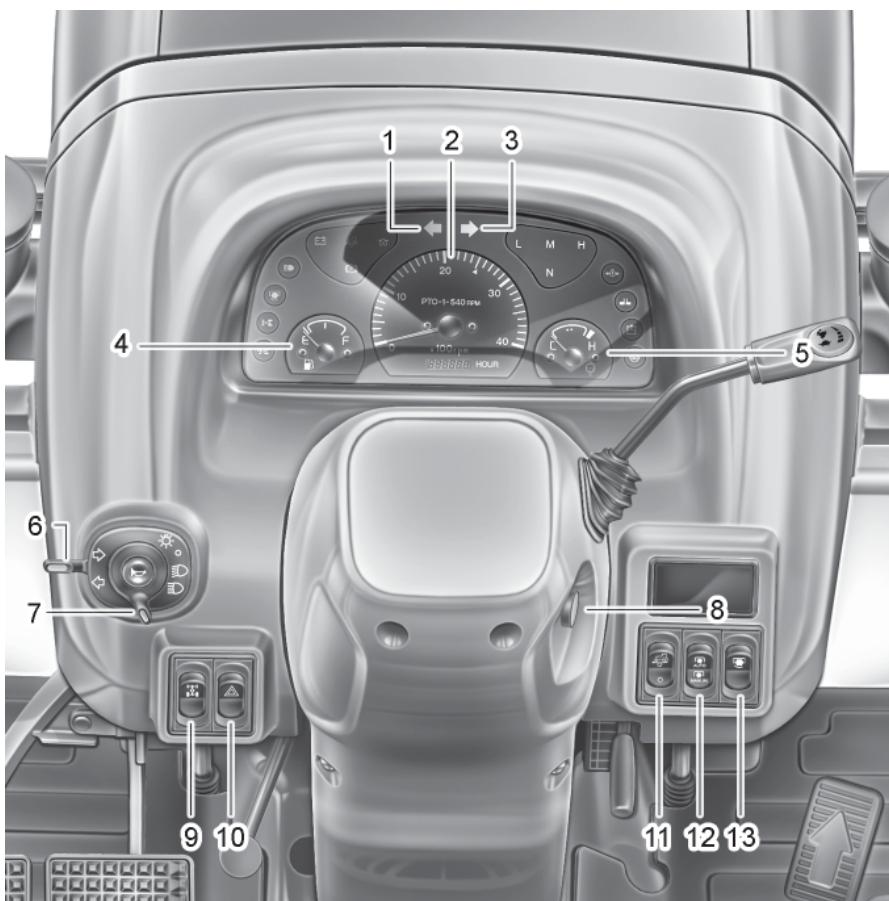
- (1) Seat
- (2) Steering Wheel
- (3) Fuel Cap Cover
- (4) Hood/Bonnet
- (5) Head Light
- (6) ROPS
- (7) Fender
- (8) Turn Signal Lamp



- (1) Turn Signal Lamp
- (2) Top Link
- (3) Transmission Oil Gauge/Dipstick
- (4) PTO Shield
- (5) Crank Lifting Rod
- (6) Telescopic Sway bar
- (7) Draw Bar
- (8) Lower Link

T46O402A

INSTRUMENT PANEL AND SWITCHES

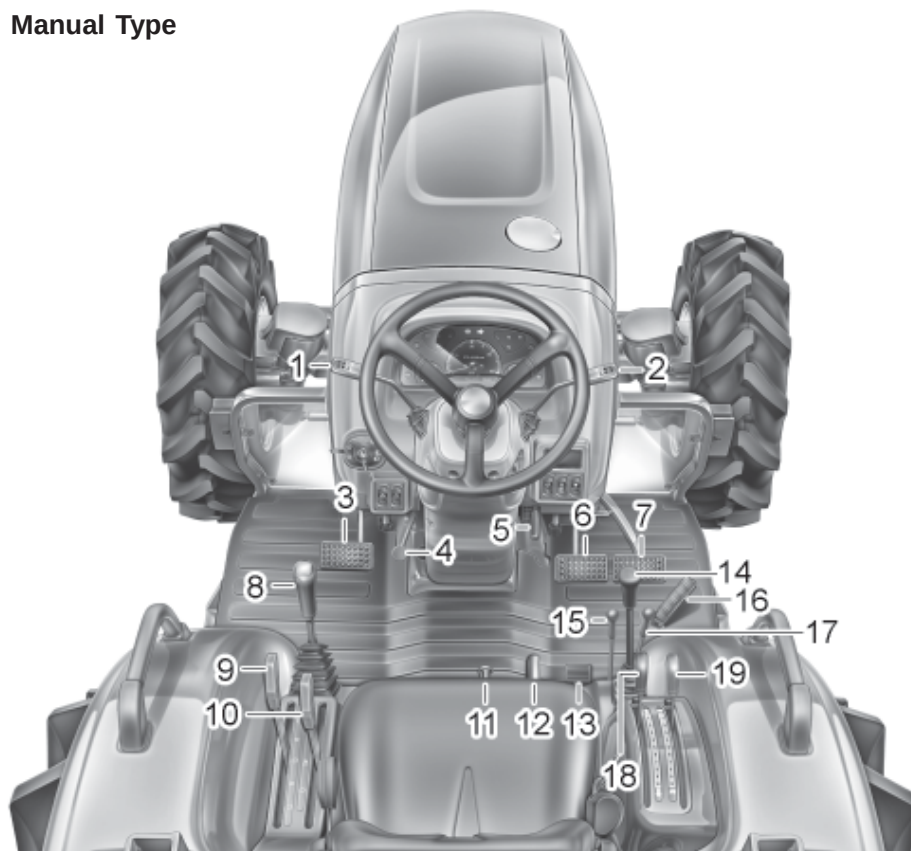


T46O406A

- (1) Left Turn Indicator
- (2) Tachometer
- (3) Right Turn Indicator
- (4) Fuel Gauge
- (5) Coolant Temp. Gauge
- (6) Turn Signal Switch
- (7) Head Light Switch
- (8) Key Switch
- (9) Front Wheel Drive Switch
- (10) Hazard Lamp Switch
- (11) Cruise Control (HST only)
- (12) PTO Select Switch (Auto <-> Manual)
- (13) PTO Switch

FOOT AND HAND CONTROLS

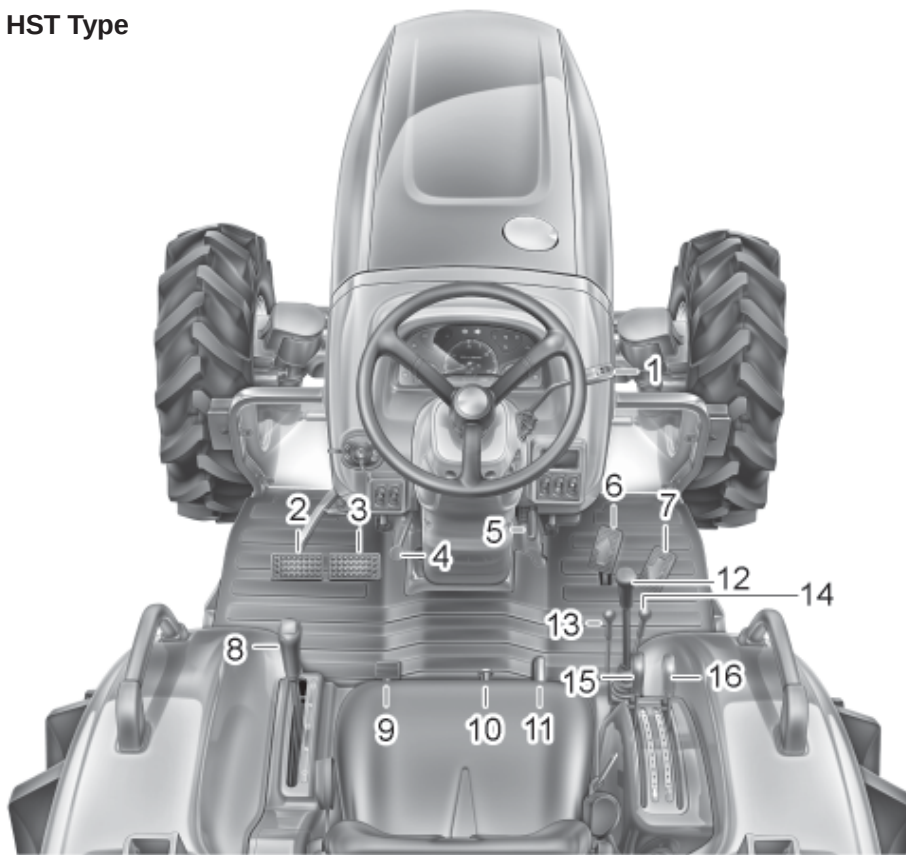
Manual Type



T46O407A

- (1) Shuttle Shift Lever
- (2) Hand Throttle Lever
- (3) Clutch Pedal
- (4) Tilt Steering Pedal
- (5) Parking Brake Lock Lever
- (6) Brake Pedal (L)
- (7) Brake Pedal (R)
- (8) Main Gear Shift Lever
- (9) Creep Gear Shift Lever
- (10) Range Gear Shift Lever
- (11) 3-Point Hitch Lowering Speed Knob
- (12) Mid PTO Shift Lever
- (13) Differential Lock Pedal
- (14) Joystick Lever
- (15) Double Acting Lever(A,B)
- (16) Foot Throttle
- (17) Double Acting Lever(C,D)
- (18) Draft Control Lever
- (19) Lift Position Control Lever

HST Type



T46O408A

- (1) Hand Throttle Lever
- (2) Brake Pedal (L)
- (3) Brake Pedal (R)
- (4) Tilt Steering Pedal
- (5) Parking Brake Lock Lever
- (6) HST Forward Pedal
- (7) HST Reverse Pedal
- (8) Range Gear Shift Lever
- (9) Differential Lock Pedal
- (10) 3-Point Hitch Lowering Speed Knob
- (11) Mid PTO Shift Lever
- (12) Joystick Lever
- (13) Double Acting Lever(A,B)
- (14) Double Acting Lever(C,D)
- (15) Draft Control Lever
- (16) Lift Position Control Lever

OPERATION

PRE-OPERATION	5-2
OPERATING NEW TRACTOR	5-3
OPERATING THE ENGINE	5-4
OPERATING THE TRACTOR	5-11

5

PRE-OPERATION DAILY CHECK

It is a good practice to know the condition of your tractor before you start it. You should perform a routine check before each use.



CAUTION

To avoid personal injury:

- Be sure to check and service the tractor on a level surface with the engine shut off and the parking brake "ENGAGED".
- Follow the refueling procedures providing "DAILY CHECK" in periodic service section.
- Familiarize yourself with all danger, warning and caution labels. Maintain all labels in their proper places in good legible condition.

CHECK ITEM

- Walk around inspection.
- Check the engine oil level
- Check the transmission oil level
- Check the coolant level
- Clean the grill and radiator screen.
- Check the air cleaner and evacuator valve.
- Check the brake pedals and linkages
- Check all dash gauges and indicators
- Check head lights, tail lights, and all working lights.
- Check accessible wiring harness for any damage.
- Check the seat belt and **ROPS** for damage.
- Refuel (See "daily check" in the periodic service section)
- Check all danger and warning labels.

OPERATING NEW TRACTOR

How a new tractor is handled and maintained determines the life of the tractor.

A new tractor just off the factory production line has of course been, tested, but the various parts are not accustomed to each other, therefore care should be taken to operate the tractor for the first 50 hours at a slower speed and avoid excessive work or operation until the various parts become "broken-in." The manner in which the tractor is handled during the "breaking-in" period greatly affects the life of your tractor. Therefore, to obtain the maximum performance and the longest life of the tractor, it is very important to properly break-in your tractor.

In handling a new tractor, the following precautions should be observed.

- You should not operate your tractor at full speed for the first fifty hours of use.
- Avoid sudden starts and stops.
- In cold climates, allow your tractor plenty of time to warm up.
- Do not run the engine at speeds faster than necessary.
- Use due caution when operating your tractor on rough roads or terrain.

The above precautions are not limited to new tractors only, but are a good practice for tractors regardless of their age.

CHANGING LUBRICATING OIL FOR NEW TRACTORS

Special attention should be given to new tractors lubrication oil. New parts are not accustomed to each other and are not broken in properly. Small metal grit can develop in the lubricating system as metal parts begin to "break in" and continuous use of the contaminated oil can cause damage and failure.

Therefore you should change the tractor's oil after the break-in period.

For further details of the oil change and service schedule, see "maintenance" section.

OPERATING THE ENGINE

CAUTION

To avoid personal injury:

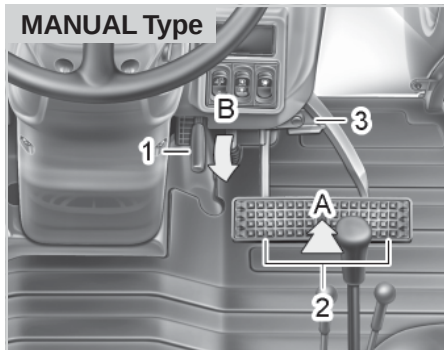
- You must read and understand the warning and caution labels on your tractor.
- Proper ventilation is required when operating your tractor inside a building or enclosed area. Remember that exhaust fumes can be deadly.
- Never start your tractor's engine while standing on the ground. This can prevent an unexpected accident from happening.

IMPORTANT

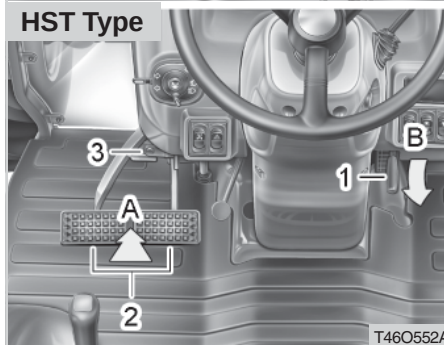
- Using starting fluid or ether to start your tractor will cause damage and void your tractor's warranty.
- To avoid damage to the starter and battery you should never continuously start your tractor for more than 10 seconds at a time.

STARTING THE ENGINE

MANUAL Type



HST Type



- (1) Parking Brake Lever
(2) Brake Pedals
(3) Interlock the Brake Pedals
(A) "Depress"
(B) "Push Down"

1. MAKE SURE THE PARKING BRAKE IS SET

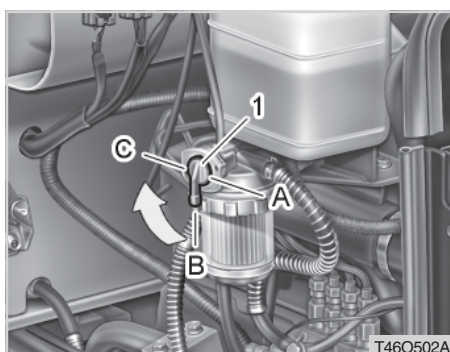
- (1) To set the parking brake:
 - 1) Interlock the brake pedals
 - 2) Depress the brake pedals
 - 3) Latch the brake pedals with the parking brake lever. (Check that the parking brake lamp on the instrument cluster illuminates.)
- (2) To release the parking brake press the brake pedals again.

IMPORTANT

- Make sure that the parking brake pedals are fully depressed before pulling the parking brake lever up.

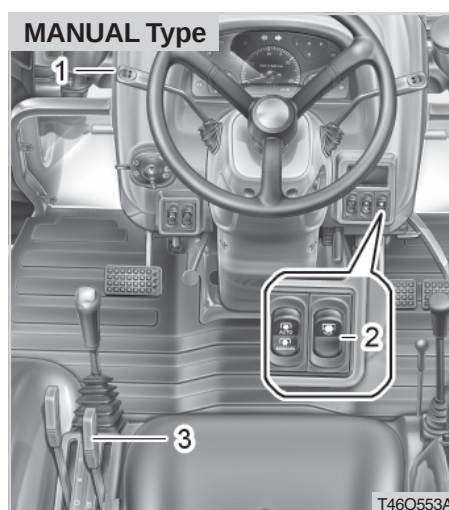
NOTE

- When the parking brake is engaged, the parking brake lamp on the instrument cluster illuminates. When releasing it, the parking brake lamp is turned off.



(1) Fuel Cock
(A) Close (B) Open
(C) Air Bleeding

2. MAKE SURE THE FUEL COCK IS IN THE OPEN POSITION.

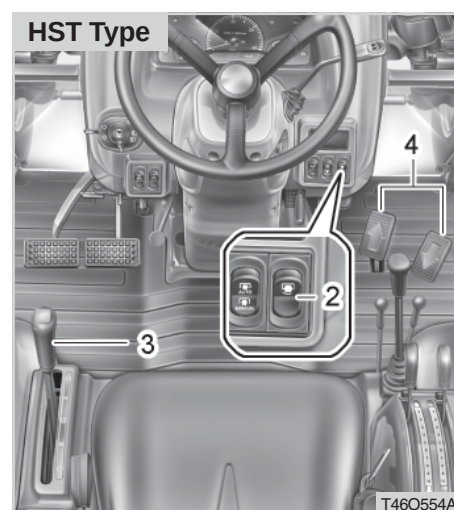


(1) Forward/Reverse Lever
(2) PTO Switch
(3) Range Gear Shift Lever (Hi-Mid-Lo)

3. PLACE THE PTO CLUTCH LEVER IN "OFF" POSITION.

4. PLACE THE SPEED CONTROL PEDAL IN "NEUTRAL" POSITION (HST TYPE).

5. SHIFT THE FORWARD/REVERSE LEVER TO NEUTRAL POSITION (MANUAL TYPE).

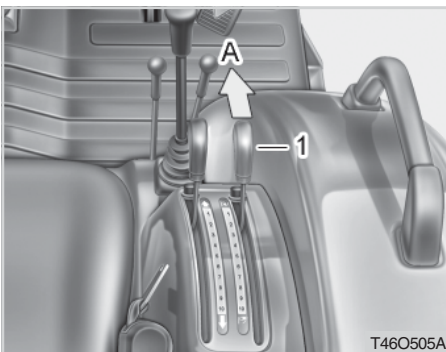


(2) PTO Switch
(3) Range Gear Shift Lever (Hi-Mid-Lo)(HST)
(4) Speed Control Pedal

6. PLACE THE RANGE GEAR SHIFT LEVER (HI-MID-LO) IN "NEUTRAL" POSITION.

NOTE

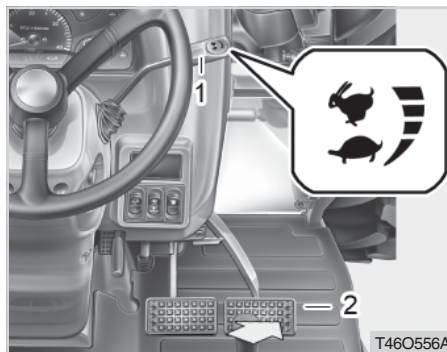
- The speed control pedal automatically return to neutral when the operator's foot is released from the pedal.



(1) Position Control Lever
(A) "DOWN"

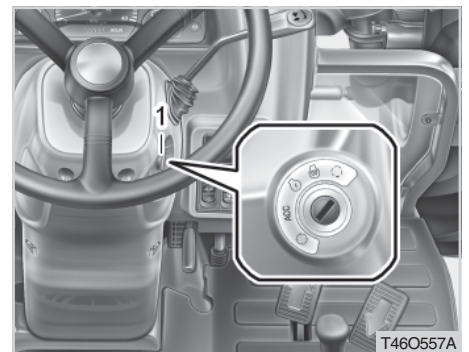
7. MOVE THE POSITION CONTROL LEVER.

To lower implement, move the position control lever forward.



(1) Hand Throttle Lever
"INCREASE"
"DECREASE"

8. SHIFT THE THROTTLE LEVER TO "DECREASE" POSITION.



(1) Key Switch
(OFF) Off
(ACC) Acc
(ON) On(Auto Pre-Heat)
(Manual Pre-Heat)

9. INSERT THE KEY INTO THE KEY SWITCH AND TURN IT "ON". MAINTAIN IT UNTIL THE PRE-HEAT LAMP IS TURNED "OFF" (APPROX. 8 SEC.).

1. Be careful not to run the starting motor longer than 10 seconds due to its heavy current consumption.
2. If the tractor has not started in 10 seconds stop operating the starter, wait 30 seconds and then repeat the starting procedure.
3. Prior to restarting, be sure that the flywheel is completely stopped.
4. For manual preheating, turn and hold the key from ON to preheat position.

10. TURN THE KEY TO “START” POSITION AND RELEASE WHEN THE ENGINE STARTS.

NOTE

- Only when the brake pedal is engaged with the range shift lever in neutral position, the motor can be started(HST).
- Only with the shuttle lever in neutral position, the motor can be started(Manual).



- (1) Electrical Charge
(2) Parking Brake
(3) Glow Plug Indicator
(4) Engine Oil Pressure

11. CHECK TO SEE THAT ALL THE WARNING LAMPS ON THE INSTRUMENT CLUSTER TURN “OFF”.

If any lamp remains on, immediately stop the engine and determine the cause.

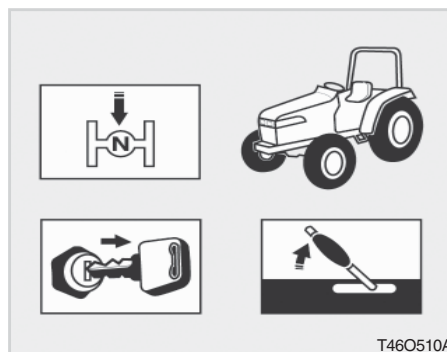
[CHECK EASY CHECKER LAMPS]

1. When the key is turned "ON", lamps (1), (4) should come on. If trouble should occur at any location while the engine is running, the warning lamp corresponding to that location comes on.
2. Glow plug indicator (3) also comes on when the key is turned "ON" to preheat the engine and goes off automatically when preheat is completed.
3. The parking brake warning lamp (2) comes on while parking brake is applied and goes off when it is released.

IMPORTANT

- Daily checks with the Easy Check only, are not sufficient. Never fail to conduct daily checks carefully by referring to Daily Check. (See "DAILY CHECK" in Section 10)

STOPPING THE ENGINE



1. You must first slow the engine to the idle position before turning the engine off.
2. Remove the key.

CAUTION

- If the engine does not stop, consult with your local DAEDONG dealer.

WARMING UP

CAUTION

- During warm up of the engine, be sure that the parking brake is set.
- During warm up of the engine, make sure that all shift levers are in the neutral position.

After starting your tractor's engine allow a five minute warm up period before applying any load to the tractor. If a load is applied to the tractor before it has time to warm up, serious damage, can occur like premature wear, breakage, or seizure.

WARM-UP AND TRANSMISSION OIL IN THE LOW TEMPERATURE RANGE

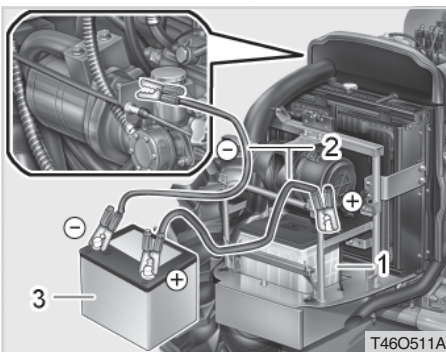
- Hydraulic oil serves as transmission fluid to protect and lubricate moving parts. This fluid is also circulated through out the hydraulic circuit to operate functions like steering, three point hitch, and remote functions. In cold weather, the oil will be cold with increased viscosity. This can cause delayed oil circulation or abnormally low hydraulic pressure for some time after engine start-up. This in turn can result in trouble to the hydraulic system. To prevent the above, observe the following instructions:
- Warm up the engine at a high idle according to the table below:

Ambient temperature	Warm-up time requirement
Above 0° C (32° F)	At least 5 minutes
0 ~ -10° C (32 ~ 14° F)	5 ~ 10 minutes
-10 ~ -20° C (14 ~ -4° F)	10 ~ 20 minutes
Below -20° C (-4° F)	More than 20 minutes

IMPORTANT

- Do not operate the tractor under full load condition until it is sufficiently warmed up.**

JUMP STARTING



(1) Dead Battery (2) Jumper Cables
(3) Helper Battery



CAUTION

- Keep fire, spark, cigarette, etc., from the battery.
- If the tractor battery is frozen, jump starting the engine is prohibited.
- Do not connect the (-) jumper cable to the negative(-) terminal of the discharged battery.
- Use a ground away from the battery

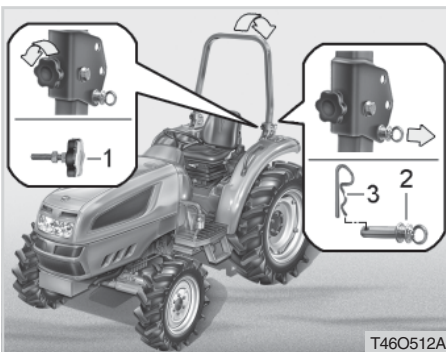
When jump starting the engine, follow the instructions below to safely start the engine.

1. Use a battery of the same voltage as the disabled tractor battery to jump start the tractor. Locate the good battery in a safe place where the jumper cables will reach.
2. Engage the parking brake of the tractor and shift the transmission gear to the neutral position.
3. Put on safety goggles and rubber gloves.
4. Attach the red clamp to the positive terminal of the dead battery, and attach the other end to the positive terminal of the helper battery.
5. Clamp the black cable to the Engine hooks or other ground source and attach the other end to the negative cable of the helper battery.
6. If the helper battery is in another vehicle, do not allow the tractor and

the other vehicle to touch. Start the vehicle's engine after connecting the cables and let it run for a few moments. Turn off all accessories on both vehicles. Then start the disabled tractor.

7. Disconnect the battery cables in the exact opposite order as they were attached.

OPERATING THE TRACTOR TO FOLD THE ROPS

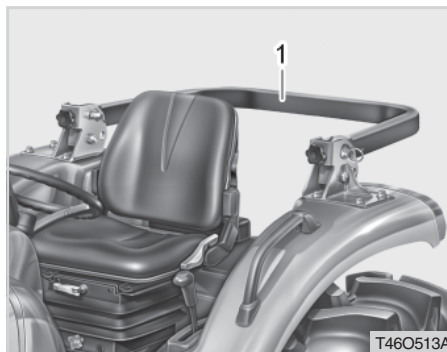


(1) Grip Bolt
(2) Set Pin
(3) Clip Pin

1. Remove the clip pin and set pin.

⚠ CAUTION

- You should always stop the engine, remove the key and set the parking brake before raising or folding the ROPS.
- Always perform such tasks from a safe and stable position at the rear of the tractor.
- Folding the ROPS should only be done when absolutely necessary, and should be returned to the up-right position as soon as possible.

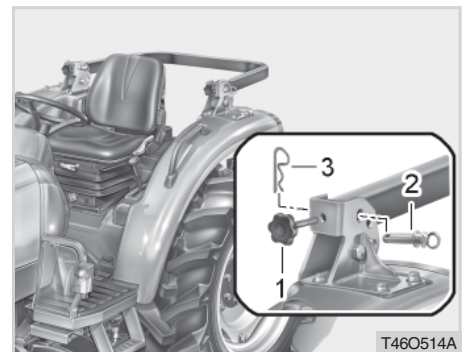


(1) ROPS

2. Loosen the grip bolt and fold the ROPS.

⚠ CAUTION

- To avoid personal injury:
- Hold the ROPS tightly with both hands and fold the ROPS slowly and carefully.



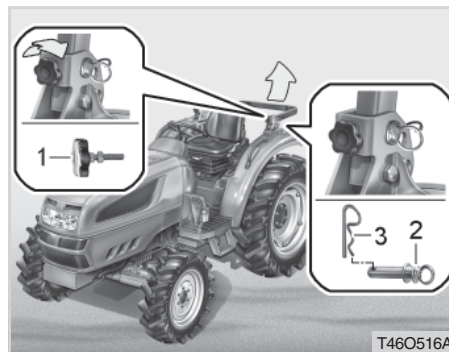
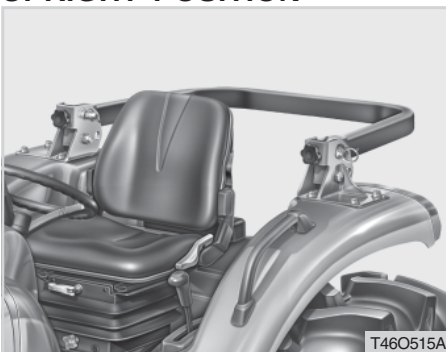
(1) Grip Bolt
(2) Set Pin
(3) Clip Pin

3. Align pin holes, insert set pin, and secure them with the clip pin.

⚠ CAUTION

- To avoid personal injury:
- Make sure the pins are properly installed and secured.

TO RAISE THE ROPS TO UPRIGHT POSITION



(1) Grip Bolt
(3) Clip Pin

(2) Set Pin

1. Remove both the grip bolt, clip pin and set pin.
2. Raise **ROPS** to the upright position.

⚠ CAUTION

To avoid personal injury:

- The ROPS must be raised slowly and carefully.

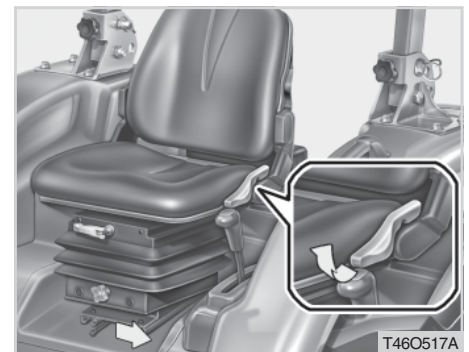
3. Align pin holes, insert set pin and secure them with the clip pin.
4. Fix the ROPS with the grip bolt.

⚠ CAUTION

To avoid personal injury:

- Make sure that pins are properly installed and secured.

STARTING



- (1) Position Height Adjuster (4) Weight Adjuster
(2) Height Adjuster Leve (A) "PULL IN"
(3) Seat Reclining Lever

1. ADJUSTING THE OPERATOR'S POSITION

(1) OPERATOR'S SEAT

⚠ CAUTION

To avoid personal injury:

- Make sure that the seat is completely secured after each adjustment.
- Do not allow any person other than the driver to ride on the tractor.

(2) TRAVEL/HEIGHT ADJUSTMENT

Pull out the position adjust lever and slide the seat backward or forward, as required.

⊕ IMPORTANT

- After adjusting the operator's seat, be sure to check that the seat is properly locked.



(1) Seat Belt

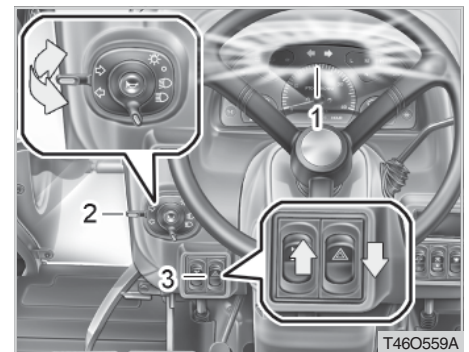
(3) SEAT BELT

⚠ CAUTION

To avoid personal injury:

- Always use your seat belt when the ROPS is installed.
- Do not use the seat belt if your tractor is not equipped with a ROPS or when it is removed.

Adjust the seat belt for proper fit and connect to the buckle. The seat belt is an auto-locking retractable type.



(1) Hazard / Turn Signal Indicator

(2) Turn Signal Light Switch

(3) Hazard Light Switch

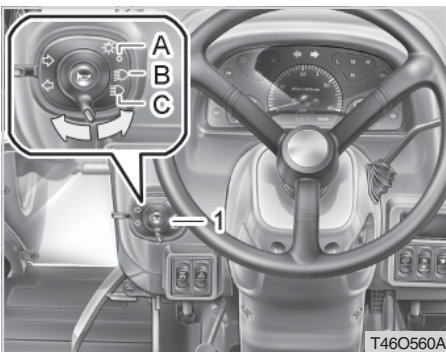
2. SELECTING LIGHT SWITCH POSITIONS

(1) HAZARD LIGHT SWITCH

When hazard light switch is pushed "on", the hazard lights flash along with the indicator on the instrument panel. Push the switch to "off" to turn flashers off.

(2) TURN SIGNAL LIGHT SWITCH

To indicate a right turn, push forward. To indicate a left turn, push rearward.



(1) Head Light Switch
(A) "OFF" (B) "ON (LOW)"
(C) "ON (HIGH)"

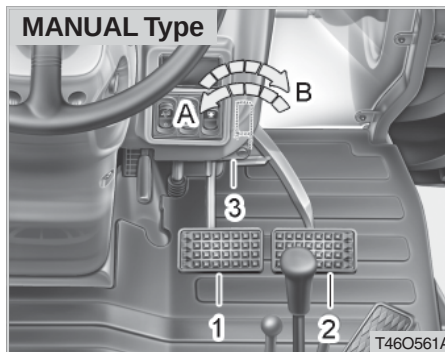
When the left or right turn signal is activated, the indicated turning light will flash and the other will be off.

NOTE

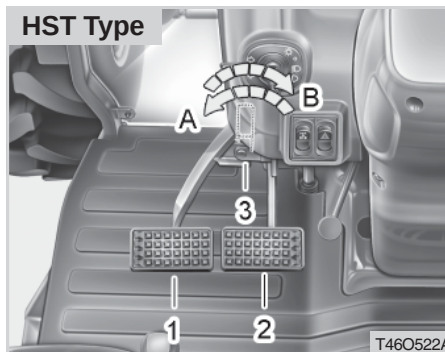
- Be sure to return switch to center position after turning.

(3) HEAD LIGHT SWITCH

- (A): Head lights OFF.
(B): Head lights - Low Beam ON.
(C): Head lights - High Beam ON.



(1) Brake Pedal (L) (2) Brake Pedal (R)
(3) Interlock
(A) Lock (B) Release



(1) Brake Pedal (L) (2) Brake Pedal (R)
(3) Interlock
(A) Release (B) Lock

3. CHECKING THE BRAKE PEDAL

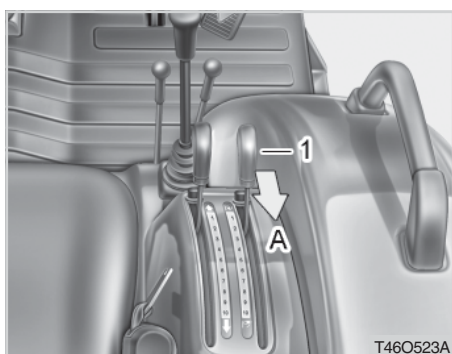
(1) BRAKE PEDAL (RIGHT AND LEFT)

WARNING

To avoid personal injury:

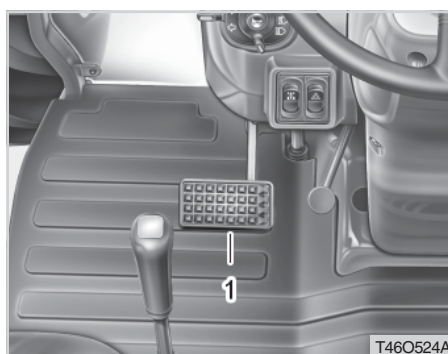
- **Applying one rear wheel brake at a time can cause the tractor to swerve or roll over at high speeds.**

1. Before operating the tractor on the road or before applying the parking brake, be sure to interlock the right and left pedals as illustrated.
2. Use individual brakes to assist in making sharp turns at slow speeds (Field Operation Only).
Disengage the brake pedal interlock and depress only one brake pedal.
3. Be sure brake pedals have equal adjustment when using locked together.



(1) Position Control Lever
(A) UP

4. RAISE THE IMPLEMENT.



(1) Clutch Pedal

5. DEPRESS THE CLUTCH PEDAL (MANUAL TYPE)

CAUTION

To avoid personal injury:

- Do not release the clutch suddenly, it may cause the tractor to lunge forward unexpectedly.
- HST models do not have a clutch pedal.

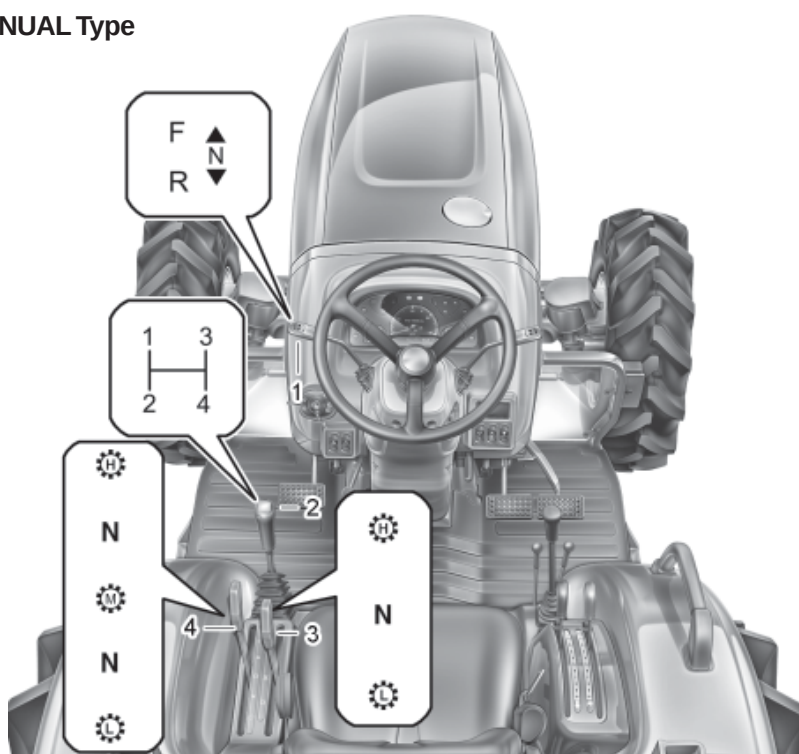
The clutch is disengaged when the clutch pedal is fully pressed down (Manual type).

IMPORTANT

To help prevent premature clutch wear.

- The clutch pedal must be engaged slowly and disengaged quickly.
- Do not rest your foot on the clutch pedal.
- Select the proper gear and engine speeds according to the type of job you are doing.

MANUAL Type



(1) Forward/Reverse Shift Lever

(2) Main Gear Shift Lever

(3) Creep Gear Shift Lever

(4) Range Gear Shift Lever(Hi-Mid-Lo)

N - "NEUTRAL POSITION"

H - "HIGH"

M - "MIDDLE"

L - "LOW"

F - "FORWARD"

R - "REVERSE"

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6. SELECTING THE TRAVEL SPEED (MANUAL Type)

(1) FORWARD/REVERSE SHIFT LEVER

Push forward or pull backward to select forward or reverse. The direction of travel can be changed without changing the main shift.

⚠ IMPORTANT

- The synchronized shuttle shift lever may be shifted while the tractor is moving slowly and the clutch is depressed.
- Sudden gear shift changes without clutching may cause transmission damage.
- Shifting the shuttle & high speeds without slowing down may cause premature synchronizer wear

(2) MAIN GEAR SHIFT LEVER

4 level shifts are possible with one lever. Synchro-mesh type. Just release the clutch during driving to change the speed.

(3) RANGE GEAR SHIFT LEVER (HI-MID-LO)

The range gear shift can only be shifted when tractor is completely stopped and clutch is depressed. If it is difficult to shift the range gear, take the following actions.

1. Be sure the range gear shift lever is in neutral position.
2. Release clutch pedal(Manual type) or slightly depress the speed control pedal to rotate the gears inside of transmission. Release the speed control pedal to neutral(HST only).
3. Depress clutch pedal(Manual type) and then shift the range gear shift lever.



IMPORTANT

- **To avoid transmission damage, depress clutch pedal and stop tractor before shifting between ranges.**



CAUTION

- **It may be easy to stall the engine when operating the tractor in high range at low engine rpm's.**

(4) CREEP GEAR SHIFT LEVER

HOW TO USE CREEP GEAR SHIFT LEVER(OPTION-MANUAL Type)

If you misuse or mishandle the creeping speed, it may cause damage to the unit, so please note the following.

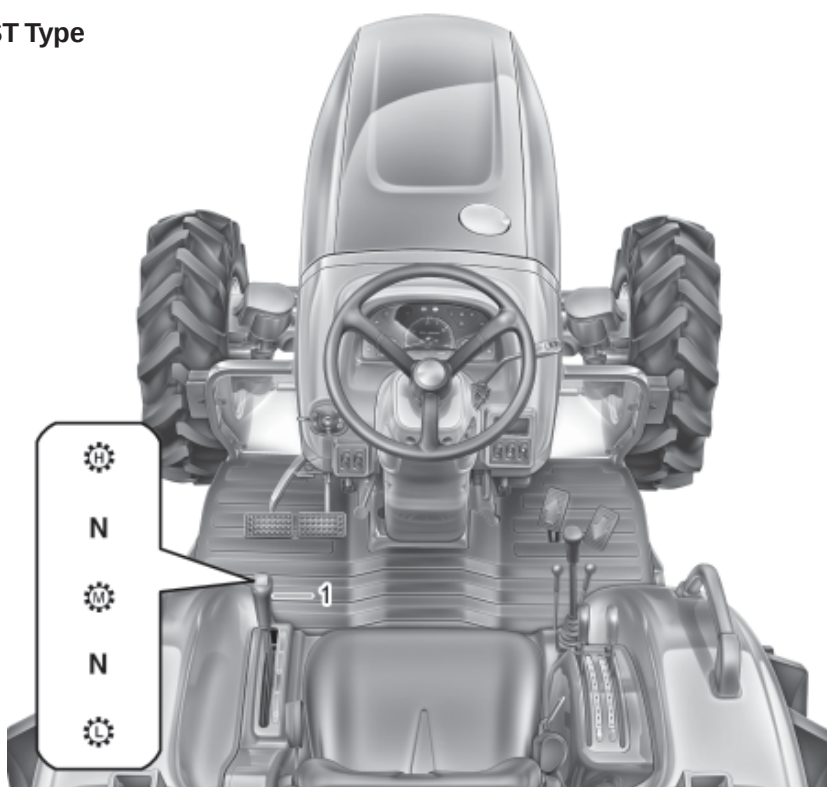
1. Possible times to use:
 - A deep tilling application
 - When unable to maintain a constant speed in harsh field conditions
 - Transplanting
 - When loading and unloading

 CAUTION

- To stop the tractor, be sure to disengage the clutch first, then depress the brake pedal. This is because creep range gives high torque at low forward speeds thus making braking ineffective.
- To avoid any transmission damage, do not convert from forward to reverse and vice versa while driving.

With a creeper transmission, an operator has the option to use 24 F and 24R gears.

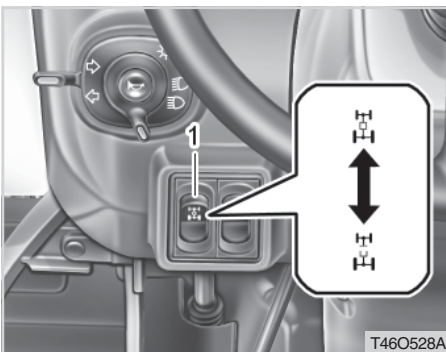
HST Type



(1) Range Gear Shift Lever (Hi-Mid-Lo)

H "HIGH SPEED"
N "NEUTRAL POSITION"
M "MIDDLE SPEED"
L "LOW SPEED"

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(1) Front Wheel Drive Switch

 "ENGAGED"  "DISENGAGED"

(5) FRONT WHEEL DRIVE SWITCH

4WD is a hydraulically actuated; which is operated easily with the "ON"/"OFF" switch.

To connect the 4WD, turn On the 4WD switch and to release it, turn OFF the switch.

FRONT WHEEL DRIVE IS EFFECTIVE FOR THE FOLLOWING JOBS:

1. When greater pulling force is needed, such as working in a wet field, when pulling a trailer or when

working with front-end loader.

2. When working in sandy soil.
3. When working on a hard soil where a rotary tiller might push the tractor forward.

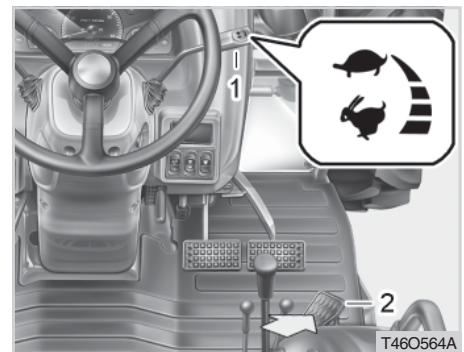
IMPORTANT

To avoid personal injury:

- You should not engage your front wheel drive while traveling at road speeds. This can cause your tractor to stop quickly, and unexpectedly.

CAUTION

- Engage the front wheel drive only when the engine stops and do not shift if in drive.
- Tires will wear quickly if front wheel drive is engaged on paved roads.
- Damage to the drive train may be caused due to operation of 4WD on roads or pave surfaces.



(1) Hand Throttle Lever (2) Foot Throttle

 INCREASE

 DECREASE

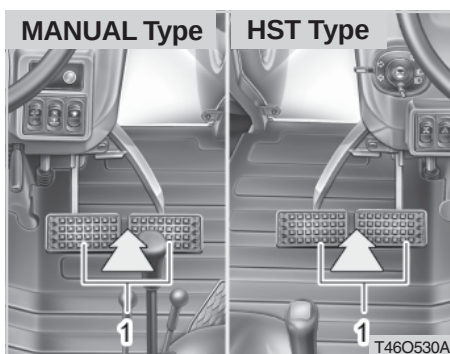
7. ACCELERATE THE ENGINE

(1) HAND THROTTLE LEVER

Pushing the throttle lever forward decreases engine speed, and pulling it back increases engine speed.

(2) FOOT THROTTLE (MANUAL Type)

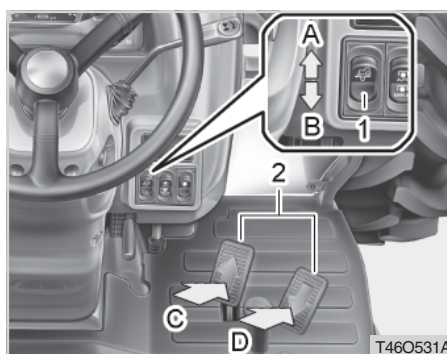
Use the foot throttle when traveling on the road. Press down on it for higher speed. The foot throttle is interlocked with the hand throttle lever; when using the foot throttle, keep the hand throttle lever in low idling position.



(1) Brake Pedals

8. UNLOCK THE PARKING BRAKE AND SLOWLY RELEASE THE CLUTCH PEDAL.

To release the parking brake, simply depress the brake pedals again. Once released, the parking brake indicator in the easy checker will go off.



(1) Cruise Control Switch
(2) Forward Pedal
(3) Reverse Pedal
(A) Lock (C) Forward
(B) Release (D) Reverse

9. DEPRESS THE SPEED CONTROL PEDAL (HST TYPE)

(1) SPEED CONTROL PEDAL

⚠ WARNING

To avoid personal injury:

- *If your tractor moves while on level ground with your foot of the control pedal, do not operate the tractor.*

The tractor with a hydrostatic transmission has a forward and reverse pedal on the right side of the platform and it is possible to moderate speed and direction continuously.

Forward direction: depress the left pedal.

Reverse direction: depress the right pedal.

⊕ IMPORTANT

- To prevent serious damage to the HST do not adjust the stopper bolts.

(2) CRUISE CONTROL

Cruise Control is designed for tractor operating efficiency and operator comfort. This device will provide a constant forward operating speed by mechanically holding the speed control pedal at the selected position.

[To Engage Cruise Control]

1. Accelerate speed to desired level using Forward Pedal, and pull the cruise control switch up to the "ON" position.
2. Release Forward Pedal and desired speed will be maintained.

[To Disengage Cruise Control]

1. Place the lever to the off position. Or depress the brake pedal.

NOTE

- Make sure to keep the cruise control in the "OFF" position when starting the tractor.
- Return the cruise control to the "OFF" position when stopping the tractor.
- The cruise control can be released when overloads or any sudden forces are encountered.
- Cruise control disengage if the brakes are applied

IMPORTANT

- To prevent the damage to cruise control, do not depress the reverse pedal when the cruise control is engaged.

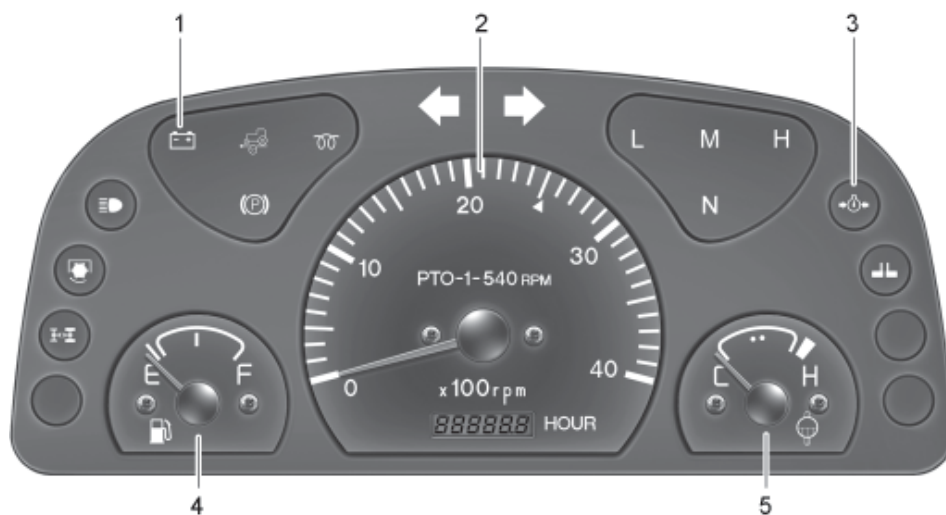
CAUTION

- To avoid personal injury and maintain optimum control of tractor, do not use the cruise control at high speeds or when driving the tractor on roads.
- Speed set device will not operate in reverse on road.

STOPPING

1. Slow the engine to idle
2. Depress the clutch and brake pedal. (Manual model)
3. After the tractor has stopped, disengage the PTO, lower the implement, shift the transmission into neutral, release the clutch pedal and set the parking brake.

**CHECK DURING DRIVING
IMMEDIATELY STOP THE ENGINE IF**



- The engine suddenly slows or accelerates.
- Unusual noises are heard.
- Exhaust fumes become dark.

NOTE

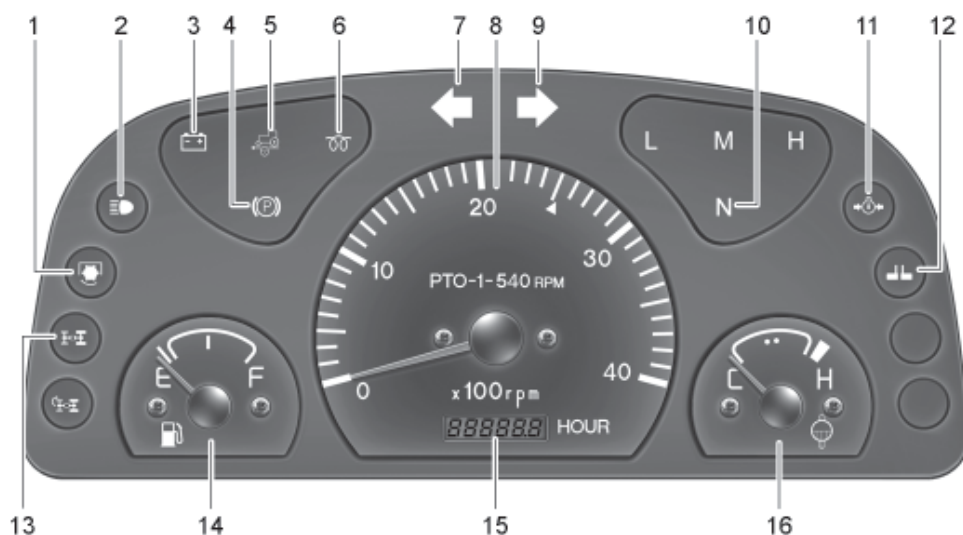
- Frequently check all gauges to verify the tractors operating status.

T46O565A

- (1) Battery Charge Warning Lamp
(2) Tachometer
(3) Engine Oil Pressure Warning Lamp

- (4) Fuel Gauge
(5) Coolant Temperature Gauge

INSTRUMENT CLUSTER



If warning lamps come on while operating the engine, immediately stop the engine and check for the cause.

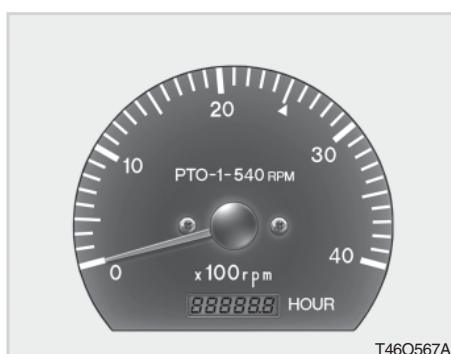
Never operate the tractor while warning lamps are on.

T46O566A

- (1) PTO Operating Indicator
- (2) Headlight-High Beam Lamp
- (3) Battery Charging Warning Lamp
- (4) Parking Brake Lamp
- (5) Cruise Operating Indicator
- (6) Glow Plug Indicator
- (7) Left Turn Indicator
- (8) Tachometer
- (9) Right Turn Indicator

- (10) Neutral Position
- (11) Engine Oil Pressure Warning Lamp
- (12) Single Brake Lamp
- (13) Front Wheel Drive Indicator
- (14) Fuel Gauge
- (15) Hour-Meter Indicator
- (16) Coolant Temperature Gauge

TACHOMETER



The tachometer indicates the engine speed and the 540rpm PTO operating speed.

The hour-meter indicates, in five digits, the hours that the tractor has been operated.

FUEL GAUGE



"E" EMPTY

"F" FULL

When the key switch is on, the fuel gauge indicates the fuel level.

Be careful not to empty the fuel tank. Otherwise air may enter the fuel system.

Should this happen, the system should be bled (See "Bleeding Fuel System" in Periodic Service Section).

COOLANT TEMPERATURE GAUGE



"C" COLD

"H" HOT

When the key switch is turned "ON" this gauge indicates the temperature of the coolant. "C" is for cold, and "H" is for hot.

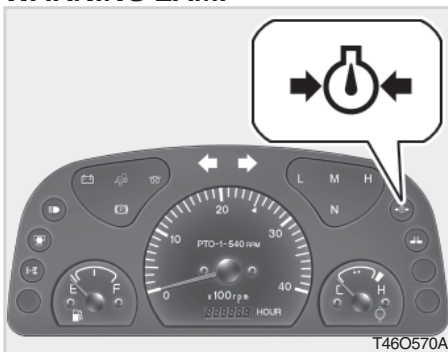


CAUTION

To avoid personal injury:

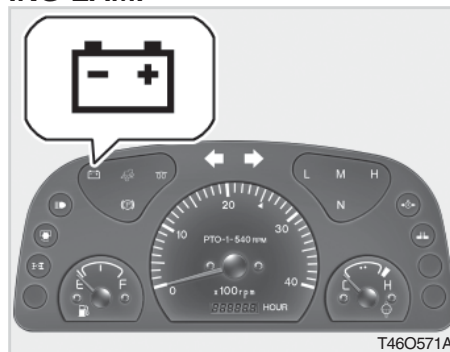
- Do not remove radiator cap until coolant temperature is well below its boiling point. Then loosen cap slightly to the stop to relieve any pressure before removing cap completely.

ENGINE OIL PRESSURE WARNING LAMP



If the tractor engine oil pressure is below the specified ranges, the warning lamp will illuminate.

BATTERY CHARGING WARNING LAMP



If the battery of the generator is not fully charged, the warning lamp illuminates on the instrument cluster. (Illumination at KEY ON(START OFF) is normal)

HEAD LIGHT HIGH BEAM PILOT LAMP



When head lights are turned to high, an indicator lamp will illuminate on the dash.

NOTE

- In the event a warning indicator lamp illuminates while operating the tractor, immediately shut the engine off and consult with your KIOTI dealer.

TURN SIGNAL LAMP



If the turn signal lamp switch is turned left or right, the corresponding indicator will illuminate in green.

GLOW PLUG INDICATOR



When the key switch is turned to the "on" position, the glow plug indicator will illuminate.

NOTE

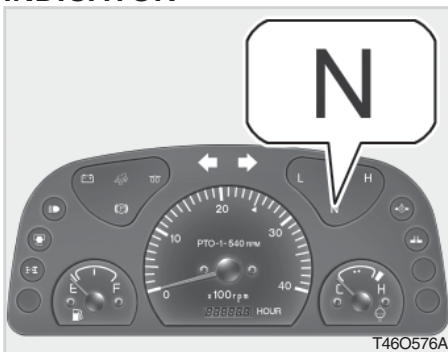
- Glow plug operation is controlled by engine water temperature. The glow plug indicator will only illuminate if water temperature is below 60° C (140° F).

PARKING BRAKE LAMP



If the parking lever is engaged, the corresponding indicator will illuminate in red.

“N” NEUTRAL POSITION INDICATOR



If the range shift is in neutral position, this lamp turn in green(HST).

If the shuttle lever is in neutral position, this lamp turns in green(Manual).

“L” LOW SPEED TRAVEL INDICATOR



If the range shift is at low speed, this lamp turned in green(HST).

“M” MIDDLE SPEED TRAVEL INDICATOR



If the range shift is at middle speed, this lamp turned in green(HST).

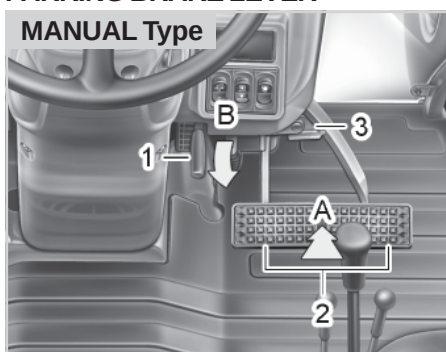
"H" HIGH SPEED TRAVEL INDICATOR



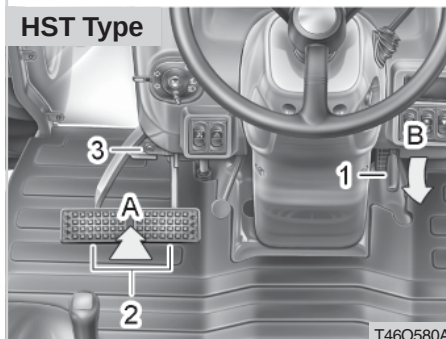
If the range shift is at high speed, this lamp turned in green(HST).

PARKING PARKING BRAKE LEVER

MANUAL Type



HST Type



- (1) Parking Brake Lever
(2) Brake Pedals
(3) Interlock
(A) DEPRESS
(B) PUSH "DOWN"

⚠ CAUTION

To avoid personal injury:

- Always set the parking brake and stop the engine before leaving the tractor seat.
- When parking the vehicle on a hill, position the shift lever in low forward (1st gear) for uphill and low reverse (1st gear) for downhill. Set the parking brake and chock the wheels.

⚠ CAUTION

HST TYPE

- Leaving transmission in gear with the engine stopped will not prevent tractor from rolling. Park on level ground whenever possible.
- Always lock the parking brake.

1. When parking, be sure to set the parking brake.

To set the parking brake:

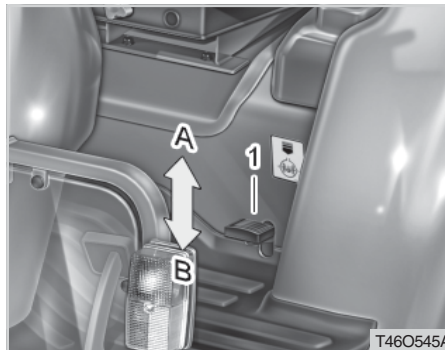
- 1) Interlock the brake pedals.
- 2) Depress the brake pedals.
- 3) latch the brake pedals with the parking brake lever.

⊕ IMPORTANT

- To prevent damage to the parking brake lever, make sure that brake pedals are fully depressed before pulling the parking brake lever up.

2. Before getting off the tractor, disengage the PTO, lower all implements, place all control levers in their neutral positions, set the parking brake, stop the engine and remove the key.

OPERATING TECHNIQUES DIFFERENTIAL LOCK



(1) Differential Lock Pedal
(A) Release to "DISENGAGE"
(B) Press to "ENGAGE"

⚠ WARNING

To avoid personal injury due to loss of steering control.

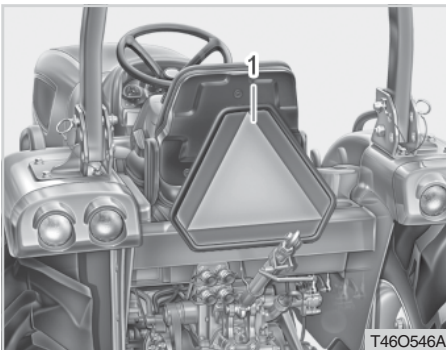
- ***Do not operate the tractor at high speeds with the differential lock engaged.***
- ***Do not attempt to turn with the differential lock engaged.***

If one of the rear wheels should slip, use the differential lock. This will cause both wheels to turn together. The differential lock is engaged only when the pedal is depressed.

⊕ IMPORTANT

- When using the differential lock, always slow the engine and press the differential lock down.
- If the differential lock cannot be released in the above manner, step lightly on the brake pedals alternately.

OPERATING THE TRACTOR ON A ROAD



(1) SMV Emblem

CAUTION

To avoid personal injury:

- To help assure straight line stops when driving at transport speeds, lock the brake pedals together. Uneven braking at road speeds could cause the tractor to roll-over.
- When traveling on road with 3-point hitch mounted implement attached, be sure to have sufficient front weight on the tractor to maintain steering ability.

Make sure that the warning lamps and SMV sign are clean and visible at all times. If you are towing rear mounted equipment or implements you will need to install warning lamps and SMV signs on the equipment.

OPERATING ON SLOPES AND ROUGH TERRAIN

CAUTION

To avoid personal injury:

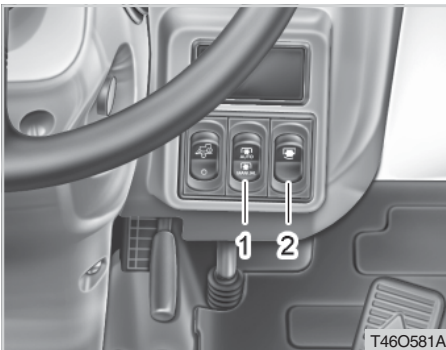
- Always back up when going up a steep slope. Driving forward could cause the tractor to tip over backward. Stay off hills and slopes too steep for safe operation.
- Avoid changing gears when climbing or descending a slope.
- If operating on a slope, never disengage the clutch or shift levers to neutral. Doing so could cause loss of control.
- Do not drive the tractor close to the edges of ditches or banks which may collapse under the weight of the tractor, especially when the ground is loose or wet.

1. Be sure that the wheels are adjusted to provide the maximum stability possible.
2. You should slow down for rough roads, slope and sharp turns. This is especially important when you are transporting heavy equipment on the rear of the tractor.
3. Use gears according to the decent of the slope, and try to avoid using the brake.

DIRECTIONS FOR USE OF POWER STEERING

1. Power steering is activated only while the engine is running. Slow engine speeds make the steering a little heavier. While the engine is stopped, the tractor functions in the same manner as tractors without power steering.
2. When the steering wheel is turned all the way to the stop, the relief valve is activated. Do not hold the steering wheel in this position for a long period of time.
3. To avoid tire wear and front-end damage only turn steering wheel while moving.

PTO OPERATION REAR PTO GEAR SHIFT LEVER



(1) Auto-Manual Switch
(2) PTO Switch



CAUTION

To avoid personal injury:

- Disengage PTO, stop engine, and allow all rotating components to come to a complete stop before connecting, disconnecting, adjusting, or cleaning any PTO driven equipment.

1. The tractor has a 540 rpm speed position.
2. Electric/Hydraulic engagement PTO shifting needs clutch operation. Press the clutch pedal down completely to stop the tractor movement and any PTO driven equipment movement before shifting the PTO gear shift lever.

PTO CLUTCH SWITCH

PTO operation is controlled by the auto/manual switch and the cutoff switch.

1. PTO connected - Auto

If the PTO clutch switch is turned to AUTO position, when the attachment is raised to the set position by the position control lever, PTO is automatically cut off.

2. PTO connected - Manual

If the PTO clutch switch is turned to Manual position, PTO is operated regardless of the height of the attachment.

3. After setting the manual/Auto switch to the desired setting, turn the PTO switch "ON" or "OFF" as required to operate the PTO.

⊕ IMPORTANT

- To avoid shock loads to the PTO, reduce engine speed when engaging the PTO, then open the throttle to the recommended speed:
- To avoid damage to the transmission before turning the PTO on fully disengage the clutch.

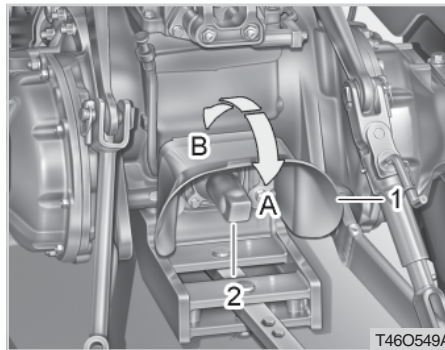
Model	Engine rpm	PTO shaft	PTOrpm
EX35(H)	2520(2500)	6-Spline	540
EX40(H)			
EX45(H)			
EX50(H)			

() :HST Model

📖 NOTE

- There is a PTO-1 (540 rpm) indicator marked on the tachometer.

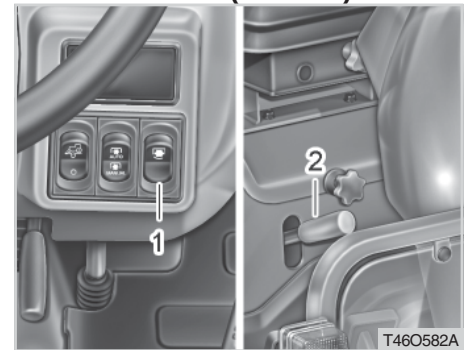
PTO SHIELD AND SHAFT CAP



(1) PTO Shield (2) PTO Shaft Cap
(A) Normal Position (B) Raised Position

You should keep the PTO Shield in place at all times and remember to replace the cap when the PTO shaft is not in use.

MID-PTO LEVER (OPTION)

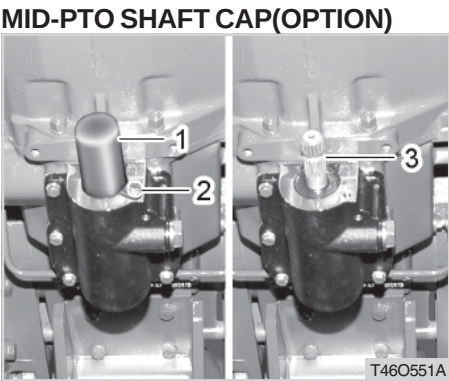


(1) PTO Switch
(2) Mid PTO Lever

⚠ WARNING

To avoid personal injury:

- **Prior to operation, after selecting the Mid PTO lever, turn the PTO switch ON.**
- **Do not operate Rear-PTO driven implements and Mid-PTO driven implements at the same time.**
- **The Mid PTO is available to operate KIOTI approved implements.**



REAR AND MID-PTO SPEED

PTO REVOLUTION [mn ⁻¹ (rpm)]		
REAR PTO		540
MID PTO		2,000

The Mid PTO is available for **KIOTI** approved implements. Remember to replace the cap after grease the PTO shaft which is not in use.

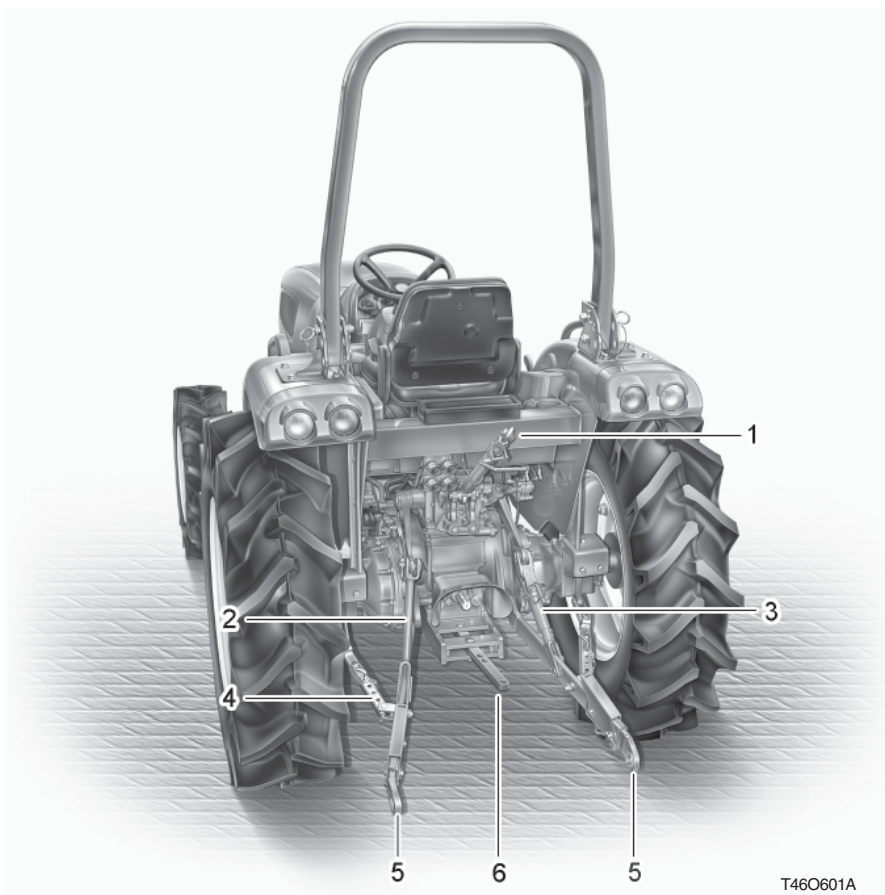
To operate the Mid PTO, connect the Mid PTO lever and turn the PTO switch ON.

THREE-POINT HITCH & DRAWBAR

THREE-POINT HITCH & DRAWBAR	6-2
3-POINT HITCH OPERATION	6-3
DRAWBAR	6-5

6

THREE-POINT HITCH & DRAWBAR



- (1) Top Link
- (2) Lifting Rod (Left)
- (3) Lifting Rod (Right)
- (4) Telescopic Stabilizer
- (5) Lower Link
- (6) Drawbar

T46O601A

3-POINT HITCH OPERATION

CAUTION

- Keep always away anyone from/ between an implement and tractor while its job being performed.
- Attaching and detaching work of implements must be done in a flat and safe place, and a right lighting apparatus should be taken at night time.
- Apply a balance weight in front of your tractor when it's mounted with a heavy implement.
- Before you adjust an implement to the tractor, keep in mind that apply a parking brake and/or stop the engine and make sure that the PTO shift lever be in the 'Neutral' position.
- Don't use any other implements than a proper draft hitch when you do a draft job.
- A rear wheel-tread must be wider than normal when a draft work done and you drive down the slope.

CAUTION

- Be aware and cautious about the surroundings of your tractor turning round if any strangers or objects.
- Instead of applying a balance weight, never try to load a person or any other objects.
- Make your tractor balanced with an implement in the rear of your tractor when you work with a front loader.
- For a safe and proper use of implements with your tractor, read cautiously the given manual.

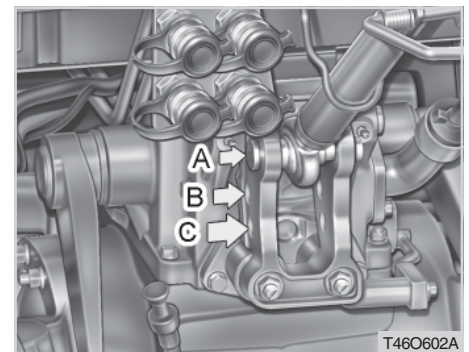
WARNING

- *If you neglect this rule, you can be easily injured.*

NOTE

- Detach a draw bar before you mount an implement on the tractor.

TOP LINK



- (A) Haulage is not required
(B) For heavy haulage
(C) For light haulage

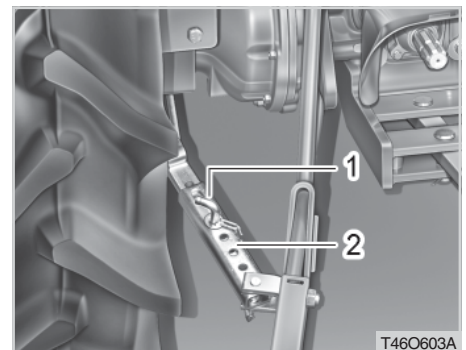
1. Adjust an angle of the implements to the desired position by shortening or lengthening the top link.
2. Adjusting a proper length of implements varies as a type of implements used.

 CAUTION

- A plate describing how to mount on your tractor is labeled on a standard kioti implement.
- Dock the top link into the hole 'A' or 'B' if haulage not required as a tiller
- Dock the top link into the hole 'C' if haulage is required as a plow.
- Dock the top link into the hole 'A' or 'B' when you drive your tractor mounted with implements, otherwise a draft sensor can be activated and/or cause a trouble and fall down without any control in a lifting part.

LIFTING ROD (RIGHT)

Turn the right handle to adjust the lifting rod to a horizontal angle. In general, most of implements are designed to be adjusted horizontally. Set a lock pin after adjusting the handle to your desired position.



- (1) Pin
(2) Telescopic Stabilizer

TELESCOPIC STABILIZER

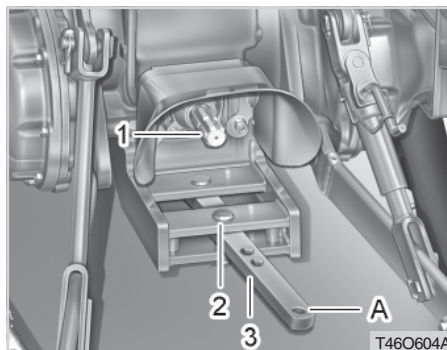
A telescopic stabilizer is basically used for tightening and unwavering in an implement linked with tractors and for setting the implement in the rear center of your tractor.

DRAWBAR

WARNING

- **Use caution when adjusting the telescopic sway bar. Heavy implement can move causing harm.**

To adjust the telescopic stabilizer, remove the pin and adjust the telescopic stabilizer as required. Secure the telescopic stabilizer by installing the pin to the telescopic stabilizer.



(1) PTO Shaft (3) Drawbar
(2) Drawbar Pin (A) Holes

WARNING

To avoid personal injury:

- **Never pull from the top link, the rear axle or any point above the drawbar. Doing so could cause the tractor to tip over rearward causing personal injury or death.**

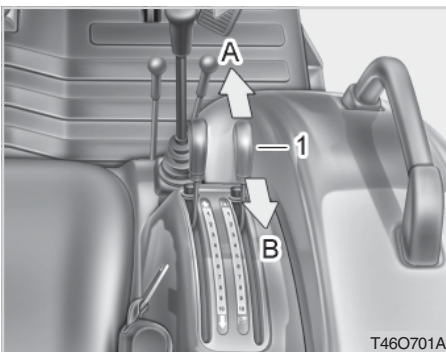
The drawbar load is rating is listed in the "IMPLEMENT LIMITATIONS" section.

HYDRAULIC UNIT

3-POINT HITCH CONTROL SYSTEM	7-2
AUXILIARY HYDRAULICS	7-4

7

3-POINT HITCH CONTROL SYSTEM POSITION CONTROL



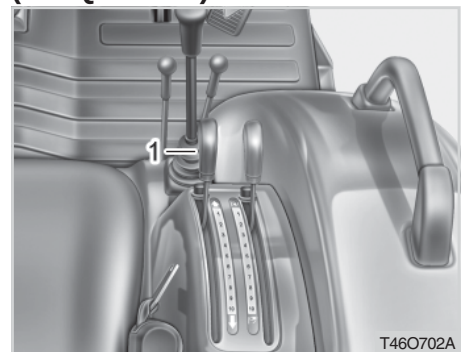
(1) Position Control Lever
(A) DOWN (B) UP

Operating the position control lever actuates the hydraulic lift arm. This controls the elevation of the 3-point hitch mounted implement.

⚠ IMPORTANT

- If the 3-point hitch can not be raised by setting the hydraulic control lever to the “UP” position after long term storage or when changing the transmission oil, follow these air bleeding procedures.
 1. Stop the engine.
 2. Set the hydraulic control lever to the “DOWN” position and start the engine.
 3. Operate the engine at low idle speed for at least 30 seconds to bleed air from the system.
- Do not operate until the engine is warmed up. If operation is attempted when the engine is still cold, the hydraulic system may be damaged.
- If noises are heard when implement is lifting after the hydraulic control lever has been activated, the hydraulic mechanism is not adjusted properly. Unless corrected the unit will be damaged. Contact your KIOTI dealer for adjustment.

DRAFT CONTROL LEVER (IF EQUIPPED)

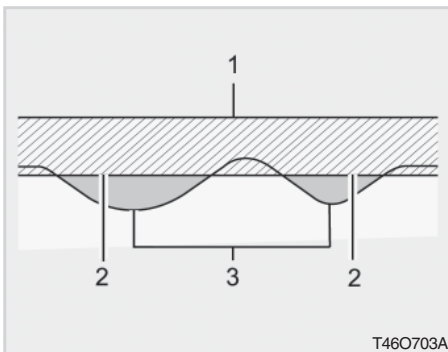


(1) Draft Control Lever

It is used to adjust depth and load on 3 point implements, for example, plowing.

Lower the position lever (forward) and adjust the tilling depth as required using the tilling depth is adjusted according to implement size and soil conditions. Once the draft position has been set, attachment depth and pull will be adjusted by the tractors hydraulic system.

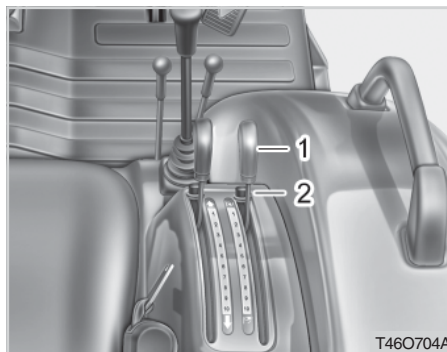
MIXED CONTROL(IF EQUIPPED)



(1) Ground Surface (3) Soft Soil
(2) Implement Penetration Limit

Lower the draft control lever up to a desired depth in the ground, and tighten the bolt. In order to place an implement to the position where it's about to lift, use the position control lever. In case you work with a mixed control, lifting device is controlled by the draft control so that you can prevent the device damage from an overloaded implement. limitation of lowering an implement can be controlled by the locking bolt.

IMPLEMENT LOWERING LIMIT



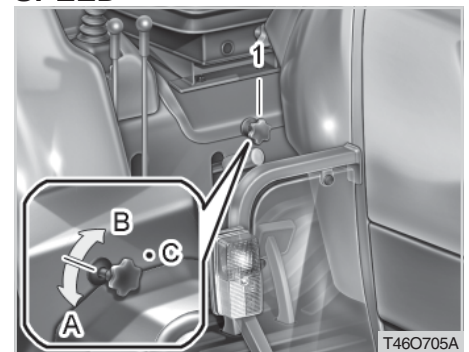
(1) Position Control Lever
(2) Lock Bolt

The lower limit can be adjusted by moving the position of the locker.

IMPLEMENT LOWERING LIMIT

The lowering limitation would raise if the bolt is placed backward and vice versa.

3-POINT HITCH LOWERING SPEED



(1) 3-Point Lowering Speed Knob
(A) FAST (C) LOCK
(B) SLOW

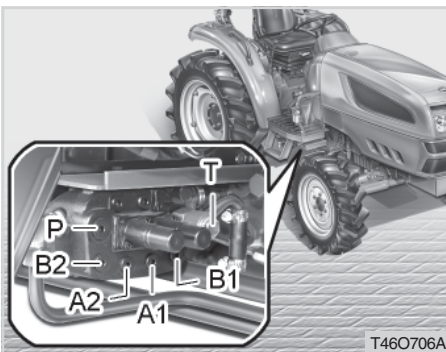
⚠ CAUTION

To avoid personal injury:

- Fast lowering speed may cause damage or injury. Lowering speed of implement should be adjusted to two or more seconds.

The lowering speed of the 3-point hitch can be controlled by adjusting the 3-point lowering speed knob.

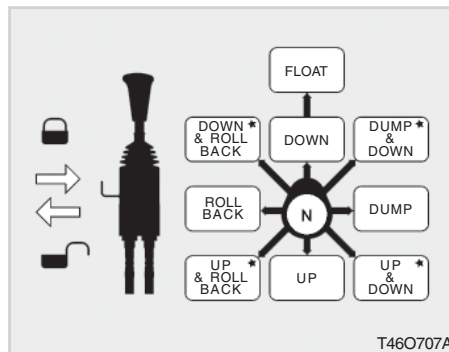
AUXILIARY HYDRAULICS JOYSTICK VALVE



- (T) To the Tank (P) From the Pump
(A1) A1 PORT (A2) A2 PORT
(B1) B1 PORT (B2) B2 PORT
- Boom Cylinder : A1,B1
 - Bucket Cylinder : A2,B2

NOTE

- When the lever is at each corner position marked by*, boom and bucket cylinders work at the same time.



To begin test operation, slightly move the control lever from the "N" position. Slowly raise the loader boom just enough for the bucket to clear the ground when fully dumped. Slowly work through the dump and roll back cycles.

IMPORTANT

- If the boom or bucket does not work in the directions indicated in the label, lower the bucket to the ground, stop the engine, and relieve all hydraulic pressure. Recheck and correct all hydraulic connections.

TWO STAGE VALVE TYPE

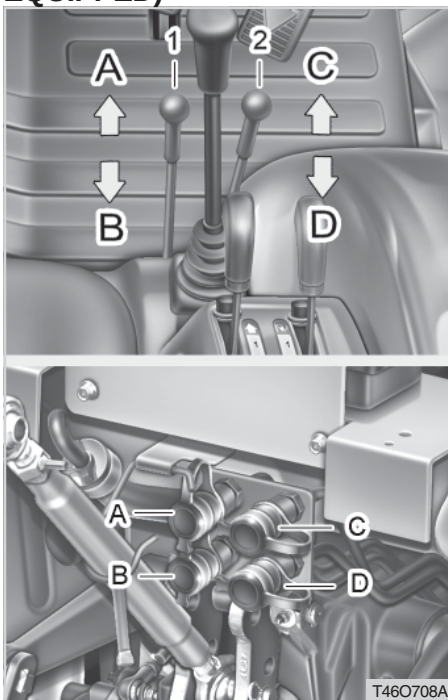
This loader control valve has two stage dump position. The first stage has good power and control for dumping precisely. This position should be used when operating another implement with the loader's control valve.

The second dump position (to further right) features greater speed for dumping. These two position are separated by a "Feel" position for your convenience.

IMPORTANT

- Do not move the control lever into float position when the bucket is off the ground.

DOUBLE ACTING LEVER(IF EQUIPPED)



(1) Double Acting Lever 1
 (2) Double Acting Lever 2
 (A) A PORT (C) C PORT
 (B) B PORT (D) D PORT

		Pressure →		Returning ←	
Port		Push		Pull	
Lever1	A	In	←	Out	→
	B	Out	→	In	←
Lever2	C	In	←	Out	→
	D	Out	→	In	←
		Coupler Size			
Port A, B, C, D		PT 1/2"			

Basically a remote valve, which is a detent type, is attached.

In a normal range you could lift up and down an implement with shifting and holding the lever.

When you let go your hold, the lever would return to neutral automatically.

However, in case you shift the lever in a detent range, hydraulic pressure is still on. So, if you want to release it out of the detent range, you need to shift it again to the neutral.

⊕ IMPORTANT

- Do not hold the lever in the "pull" or "push" position once the remote cylinder has reached the end of the stroke, as this will cause oil to flow through the relief valve.
- To enlarge the front loader output, when using the hydraulic system of the tractor, do not operate the boom and the bucket cylinder simultaneously

COUPLER CONNECTING AND DISCONNECTING



CAUTION

To avoid personal injury:

- Stop the engine and relieve pressure before connecting or disconnecting lines.
- Do not use your hand to check for leaks.

CONNECTING

1. Clean both couplers.
2. Remove dust plugs.
3. Insert the implement coupler to the tractor hydraulic coupler.
4. Pull the implement coupler slightly to make sure couplers are firmly connected.

DISCONNECTING

1. First lower the attachment on the ground to remove the hydraulic pressure in the hose.
2. Clean the couplers.
3. Relieve pressure by moving hydraulic control levers with engine shut off. Pull the hose straight from the hydraulic coupler to release it.
4. Clean oil and dust from the coupler, then replace the dust plugs.



NOTE

- Your local **KIOTI** Dealer can supply parts to adapt couplers to hydraulic hoses.

TIRES, TREAD AND BALLAST

TIRES	8-2
TREAD	8-3
BALLAST	8-5

8

TIRES

⚠ WARNING

To avoid personal injury:

- **Do not attempt to mount a tire. This should be done by a qualified person with the proper equipment.**
- **Always maintain the correct tire pressure. Do not inflate tires above the recommended pressure shown in the operator's manual.**

⊕ IMPORTANT

- **Do not use tires larger than specified.**
- **Before installing a tire different than the factory equipped ones, consult your dealer about front drive gear ratio for details.**

INFLATION PRESSURE

Though the tire pressure is factory-set to the prescribed level, it naturally drops slowly in the course of time. Thus, check it everyday and inflate as necessary.

		EX35		EX40		EX45/50	
		Tire sizes	Inflation pressure	Tire sizes	Inflation pressure	Tire sizes	Inflation pressure
Front	AG	7-16 / 6PR	2.5kg/cm ² 248Kpa, 36psi	8-16 / 6PR	2.0kg/cm ² 193Kpa, 28psi	9.5-16 / 6PR	2.1kg/cm ² 207Kpa, 30psi
	Turf	27-8.5-15 / 4PR	2.1kg/cm ² 207Kpa, 30psi	27-8.5-15 / 6PR	2.1kg/cm ² 207Kpa, 30psi	29-12.5-15 / 4PR	1.4kg/cm ² 138Kpa, 20psi
	IND	27-10.5-15 / 6PR	3.1kg/cm ² 310Kpa, 45psi	10-16.5 / 6PR	3.1kg/cm ² 310Kpa, 45psi	12-16.5 / 6PR	2.8kg/cm ² 276Kpa, 40psi
Rear	AG	12.4-24 / 6PR	1.7kg/cm ² 165Kpa, 24psi	13.6-24 / 6PR	1.5kg/cm ² 152Kpa, 22psi	13.6-26 / 6PR	1.0kg/cm ² 98Kpa, 14.2psi
	Turf	41-14-20 / 4PR	1.7kg/cm ² 172Kpa, 25psi	41-14-20 / 4PR	1.7kg/cm ² 172Kpa, 25psi	21.5L-16.1 / 4PR	0.8kg/cm ² 83Kpa, 12psi
	IND	43-16-20 / 4PR	1.4kg/cm ² 138Kpa, 20psi	14.9-24 / 6PR	1.7kg/cm ² 165Kpa, 24psi	17.5L-24 / 8PR	1.8kg/cm ² 179Kpa, 26psi

* IND... for Industrial.

📖 NOTE

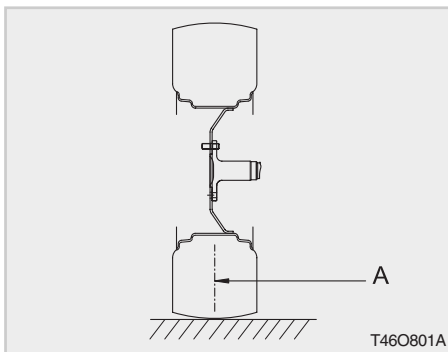
- Maintain the maximum pressure in front tires, if using a front loader or when equipped with a full load of front weights.

TREAD FRONT WHEELS

Front tread can not be adjusted.

⊕ IMPORTANT

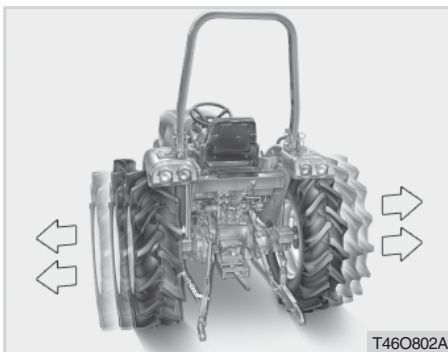
- Do not turn front discs to obtain wider tread.



mm(in.)

Model		Tread	Tire sizes
EX35	AG	1,248 (49.1)	7-16 / 6PR
	Turf	1,336 (52.5)	27-8.5-15 / 4PR
	Industrial	1,367 (53.8)	27-10.5-15 / 6PR
EX40	AG	1,245 (49.0)	8-16 / 6PR
	Turf	1,336 (52.5)	27-8.5-15 / 4PR
	Industrial	1,322 (52.0)	10-16.5 / 6PR
EX45 EX50	AG	1,365 (53.7)	9.5-16 / 6PR
	Turf	1,445 (56.8)	29-12.5-15 / 4PR
	Industrial	1,364 (53.7)	12-16.5 / 6PR

REAR WHEELS



Model	Farm					Turf	Industrial
							
EX35	-	1,221 (48.1)	-	1,237 (48.7)	1,348 (53.1)	1,301 (51.2)	1,318 (51.9)
EX40	-	1,304 (51.3)	1,290 (50.8)	1,380 (54.3)	1,490 (58.7)	1,415 (55.7)	1,370 (53.9)
EX45 EX50	1,206 (47.5)	1,304 (51.3)	1,278 (50.3)	1,380 (54.3)	1,478 (58.2)	1,513 (59.6)	1,370 (53.9)

(A) Tread

Model	Tire size		
	Farm	Turf	Industrial
EX35	12.4-24 / 6PR	41-14-20 / 4PR	43-16-20 / 4PR
EX40	13.6-24 / 6PR	41-14-20 / 4PR	14.9-24 / 6PR
EX45/50	13.6-26 / 6PR	21.5L-16.1 / 4PR	17.5L-24 / 8PR

⊕ IMPORTANT

- Always attach tires as shown in the drawings.
- If not attached as illustrated, transmission parts may be damaged.
- When re-fitting or adjusting a wheel, tighten the bolts to the following torques then recheck after driving the tractor 200 m (218 yards) and thereafter according to service interval.
Torques : 166 N·m (23 kgf·m, 226 lbf·ft)

BALLAST (OPTION)

FRONT BALLAST



(1) Front End Weights
(2) Rear Wheel Weights

CAUTION

To avoid personal injury:

- Additional ballast will be needed for transporting heavy implements. When the implement is raised, drive slowly over rough ground, regardless of how much ballast is used.

FRONT END WEIGHTS

Front end weights can be attached to the front of the tractors frame. You should consult your implement owner's manual for the required amount of weight or contact your local **KIOTI** dealer for a recommendation.

IMPORTANT

- Never overload the tires.
- Do not add more weight than is necessary, or is indicated in chart.

Maximum weight	17 kg X 5 Pieces (187 lbs.)
----------------	--------------------------------

REAR BALLAST

Weight should be added to the rear wheels only if it is needed to improve traction or stability. The amount of weight should directly correspond to the job at hand and should be removed when not needed.

The weight should be added to the rear wheel weights.

REAR WHEEL WEIGHTS

The rear wheel weights can be attached to the rear wheel. See your implement owner's manual for the proper amount of weight or consult your local **KIOTI** dealer.

IMPORTANT

- Do not overload tires.
- Add no more weight than indicated in chart.

Maximum weight per wheel	25 kg X 2 Pieces (220 lbs.)
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MAINTENANCE

SERVICE INTERVALS	9-2
LUBRICANTS	9-4

9

SERVICE INTERVALS

NO.	PERIOD		Service Time Interval																SINCE THEN	REFERENCE
			50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800		
1	Engine oil	Change	⊙	○															Every100Hr	10-9
2	Engine oil filter	Replace	⊙			○													Every200Hr	10-15
3	Hydraulic oil filter	Replace	⊙			○													Every200Hr	10-15
4	Transmission oil filter(HST)	Replace	⊙							○									Every400Hr	10-15
5	Transmission fluid	Change	⊙			○													Every200Hr	10-18
6	Front axle case oil	Change	⊙							○									Every400Hr	10-19
7	Greasing	-	○																Every50Hr	10-8
8	Engine start system	Check	○																Every50Hr	
9	Wheel bolt torque	Check	○																Every50Hr	10-9
10	Battery condition	Check		○															Every100Hr	10-13
11	Air cleaner element	Clean		○															Every100Hr	10-10
		Replace																	Every1year	10-20
12	Fuel filter element	Clean		○															Every100Hr	10-10
		Replace								○									Every400Hr	10-19
13	Fan belt	Adjust		○															Every100Hr	10-14
14	Clutch	Adjust	⊙	○															Every100Hr	10-11
15	Brake	Adjust		○															Every100Hr	10-12
16	Adjusting front axle pivot	Adjust				○													Every200Hr	10-17
17	Radiator hose and clamp	Check												○					Every600Hr	10-21
		Change																	Every2years	10-21
18	Power steering oil line	Check				○													Every200Hr	10-17
		Change																	Every2years	10-22

NO.	PERIOD		Service Time Interval																SINCE THEN	REFERENCE PAGE
			50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800		
19	Fuel line	Check		⊙															Every100Hr	10-11
		Replace																	Every2years	10-22
20	HST oil line	Check				⊙													Every200Hr	10-17
		Replace																	Every2years	10-22
21	Toe-in	Adjust				⊙													Every200Hr	10-18
22	Engine valve clearance	Adjust																⊙	Every800Hr	10-20
23	Cooling system	Flush																	Every2years	10-21
24	Coolant	Change																	Every2years	10-22
25	Fuel system	Bleed																	Service as required	10-23
26	Clutch housing water	Drain																		10-23
27	Fuse	Replace																		10-24
28	Light bulb	Replace																		10-24

⊕ IMPORTANT

- The jobs indicated by ⊙ must be done after the first 50 hours of operation.

LUBRICANTS

To prevent serious equipment damage, use only genuine KIOTI fluids, oils and greases, or equivalents.

NO.	LOCATIONS	CAPACITIES ℓ (U.S.gals.)			LUBRICANTS	
		EX35	EX40	EX45/50		
1	Fuel	45 (11.9)	45 (11.9)	45 (11.9)	Diesel	
2	Coolant	8 (2.1)	8.9 (2.4)	8.7 (2.3)	Fresh clean water with anti-freeze	
3	Engine crankcase	5.5 (1.5)	8.0 (2.1)	8.0 (2.1)	Engine oil: API Service Classification CC or CD	
					Above 25° C (77° F)	SAE30, SAE10W-30 or 15W-40
					0 to 25° C (32 to 77° F)	SAE20, SAE10W-30 or 15W-40
					Below 0° C (32° F)	SAE10W, SAE5W-30 or 10W-30
4	Transmission case	Manual Model: 13.7 (52) HST Model: 11.1 (42)			Exxonmobil	Mobilfluid 423 or 424 Exxon Hydraul 560
					Shell	DONAX-TD/TD Plus
					BP	Tractran UTH
5	Front axle case	7.5 (1.9)	7.5 (1.9)	7.5 (1.9)	Transmission oil or SAE 90 gear oil	
6	Greasing	Moderate amount			General type grease	

WARNING

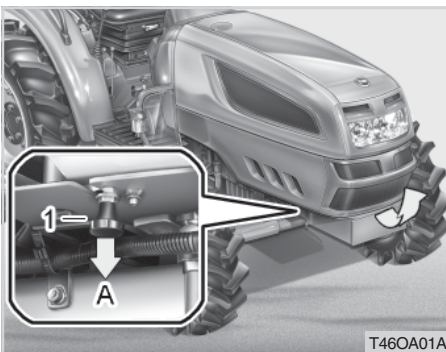
- **Check the oil level regularly.**
- **Correct the oil level, if needed, before operating.**
- **Always check and add oil with the tractor on a flat, level surface.**
- **To prevent personal injury, always stop the engine and set the parking brake before performing any kind of service.**

PERIODIC SERVICE

HOW TO OPEN THE HOOD	10-2
DAILY CHECK	10-3
INITIAL 50 HOURS	10-8
EVERY 50 HOURS	10-13
EVERY 100 HOURS	10-14
EVERY 200 HOURS	10-19
EVERY 400 HOURS	10-21
EVERY 600 HOURS	10-22
EVERY 800 HOURS	10-22
EVERY 1 YEAR	10-22
EVERY 2 YEARS	10-23
SERVICE AS REQUIRED	10-25

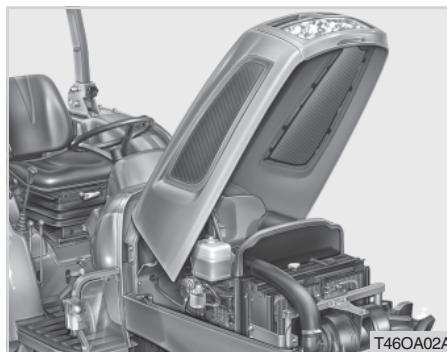
10

HOW TO OPEN THE HOOD HOOD



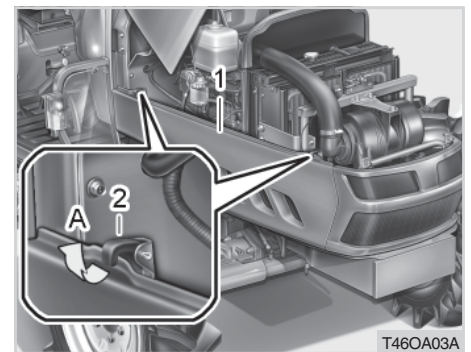
(1) Knob

(A) Pull



T46OA02A

ENGINE COVER



(1) Side Cover

(2) Hook

(A) Push

CAUTION

To avoid personal injury from contact with moving parts:

- Never open the hood or engine side cover while the engine is running.
- Do not touch muffler or exhaust pipes while they are hot; severe burns could result.

To open the tractor hood, pull down on the knob while applying down pressure on the hood.

It is not necessary to remove the side cover to perform daily checks on your tractor.

DAILY CHECK

For your own safety and maximum service life of the machine, make a thorough daily inspection before starting and operating the machine.

CAUTION

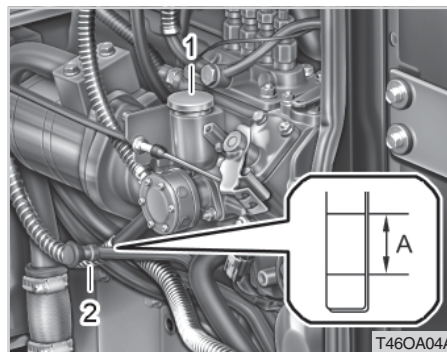
To avoid personal injury:

- Be sure to check and service the tractor on a flat place with the engine shut off and the parking brake "ON".

WALK AROUND INSPECTION

Look around and under the tractor for such items as loose bolts, trash build-up, oil or coolant leaks, broken or worn parts.

CHECKING ENGINE OIL LEVEL



(1) Oil Inlet (2) Dipstick
(A) Oil Level is Acceptable Within This Range.

IMPORTANT

- When using an oil from a different maker or viscosity from the previous one, remove all of the old oil. Never mix two different types of oil.
- If oil level is low, do not run engine.

CAUTION

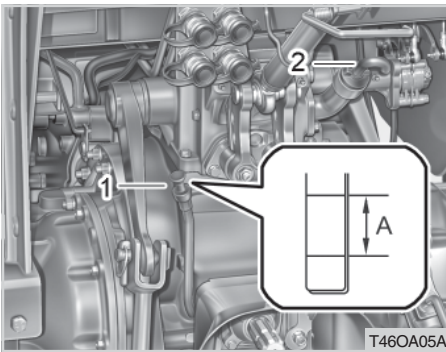
To avoid personal injury:

- Be sure to stop the engine before checking the oil level.

1. Park the machine on a flat surface.
2. Check engine oil before starting the engine or 5 minutes or more after the engine has stopped.
3. To check the oil level, draw out the dipstick, wipe it clean, replace it, and draw it out again. Check to see that the oil level lies between the two notches. If the level is too low, add new oil to the prescribed level at the oil inlet.

(See "LUBRICANTS" in Maintenance Section)

CHECKING TRANSMISSION FLUID LEVEL



(1) Gauge (2) Oil Filler Plug
(A) Oil Level is Acceptable Within This Range.

1. Park the machine on a flat surface, lower the implement and shut off engine.
2. Check the fluid level on the fluid level dipstick. If the level is too low, add new oil to the prescribed level at the oil inlet. (See "LUBRICANTS" in Maintenance Section)

⊕ IMPORTANT

- If oil level is low, do not run engine.

CHECKING AND REFUELING



(1) Fuel Tank Cap

Fuel tank capacity	45ℓ (11.9 U.S.gals.)
--------------------	-------------------------

⚠ CAUTION

To avoid personal injury:

- Do not smoke while refueling.
- Be sure to stop the engine before refueling.

1. Turn the key switch to "ON", check the amount of fuel by fuel gauge.
2. Fill fuel tank when fuel gauge shows 1/4 or less fuel in tank.
3. Use for the winter season fuel at temperatures above -10° C (14° F).

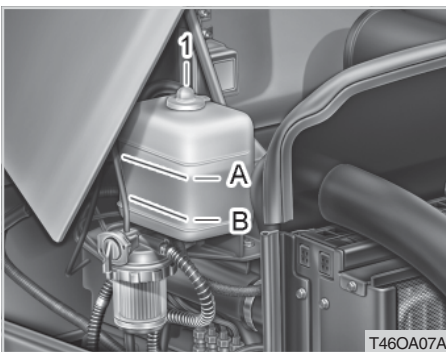
⊕ IMPORTANT

- Do not permit dirt or trash to get into the fuel system.
- Be careful not to let the fuel tank become empty, otherwise air will enter the fuel system, necessitating bleeding before next engine start.
- Be careful not to spill during refueling. If spills occur, wipe it off at once, as it may cause a fire.
- To prevent condensation (water) accumulation in the fuel tank, fill the tank before parking overnight.
- During cold, damp periods of the year or for tractors that sit for long periods, adding a fuel supplement to disperse water and add lubricity is recommended.

Flash Point, ° C (° F)	Water and Sediment, volume %	Carbon Residue on, 10 percent Residuum, %	Ash, weight %
Min	Max	Max	Max
52 (125)	0.05	0.35	0.01

Distillation Temperatures, ° C (° F) 90% Point		Viscosity Kinematic cSt or mm ² /s at 40° C		Viscosity Saybolt, SUS at 100° F		sulfur, weight %	Copper Strip Corrosion	Cetane Number
Min	Max	Min	Max	Min	Max	Max	Max	Min
282 (540)	338 (640)	1.9	4.1	32.6	40.1	0.50	No.3	40

CHECKING COOLANT LEVEL



(1) Recovery Tank
(A) FULL (B) LOW

CAUTION

To avoid personal injury:

- Do not remove radiator cap while coolant is hot. When cool, slowly rotate cap to the first stop and allow sufficient time for excess pressure to escape before removing the cap completely.

IMPORTANT

- If the radiator cap has to be removed, follow the caution above and securely retighten the cap.
- Use clean, fresh water and anti-freeze to fill the recovery tank.
- If water should leak, consult your local KIOTI dealer.

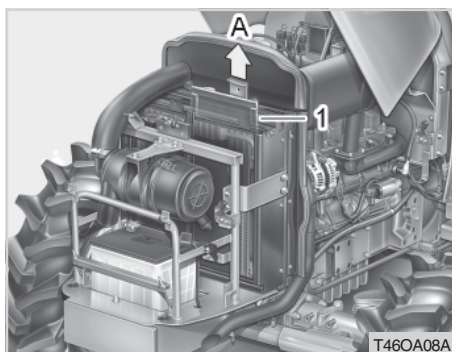
CHECKING BRAKE AND CLUTCH PEDALS

1. The brake and clutch pedals should be inspected for free travel, and smooth operation.
2. You should adjust these pedals if an incorrect measurement is found. (See "adjusting clutch and brake pedals" in the 100 hour maintenance schedule.)

NOTE

- Brake pedals should be equal when depressed.

CLEANING GRILL, RADIATOR SCREEN AND OIL COOLER SCREEN



(1) Radiator Screen (A) DETACH

IMPORTANT

- Grill and screen must be clean from debris to prevent engine from overheating and to allow good air intake for the air cleaner.

CHECKING GAUGES, METER AND EASY CHECKER

1. Inspect the instrument panel for broken gauge(s), meter(s) and Easy Checker lamps.
2. Replace if broken.

CHECKING HEAD LIGHT, HAZARD LIGHT ETC.

1. Inspect the lights for broken bulbs and lenses.
2. Replace if broken.

CAUTION

To avoid personal injury:

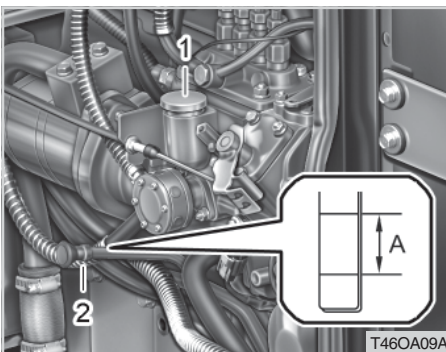
- Be sure to stop the engine before removing the screen.
- Engine/Radiator may be hot!

1. Check front grill and side screens to be sure they are clean of debris.
2. Lift out the screen and remove all the foreign material. Replace screen.

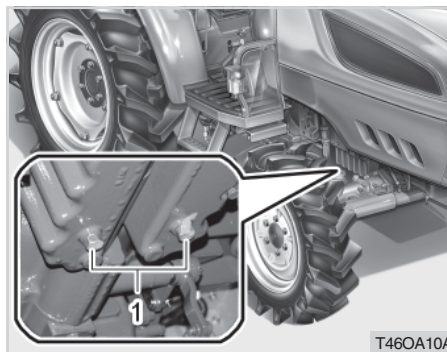
CHECKING SEAT BELT AND ROPS

1. Always check condition of seat belt and **ROPS** attaching hardware before operating tractor.
2. Replace if damaged.

INITIAL 50 HOURS CHANGING ENGINE OIL

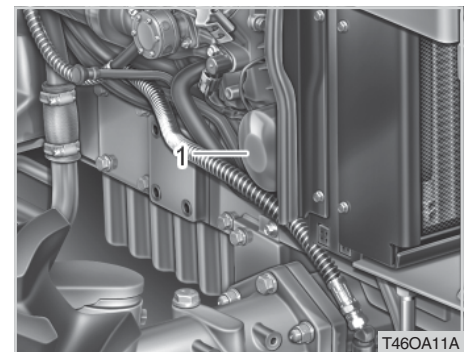


(1) Oil Inlet (2) Dipstick
(A) Oil level is acceptable within this range



(1) Drain Plug

REPLACING ENGINE OIL FILTER



(1) Engine Oil Filter

⚠ CAUTION

To avoid personal injury:

- Be sure to stop the engine before changing the oil.
- Allow engine to cool down sufficiently, oil can be hot and can burn.

1. To drain the used oil, remove the drain plug at the bottom of the engine and drain the oil completely into the oil pan.

All the used oil can be drained out easily when the engine is still warm.

2. After draining reinstall the drain plug.
3. Fill with the new oil up to the upper notch on the dipstick.

Oil capacity with filter	EX35	5.5ℓ (1.5U.S.gals.)
	EX40	8.0ℓ (2.1U.S.gals.)
	EX45/50	

⊕ IMPORTANT

- To prevent serious damage to the engine, use only a KIOTI genuine filter.

ADJUSTING BRAKE PEDAL

⚠ CAUTION

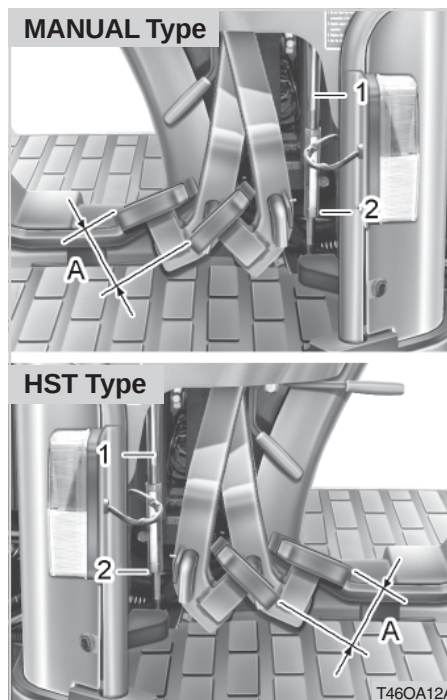
To avoid personal injury:

- Be sure to stop the engine before changing oil filter cartridge.
- Allow engine to cool down sufficiently, oil can be hot and can burn.

1. Place the oil pan under the engine.
2. Remove the oil filter.
3. Put a film of clean engine oil on the rubber seal of the new filter.
4. Tighten the filter quickly until it contacts the mounting surface.

Tighten filter, by hand, an additional half turn only.

5. After the new filter has been replaced, the engine oil normally decreases a little. Make sure that the engine oil does not leak through the seal and be sure to check the oil level on the dipstick. Replenish the engine oil up to the prescribed level if necessary.



(1) Brake Rod
(A) Free Travel

(2) Turnbuckle

⚠ CAUTION

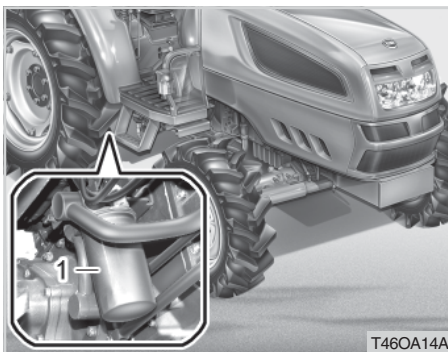
To avoid personal injury:

- Stop the engine and chock the wheels before checking brake pedal.

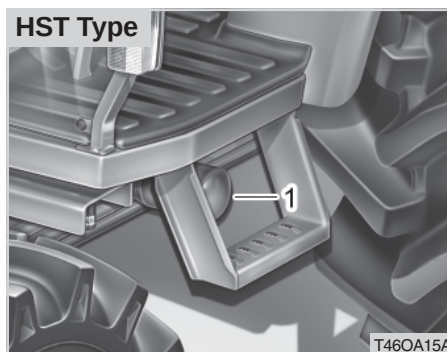
Proper brake pedal free travel (A)	20 ~ 30 mm (0.787 ~ 0.181 in.) on the pedal.
	Keep the free travel in the right and left brake pedals equal.

1. Release the parking brake
2. Slightly depress the pedals and measure the free travel at the top of the pedal stroke.
3. When adjustments are needed, loosen the locking nut and turn the turnbuckle until the rod length is at the desired and acceptable limit.
4. Re-tighten the lock nuts.

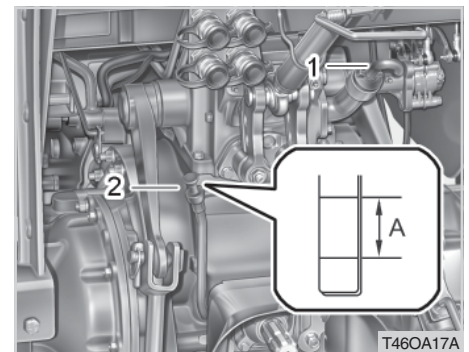
REPLACING HYDRAULIC OIL FILTER & TRANSMISSION OIL FILTER



(1) Hydraulic Oil Filter



(1) HST Oil Filter



(1) Oil Filler Plug (2) Gauge
(A) Oil level is acceptable within this range

⚠ CAUTION

To avoid personal injury:

- Be sure to stop the engine before changing oil filter cartridge.

1. Place the oil pan under the hydraulic oil filter.
2. Remove the oil filter.
3. Place a film of clean transmission fluid to the rubber seal of the new filter.

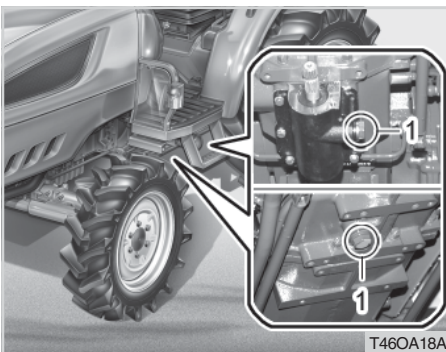
4. Tighten the filter firmly until it contacts the mounting surface. Then tighten the filter, by hand, an additional half turn only.
5. After the new filter is in place, fill the transmission up with oil to the upper line of the oil gauge.
6. After running the engine for a few minutes, stop it and check the oil level again, add oil to the prescribed level.

7. Make sure that the transmission fluid doesn't leak through the seal.
8. HST models have a hydraulic filter and HST filter.

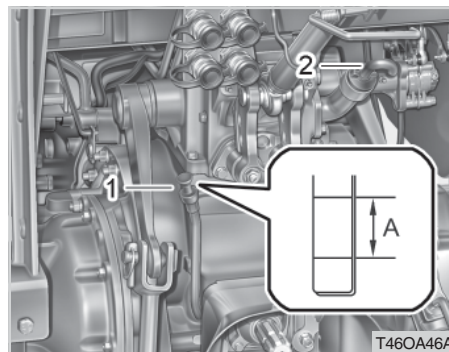
⊕ IMPORTANT

- To prevent serious damage to the hydraulic system, use only a genuine KIOTI filter.

CHANGING TRANSMISSION FLUID



(1) Drain Plugs



(1) Oil Filler Plug (2) Gauge
(A) Oil level is acceptable within this range

⚠ IMPORTANT

- Do not operate the tractor immediately after changing the transmission fluid.
- Run the engine at medium speed for a few minutes to prevent damage to the transmission.

⚠ CAUTION

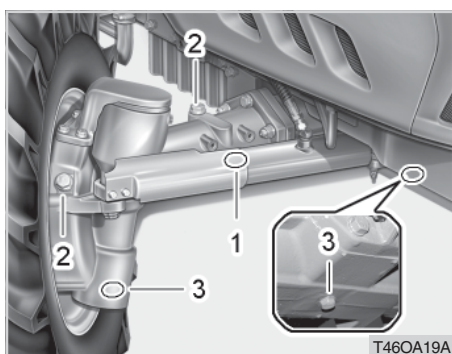
To avoid personal injury:

- Allow engine to cool down sufficiently, oil can be hot and can burn.

1. To drain the used oil, remove the drain plugs at the bottom of the transmission case and differentials. Drain the oil completely into a drain pan.
2. After draining reinstall the drain plug.
3. Fill with the new fluid to the upper line of the gauge.
(See "LUBRICANTS" in Maintenance Section)
4. After running the engine for a few minutes, stop it and check the oil level again; add oil to prescribed level.

Model		Oil capacity
EX35	Manual	52 ℓ (13.7U.S gals.)
EX40		
EX45	HST	42 ℓ (11.1U.S gals.)
EX50		

CHANGING FRONT AXLE CASE OIL



(1) Check Plug
(3) Drain Plug

(2) Filling Plug

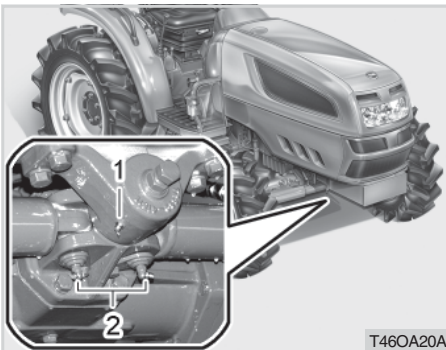
1. To drain the used oil, remove the right and left drain plugs and filling plug at the front axle case and drain the oil completely into the oil pan.
2. After draining, reinstall the drain plugs.
3. Remove the oil level check plug.
4. Fill with the new oil up to the check plug port. (See "LUBRICANTS" in Maintenance Section)
5. After filling, reinstall the filling plug and check plug.

Oil Capacity	7.5 ℓ (1.9 U.S.gals.)
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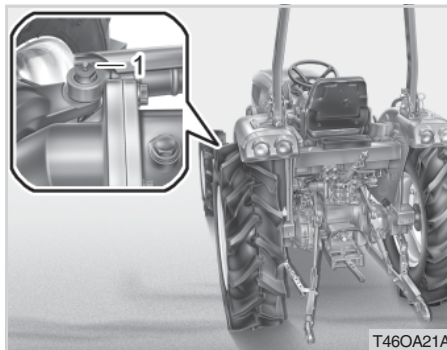
EVERY 50 HOURS LUBRICATING GREASE FITTINGS

You should apply a small amount of multi-purpose grease to the following points every 50 hours or as needed.

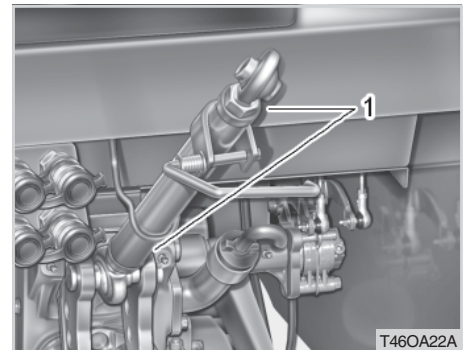
If your tractor is operated in extremely wet, muddy, or dusty conditions you should lubricate the fittings more often.



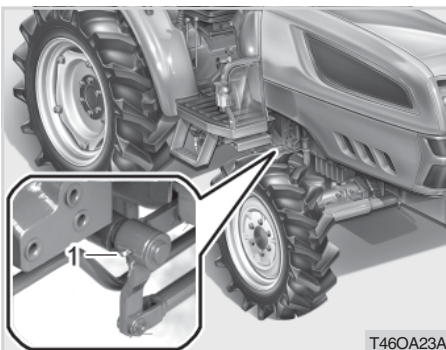
(1) Grease Fitting (Front bracket axle pivot)
(2) Grease Fitting (Power steering cylinder)(RH,LH)



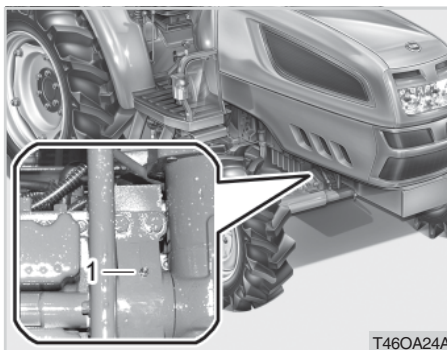
(1) Grease Fitting (Power steering cylinder) (RH, LH)



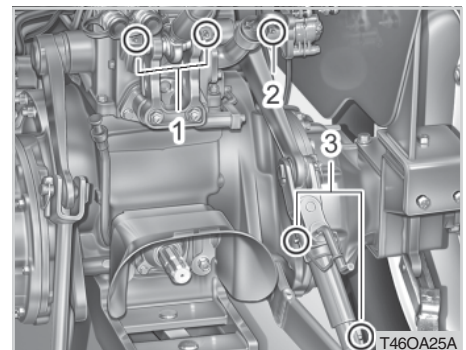
(1) Grease Fitting (Top Link Bracket)



(1) Grease Fitting (Brake Lever RH, LH)



(1) Grease Fitting (Rear Bracket Axle Pivot)



(1) Grease Fitting (Top Link Holder)
(2) Grease Fitting (Hydraulic Cylinder Support)
(3) Grease Fitting (Lift Rod)

CHECKING WHEEL BOLT TORQUE



(1) 226 N·m (23 kgf·m, 166 lbf·ft)

(2) 226 N·m (23 kgf·m, 166 lbf·ft)



CAUTION

To avoid personal injury:

- Never operate tractor with a loose rim, wheel, or axle.
- Any time bolts and nuts are loosened, retighten to specified torque.
- Check all bolts and nuts frequently and keep them tight.

Check wheel bolts and nuts regularly especially when new. If they are loose, tighten them as follows.

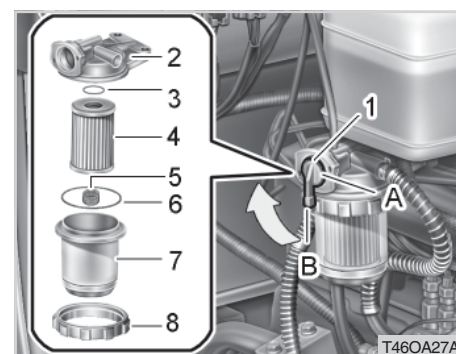
EVERY 100 HOURS CHANGING ENGINE OIL

See "Initial 50 hours" in page 10-8.

ADJUSTING BRAKE PEDAL

See "Initial 50 hours" in page 10-9.

CLEANING FUEL FILTER



- (1) Fuel Cock
- (2) Fuel Filter Head
- (3) O-Ring
- (4) Filter Element
- (5) Spring
- (6) O-Ring
- (7) Filter Bowl
- (8) Screw Ring
- (A) Close
- (B) Open

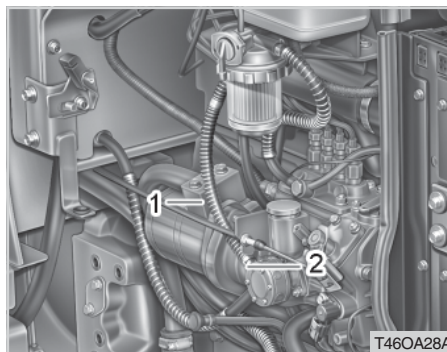
✚ IMPORTANT

- If dust and dirt enters the fuel system, the fuel pump and injection nozzles are subject to premature wear. To prevent this, be sure to clean the fuel filter bowl and element periodically.

This job can be done in the field but in a clean place.

1. Close the fuel cock.
2. Unscrew the ring and remove the filter bowl. Rinse the inside with fresh diesel fuel or kerosene.
3. Take the filter element out and dip it in the diesel / the kerosene to clean.
4. After cleaning you should reassemble the filter element, making sure that it is free from dust and dirt. Assure that all o-rings are in place.
5. Bleed the fuel system. (See "Bleeding the fuel System" in the service section)

CHECKING FUEL LINE



(1) Fuel Lines

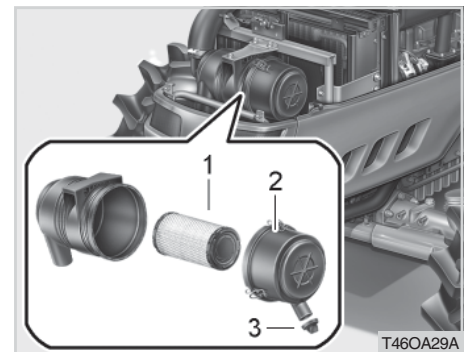
(2) Clamp Bands

1. Check to see that all lines and hose clamps are tight and not damaged.
2. If hoses and clamps are found worn or damaged, replace or repair them at once.

NOTE

- If the fuel line is removed, be sure to properly bleed the fuel system. (See "Bleeding Fuel System" in as required maintenance)

CLEANING AIR CLEANER PRIMARY ELEMENT



(1) Element

(2) Cover

(3) Evacuator Valve

1. Remove the air cleaner cover and element.
2. Clean the element:
 - 1) When dry dust adheres to the element, blow compressed air from the inside, turning the element. Pressure of compressed air must be under 686kPa (7 kgf/cm², 99 psi).

- 2) When carbon or oil adheres to the element, soak the element in detergent for 15 minutes then wash it several times in water, rinse with clean water and dry it naturally. After element is fully dried, inspect inside of the element with a light and check if it is damaged or not.
3. Replace air cleaner element:
Once yearly or after every sixth cleaning, whichever comes first.

NOTE

- Check to see if the evacuator valve is blocked with dust.

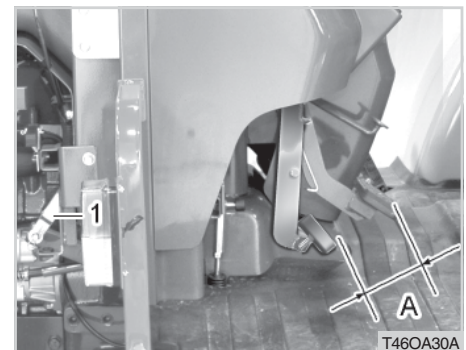
IMPORTANT

- The air cleaner uses a dry element, never apply oil.
- Do not run the engine with filter element removed.
- Be sure to refit the cover with the arrow  (on the rear of cover) upright. If the cover is improperly fitted, evacuator valve will not function and dust will adhere to the element. (See "Replacing Air Cleaner Secondary Element" in Every 1 Year maintenance.)

EVACUATOR VALVE

Open the evacuator valve once a week under ordinary conditions - or daily when used in a dusty place - to get rid of large particles of dust and dirt.

ADJUSTING CLUTCH PEDAL (MANUAL)



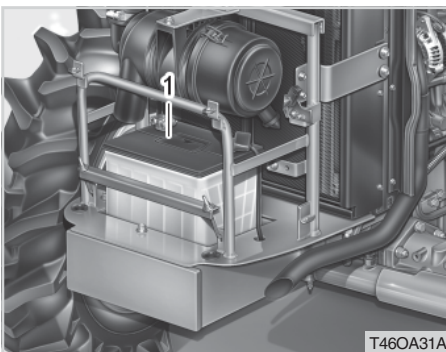
(1) Clutch Rod

(A) Free Travel

Proper clutch pedal free travel (A)	20 ~ 30 mm (0.8 ~ 1.2 in.) on the pedal
-------------------------------------	---

1. Stop the engine and remove the key.
2. Slightly depress the clutch pedal and measure free travel at top of pedal stroke.
3. If adjustment is needed, loosen the lock nut, remove the clevis pin and adjust the rod length within acceptable limits.
4. Retighten the lock nut and replace the clevis pin.

BATTERY



(1) Battery

CAUTION

To avoid personal injury:

- Keep electrolyte away from eyes, hands and clothes. If you are spattered with it, wash it away completely with water immediately and call your local poison information center.
- Wear eye protection and rubber gloves when working around the battery.

Mishandling or abuse of the battery can shorten the service life and adds to maintenance cost of the tractor.

If the battery is weak it will cause the engine to be hard to start and also make lights dim. It is important to check the battery periodically.

BATTERY CHARGING

CAUTION

To avoid personal injury:

- When the battery is being activated, hydrogen and oxygen gases in the battery are extremely explosive. Keep open sparks and flames away from the battery at all times, especially when charging the battery.
- When disconnecting the cable from the battery, start with the negative terminal first.
- When connecting the cable to the battery, start with the positive terminal first.
- Never check battery charge by placing a metal object across the posts. Use a voltmeter or load tester.

1. The water in the electrolyte evaporates during recharging. Liquid shortage damages the battery. Excessive liquid spills damages the tractor body.
2. To slow charge the battery, connect the battery positive terminal to the charger positive terminal and the negative to the negative, then recharge in the standard fashion.
3. A boost charge is only for emergencies. It will partially charge the battery at a high rate and in a short time.
When using a boost-charged battery, it is necessary to recharge the battery as early as possible.
Failure to do this will shorten the battery's service life.
4. When exchanging an old battery for a new one, use battery of equal specification shown in table 1.

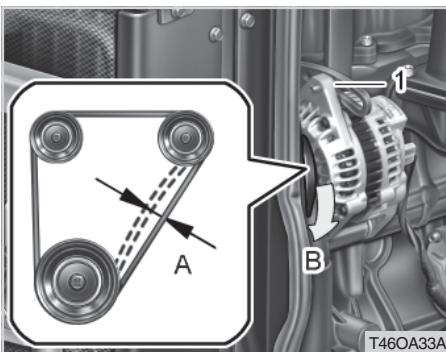
Table 1

Tractor model	Battery TYPE	Volts (v)
EX35/40 EX45/50	80D26R (80AH)	12

DIRECTION FOR STORAGE

1. When storing the tractor for a long period, remove the battery from tractor and store in a dry place out of direct sunlight.
2. The battery self-discharges while it is stored.
Recharge it once every three months in hot seasons and once every six months in cold seasons.

ADJUSTING FAN BELT TENSION



(1) Bolt
(A) Check the Belt Tension
(B) To Tighten

CAUTION

To avoid personal injury:

- Be sure to stop the engine before checking belt tension.

Proper
fan belt
tension

A deflection of between 7
~ 9 mm (0.28 ~ 0.34 in.)
when the belt is pressed
in the middle of the span.

1. Stop the engine and remove the key.
2. Apply moderate thumb pressure to belt between pulleys.
3. If tension is incorrect, loosen the alternator mounting bolts and, using a lever placed between the alternator and the engine block, pull the alternator out until the deflection of the belts falls within acceptable limits.
4. Replace fan belt if it is damaged.

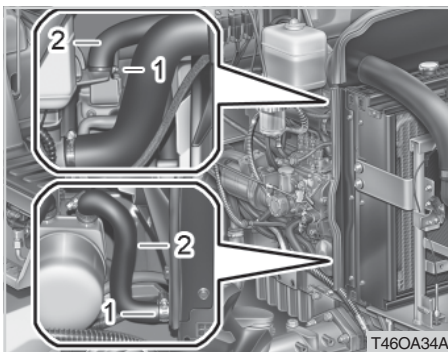
EVERY 200 HOURS REPLACING ENGINE OIL FILTER

See "Initial 50 hours" in page 10-8.

REPLACING HYDRAULIC OIL FILTER & TRANSMISSION OIL FILTER

See "Initial 50 hours" in page 10-10.

CHECKING RADIATOR HOSE AND CLAMP



(1) Radiator Hoses
(2) Clamp

Check to ensure the radiator hoses are free from damage and are tightened properly every 200 hours or every 6 months, whichever comes first.

1. If the hose clamps are loose or water leaks from hose, tighten clamps securely.
2. If the radiator hoses are swollen, hardened, cracked, or otherwise damaged, you must replace the hose.

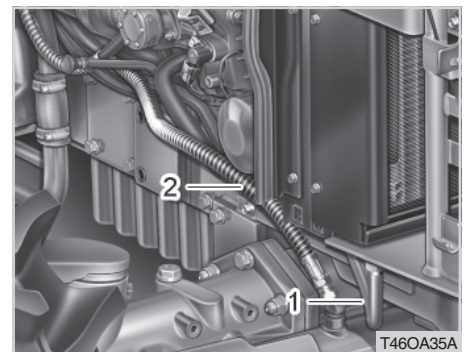
It is a good practice to replace the radiator hoses once every two years.

PRECAUTION AT OVERHEATING

Take the following actions in the event the coolant temperature reaches the boiling point, what is called "Overheating"

1. Stop the machine operation in a safe place and keep the engine unloaded idling.
2. Don't stop the engine suddenly, but stop it after about 5 minutes of unloaded idling.
3. Keep yourself well away from the machine for 10 minutes or while the steam blows out.
4. Once the engine has cooled down, remove any debris, dirt causing overheating. Refill the radiator and start the engine again. If the overheating issue is a result of a mechanical issue/failure, consult your **KIOTI** dealer for repairs.

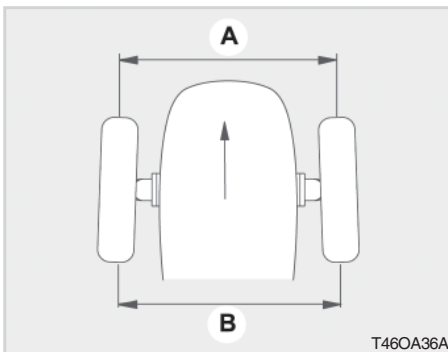
CHECKING HST OIL LINE & POWER STEERING LINE



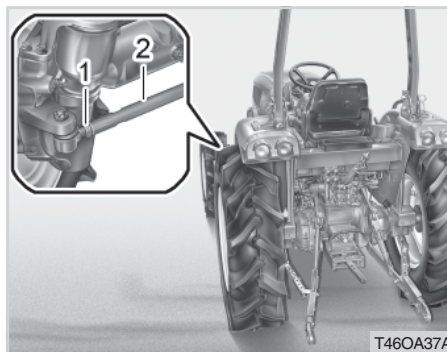
(1) HST Oil Line
(2) Power Steering Line

1. Check to see that all hydraulic lines and hose clamps are tight and undamaged.
2. If damage is found, replace the hose or clamp at once.

ADJUSTING TOE-IN



(A) Wheel - to - wheel distance at front
(B) Wheel - to - wheel distance at rear



(1) Lock Nuts (2) Tie Rod

1. Park tractor on a flat place.
2. Turn steering wheel so front wheels are in the straight ahead position.
3. Lower the implement, lock the parking brake and stop the engine.
4. Measure distance between tire beads (center) at front of tire, hub height.
5. Measure distance between tire beads at rear of tire, hub height.
6. Front distance should be 2 ~ 8 mm (0.079 ~ 0.315 in.) less than rear distance. If not, adjust tie rod length.

ADJUSTING PROCEDURE

1. Loosen the lock nut and turn the turn-buckle to adjust the rod length until the proper toe-in measurement is obtained.
2. Retighten the lock nut.

EVERY 400 HOURS CHANGING TRANSMISSION FLUID

See "Initial 50 hours" in page 10-11.

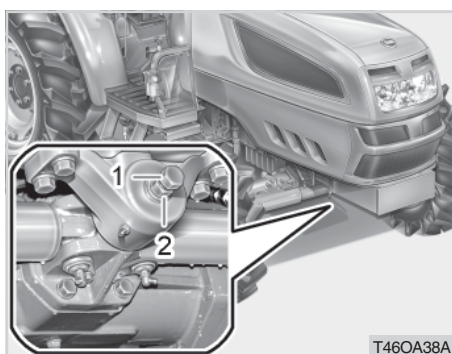
REPLACING FUEL FILTER ELEMENT

(See "Cleaning fuel filter" in every 100 hours maintenance.)

CHANGING FRONT AXLE CASE OIL

See "Initial 50 hours" in page 10-11.

EVERY 600 HOURS ADJUSTING FRONT AXLE PIVOT



(1) Lock Nut

(2) Adjusting Screw

If the front axle pivot pin adjustment is not correct, front wheel vibration can occur causing vibration in the steering wheel.

ADJUSTING PROCEDURE

Loosen the lock nut, tighten the adjusting screw all the way, and then loosen the screw by 1/6 turn. Retighten the lock nut.

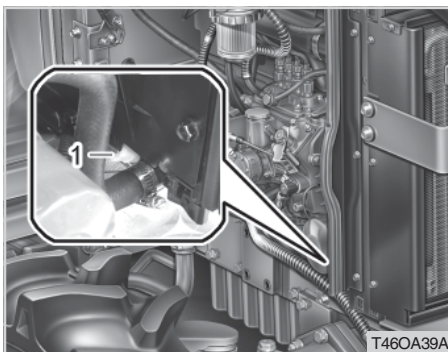
EVERY 800 HOURS ADJUSTING ENGINE VALVE CLEARANCE

Consult your local **KIOTI** dealer for this service.

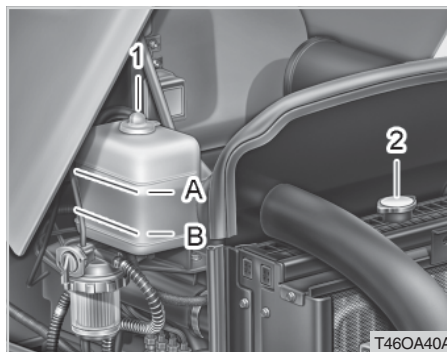
EVERY 1 YEAR REPLACING AIR CLEANER ELEMENT

(See "Cleaning Air Cleaner Element" in every 100 hours maintenance.)

EVERY 2 YEARS FLUSH COOLING SYSTEM AND CHANGING COOLANT



(1) Drain Cock



(1) Recovery Tank (A) FULL
(2) Radiator Cap (B) LOW

⊕ IMPORTANT

- Do not start engine without coolant.
- Use clean, fresh water and anti-freeze to fill the radiator and recovery tank.
- When the anti-freeze is mixed with water, the anti-freeze mixing ratio must be less than 50%.
- Securely tighten radiator cap. If the cap is loose or improperly fitted, water may leak out and the engine could overheat.

⚠ CAUTION

To avoid personal injury:

- Do not remove the radiator cap when the engine is hot. Then loosen cap slightly to the stop to relieve any excess pressure before removing cap completely.

1. Stop the engine and let it cool.
2. To drain the coolant, open the radiator drain cock and remove radiator cap.

The radiator cap must be removed to completely drain the coolant.

3. After all coolant is drained, close the drain cock.
4. Fill with clean water and rust inhibitor.
5. Follow the rust inhibitor manufacturer's instructions.
6. After flushing, fill with clean water and anti-freeze until the coolant level is just below the port.
Install the radiator cap securely.
7. Fill with coolant up to the "FULL" mark on the recovery tank.
8. Start and operate the engine for few minutes.
9. Stop the engine and let cool.
10. Check coolant level of recovery tank and add coolant if necessary.

Coolant capacity	EX35	8.0ℓ (2.1U.S.gals.)
	EX40	8.9ℓ (2.4U.S.gals.)
	EX45	8.7ℓ (2.3U.S.gals.)
	EX50	

ANTI-FREEZE

If cooling water freezes, it can damage the engine and radiator. It is necessary, if the ambient temperature falls below 0° C (32° F), to remove cooling water after operating or to add anti-freeze to it.

1. There are two types of anti-freeze available; use the permanent type (PT) for this engine.
2. Before adding anti-freeze for the first time, clean the radiator interior by pouring fresh water and draining it a few times.
3. The procedure for mixing of water and anti-freeze differs according to the make of the anti-freeze and the ambient temperature, basically it should be referred to SAE J1034 standard, more specifically also to SAE J814C.
4. Mix the anti-freeze with water, and then fill into the radiator.

Vol % Anti-freeze	Freezing Point		Boiling Point*	
	°C	°F	°C	°F
40	-24	-12	106	222
50	-37	-34	108	226

- * At 760 mmHg pressure (atmospheric). A higher boiling point is obtained by using a radiator pressure cap which permits the development of pressure within the cooling system.

NOTE

- The above data represents industry standards that necessitate a minimum glycol content in the concentrated anti-freeze.
- When the cooling water level drops due to evaporation, add water only. In case of leakage, add anti-freeze and water in the specified mixing ratio.
- Anti-freeze absorbs moisture. Keep unused anti-freeze in a tightly sealed container.
- Do not use radiator cleaning agents when anti-freeze has been added to the cooling water. (Anti-freeze contains an anti-corrosive agent, which will react with the radiator cleaning agent forming sludge which will affect the engine parts.)

REPLACING RADIATOR HOSE (WATER PIPES)

Replace the hoses and clamps.

(See "Checking Radiator Hose and Clamp" in every 200 hours maintenance.)

REPLACING POWER STEERING HOSE

Replace the hoses and clamps.

(See "Checking power steering line" in every 200 hours maintenance.)

REPLACING HST OIL LINE

Replace the hoses and clamps.

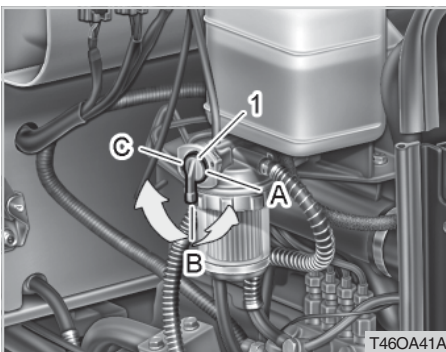
(See "Checking HST oil line" in every 200 hours maintenance.)

REPLACING FUEL HOSE

Replace the hoses and clamps.

(See "Checking Fuel line" in every 100 hours maintenance.)

SERVICE AS REQUIRED BLEEDING FUEL SYSTEM



(1) Fuel Cock
(A) Close
(B) Open
(C) Air Bleeding

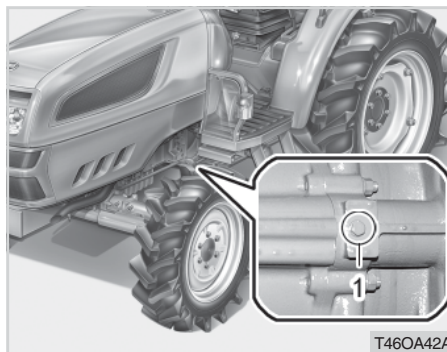
AIR MUST BE REMOVED:

1. When the fuel filter or lines are removed.
2. When tank is completely empty.
3. After the tractor has not been used for a long period of time.

BLEEDING PROCEDURE IS AS FOLLOWS:

1. Bleed the system with the cock in the fuel filter.
2. Start the engine and run for about 30 seconds, and then stop the engine.
3. Rotate the fuel cock to open position.

DRAINING CLUTCH HOUSING WATER

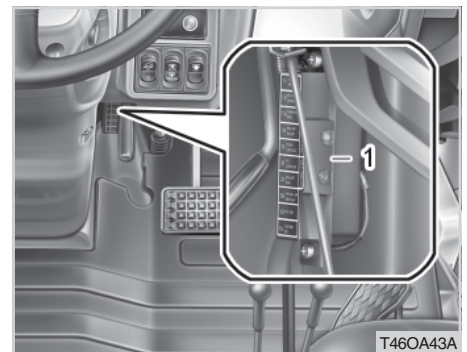


(1) Plug

Your tractor is equipped with a plug under the clutch housing.

After you operate your tractor in the rain, snow, or after washing the tractor, water may get into the clutch housing. If this happens, remove the plug in the clutch housing and drain water. Remember to reinstall the plug to avoid serious damage to clutch.

REPLACING FUSE

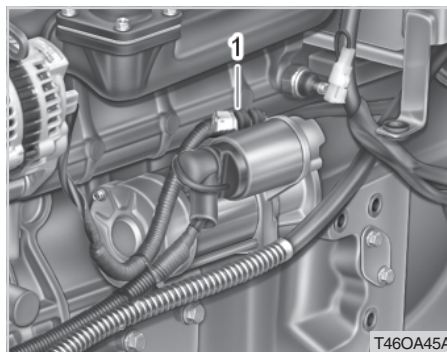
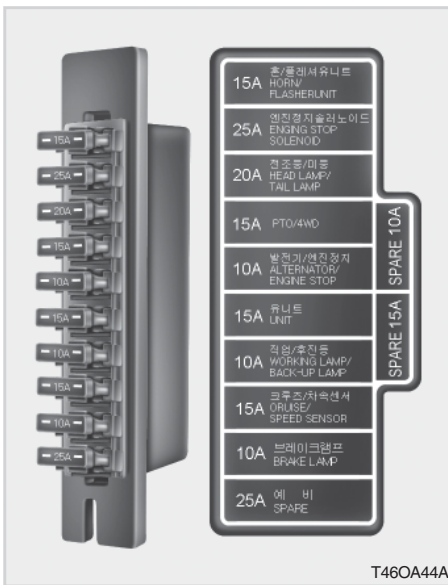


(1) Fuse Box

Fuses protect the tractor electrical system from potential damage.

A blown fuse indicates that there is an overload or short somewhere in the electrical system.

If any of the fuses should blow, correct the cause of the short and replace with a new fuse of the same capacity.



(1) Slow Blow Fuse

Slow Blow Fuse	60A
----------------	-----

⚠ IMPORTANT

- Before replacing a blown fuse, determine why the fuse blew and make any necessary repairs. Failure to follow this procedure may result in serious damage to the tractor electrical system. Refer to the troubleshooting section of this manual or your local KIOTI dealer for specific information dealing with electrical problems.

REPLACING LIGHT BULB

1. Head lights and rear combination lights:

Take the bulb out of the light body and replace with a new one.

2. Other lights:

Detach the lens and replace the bulb.

No.	Light	Capacity
1	Head Lights	35W / 35W
2	Front Position Lamps	5W
3	Stop Lights /Rear Position Lamps	21W / 5W
4	Turn signal Lights	21W
5	Work Light	21W
6	Instrument panel Light	Battery Charging Warning Lamp
		Other Lights
7	Tail Lights	10W

STORAGE

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TRACTOR STORAGE

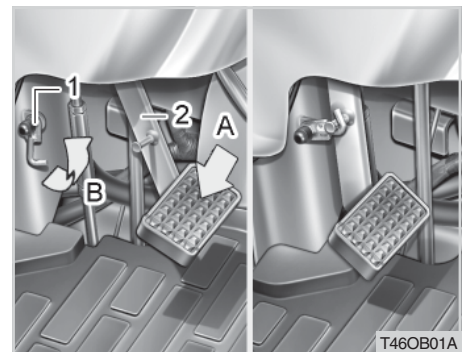
CAUTION

To avoid personal injury:

- Do not clean the machine with engine running.
- To avoid the danger of exhaust fume poisoning (carbon monoxide), do not operate the engine in a closed building without proper ventilation.
- When storing, remove the key from the key switch to avoid unauthorized persons from operating the tractor and getting injured.

If you intend to store your tractor for an extended period of time, follow the procedures outlined below. These procedures will insure that the tractor is ready to operate with minimum preparation when it is removed from storage.

1. Check the bolts and nuts for looseness, and tighten if necessary.
2. Apply grease to tractor areas where bare metal will rust also to pivot areas.
3. Detach the weights from the tractor body for extremely long periods(3 months or greater).
4. Inflate the tires to a pressure a little higher than usual.
5. Change the engine oil and run the engine to circulate oil throughout the engine block and internal moving parts for about five minutes.
6. Pull the engine stop knob all the way out.
7. Use the clutch locking pin to keep the clutch disengaged. If the clutch is left engaged for a long period of time, the clutch plate may rust, making clutch disengagement impossible at the next operation.



(1) Latch (A) Depress
(2) Clutch Pedal (B) Hook to Lock

8. With all implements lowered to the ground, coat any exposed hydraulic cylinder piston rods with grease.
9. Remove the battery from the tractor. Store the battery following the battery storage procedures. (See "Direction for storage in every 100 hours in periodic service section.)

REMOVING THE TRACTOR FROM STORAGE

10. Keep the tractor in a dry place where the tractor is sheltered from rain. Cover the tractor.

11. Store the tractor indoors in a dry area that is protected from sunlight and excessive heat. If the tractor must be stored outdoors, cover it with a waterproof tarpaulin.

Jack the tractor up and place blocks under the front and rear axles so that all four tires are off the ground. Keep the tires out of direct sunlight and extreme heat (3 months or greater).

IMPORTANT

- **When washing the tractor, be sure to stop the engine. Allow sufficient time for the engine to cool before washing.**
- **Cover the tractor after the muffler and the engine have cooled down.**

1. Check the tire air pressure and inflate the tires if they are low.
2. Jack the tractor up and remove the support blocks from under the front and rear axles.
3. Install a fully charged battery.
4. Check the fan belt tension.
5. Check all fluid levels (engine oil, transmission / hydraulic oil, engine coolant and any attached implements.)
6. Start the engine. Observe all gauges. If all gauges are functioning properly and reading normal, move the tractor outside. Once outside, park the tractor and let the engine idle for at least five minutes. Shut the engine off and walk around tractor and make a visual inspection for evidence of oil or water leaks.
7. With the engine fully warmed up, release the parking brake and test the brakes for proper adjustment as you move forward. Adjust the brakes if necessary.

TROUBLESHOOTING

ENGINE TROUBLESHOOTING 12-2

12

ENGINE TROUBLESHOOTING

If something is wrong with the engine, refer to the table below for the cause and its corrective measure.

Trouble	Cause	Countermeasure
Engine is difficult to start or won't start	• No fuel flow.	• Check the fuel tank and the fuel filter. Replace filter if necessary.
	• Air or water is in the fuel system.	• Check to see if the fuel line coupler bolt and nut are tight. • Bleed the fuel system (See "Bleeding Fuel System" in as required maintenance)
	• In winter, oil viscosity increases, and engine revolution is slow.	• Use oils of different viscosities, depending on ambient temperatures.
	• Battery becomes weak and the engine does not turn over quick enough.	• Clean battery cables and terminals. • Charge the battery. • In cold weather, always remove the battery from the engine, charge and store it indoors. Install it on the tractor only when the tractor is going to be used.
Insufficient engine power.	• Insufficient or dirty fuel. • The air cleaner is clogged.	• Check the fuel system. • Clean or replace the element.
Engine stops suddenly.	• Insufficient fuel.	• Refuel. • Bleed the fuel system if necessary.

Trouble		Cause	Countermeasure
Exhaust fumes are colored.	Black	- Fuel quality is poor. - Too much oil. - The air cleaner is clogged.	- Change the fuel and fuel filter. - Check the proper amount of oil. - Clean or replace the element.
	Blue white	- The inside of exhaust muffler is dumped with fuel. - Injection nozzle trouble. - Fuel quality is poor.	- Heat the muffler by applying load to the engine. - Check the injection nozzle. - Change the fuel and fuel filter. - Shift to lower gear or reduce load.
Engine overheats		• Engine overloaded	• Shift to lower gear or reduce load.
		• Low coolant level	• Fill cooling system to the correct level; check radiator and hoses for loose connections or leaks.
		• Loose or defective fan belt	• Adjust or replace fan belt.
		• Dirty radiator core or grille screens	• Remove all trash.
		• Coolant flow route corroded	• Flush cooling system.

If you have any questions, contact your local **KIOTI** dealer.

OPTIONS

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13

OPTIONS

Consult your local **KIOTI** dealer for further detail.

- Work Light
High visibility for night work
- Front end weights
For front ballast
- Rear Wheel Weights
For rear ballast
- Sunshade

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